FOCUSED INVESTIGATION REPORT

ABERDEEN SAWMILL SITE
500 NORTH CUSTER STREET, ABERDEEN, WA
FACILITY SITE ID 1126
CLEANUP SITE ID 4987

Prepared for
GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY
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Project No. 1044.02.01

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

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ACRONYMS AND ABBREVIATIONS

AST	aboveground storage tank
bgs	below ground surface
cPAH	carcinogenic polycyclic aromatic hydrocarbons
COI	chemical of interest
Ecology	Department of Ecology (Washington)
ESA	environmental site assessment
GHHSA	Grays Harbor Historical Seaport Authority
GPR	ground penetrating radar
HCID	hydrocarbon identification
the Property	Seaport Landing located at 500 North Custer Street in Aberdeen, Washington
MFA	Maul Foster & Alongi, Inc.
MRL	method reporting limit
MTCA	Model Toxics Control Act
mg/kg	milligrams per kilogram
PCP	pentachlorophenol
SAP	sampling and analysis plan
SVOC	semivolatile organic compound
TEC	toxicity equivalent concentration
TEF	toxic equivalency factor
TEQ	toxicity equivalent
TPH	total petroleum hydrocarbons
ug/l	micrograms per liter
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WAC	Washington Administrative Code

1 INTRODUCTION

On behalf of the Grays Harbor Historical Seaport Authority (GHHSA), Maul Foster & Alongi, Inc. (MFA) has prepared this focused site investigation report to summarize the results of an environmental investigation of a portion of the Seaport Landing site, formerly the Aberdeen Sawmill, located at 500 North Custer Street in Aberdeen, Washington (the Property) (see Figure 1-1). The Property is owned by GHHSA.

This focused uplands investigation was developed based on the results of a geophysical survey, stormwater system evaluation, and review of historical records conducted with input from the Washington Department of Ecology (Ecology). Specifically, this focused investigation was conducted to evaluate any impacts associated with suspected underground storage tanks (USTs) encountered during the geophysical survey conducted at the Property in May 2015 (MFA, 2015b).

The Property includes upland areas and leased tideland property (shown in Figure 1-1), and is located along the shoreline of the tidally influenced Chehalis River waterfront in Aberdeen, Washington. The Property is located in the alluvial meander plain of the Chehalis River, in the northwestern margins of the Willapa Hills physiographic region of southwest Washington.

Historically, before 1900, a sawmill operated on the Property. Weyerhaeuser acquired the site in 1955 and operated several sawmills and associated support facilities through January 2009, when the small log sawmill was permanently closed. There are no active wood-product manufacturing operations at the site. Currently the GHHSA occupies the Property with the purpose of eventually operating and maintaining a maritime heritage facility called Seaport Landing.

1.1 Regulatory Framework

The focused site investigation was conducted generally consistent with the American Society for Testing and Materials Standard E 1903-11, Standard Guide Environmental Site Assessment: Phase II Environmental Site Assessment Process. Standard field operating procedures for collecting soil and reconnaissance groundwater samples; scheduling analyses; decontaminating equipment; and managing waste are described in the sampling and analysis plan (SAP) (MFA, 2015b). This focused site investigation is consistent with the Model Toxics Control Act (MTCA) Washington Administrative Code (WAC) 173-340.

1.2 Focused Investigation Objectives

The purpose of this investigation is to evaluate the presence of any contamination associated with the ground penetrating radar (GPR) anomalies that were identified as potential USTs during the geophysical survey in May 2015. The investigation locations were selected based on the findings of the geophysical evaluation, descriptions of historical operations in previous documents, and personal communications with Helen Bond, a former Weyerhaeuser employee.

This focused site investigation is not intended to fully define the lateral and vertical extent of contaminants at the Property, nor to support evaluation of a final determination regarding risks to human health or the environment. Rather, the objective of this work is to identify any environmental concerns in the area of investigation.

2 BACKGROUND

The background, history, and physical-setting information provided below is summarized from a variety of sources as described in the SAP (MFA, 2015b).

2.1 Property Description

The Property is located in sections 9 and 10 of township 17 north, range 9 west, Willamette Base Meridian, and occupies approximately 24 upland acres and approximately 14 acres of leased tidelands. Access to the Property is from West Curtis Street, adjacent to the south of the Property. The Property is bordered on the west by a former commercial boatyard; to the east by a log storage yard; to the north by the Chehalis River; and to the south by residential and commercial development.

The Property is currently zoned light industrial, and several former sawmill-related buildings are extant. Much of the surface of the Property is paved with asphalt. The Property lies in the 100-year floodplain of the Chehalis River, which is tidally influenced in this area. Topography of the Property is generally flat with a slight slope to the north toward the adjacent Chehalis River.

2.2 Property History

The operational history of the Property is detailed in a Level I ESA (PES Environmental, 2010). Before 1900, sawmills operated on the Property, on both the uplands and leased tidelands portion of the Property. Since the early 1890s, the South Aberdeen waterfront has been developed for commercial and industrial use. 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 Property 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 Property 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 to manufacture 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 of 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 from the Property between 2006 and 2008. This area is now known as the Former Mill Area. The Property continued to operate the small log mill into early 2009. The GHHSA acquired the uplands portion of the Property on March 29, 2013. Currently, there are no active wood-product manufacturing operations at the Seaport Landing site.

2.3 Previous Environmental Investigations

Several environmental investigations have been conducted at the Property that document contamination in soil, groundwater, and sediment. Sampling results and conclusions of pertinent previous environmental investigations at the site are summarized in the Study Area Investigation and Alternatives Analysis Work Plan, which focused on the tidelands adjacent to the upland property (MFA, 2015a). Since the submittal of the tidelands work plan, MFA conducted additional tasks to further evaluate potential environment concerns in the upland portion of the Property, as described below.

MFA reviewed the Level 1 ESA (PES, 2010) and prioritized investigation of environmental conditions in the uplands that could also impact the tidelands lease portion of the site. The environmental conditions of potential concern identified based on data gaps from previous investigations are as follows (see Figure 2-1 for locations of features):

1. Uncharacterized soil and groundwater downgradient of former aboveground storage tanks (ASTs) and USTs with confirmed releases, as depicted on Figure 2-1, including:

    a. A UST located at the southeast corner of the maintenance shop was removed on August 6, 1993. Soil and groundwater were contaminated with petroleum hydrocarbons while benzene, toluene, ethylbenzene, and xylenes were not detected. Soil was excavated and water/free product was pumped. There is insufficient information to determine if soil and groundwater conditions related to this release meet regulatory standards.

    b. A paint-waste UST was located at the southeast corner of the planer building. This UST was removed in July 1989 and some contaminated soil was excavated. Groundwater contained trichloroethane and light non-aqueous phase liquid (hydraulic oil or lube oil). Subsequent groundwater analytical data from nearby monitoring wells did not detect trichloroethane. However, impacted soil from this release remains in place because excavation was discontinued due to concerns of building stability.

    c. Sodium hydroxide tanks located in the southwest corner of the main shipping shed were decommissioned in November 1993. A "small" leak in the discharge pipe to the sanitary sewer was discovered during decommissioning, but there is no information regarding sampling or response actions that were conducted after discovery of the leak.

2. Unexcavated and uncharacterized contaminated soil near the Log Stacker at the former planer building (see Figure 2-1).

    a. Soil contamination occurred in this area after a 50-gallon diesel spill on March 21, 2005. Excess oil on the surface was absorbed with sawdust and then disposed of; however, no soil was excavated (PES, 2010).

3. Pentachlorophenol (PCP) in the area of the planer building. Release of PCP to the planer area (see Figure 2-1) was investigated in 1989. Remedial actions were conducted and included excavation of soil and debris, as well as removal and disposal of groundwater.

    a. In 1999, the PCP spill remedial action received a No Further Action Determination from Ecology under the Independent Remedial Action Program. An environmental covenant was placed on the Property due to remaining soil that was not excavated because of concerns of building stability.

4. The potential presence of USTs whose locations or continuing presences are uncertain. According to the Phase I ESA (PES, 2010):

    - A 1993 letter from Ecology to Weyerhaeuser indicated the presence of four nested USTs in the northeast corner of the maintenance shop. The USTs were presumably under the building itself. No other information is available concerning these USTs.

    - According to Helen Bond, a former Weyerhaeuser employee, one used oil UST was located under the southwest corner of the maintenance shop. This UST was allegedly removed in 1993. A second UST was allegedly removed from outside the maintenance shop in 1985. However, the only available documentation is a UST Closure Checklist from August 1993 documenting the removal of a 1,500-gallon leaded gasoline UST from outside the southeast corner of the maintenance shop.

    - A UST at the northeast corner of guard shack may have been removed, possibly in the late 1970s, but the fill pipe is still there.

5. Known ASTs with no known releases; for example, the AST stored at the chip facility and the AST in the fueling and chemical storage building.

6. Uncharacterized areas such as former wigwam burners and chip piles.

7. Floor drains in buildings; for example, the collection drain in the steam-cleaning building and drains to blind sumps in the former oil-house and compressor building.

8. Stormwater system verification.

Scopes for preliminary evaluations were generated for each of the seven environmental conditions of potential concern identified. Based on the prioritized environmental conditions of potential

concern, MFA conducted a geophysical survey and stormwater system evaluation to address items (4), (7), and (8).

Stormwater System Evaluation

MFA's review of existing stormwater system plans available for the Property indicated inconsistences between "as-built" drawings of stormwater features at the Property and the actual location of features. From an environmental perspective, stormwater conveyance is important for understanding potential migration pathways from the upland Property to the aquatic environment.

MFA field-verified the stormwater system features, including catch basins and outfalls, and recorded locations using a hand-held global positioning system receiver. When possible, stormwater conveyance features were opened to verify the 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 (Outfall [OF] 2 and OF 14) were observed at the west side of the 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 due to dense vegetation and high tide at the time of observation. The outlet from the catch basin attached to OF 14 is comprised of a cement 8-inch diameter pipe; OF 2 piping is comprised of 12-inch diameter corrugated metal pipe. No water was present in these catch basins during observation; however, indications of recent stormwater flow though these catch basins was observed. OF 2 drains an area where lumber was formally 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 OWS. After 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. Inspection videos later confirmed this in several locations.

MFA also conducted an infiltration test at two different locations (TP-1 and TP-2 on Figure 2-2) to help guide the recommendations of proposed stormwater-management elements. These field tests provided a range of infiltration rates at the Property, ranging from 9 inches per hour to 25 inches per hour; indicating that soil conditions are suitable for infiltration options. MFA has prepared a plan for the GHHSA to improve/enhance the stormwater system at the Property, and serve as a showcase for best management practices for stormwater management.

Geophysical Survey

A geophysical survey, consisting of the use of GPR at two focused areas at the Property, was conducted on May 21, 2015 (MFA, 2015b). This survey was performed based on the potential presence of USTs around the maintenance shop identified in the 2010 Phase I ESA (PES, 2010). As indicated above, up to six USTs were suspected in the vicinity of the former maintenance shop at the Property, while one UST was suspected to be located adjacent to the guard shack. A magnetic

survey was proposed as part of this work; however, due to the amount of equipment present in the maintenance area, along with the presence of underground utility corridors adjacent to the survey areas, it was deemed unsuitable to assess the Property for USTs.

The GPR survey identified geophysical anomalies just outside of the north and west walls of the maintenance shop; these anomalies were interpreted as nine potential USTs in the geophysical report. However, the anomalies identified by the GPR report as potential USTs are generally shorter than UST features. Historical information regarding the Seaport Landing site, as described previously, indicates the presence of potential USTs in the vicinity of the northeast and southern portions of the maintenance shop, not the northern and western edges.

Information provided in an interview with Ms. Bond further supports the conclusion that the anomalies identified as potential USTs in the GPR survey report are not USTs. Ms. Bond stated that cement vaults housing the electrical and fire systems of the old sawmill were along the northern and western edges of the maintenance shop. These vaults were buried approximately 4 to 6 or more feet below ground surface (bgs) after decommissioning of the old sawmill. The sizes of the anomalous features identified in the GPR survey report are more consistent with the expected size of rectangular cement vaults.

The GPR survey identified additional anomalies that were not called out as potential UST features in the report. Some of the anomalies around the southeast former of the maintenance shop appear to be more consistent with UST dimensions and placement (approximately ten feet in length and encountered between five and ten feet bgs). These UST-like anomalies are also in the areas, based on historical documentation, suspected to have USTs.

Anomalies likely indicating some ground disturbance were also identified near the guard shack; however, it does not appear that a UST remains in this area.

Based on the information presented above, suspected locations of USTs are depicted on Figure 2-3.

2.4 Geology and Hydrogeology

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 (greater than 100 feet) because of valley filling, as rising sea levels decrease the ability of the river to transport sediments downstream. Well logs from resource-protection wells in the vicinity of the Property 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 is silt/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 of the Property in the late 1800s and early 1900s. Most of the early structures were constructed on wood-piling support platforms.

The subsurface investigation field activities documented in this report indicate that subsurface soil, at areas of investigation, consists generally of fill material. The fill material consists of gravelly sand and sandy gravel or sand ranging from approximately the surface to 4 feet bgs. At depth, woody debris, gravels, and sands are logged to 10 feet bgs, the maximum depth explored. These subsurface observations were consistent with geologic logs from the environmental borings previously completed at the Property. Boring logs for the areas investigated are included as Appendix A.

Depth to water at the time of investigation measured in reconnaissance borings was approximately 5 to 6 feet bgs (see Appendix A). 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.

3 FIELD AND ANALYTICAL METHODS

On October 12, 2015, a focused subsurface investigation was conducted generally consistent with the SAP (MFA, 2015b). The investigation was conducted on the upland portions of the Property in the vicinity of the maintenance shop, and included soil and reconnaissance groundwater sample collection from three temporary boreholes completed using direct-push drilling (see Figure 2-3 for boring locations). The investigation included analysis of samples for chemicals of interest (COIs) and evaluation of geological and hydrogeological conditions.

3.1 Soil and Groundwater Sampling

Soil samples were collected from three soil borings (B01 through B03; see Figure 2-3). Continuous soil cores were collected from each boring advanced at the Property using a direct-push drilling rig, operated by Cascade Drilling, LP of Woodinville, Washington. Borings were advanced from ground surface to 10 feet bgs, the maximum depth explored. One soil sample was collected from each of the three borings and submitted for laboratory analysis. Soil conditions were logged, and visual and olfactory observations were recorded during drilling. Soil collected during the investigation was also screened for organic vapors using a photoionization detector. Geographic coordinates for the boring locations were recorded using a hand-held global positioning system device. Boring logs are provided in Appendix A.

Reconnaissance groundwater samples were collected from temporary, dedicated wells with 5-foot polyvinyl chloride screens that were installed in all three temporary boreholes (B01 through B03). Temporary well screen depths were determined based on field conditions and are graphically presented on the boring logs in Appendix A. Field water quality parameters were measured before sample collection and recorded on field sampling data sheets, which are included as Table 3-1. Groundwater sampling was conducted consistent with the methods and protocols outlined in the SAP (MFA, 2015b).

Soil and groundwater samples were submitted to Analytical Resources, Incorporated, in Tukwila, Washington for analysis under standard chain-of-custody procedures. Soil samples and

reconnaissance groundwater samples were analyzed for the following potential COIs based on potential presence or former presence of USTs:

- Petroleum hydrocarbon identification (HCID) by Northwest Total Petroleum Hydrocarbon (NWTPH) Method NWTPH-HCID
- Diesel-range and residual-range petroleum hydrocarbons by NWTPH-Dx
- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (USEPA) Method 8260C
- Semivolatile organic compounds (SVOCs) by USEPA 8270D
- Select metals including arsenic, cadmium, chromium, lead, and mercury by USEPA 6010C/7470A/7471A (total and dissolved metals were analyzed for all groundwater samples)

4 ANALYTICAL RESULTS

Laboratory analytical reports are provided as Appendix B. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met project-specific data-quality objectives. This review was performed consistent with accepted USEPA procedures for evaluating laboratory analytical data (USEPA, 2004, 2008). A data validation memorandum summarizing data evaluation procedures, data usability, and deviations from specific field and/or laboratory methods for the October 2015 investigation data is included as Appendix C. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

4.1 Data Preparation

Ecology requires data-preparation steps implemented to appropriately interpret diesel-range and heavy-oil-range hydrocarbon results and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) relative to cleanup levels. Data-preparation steps for these COIs are described below.

Diesel-range and heavy-oil-range hydrocarbon results were summed consistent with Ecology Implementation Memorandum #4 (Ecology, 2004). Therefore, the sum of diesel-range and heavy-oil-range hydrocarbons is referred to in this report as total petroleum hydrocarbons (TPH). For samples where neither compound was detected, the higher of the method reporting limits is used.

Consistent with WAC 173-340-708(8), mixtures of cPAHs are considered as single hazardous substances when evaluating compliance with CULs such that the toxicity of a particular congener is expressed relative to the most toxic congener (i.e., benzo(a)pyrene). The toxicity of cPAHs as a group was assessed using a toxic-equivalency approach. Each congener in the group is assigned a toxic equivalency factor (TEF) describing the toxicity of that congener relative to the toxicity of the reference compound, benzo(a)pyrene. For example, a congener that is equal in toxicity to

benzo(a)pyrene would have a TEF of 1.0. Similarly, a congener that is half as toxic as benzo(a)pyrene would have a TEF of 0.5, and so on. Multiplying the concentration of a congener by its TEF produces the concentration of cPAH that is equivalent in toxicity to the congener concentration of concern, known as the toxicity equivalent concentration (TEC). Computing the TEC for each congener (Ci in the equation below) in a sample, followed by summing all TEC values, permits expression of all congener concentrations in terms of a total cPAH toxicity equivalent (TEQ) (i.e., cPAH TEQ):

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

cPAH TEQs were qualified and calculated as follows:

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

4.2 Soil

Soil analytical results are summarized in Table 4-1. Three soil samples were collected from the three borings approximately 5 feet bgs (see Figure 4-1). Metals, VOCs, SVOCs, diesel-range, and residual-range TPH were all detected above the method reporting limits in various samples. Soil results were screened relative to MTCA Method A CULs for unrestricted land use. If a Method A CUL was not available, a Method B CUL, if available, was considered. Soil analytical results above their respective CULs are shown in Table 4-1 and Figure 4-1 and are described below:

The boring B02 TPH concentration (24,800 milligrams per kilogram [mg/kg]) was above the MTCA Method A CUL of 2,000 mg/kg. TPH was not detected in boring B01 and was below the MTCA Method A CUL in B03.

4.3 Reconnaissance Groundwater

Groundwater analytical results are summarized in Table 4-2. Total metals, VOCs, SVOCs, and TPH were detected above groundwater screening criteria in one or more samples. Groundwater analytical results above the MTCA Method A CUL are shown on Figure 4-1 and are as follows:

- Total chromium (116 micrograms per liter [ug/l]) and total lead (80 ug/l) were detected in groundwater collected from boring B02 at concentrations above their respective

MTCA Method A CULs (see Table 4-3). Elevated turbidity was measured during sampling. Therefore, the total chromium and lead concentrations are likely to be associated with the particulates entrained in the water samples, while the dissolved concentrations are expected to be more representative of groundwater conditions. Dissolved chromium and dissolved lead were not detected at concentrations above their respective method reporting limits (refer to Table 4-2); therefore, metals are unlikely to result in unacceptable risk to human health or the environment.

- cPAH TEQ concentrations exceed the MTCA Method A CUL of 0.1 ug/l in groundwater collected from boring B02 (15.11 ug/l). Note that only one cPAH, chrysene, was detected at an estimated concentration below the method reporting limit (MRL). The cPAH MRLs are elevated due to sample dilution at the laboratory. While the concentrations of cPAHs may exceed the MTCA Method A CUL, the results are highly uncertain.
- TPH concentrations from groundwater collected from two borings (B02 and B03) exceeded the MTCA Method A CUL of 500 ug/l at 2,000 ug/l (B03) and 150,000 ug/l (B02).

In summary, groundwater COI concentrations exceeded CULs in B02 (TPH and cPAHs and total metals) and B03 (TPH). Concentrations were significantly higher in B02, the inferred downgradient location.

4.4 Data Gaps

The following data gaps were identified in connection with the Property, based on the extent of sampling and the results of the analytical testing:

- The GPR anomalies identified in the 2015 geophysical survey may be USTs or other potential sources of COIs. Additional sources may be present in and around the maintenance shop area.
- Soil and groundwater near the maintenance shop contain COIs above various MTCA Method A CULs. The nature and extent of impacts is not delineated.

5 SUMMARY AND RECOMMENDATIONS

A focused site investigation was completed to evaluate whether chemicals related to potential historical USTs were present in soil and groundwater. The results indicate that only TPH exceeded MTCA CULs in soil and TPH and cPAHs exceeded MTCA CULs in groundwater.

The focused site investigation results have not definitively identified the source of impacts; the groundwater impacts may be related to the Property's former sawmill operation and/or the presence

of USTs. Further delineation of soil and groundwater impacts at the Property would assist in understanding the source and extent of impacts.

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
Groundwater Field Parameters
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

Location:	B01	B02	B03
Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
Depth to Water (ft bgs):	5.5	4.8	4.8
Collection Date:	10/12/2015	10/12/2015	10/12/2015
Field Parameters			
Conductivity (us/cm)	415	604	427
pH	6.4	6.29	6.34
Temperature (°C)	17.4	19.3	16.0
Turbidity (NTU)	387	617	85

NOTES:
°C = degrees Celsius.
NTU = nephelometric turbidity units.
uS/cm = microsiemens per centimeter.

Table 4-1
Soil Analytical Results
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-S-4.5	B02-S-5.0	B03-S-5.0
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
			Collection Depth (ft bgs):	4.5	5	5
	MTCA A	MTCA B	Washington Background Metals, Group W, 90th Percentile			
Metals (mg/kg)						
Arsenic	20	0.67	8.5	20 U	10 U	10 U
Cadmium	2	80	0.1	0.6 U	0.6 U	0.5 U
Chromium	19/2000[a]	240/120000[a]	78	**45**	**24**	**43**
Lead	250	NV	11	6 U	**30**	5 U
Mercury	2	NV	0.13	0.03 U	**0.07**	0.03 U
VOCs (mg/kg)						
1,1,1,2-Tetrachloroethane	NV	38		0.0012 U	0.0015 U	0.0011 U
1,1,1-Trichloroethane	2	160000		0.0012 UJ	0.0015 U	0.0011 U
1,1,2,2-Tetrachloroethane	NV	5		0.0012 U	0.0015 U	0.0011 U
1,1,2-Trichloroethane	NV	18		0.0012 UJ	0.0015 U	0.0011 U
1,1-Dichloroethane	NV	180		0.0012 U	0.0015 U	0.0011 U
1,1-Dichloroethene	NV	NV		0.0012 U	0.0015 U	0.0011 U
1,1-Dichloropropene	NV	NV		0.0012 U	0.0015 U	0.0011 U
1,2,3-Trichlorobenzene	NV	NV		0.0059 U	0.0074 U	0.0053 U
1,2,3-Trichloropropane	NV	0.033		0.0023 U	0.003 U	0.0021 U
1,2,4-Trichlorobenzene	NV	34		0.0059 U	0.0074 U	0.0053 U
1,2,4-Trimethylbenzene	NV	NV		0.0012 U	**0.7**	0.0011 U
1,2-Dibromo-3-chloropropane	NV	1.3		0.0059 U	0.0074 U	0.0053 U
1,2-Dibromoethane	0.005	0.5		0.0012 U	0.0015 U	0.0011 U
1,2-Dichlorobenzene	NV	7200		0.0012 U	0.0015 U	0.0011 U
1,2-Dichloroethane	NV	11		0.0012 U	0.0015 U	0.0011 U
1,2-Dichloropropane	NV	28		0.0012 UJ	0.0015 U	0.0011 U
1,3,5-Trimethylbenzene	NV	800		0.0012 U	**0.21**	0.0011 U
1,3-Dichlorobenzene	NV	NV		0.0012 U	0.0015 U	0.0011 U
1,3-Dichloropropane	NV	NV		0.0012 U	0.0015 U	0.0011 U
1,4-Dichlorobenzene	NV	190		0.0012 U	0.0015 U	0.0011 U
2,2-Dichloropropane	NV	NV		0.0012 U	0.0015 U	0.0011 U
2-Butanone	NV	48000		**0.0082**	**0.037**	**0.0042 J**

Table 4-1
Soil Analytical Results
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

				Location:	B01	B02	B03
				Sample Name:	B01-S-4.5	B02-S-5.0	B03-S-5.0
				Collection Date:	10/12/2015	10/12/2015	10/12/2015
				Collection Depth (ft bgs):	4.5	5	5
	MTCA A	MTCA B	Washington Background Metals, Group W, 90th Percentile				
2-Chloroethylvinyl ether	NV	NV			0.0059 UJ	0.0074 UJ	0.0053 UJ
2-Chlorotoluene	NV	1600			0.0012 U	0.0015 U	0.0011 U
2-Hexanone	NV	NV			0.0059 U	0.0074 U	0.0053 U
4-Chlorotoluene	NV	NV			0.0012 U	0.0015 U	0.0011 U
4-Isopropyltoluene	NV	NV			0.0012 U	**0.02**	0.0011 U
4-Methyl-2-pentanone	NV	6400			0.0059 U	0.0074 U	0.0053 U
Acetone	NV	72000			**0.055**	**0.19**	**0.026**
Acrolein	NV	40			0.059 U	0.074 U	0.053 U
Acrylonitrile	NV	NV			0.0059 U	0.0074 U	0.0053 U
Benzene	0.03	18			0.0012 UJ	0.0015 U	0.0011 U
Bromobenzene	NV	NV			0.0012 U	0.0015 U	0.0011 U
Bromodichloromethane	NV	16			0.0012 UJ	0.0015 U	0.0011 U
Bromoethane	NV	NV			0.0023 U	0.003 U	0.0021 U
Bromoform	NV	130			0.0012 UJ	0.0015 U	0.0011 U
Bromomethane	NV	112			0.0012 UJ	0.0015 UJ	0.0011 UJ
Carbon disulfide	NV	8000			**0.0013**	**0.0088**	**0.0034**
Carbon tetrachloride	NV	14			0.0012 UJ	0.0015 U	0.0011 U
Chlorobenzene	NV	1600			0.0012 U	0.0015 U	0.0011 U
Chlorobromomethane	NV	NV			0.0012 U	0.0015 U	0.0011 U
Chloroethane	NV	NV			0.0012 UJ	0.0015 UJ	0.0011 UJ
Chloroform	NV	32			0.0012 U	0.0015 U	0.0011 U
Chloromethane	NV	NV			0.0012 U	0.0015 U	0.0011 U
cis-1,2-Dichloroethene	NV	160			0.0012 U	0.0015 U	0.0011 U
cis-1,3-Dichloropropene	NV	10[c]			0.0012 UJ	0.0015 U	0.0011 U
Dibromochloromethane	NV	12			0.0012 UJ	0.0015 U	0.0011 U
Dibromomethane	NV	800			0.0012 UJ	0.0015 U	0.0011 U
Ethylbenzene	6	8000			0.0012 U	0.0015 U	0.0011 U
Freon 113	NV	2400000			0.0023 U	0.003 U	0.0021 U
Hexachlorobutadiene	NV	13			0.0059 U	0.0074 U	0.0053 U
Isopropylbenzene	NV	8000			0.0012 U	**0.019**	0.0011 U
m,p-Xylene	NV	NV			0.0012 U	**0.036**	0.0011 U
Methyl iodide	NV	NV			0.0012 UJ	0.0015 UJ	0.0011 UJ
Methylene chloride	0.02	480			0.0023 U	0.003 U	0.0021 U
Naphthalene	5	1600			0.0059 U	**0.005 J**	0.0053 U
n-Butylbenzene	NV	NV			0.0012 U	0.0015 U	0.0011 U
n-Propylbenzene	NV	8000			0.0012 U	**0.015**	0.0011 U

Table 4-1
Soil Analytical Results
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

				Location:	B01	B02	B03
				Sample Name:	B01-S-4.5	B02-S-5.0	B03-S-5.0
				Collection Date:	10/12/2015	10/12/2015	10/12/2015
				Collection Depth (ft bgs):	4.5	5	5
	MTCA A	MTCA B	Washington Background Metals, Group W, 90th Percentile				
o-Xylene	16000	16000			0.0012 U	**0.11**	0.0011 U
sec-Butylbenzene	NV	8000			0.0012 U	**0.017**	0.0011 U
Styrene	NV	16000			0.0012 U	0.0015 U	0.0011 U
tert-Butylbenzene	NV	8000			0.0012 U	**0.0042**	0.0011 U
Tetrachloroethene	0.05	480			0.0012 U	0.0015 U	0.0011 U
Toluene	7	6400			**0.0007 J**	**0.0016**	0.0011 U
trans-1,2-dichloroethene	NV	1600			0.0012 U	0.0015 U	0.0011 U
trans-1,3-Dichloropropene	NV	10[c]			0.0012 UJ	0.0015 U	0.0011 U
trans-1,4-Dichloro-2-butene	NV	NV			0.0059 U	0.0074 U	0.0053 U
Trichloroethene	0.03	12			0.0012 U	0.0015 U	0.0011 U
Trichlorofluoromethane	NV	24000			0.0012 U	0.0015 U	0.0011 U
Vinyl Acetate	NV	80000			0.0059 U	0.0074 U	0.0053 U
Vinyl chloride	NV	0.67			0.0012 U	0.0015 U	0.0011 U
Xylenes, total	9	16000			0.0012 U	**0.146**	0.0011 U
SVOCs (mg/kg)							
1,2,4-Trichlorobenzene	NV	34			0.019 U	0.19 U	0.02 U
1,2-Dichlorobenzene	NV	7200			0.019 U	0.19 U	0.02 U
1,3-Dichlorobenzene	NV	NV			0.019 U	0.19 U	0.02 U
1,4-Dichlorobenzene	NV	190			0.019 U	0.19 U	0.02 U
1-Methylnaphthalene	NV	34			**0.015 J**	**0.17 J**	0.02 U
2,4,5-Trichlorophenol	NV	8000			0.096 U	0.96 U	0.099 U
2,4,6-Trichlorophenol	NV	80			0.096 U	0.96 U	0.099 U
2,4-Dichlorophenol	NV	240			0.096 U	0.96 U	0.099 U
2,4-Dimethylphenol	NV	1600			0.096 U	0.96 U	0.099 U
2,4-Dinitrophenol	NV	160			0.19 U	1.9 U	0.2 U
2,4-Dinitrotoluene	NV	3.2			0.096 U	0.96 U	0.099 U
2,6-Dinitrotoluene	NV	0.67			0.096 U	0.96 U	0.099 U
2-Chloronaphthalene	NV	6400			0.019 U	0.19 U	0.02 U
2-Chlorophenol	NV	400			0.019 U	0.19 U	0.02 U
2-Methylnaphthalene	NV	320			0.019 U	**0.17 J**	0.02 U
2-Methylphenol	NV	NV			0.019 U	0.19 U	0.02 U
2-Nitroaniline	NV	800			0.096 U	0.96 U	0.099 U
2-Nitrophenol	NV	NV			0.019 U	0.19 U	0.02 U
3,3-Dichlorobenzidine	NV	2.2			0.096 R	0.96 R	0.099 R
3-Nitroaniline	NV	NV			0.096 UJ	0.96 UJ	0.099 UJ
4,6-Dinitro-2-methylphenol	NV	NV			0.19 U	1.9 U	0.2 U
4-Bromophenylphenyl ether	NV	NV			0.019 U	0.19 U	0.02 U

Table 4-1
Soil Analytical Results
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-S-4.5	B02-S-5.0	B03-S-5.0
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
			Collection Depth (ft bgs):	4.5	5	5
	MTCA A	MTCA B	Washington Background Metals, Group W, 90th Percentile			
4-Chloro-3-methylphenol	NV	NV		0.096 U	0.96 U	0.099 U
4-Chloroaniline	NV	5		0.096 U	0.96 U	0.099 U
4-Chlorophenylphenyl ether	NV	NV		0.019 U	0.19 U	0.02 U
4-Methylphenol	NV	NV		0.019 U	0.19 U	0.02 U
4-Nitroaniline	NV	NV		0.096 UJ	0.96 UJ	0.099 UJ
4-Nitrophenol	NV	NV		0.096 U	0.96 U	0.099 U
Acenaphthene	NV	4800		0.019 U	**0.5**	0.02 U
Acenaphthylene	NV	NV		**0.022**	0.19 U	0.02 U
Anthracene	NV	24000		**0.014 J**	**0.29**	0.02 U
Benzo(a)anthracene	NV	1.4		**0.026**	0.19 U	0.02 U
Benzo(a)pyrene	0.1	0.14		**0.02**	0.19 U	0.02 U
Benzo(ghi)perylene	NV	NV		**0.01 J**	0.19 U	0.02 U
Benzoic acid	NV	320000		0.19 U	1.9 U	0.2 U
Benzyl alcohol	NV	8000		0.019 R	0.19 R	0.02 R
Bis(2-chloro-1-methylethyl)ether	NV	14		0.019 U	0.19 U	0.02 U
Bis(2-chloroethoxy)methane	NV	NV		0.019 U	0.19 U	0.02 U
Bis(2-chloroethyl)ether	NV	0.91		0.019 U	0.19 U	0.02 U
Bis(2-ethylhexyl)phthalate	NV	71		**0.037 J**	0.48 U	**0.15**
Butylbenzylphthalate	NV	530		0.019 U	0.19 U	0.02 U
Carbazole	NV	NV		0.019 UJ	0.19 UJ	0.02 UJ
Chrysene	NV	140		**0.034**	**0.48**	0.02 U
Dibenzo(a,h)anthracene	NV	0.14		0.019 U	0.19 U	0.02 U
Dibenzofuran	NV	80		**0.012 J**	**0.33**	0.02 U
Diethyl phthalate	NV	64000		**0.018 J**	0.19 U	0.02 U
Dimethyl phthalate	NV	NV		0.019 U	0.19 U	0.02 U
Di-n-butyl phthalate	NV	8000		0.019 U	0.19 U	0.02 U
Di-n-octyl phthalate	NV	800		0.019 U	0.19 U	0.02 U
Fluoranthene	NV	3200		**0.053**	**1.2**	0.02 U
Fluorene	NV	3200		**0.01 J**	**0.59**	0.02 U
Hexachlorobenzene	NV	0.63		0.019 U	0.19 U	0.02 U
Hexachlorobutadiene	NV	13		0.019 U	0.19 U	0.02 U
Hexachlorocyclopentadiene	NV	480		0.096 U	0.96 U	0.099 U
Hexachloroethane	NV	25		0.019 U	0.19 U	0.02 U
Indeno(1,2,3-cd)pyrene	NV	1.4		**0.0096 J**	0.19 U	0.02 U
Isophorone	NV	1100		0.019 U	0.19 U	0.02 U
Naphthalene	5	1600		**0.083**	0.19 U	0.02 U
Nitrobenzene	NV	160		0.019 U	0.19 U	0.02 U
N-Nitrosodiphenylamine	NV	200		0.019 U	0.19 U	0.02 U

Table 4-1
Soil Analytical Results
Grays Harbor Historical Seaport Authority Site
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-S-4.5	B02-S-5.0	B03-S-5.0
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
			Collection Depth (ft bgs):	4.5	5	5
	MTCA A	MTCA B	Washington Background Metals, Group W, 90th Percentile			
N-Nitrosodipropylamine	NV	0.14		0.019 U	0.19 U	0.02 U
Pentachlorophenol	NV	2.5		0.096 U	0.96 U	0.099 U
Phenanthrene	NV	NV		**0.069**	**1.6**	0.02 U
Phenol	NV	24000		0.019 UJ	0.19 UJ	0.02 UJ
Pyrene	NV	2400		**0.069**	**0.93**	0.02 U
Total Benzofluoranthenes	NV	1.4[b]		**0.037 J**	**0.26 J**	0.04 U
cPAH TEQ	0.1	NV		**0.014 J**	**0.0029 J**	0.02 U
Hydrocarbon Identification (Presence Absence)						
Diesel	NV	NV		ND	**DETECT**	ND
Gasoline	NV	NV		ND	ND	ND
Lube Oil	NV	NV		ND	**DETECT**	**DETECT**
TPH (mg/kg)						
Diesel	2000	NV		--	**5800**	64 U
Lube Oil	2000	NV		--	**19000**	**160**

NOTES:
Detections are in **bold** font.
Results that exceed MTCA cleanup levels and/or metals background conditions are shaded. Non-detect results are not evaluated against cleanup levels.
ft bgs = feet below ground surface.
Group W = Washington State region that includes Gray's Harbor area.
J = the result is an estimated value.
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 cancer or non-cancer value.
ND = not detected.
NV = no value.
R = result is rejected.
U = the result is non-detect.
[a]Value is for hexavalent chromium/trivalent chromium.
[b]Value is for benzo(b)fluoranthene.
[c]Value is for 1,3-dichloropropene

Table 4-2
Groundwater Analytical Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
	MTCA A	MTCA B				
Dissolved Metals (ug/L)						
Arsenic	5	0.058		50 U	50 U	50 U
Cadmium	5	8		2 U	2 U	2 U
Chromium	50	48/24000[a]		5 U	5 U	5 U
Lead	15	NV		20 U	20 U	20 U
Mercury	2	NV		0.1 U	0.1 U	0.1 U
Total Metals (ug/L)						
Arsenic	5	0.058		50 U	50 U	50 U
Cadmium	5	8		2 U	**2**	2 U
Chromium	50	48/24000[a]		**18**	**116**	**6**
Lead	15	NV		20 U	**80**	20 U
Mercury	2	NV		0.1 U	**0.1**	**0.7**
VOCs (ug/L)						
1,1,1,2-Tetrachloroethane	NV	1.7		0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	200	16000		0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	NV	0.22		0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	NV	0.77		0.2 U	0.2 U	**0.29**
1,1-Dichloroethane	NV	7.7		0.2 U	0.2 U	**0.12 J**
1,1-Dichloroethene	NV	400		0.2 U	0.2 U	0.2 U
1,1-Dichloropropene	NV	NV		0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	NV	NV		0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	NV	0.0015		0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	NV	1.5		0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	NV	NV		0.2 U	**0.37**	0.2 U
1,2-Dibromo-3-chloropropane	NV	0.055		0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.01	0.022		0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	NV	720		0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	5	0.48		0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	NV	1.2		0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	NV	80		0.2 U	**0.19 J**	0.2 U
1,3-Dichlorobenzene	NV	NV		0.2 U	0.2 U	0.2 U
1,3-Dichloropropane	NV	NV		0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	NV	8.1		0.2 U	0.2 U	0.2 U
2,2-Dichloropropane	NV	NV		0.2 U	0.2 U	0.2 U
2-Butanone	NV	4800		5 U	**0.85 J**	5 U

Table 4-2
Groundwater Analytical Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
	MTCA A	MTCA B				
2-Chloroethylvinyl ether	NV	NV		1 R	1 R	1 R
2-Chlorotoluene	NV	160		0.2 U	0.2 U	0.2 U
2-Hexanone	NV	NV		5 U	5 U	5 U
4-Chlorotoluene	NV	NV		0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	NV	NV		0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone	NV	640		5 U	5 U	5 U
Acetone	NV	7200		5 U	5 U	5 U
Acrolein	NV	4		5 U	5 U	5 U
Acrylonitrile	NV	0.081		1 U	1 U	1 U
Benzene	5	0.80		0.2 U	0.2 U	0.2 U
Bromobenzene	NV	NV		0.2 U	0.2 U	0.2 U
Bromodichloromethane	NV	0.71		0.2 U	0.2 U	0.2 U
Bromoethane	NV	NV		0.2 U	0.2 U	0.2 U
Bromoform	NV	5.5		0.2 U	0.2 U	0.2 U
Bromomethane	NV	11		1 U	1 U	1 U
Carbon disulfide	NV	800		0.2 U	**0.4**	0.2 U
Carbon tetrachloride	NV	0.63		0.2 U	0.2 U	0.2 U
Chlorobenzene	NV	160		0.2 U	0.2 U	0.2 U
Chlorobromomethane	NV	NV		0.2 U	0.2 U	0.2 U
Chloroethane	NV	NV		0.2 U	0.2 U	**0.39**
Chloroform	NV	1.4		0.2 U	0.2 U	0.2 U
Chloromethane	NV	NV		0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	NV	16		0.2 U	0.2 U	**0.25**
cis-1,3-Dichloropropene	NV	0.44[b]		0.2 U	0.2 U	0.2 U
Dibromochloromethane	NV	0.52		0.2 U	0.2 U	0.2 U
Dibromomethane	NV	80		0.2 U	0.2 U	0.2 U
Ethylbenzene	700	800		0.2 U	0.2 U	0.2 U
Freon 113	NV	240000		0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	NV	0.56		0.5 U	0.5 U	0.5 U
Isopropylbenzene	NV	800		0.2 U	0.2 U	0.2 U
m,p-Xylene	NV	NV		**0.27 J**	**0.4**	**0.15 J**
Methyl iodide	NV	NV		1 U	1 U	1 U
Methylene chloride	5	22		1 U	1 U	1 U
Naphthalene	160	160		0.5 U	0.5 U	0.5 U
n-Butylbenzene	NV	400		0.2 U	0.2 U	0.2 U

Table 4-2
Groundwater Analytical Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
	MTCA A	MTCA B				
n-Propylbenzene	NV	800		0.2 U	0.2 U	0.2 U
o-Xylene	NV	160		**0.11 J**	**0.57**	0.2 U
sec-Butylbenzene	NV	800		0.2 U	0.2 U	0.2 U
Styrene	NV	1600		0.2 U	0.2 U	0.2 U
tert-Butylbenzene	NV	800		0.2 U	0.2 U	0.2 U
Tetrachloroethene	5	21		0.2 U	0.2 U	0.2 U
Toluene	1000	640		**1.2**	**0.34**	0.2 U
trans-1,2-dichloroethene	NV	160		0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	NV	0.44[b]		0.2 U	0.2 U	0.2 U
trans-1,4-Dichloro-2-butene	NV	NV		1 U	1 U	1 U
Trichloroethene	5	0.54		0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	NV	2400		0.2 U	0.2 U	0.2 U
Vinyl Acetate	NV	8000		0.2 U	0.2 U	0.2 U
Vinyl chloride	0.2	0.029		0.2 U	0.2 U	0.2 U
Xylenes, total	1000	1600		**0.38 J**	**0.97 J**	**0.25 J**
SVOCs (ug/L)						
1,2,4-Trichlorobenzene	NV	1.5		1 U	20 U	1 U
1,2-Dichlorobenzene	NV	720		1 U	20 U	1 U
1,3-Dichlorobenzene	NV	NV		1 U	20 U	1 U
1,4-Dichlorobenzene	NV	8.1		1 U	20 U	1 U
1-Methylnaphthalene	NV	1.5		1 U	20 U	1 U
2,4,5-Trichlorophenol	NV	800		5 U	100 U	5 U
2,4,6-Trichlorophenol	NV	4.0		3 U	60 U	3 U
2,4-Dichlorophenol	NV	24		3 U	60 U	3 U
2,4-Dimethylphenol	NV	160		3 U	60 U	3 U
2,4-Dinitrophenol	NV	32		20 UJ	400 UJ	20 UJ
2,4-Dinitrotoluene	NV	0.28		3 U	60 U	3 U
2,6-Dinitrotoluene	NV	0.058		3 U	60 U	3 U
2-Chloronaphthalene	NV	640		1 U	20 U	1 U
2-Chlorophenol	NV	40		1 U	20 U	1 U
2-Methylnaphthalene	NV	32		1 U	20 U	1 U
2-Methylphenol	NV	NV		1 U	20 U	1 U
2-Nitroaniline	NV	160		3 U	60 U	3 U
2-Nitrophenol	NV	NV		3 U	60 U	3 U
3,3-Dichlorobenzidine	NV	0.19		5 U	100 U	5 U

Table 4-2
Groundwater Analytical Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

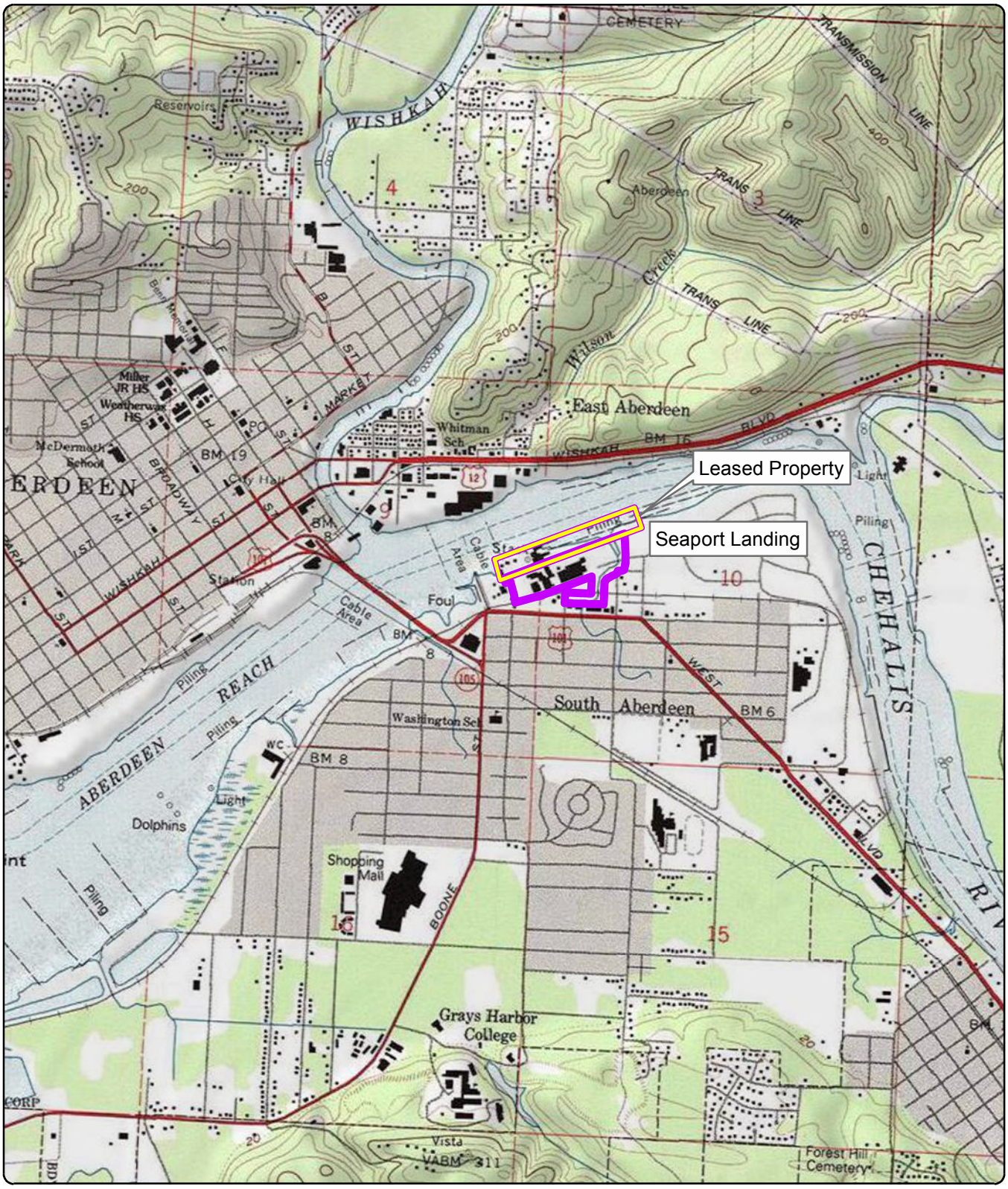
			Location:	B01	B02	B03
			Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
	MTCA A	MTCA B				
3-Nitroaniline	NV	NV		3 U	60 U	3 U
4,6-Dinitro-2-methylphenol	NV	NV		10 U	200 U	10 U
4-Bromophenylphenyl ether	NV	NV		1 U	20 U	1 U
4-Chloro-3-methylphenol	NV	NV		3 U	60 U	3 U
4-Chloroaniline	NV	0.22		5 U	100 U	5 U
4-Chlorophenylphenyl ether	NV	NV		1 U	20 U	1 U
4-Methylphenol	NV	NV		2 U	40 U	2 U
4-Nitroaniline	NV	NV		3 U	60 U	3 U
4-Nitrophenol	NV	NV		10 UJ	200 UJ	10 UJ
Acenaphthene	NV	960		1 U	20 U	1 U
Acenaphthylene	NV	NV		1 U	20 U	1 U
Anthracene	NV	4800		1 U	20 U	1 U
Benzo(a)anthracene	NV	0.12		1 U	20 U	1 U
Benzo(a)pyrene	0.1	0.012		1 U	20 U	1 U
Benzo(ghi)perylene	NV	NV		1 U	20 U	1 U
Benzoic acid	NV	64000		20 UJ	**97 J**	20 UJ
Benzyl alcohol	NV	800		2 U	40 U	2 U
Bis(2-chloro-1-methylethyl)ether	NV	0.63		1 U	20 U	1 U
Bis(2-chloroethoxy)methane	NV	NV		1 U	20 U	1 U
Bis(2-chloroethyl)ether	NV	0.040		1 U	20 U	1 U
Bis(2-ethylhexyl)phthalate	NV	6.25		3 U	60 U	3 U
Butylbenzylphthalate	NV	46		1 U	20 U	1 U
Carbazole	NV	NV		1 U	20 U	1 U
Chrysene	NV	12		1 U	**11 J**	1 U
Dibenzo(a,h)anthracene	NV	0.012		1 U	20 U	1 U
Dibenzofuran	NV	16		1 U	20 U	1 U
Diethyl phthalate	NV	13000		1 U	20 U	1 U
Dimethyl phthalate	NV	NV		1 U	20 U	1 U
Di-n-butyl phthalate	NV	1600		1 U	20 U	1 U
Di-n-octyl phthalate	NV	160		1 U	20 U	1 U
Fluoranthene	NV	640		1 U	**23**	1 U
Fluorene	NV	640		1 U	20 U	1 U
Hexachlorobenzene	NV	32		1 U	20 U	1 U
Hexachlorobutadiene	NV	0.56		3 U	60 U	3 U
Hexachlorocyclopentadiene	NV	48		5 UJ	100 UJ	5 UJ

Table 4-2
Groundwater Analytical Results
Grays Harbor Historical Seaport Authority
Aberdeen, Washington

			Location:	B01	B02	B03
			Sample Name:	B01-GW-10.0	B02-GW-6	B03-GW-10
			Collection Date:	10/12/2015	10/12/2015	10/12/2015
	MTCA A	MTCA B				
Hexachloroethane	NV	1.1		2 U	40 U	2 U
Indeno(1,2,3-cd)pyrene	NV	0.12		1 U	20 U	1 U
Isophorone	NV	46		1 U	20 U	1 U
Naphthalene	160	160		1 U	20 U	1 U
Nitrobenzene	NV	16		1 U	20 U	1 U
N-Nitrosodiphenylamine	NV	18		1 U	20 U	1 U
N-Nitrosodipropylamine	NV	0.013		1 U	20 U	1 U
Pentachlorophenol	NV	0.22		10 UJ	200 UJ	10 UJ
Phenanthrene	NV	NV		1 U	**12 J**	1 U
Phenol	NV	2400		1 U	20 U	1 U
Pyrene	NV	480		1 U	**16 J**	1 U
Total Benzofluoranthenes	NV	0.12[c]		2 U	40 U	2 U
cPAH TEQ	0.1	NV		2 U	**15.11 J**	2 U
Hydrocarbon Identification (Presence/Absence)						
Gasoline	NV	NV		ND	**DETECT**	ND
Diesel	NV	NV		ND	**DETECT**	**DETECT**
Lube Oil	NV	NV		ND	**DETECT**	**DETECT**
TPH (ug/L)						
Diesel	500	NV		--	**40000 J**	**500 J**
Lube Oil	500	NV		--	**110000 J**	**1500 J**

NOTES:
Detections are in **bold** font.
Results that exceed MTCA cleanup levels are shaded. Non-detect results are not evaluated against cleanup levels.
ft bgs = feet below ground surface.
J = the result is an estimated value.
MTCA = Model Toxics Control Act
MTCA A = MTCA Method A groundwater.
MTCA B = MTCA Method B groundwater, lower of available cancer or non-cancer value.
ND = not detected.
NV = no value.
U = the result is non-detect.
ug/L = micrograms per liter.
[a]Value is for hexavalent chromium/trivalent chromium.
[b]Value is for 1,3-dichloropropene
[c]Value is for benzo(b)fluoranthene.

FIGURES



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

Approximate Aquatic Lease Area

Seaport Authority Property

Figure 1-1
Property Location
Aberdeen, Washington

0 1,000 2,000
Feet

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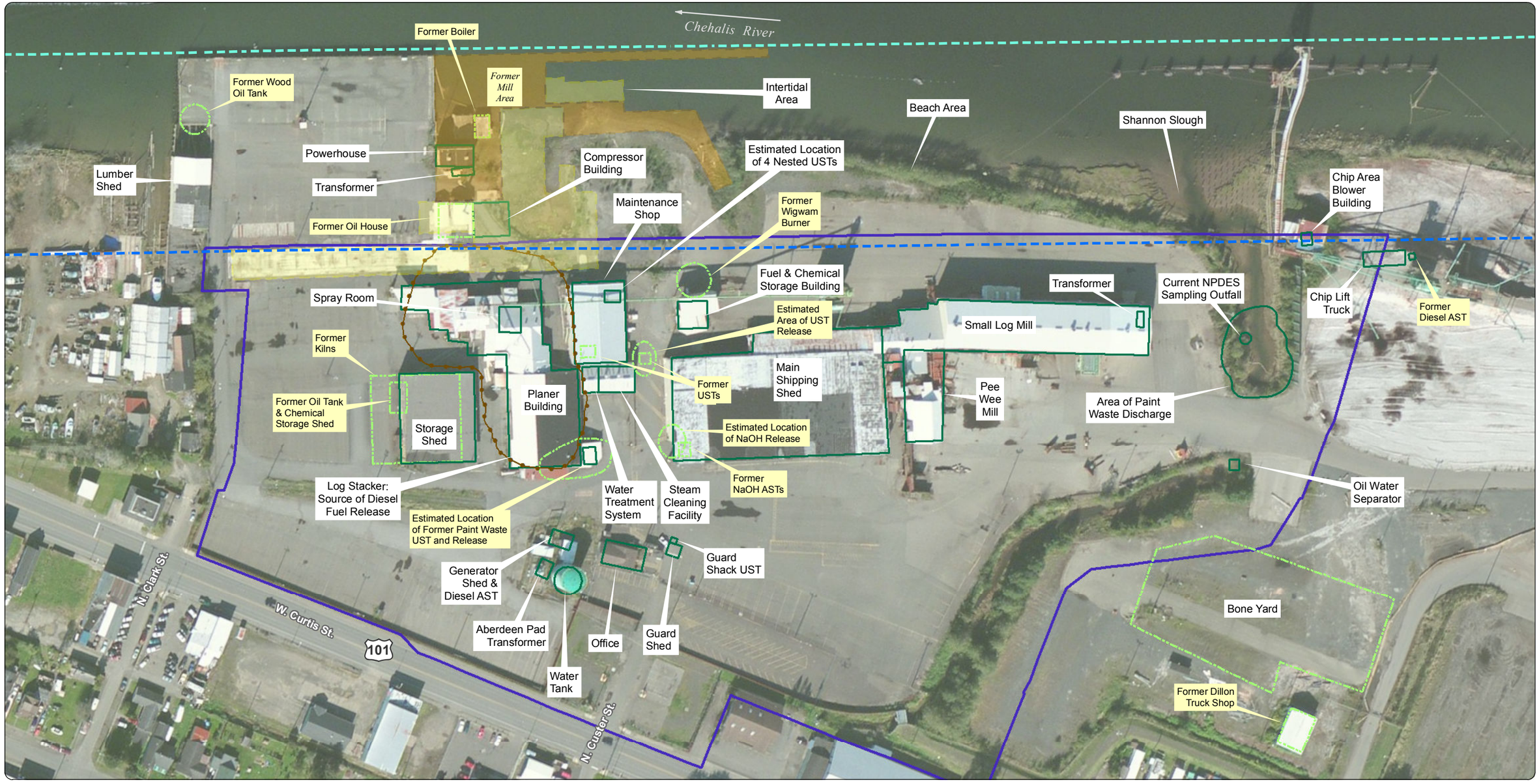
Project: 0863.01.05 Produced By: jschane Approved By: M. Novak Print Date: 1/8/2016
Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Upland Investigation\Fig1-1_Property Location.mxd

Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Upland\Investigation\Fig2-1_Property Features_1:1800.mxd
Print Date: 1/22/2016
Approved By: mstringer
Produced By: jschane
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.
Former features from Level I Environmental Site Assessment,
PES Environmental; August 13, 2010.

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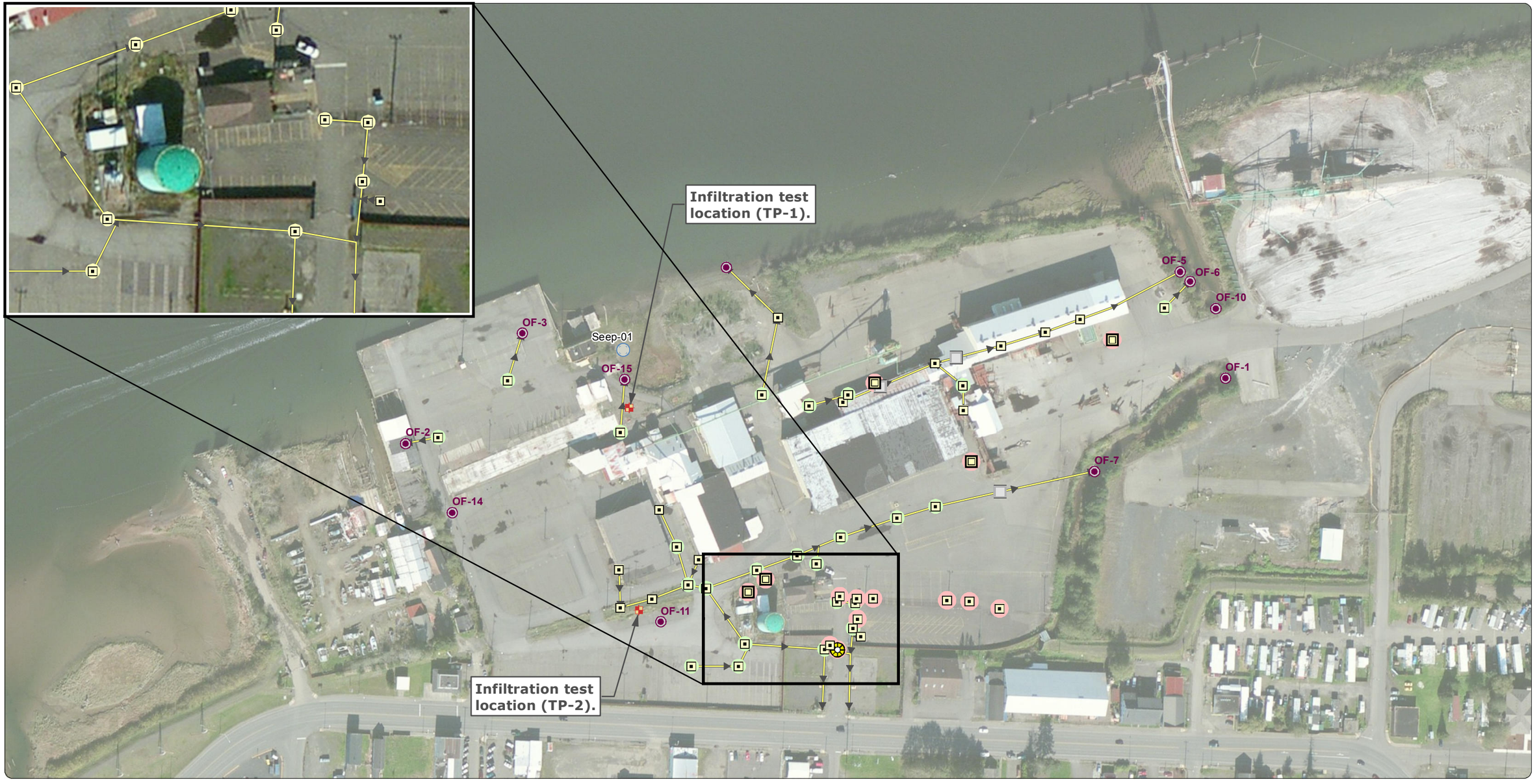
Legend

- Former Mill
- Former Wharf Extension
- Existing Buildings/Features
- Former Buildings/Features
- Former PCP Release
- Inner Harbor Line
- Outer Harbor Line
- Seaport Authority Property

0 100 200
Feet

Figure 2-1
Seaport Property Features
Aberdeen, Washington



Source: Aerial photograph obtained from Esri ArcGIS Online; 1993 stormwater features digitized from Level I Environmental Site Assessment report, Appendix A-2 (PES Environmental, Inc., 2010); 2000 stormwater features digitized from plan set of existing storm drainage system and grading and drainage plan prepared by Berglund, Schmidt, and Assoc., Inc.

Legend

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

Note: All features are approximate.

0 100 200
Feet

Figure 2-2
Surface Drainage Features
Aberdeen, Washington

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Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Fig2-2_Surface Drainage Features.mxd
Print Date: 02/17/2016
Approved By: mnovak
Produced By: jmiller
Project: 1044.02.02-01

Figure 2-3
Investigation Locations

Aberdeen, Washington

Legend

- Boring Location - October 2015
- Catch Basin
- Outfall
- Drain Pipe (with flow direction)
- Potential UST (approximate vicinity)
- Former Mill
- Aquatic Lease Boundary (approximate)

0 30 60
Feet

Source: Aerial photograph (2013) obtained from Esri ArcGIS Online. Sample location B02 was collected via Trimble Geoxplorer 6000 high-accuracy GPS. B01 and B03 are approximate.

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Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\UplandInvestigation\Fig2-3_Investigation Locations.mxd
Print Date: 1/22/2016
Approved By: M.Murray
Produced By: jschane
Project: P0863.01.01

Figure 4-1
Soil and Groundwater Exceedances
Aberdeen, Washington

Legend

- Boring Location - October 2015
- Catch Basin
- Outfall
- Drain Pipe (with flow direction)
- Potential UST (approximate vicinity)
- Former Mill
- Aquatic Lease Boundary (approximate)

Notes:
1. TPH = Total Petroleum Hydrocarbons
2. cPAH TEQ = Carcinogenic Polycyclic Aromatic Hydrocarbons Toxicity Equivalent Quotient
3. mg/kg = milligrams per kilogram
4. ug/L = micrograms per liter
5. -- = no exceedance found

0 20 40
Feet

Source: Aerial photograph (2013) obtained from Esri ArcGIS Online. Sample location B02 was collected via Trimble Geoxplorer 6000 high-accuracy GPS. B01 and B03 are approximate.

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Path: X:\1044.02.01-02 Grays Harbor Seaport Authority\Projects\Upland\Investigation\Fig4-1_Soil and Groundwater Exceedances.mxd
Project: P0863.01.01 Produced By: jschane Approved By: M.Murray Print Date: 1/22/2016

APPENDIX A

BORING LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01-04	**B01**	**1 of 1**

Project Name	**Seaport Landing Uplands**	TOC Elevation (feet)	
Project Location	**Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**10/12/15 to 10/12/15**	Northing	
Driller/Equipment	**Cascade Drilling, Inc./**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**Geoprobe**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**60**	**GP**					*0.0 to 0.2 feet: ASPHALT.*
2									*0.2 to 10.0 feet: SANDY GRAVEL (GWS); brown, 20% sand, fine to coarse; 80% gravel, fine to coarse, subangular to subrounded; moist to wet at 5.0 feet.*
3									
4									
5						**B01-S-4.5**			
6	▼		**50**	**GP**		**PID = 2.5 ppm**			
7				**GW**		**PID = 5.1 ppm**			
8	▽								
9						**B01-GW-10.0**			
10									

Total Depth = 10.0 feet below ground surface.

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

NOTES: *(1) GP = Geoprobe. (2) GW = groundwater. (3) ppm = parts per million. (4) PID = Photoionization detector, soil headspace reading in ppm.*

▽ ***Water level observed at time of drilling.***

▼ ***Water level Water level at time of sampling.***

GBLWC W:\GINT\GINTW\PROJECTS\1044.02.01\B01-B03.GPJ 1/11/16

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01-04	**B02**	**1 of 1**

Project Name	**Seaport Landing Uplands**	TOC Elevation (feet)	
Project Location	**Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**10/12/15 to 10/12/15**	Northing	
Driller/Equipment	**Cascade Drilling, Inc./**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**Geoprobe**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100**	**GP**					0.0 to 4.0 feet: GRAVELLY SAND (SPG); brown; 10% fines; 50% sand, fine to coarse; 40% gravel, subangular to subrounded; moist.
2				**GW**					
3									
4						**PID = 9.2 ppm**			4.0 to 4.5 feet: WOODWASTE; large chungs of wood and rock.
5	▼								4.5 to 5.0 feet: GRAVEL w/ SILT (GP-GM); blackish brown; 30% fines, low plasticity; 20% sand; 50% gravel; moist.
			0	**GP**		**B02-S-5.0**			@5.0 feet: Strong petroleum hydrocarbon-like odor.
6	▽					**PID = 110.4 ppm**			5.0 to 10.0 feet: No recovery.
7						**B02-GW-6.0**			
8									
9									
10									

Total Depth = 10.0 feet below ground surface.

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

NOTES: *(1) GP = Geoprobe. (2) GW = groundwater. (3) ppm = parts per million. (4) PID = Photoionization detector, soil headspace reading in ppm.*

▽ ***Water level observed at time of drilling.***

▼ ***Water level Water level at time of sampling.***

GBLWC W:\GINT\GINTW\PROJECTS\1044.02.01\B01-B03.GPJ 1/11/16

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
1044.02.01-04	**B03**	**1 of 1**

Project Name	**Seaport Landing Uplands**	TOC Elevation (feet)	
Project Location	**Aberdeen, Washington**	Surface Elevation (feet)	
Start/End Date	**10/12/15 to 10/12/15**	Northing	
Driller/Equipment	**Cascade Drilling, Inc./**	Easting	
Geologist/Engineer	**M. Murray**	Hole Depth	**10.0-feet**
Sample Method	**Geoprobe**	Outer Hole Diam	**2.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100**	**GP**					*0.0 to 0.5 feet: TOPSOIL; black; 20% fines, low plasticity; 40% sand; 40% gravel, medium to coarse, subrounded; moist.*
									0.5 to 4.0 feet: SILTY SAND w/ GRAVEL; brown; 40% fines, medium plasticity; 45% sand; 15% gravel; moist.
4						**PID = 80.5 ppm**			
5	▽								*4.0 to 10.0 feet: POORLY GRADED SAND (SP); gray; 10% fines; 80% sand, poorly graded; 10% gravel, large, subrounded; moist to saturated at 6.0 feet.*
			100	**GP GW**		**B03-S-5.0** **PID = 87.8 ppm**			
7						**PID = 20.3 ppm**			
9						**B03-GW-10.0**			
10									*@ 9.5 feet: Woodwaste. Large chunks of wood chips and bark chips.*

Total Depth = 10.0 feet below ground surface.

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

NOTES: *(1) GP = Geoprobe. (2) GW = groundwater. (3) ppm = parts per million. (4) PID = Photoionization detector, soil headspace reading in ppm.*

▽ ***Water level observed at time of drilling.***

▼ ***Water level Water level at time of sampling.***

GBLWC W:\GINT\GINTW\PROJECTS\1044.02.01\B01-B03.GPJ 1/11/16

APPENDIX B

LABORATORY ANALYTICAL REPORTS

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.: AON4

Dear Madi:

Please find enclosed the original chain of custody records and the final data package for the samples from the project referenced above. Three soil samples, three water samples and one trip blank were received on October 14, 2015. The samples were analyzed for VOCs, SVOCs, NWTPH-HCID, 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 AON4

Enclosures

MDH/mdh

AONH : 00002

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AON 4	Turn-around Requested: Standard
ARI Client Company: Maul Foster & Alongi, Inc.	Phone: (503) 501-5212
Client Contact: Madi Novak	
Client Project Name: Seaport Landing	
Client Project #: 1044-02.01-04	Samplers: R. Degens + M. Murray

Page: 1 of 1

Date: 10/12/15 | Ice Present? yes

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

Sample ID	Date	Time	Matrix	No. Containers	TPH-HCID	SVOCs	VOCs	Metals (Total)	dissolved Metals				Notes/Comments
B01-S-4.5	10/12/15	1220	S	6	X	X	X	X					
B02-S-5.0	10/12/15	1315	S	6	X	X	X	X					
B03-S-5.0	10/12/15	1438	S	6	X	X	X	X					
B01-GW-10.0	10/12/15	1240	GW	9	X	X	X	X	X				Dre metals poly bias field filtered
B02-GW-6	10/12/15	1330	GW	9	X	X	X	X	X				" "
B03-GW-10	10/12/15	1410	GW	9	X	X	X	X	X				" "

Comments/Special Instructions

Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:
	Roxanne Degens	MFA	10/14 1020		Archie Thiessen	M.C. Doc	10/14/15 10:20 AM
Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:
					Emily Litwin	ARI	10/14/15 1235

AONH : 00003

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Maul Foster

COC No(s): _____ (NA)

Assigned ARI Job No: AON4

Project Name: _____

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

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 5.2 4.3 5.8 5.6 4.1

Time: _____

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

Temp Gun ID#: D002565

Cooler Accepted by: UL Date: 10/14/15 Time: 1235

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) (Foam Block) Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?	UL	(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: ~~10/16/15~~ 10/16/16 Time: 958

*** 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:

total metals bottle for sample B03-GW-10 was labeled as B02-GW-10. trip blanks not listed on COC

By: UL Date: 10/16/15

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)

AONH : 00004

PRESERVATION VERIFICATION 10/16/15
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **AON4**

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:

PC: Mark
VTSR: 10/14/15

Project #: 1044.02.01-04
Project: Seaport Landing
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-19139 AON4D	B01-GW-10.0						TOT pass															
15-19140 AON4E	B02-GW-6						TOT pass															
15-19141 AON4F	B03-GW-10						TOT pass															
15-19142 AON4G	B01-GW-10.0						DIS pass									y						
15-19143 AON4H	B02-GW-6						DIS pass									y						
15-19144 AON4I	B03-GW-10						DIS pass									y						

AONH : 00005

Subject: RE: AON4-Seaport Landing
From: Madi Novak <mnovak@maulfoster.com>
Date: 10/20/2015 2:21 PM
To: Mark Harris <markh@arilabs.com>, Mike Murray <mmurray@maulfoster.com>, Mary Benzinger <mbenzinger@maulfoster.com>
CC: Roxanne Degens <rdegens@maulfoster.com>

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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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>.

AON4 : 00006

AON4 : 00007

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If you have received this correspondence in error, please notify sender immediately. Thank you.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Maul, Foster, Alongi, Inc.
Project: Seaport Landing
ARI Job Number: AON4
Matrix: Soil/Water

Date: November 9, 2015

VOA 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 1,2-dibromo-3-chloropropane and/or 1,2,3-trichlorobenzene were low following the analyses of the LCS/LCSD associated with the water samples. Since the percent recoveries were low by <10%, and neither of these compounds were detected at "J" flagged levels in any sample associated with these LCS/LCSD, no corrective actions were taken.

A small amount of methylene chloride was detected in the method blank associated with the analysis of the soil samples. Since this compound was not detected in any sample associated with this blank, no corrective actions were taken.

The area for the internal standard (IS), d4-1,4-dichlorobenzene, was not within control limits following the analysis of sample B01-S-4.5. This sample was re-analyzed. The area for d4-1,4-dichlorobenzne, was not within control limits for the re-analysis. It was concluded that the sample matrix was the cause of the poor IS results. No further corrective actions were taken. The results for both analyses have been submitted for this sample.

SVOA Analysis

Sample B02-S-5.0 was pre-diluted prior to analysis due to the dark color of the extract. Since target compounds were detected on scale, a more concentrated analysis was not performed.

The %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 recovery for the surrogate, d14-p-terphenyl, was not within control limits following the analysis of sample B02-GW-6. Since the percent recovery for one acid and one base/neutral surrogate is permitted to be outside of established QC limits, no corrective actions were taken.

Novak, Maul, Foster, Alongi, Inc.
Seaport Landing
AON4
Soil/Water

9 November 2015

SVOA Analysis (con't)

The percent recoveries for 4-chloroaniline and 3-nitroaniline were low and 3,3'-dichlorobenzidine was not recovered following the analysis of the LCS associated with the soil samples. Since all of these compounds are known ton be reactive and recover poorly, no corrective actions were taken.

A matrix spike (MS) and a matrix spike duplicate (MSD) were extracted and analyzed in conjunction with sample B01-S-4.5. The percent recoveries and/or RPDs for several compounds were not within control limits following the analyses of the MS/MSD. Since the percent recoveries and RPDs for all compounds were within established QC limits for the corresponding LCS, except as noted above, 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.

NWTPH-HCID Analysis

These analyses proceeded without incident of note.

NWTPH-Dx Analysis

These analyses proceeded without incident of note.

Metals Analysis

These analyses proceeded without incident of note.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AON4
Client: Maul Foster & Alongi
Project Event: 1044.02.01-04
Project Name: Seaport Landing

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	B01-S-4.5	AON4A	15-19136	Soil	10/12/15 12:20	10/14/15 12:35
2.	B02-S-5.0	AON4B	15-19137	Soil	10/12/15 13:15	10/14/15 12:35
3.	B03-S-5.0	AON4C	15-19138	Soil	10/12/15 14:38	10/14/15 12:35
4.	B01-GW-10.0	AON4D	15-19139	Ground Wate	10/12/15 12:40	10/14/15 12:35
5.	B02-GW-6	AON4E	15-19140	Ground Wate	10/12/15 13:30	10/14/15 12:35
6.	B03-GW-10	AON4F	15-19141	Ground Wate	10/12/15 14:10	10/14/15 12:35
7.	B01-GW-10.0	AON4G	15-19142	Ground Wate	10/12/15 12:40	10/14/15 12:35
8.	B02-GW-6	AON4H	15-19143	Ground Wate	10/12/15 13:30	10/14/15 12:35
9.	B03-GW-10	AON4I	15-19144	Ground Wate	10/12/15 13:30	10/14/15 12:35
10.	Trip Blank	AON4J	15-19174	Groundwater	10/14/15	10/14/15 12:35

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B01-S-4.5**
Page 1 of 2 **SAMPLE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/19/15 15:37

Sample Amount: 4.26 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 13.3%

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	1.2	< 1.2	U
74-83-9	Bromomethane	1.2	< 1.2	U
75-01-4	Vinyl Chloride	1.2	< 1.2	U
75-00-3	Chloroethane	1.2	< 1.2	U
75-09-2	Methylene Chloride	2.3	< 2.3	U
67-64-1	**Acetone**	**5.9**	**55**	
75-15-0	**Carbon Disulfide**	**1.2**	**1.3**	
75-35-4	1,1-Dichloroethene	1.2	< 1.2	U
75-34-3	1,1-Dichloroethane	1.2	< 1.2	U
156-60-5	trans-1,2-Dichloroethene	1.2	< 1.2	U
156-59-2	cis-1,2-Dichloroethene	1.2	< 1.2	U
67-66-3	Chloroform	1.2	< 1.2	U
107-06-2	1,2-Dichloroethane	1.2	< 1.2	U
78-93-3	**2-Butanone**	**5.9**	**8.2**	
71-55-6	1,1,1-Trichloroethane	1.2	< 1.2	U
56-23-5	Carbon Tetrachloride	1.2	< 1.2	U
108-05-4	Vinyl Acetate	5.9	< 5.9	U
75-27-4	Bromodichloromethane	1.2	< 1.2	U
78-87-5	1,2-Dichloropropane	1.2	< 1.2	U
10061-01-5	cis-1,3-Dichloropropene	1.2	< 1.2	U
79-01-6	Trichloroethene	1.2	< 1.2	U
124-48-1	Dibromochloromethane	1.2	< 1.2	U
79-00-5	1,1,2-Trichloroethane	1.2	< 1.2	U
71-43-2	Benzene	1.2	< 1.2	U
10061-02-6	trans-1,3-Dichloropropene	1.2	< 1.2	U
110-75-8	2-Chloroethylvinylether	5.9	< 5.9	U
75-25-2	Bromoform	1.2	< 1.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.9	< 5.9	U
591-78-6	2-Hexanone	5.9	< 5.9	U
127-18-4	Tetrachloroethene	1.2	< 1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1.2	< 1.2	U
108-88-3	**Toluene**	**1.2**	**0.7**	**J**
108-90-7	Chlorobenzene	1.2	< 1.2	U
100-41-4	Ethylbenzene	1.2	< 1.2	U
100-42-5	Styrene	1.2	< 1.2	U
75-69-4	Trichlorofluoromethane	1.2	< 1.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.3	< 2.3	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U
95-50-1	1,2-Dichlorobenzene	1.2	< 1.2	U
541-73-1	1,3-Dichlorobenzene	1.2	< 1.2	U
106-46-7	1,4-Dichlorobenzene	1.2	< 1.2	U
107-02-8	Acrolein	59	< 59	U
74-88-4	Iodomethane	1.2	< 1.2	U
74-96-4	Bromoethane	2.3	< 2.3	U
107-13-1	Acrylonitrile	5.9	< 5.9	U
563-58-6	1,1-Dichloropropene	1.2	< 1.2	U
74-95-3	Dibromomethane	1.2	< 1.2	U
630-20-6	1,1,1,2-Tetrachloroethane	1.2	< 1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	5.9	< 5.9	U
96-18-4	1,2,3-Trichloropropane	2.3	< 2.3	U
110-57-6	trans-1,4-Dichloro-2-butene	5.9	< 5.9	U
108-67-8	1,3,5-Trimethylbenzene	1.2	< 1.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B01-S-4.5**
Page 2 of 2 **SAMPLE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Date Analyzed: 10/19/15 15:37

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
95-63-6	1,2,4-Trimethylbenzene	1.2	< 1.2	U
87-68-3	Hexachlorobutadiene	5.9	< 5.9	U
106-93-4	1,2-Dibromoethane	1.2	< 1.2	U
74-97-5	Bromochloromethane	1.2	< 1.2	U
594-20-7	2,2-Dichloropropane	1.2	< 1.2	U
142-28-9	1,3-Dichloropropane	1.2	< 1.2	U
98-82-8	Isopropylbenzene	1.2	< 1.2	U
103-65-1	n-Propylbenzene	1.2	< 1.2	U
108-86-1	Bromobenzene	1.2	< 1.2	U
95-49-8	2-Chlorotoluene	1.2	< 1.2	U
106-43-4	4-Chlorotoluene	1.2	< 1.2	U
98-06-6	tert-Butylbenzene	1.2	< 1.2	U
135-98-8	sec-Butylbenzene	1.2	< 1.2	U
99-87-6	4-Isopropyltoluene	1.2	< 1.2	U
104-51-8	n-Butylbenzene	1.2	< 1.2	U
120-82-1	1,2,4-Trichlorobenzene	5.9	< 5.9	U
91-20-3	Naphthalene	5.9	< 5.9	U
87-61-6	1,2,3-Trichlorobenzene	5.9	< 5.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	128%
d8-Toluene	102%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	105%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B02-S-5.0**
Page 1 of 2 **SAMPLE**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/19/15 16:03

Sample Amount: 3.36 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 22.4%

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	1.5	< 1.5	U
74-83-9	Bromomethane	1.5	< 1.5	U
75-01-4	Vinyl Chloride	1.5	< 1.5	U
75-00-3	Chloroethane	1.5	< 1.5	U
75-09-2	Methylene Chloride	3.0	< 3.0	U
67-64-1	**Acetone**	**7.4**	**190**	
75-15-0	**Carbon Disulfide**	**1.5**	**8.8**	
75-35-4	1,1-Dichloroethene	1.5	< 1.5	U
75-34-3	1,1-Dichloroethane	1.5	< 1.5	U
156-60-5	trans-1,2-Dichloroethene	1.5	< 1.5	U
156-59-2	cis-1,2-Dichloroethene	1.5	< 1.5	U
67-66-3	Chloroform	1.5	< 1.5	U
107-06-2	1,2-Dichloroethane	1.5	< 1.5	U
78-93-3	**2-Butanone**	**7.4**	**37**	
71-55-6	1,1,1-Trichloroethane	1.5	< 1.5	U
56-23-5	Carbon Tetrachloride	1.5	< 1.5	U
108-05-4	Vinyl Acetate	7.4	< 7.4	U
75-27-4	Bromodichloromethane	1.5	< 1.5	U
78-87-5	1,2-Dichloropropane	1.5	< 1.5	U
10061-01-5	cis-1,3-Dichloropropene	1.5	< 1.5	U
79-01-6	Trichloroethene	1.5	< 1.5	U
124-48-1	Dibromochloromethane	1.5	< 1.5	U
79-00-5	1,1,2-Trichloroethane	1.5	< 1.5	U
71-43-2	Benzene	1.5	< 1.5	U
10061-02-6	trans-1,3-Dichloropropene	1.5	< 1.5	U
110-75-8	2-Chloroethylvinylether	7.4	< 7.4	U
75-25-2	Bromoform	1.5	< 1.5	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	7.4	< 7.4	U
591-78-6	2-Hexanone	7.4	< 7.4	U
127-18-4	Tetrachloroethene	1.5	< 1.5	U
79-34-5	1,1,2,2-Tetrachloroethane	1.5	< 1.5	U
108-88-3	**Toluene**	**1.5**	**1.6**	
108-90-7	Chlorobenzene	1.5	< 1.5	U
100-41-4	Ethylbenzene	1.5	< 1.5	U
100-42-5	Styrene	1.5	< 1.5	U
75-69-4	Trichlorofluoromethane	1.5	< 1.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	3.0	< 3.0	U
179601-23-1	**m,p-Xylene**	**1.5**	**36**	
95-47-6	**o-Xylene**	**1.5**	**110**	
95-50-1	1,2-Dichlorobenzene	1.5	< 1.5	U
541-73-1	1,3-Dichlorobenzene	1.5	< 1.5	U
106-46-7	1,4-Dichlorobenzene	1.5	< 1.5	U
107-02-8	Acrolein	74	< 74	U
74-88-4	Iodomethane	1.5	< 1.5	U
74-96-4	Bromoethane	3.0	< 3.0	U
107-13-1	Acrylonitrile	7.4	< 7.4	U
563-58-6	1,1-Dichloropropene	1.5	< 1.5	U
74-95-3	Dibromomethane	1.5	< 1.5	U
630-20-6	1,1,1,2-Tetrachloroethane	1.5	< 1.5	U
96-12-8	1,2-Dibromo-3-chloropropane	7.4	< 7.4	U
96-18-4	1,2,3-Trichloropropane	3.0	< 3.0	U
110-57-6	trans-1,4-Dichloro-2-butene	7.4	< 7.4	U
108-67-8	**1,3,5-Trimethylbenzene**	**1.5**	**210**	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B02-S-5.0**
Page 2 of 2 **SAMPLE**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Date Analyzed: 10/19/15 16:03

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
95-63-6	**1,2,4-Trimethylbenzene**	**1.5**	**350**	**E**
87-68-3	Hexachlorobutadiene	7.4	< 7.4	U
106-93-4	1,2-Dibromoethane	1.5	< 1.5	U
74-97-5	Bromochloromethane	1.5	< 1.5	U
594-20-7	2,2-Dichloropropane	1.5	< 1.5	U
142-28-9	1,3-Dichloropropane	1.5	< 1.5	U
98-82-8	**Isopropylbenzene**	**1.5**	**19**	
103-65-1	**n-Propylbenzene**	**1.5**	**15**	
108-86-1	Bromobenzene	1.5	< 1.5	U
95-49-8	2-Chlorotoluene	1.5	< 1.5	U
106-43-4	4-Chlorotoluene	1.5	< 1.5	U
98-06-6	**tert-Butylbenzene**	**1.5**	**4.2**	
135-98-8	**sec-Butylbenzene**	**1.5**	**17**	
99-87-6	**4-Isopropyltoluene**	**1.5**	**20**	
104-51-8	n-Butylbenzene	1.5	< 1.5	U
120-82-1	1,2,4-Trichlorobenzene	7.4	< 7.4	U
91-20-3	**Naphthalene**	**7.4**	**5.0**	**J**
87-61-6	1,2,3-Trichlorobenzene	7.4	< 7.4	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	117%
d8-Toluene	91.7%
Bromofluorobenzene	91.7%
d4-1,2-Dichlorobenzene	96.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B02-S-5.0**
Page 1 of 2 **DILUTION**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/22/15 13:11

Sample Amount: 1.08 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 22.4%

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	4.6	< 4.6	U
74-83-9	Bromomethane	4.6	< 4.6	U
75-01-4	Vinyl Chloride	4.6	< 4.6	U
75-00-3	Chloroethane	4.6	< 4.6	U
75-09-2	Methylene Chloride	9.3	< 9.3	U
67-64-1	**Acetone**	**23**	**520**	
75-15-0	**Carbon Disulfide**	**4.6**	**12**	
75-35-4	1,1-Dichloroethene	4.6	< 4.6	U
75-34-3	1,1-Dichloroethane	4.6	< 4.6	U
156-60-5	trans-1,2-Dichloroethene	4.6	< 4.6	U
156-59-2	cis-1,2-Dichloroethene	4.6	< 4.6	U
67-66-3	Chloroform	4.6	< 4.6	U
107-06-2	1,2-Dichloroethane	4.6	< 4.6	U
78-93-3	**2-Butanone**	**23**	**84**	
71-55-6	1,1,1-Trichloroethane	4.6	< 4.6	U
56-23-5	Carbon Tetrachloride	4.6	< 4.6	U
108-05-4	Vinyl Acetate	23	< 23	U
75-27-4	Bromodichloromethane	4.6	< 4.6	U
78-87-5	1,2-Dichloropropane	4.6	< 4.6	U
10061-01-5	cis-1,3-Dichloropropene	4.6	< 4.6	U
79-01-6	Trichloroethene	4.6	< 4.6	U
124-48-1	Dibromochloromethane	4.6	< 4.6	U
79-00-5	1,1,2-Trichloroethane	4.6	< 4.6	U
71-43-2	Benzene	4.6	< 4.6	U
10061-02-6	trans-1,3-Dichloropropene	4.6	< 4.6	U
110-75-8	2-Chloroethylvinylether	23	< 23	U
75-25-2	Bromoform	4.6	< 4.6	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	23	< 23	U
591-78-6	2-Hexanone	23	< 23	U
127-18-4	Tetrachloroethene	4.6	< 4.6	U
79-34-5	1,1,2,2-Tetrachloroethane	4.6	< 4.6	U
108-88-3	**Toluene**	**4.6**	**3.4**	**J**
108-90-7	Chlorobenzene	4.6	< 4.6	U
100-41-4	Ethylbenzene	4.6	< 4.6	U
100-42-5	Styrene	4.6	< 4.6	U
75-69-4	Trichlorofluoromethane	4.6	< 4.6	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	9.3	< 9.3	U
179601-23-1	**m,p-Xylene**	**4.6**	**78**	
95-47-6	**o-Xylene**	**4.6**	**210**	
95-50-1	1,2-Dichlorobenzene	4.6	< 4.6	U
541-73-1	1,3-Dichlorobenzene	4.6	< 4.6	U
106-46-7	1,4-Dichlorobenzene	4.6	< 4.6	U
107-02-8	Acrolein	230	< 230	U
74-88-4	Iodomethane	4.6	< 4.6	U
74-96-4	Bromoethane	9.3	< 9.3	U
107-13-1	Acrylonitrile	23	< 23	U
563-58-6	1,1-Dichloropropene	4.6	< 4.6	U
74-95-3	Dibromomethane	4.6	< 4.6	U
630-20-6	1,1,1,2-Tetrachloroethane	4.6	< 4.6	U
96-12-8	1,2-Dibromo-3-chloropropane	23	< 23	U
96-18-4	1,2,3-Trichloropropane	9.3	< 9.3	U
110-57-6	trans-1,4-Dichloro-2-butene	23	< 23	U
108-67-8	**1,3,5-Trimethylbenzene**	**4.6**	**420**	

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B02-S-5.0**
Page 2 of 2 **DILUTION**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Date Analyzed: 10/22/15 13:11

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
95-63-6	**1,2,4-Trimethylbenzene**	**4.6**	**700**	
87-68-3	Hexachlorobutadiene	23	< 23	U
106-93-4	1,2-Dibromoethane	4.6	< 4.6	U
74-97-5	Bromochloromethane	4.6	< 4.6	U
594-20-7	2,2-Dichloropropane	4.6	< 4.6	U
142-28-9	1,3-Dichloropropane	4.6	< 4.6	U
98-82-8	**Isopropylbenzene**	**4.6**	**33**	
103-65-1	**n-Propylbenzene**	**4.6**	**33**	
108-86-1	Bromobenzene	4.6	< 4.6	U
95-49-8	2-Chlorotoluene	4.6	< 4.6	U
106-43-4	4-Chlorotoluene	4.6	< 4.6	U
98-06-6	**tert-Butylbenzene**	**4.6**	**8.4**	
135-98-8	**sec-Butylbenzene**	**4.6**	**32**	
99-87-6	**4-Isopropyltoluene**	**4.6**	**55**	
104-51-8	n-Butylbenzene	4.6	< 4.6	U
120-82-1	1,2,4-Trichlorobenzene	23	< 23	U
91-20-3	**Naphthalene**	**23**	**23**	
87-61-6	1,2,3-Trichlorobenzene	23	< 23	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	114%
d8-Toluene	93.5%
Bromofluorobenzene	83.9%
d4-1,2-Dichlorobenzene	96.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: B03-S-5.0
SAMPLE

Lab Sample ID: AON4C
LIMS ID: 15-19138
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/19/15 16:28

Sample Amount: 4.72 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 14.2%

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	1.1	< 1.1	U
74-83-9	Bromomethane	1.1	< 1.1	U
75-01-4	Vinyl Chloride	1.1	< 1.1	U
75-00-3	Chloroethane	1.1	< 1.1	U
75-09-2	Methylene Chloride	2.1	< 2.1	U
67-64-1	**Acetone**	**5.3**	**26**	
75-15-0	**Carbon Disulfide**	**1.1**	**3.4**	
75-35-4	1,1-Dichloroethene	1.1	< 1.1	U
75-34-3	1,1-Dichloroethane	1.1	< 1.1	U
156-60-5	trans-1,2-Dichloroethene	1.1	< 1.1	U
156-59-2	cis-1,2-Dichloroethene	1.1	< 1.1	U
67-66-3	Chloroform	1.1	< 1.1	U
107-06-2	1,2-Dichloroethane	1.1	< 1.1	U
78-93-3	**2-Butanone**	**5.3**	**4.2**	**J**
71-55-6	1,1,1-Trichloroethane	1.1	< 1.1	U
56-23-5	Carbon Tetrachloride	1.1	< 1.1	U
108-05-4	Vinyl Acetate	5.3	< 5.3	U
75-27-4	Bromodichloromethane	1.1	< 1.1	U
78-87-5	1,2-Dichloropropane	1.1	< 1.1	U
10061-01-5	cis-1,3-Dichloropropene	1.1	< 1.1	U
79-01-6	Trichloroethene	1.1	< 1.1	U
124-48-1	Dibromochloromethane	1.1	< 1.1	U
79-00-5	1,1,2-Trichloroethane	1.1	< 1.1	U
71-43-2	Benzene	1.1	< 1.1	U
10061-02-6	trans-1,3-Dichloropropene	1.1	< 1.1	U
110-75-8	2-Chloroethylvinylether	5.3	< 5.3	U
75-25-2	Bromoform	1.1	< 1.1	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.3	< 5.3	U
591-78-6	2-Hexanone	5.3	< 5.3	U
127-18-4	Tetrachloroethene	1.1	< 1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1.1	< 1.1	U
108-88-3	Toluene	1.1	< 1.1	U
108-90-7	Chlorobenzene	1.1	< 1.1	U
100-41-4	Ethylbenzene	1.1	< 1.1	U
100-42-5	Styrene	1.1	< 1.1	U
75-69-4	Trichlorofluoromethane	1.1	< 1.1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.1	< 2.1	U
179601-23-1	m,p-Xylene	1.1	< 1.1	U
95-47-6	o-Xylene	1.1	< 1.1	U
95-50-1	1,2-Dichlorobenzene	1.1	< 1.1	U
541-73-1	1,3-Dichlorobenzene	1.1	< 1.1	U
106-46-7	1,4-Dichlorobenzene	1.1	< 1.1	U
107-02-8	Acrolein	53	< 53	U
74-88-4	Iodomethane	1.1	< 1.1	U
74-96-4	Bromoethane	2.1	< 2.1	U
107-13-1	Acrylonitrile	5.3	< 5.3	U
563-58-6	1,1-Dichloropropene	1.1	< 1.1	U
74-95-3	Dibromomethane	1.1	< 1.1	U
630-20-6	1,1,1,2-Tetrachloroethane	1.1	< 1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	5.3	< 5.3	U
96-18-4	1,2,3-Trichloropropane	2.1	< 2.1	U
110-57-6	trans-1,4-Dichloro-2-butene	5.3	< 5.3	U
108-67-8	1,3,5-Trimethylbenzene	1.1	< 1.1	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B03-S-5.0**
Page 2 of 2 **SAMPLE**

Lab Sample ID: AON4C QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19138 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed: 10/19/15 16:28

CAS Number	Analyte	LOQ	Result	Q
95-63-6	1,2,4-Trimethylbenzene	1.1	< 1.1	U
87-68-3	Hexachlorobutadiene	5.3	< 5.3	U
106-93-4	1,2-Dibromoethane	1.1	< 1.1	U
74-97-5	Bromochloromethane	1.1	< 1.1	U
594-20-7	2,2-Dichloropropane	1.1	< 1.1	U
142-28-9	1,3-Dichloropropane	1.1	< 1.1	U
98-82-8	Isopropylbenzene	1.1	< 1.1	U
103-65-1	n-Propylbenzene	1.1	< 1.1	U
108-86-1	Bromobenzene	1.1	< 1.1	U
95-49-8	2-Chlorotoluene	1.1	< 1.1	U
106-43-4	4-Chlorotoluene	1.1	< 1.1	U
98-06-6	tert-Butylbenzene	1.1	< 1.1	U
135-98-8	sec-Butylbenzene	1.1	< 1.1	U
99-87-6	4-Isopropyltoluene	1.1	< 1.1	U
104-51-8	n-Butylbenzene	1.1	< 1.1	U
120-82-1	1,2,4-Trichlorobenzene	5.3	< 5.3	U
91-20-3	Naphthalene	5.3	< 5.3	U
87-61-6	1,2,3-Trichlorobenzene	5.3	< 5.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	128%
d8-Toluene	101%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-101915A	Method Blank	Low	107%	99.9%	97.4%	101%	0
LCS-101915A	Lab Control	Low	105%	101%	98.9%	99.8%	0
LCSD-101915A	Lab Control Dup	Low	111%	102%	101%	100%	0
AON4A	B01-S-4.5	Low	128%	102%	103%	105%	0
MB-102215A	Method Blank	Low	116%	102%	100%	101%	0
LCS-102215A	Lab Control	Low	109%	102%	96.9%	103%	0
LCSD-102215A	Lab Control Dup	Low	111%	102%	98.8%	98.2%	0
AON4B	B02-S-5.0	Low	117%	91.7%	91.7%	96.1%	0
AON4BDL	B02-S-5.0	Low	114%	93.5%	83.9%	96.3%	0
AON4C	B03-S-5.0	Low	128%	101%	101%	102%	0

SW8260C	LCS/MB LIMITS Low	LCS/MB LIMITS Med	QC LIMITS Low	QC LIMITS Med
(DCE) = d4-1,2-Dichloroethane	80-149	80-124	80-149	80-124
(TOL) = d8-Toluene	77-120	80-120	77-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	80-120	80-120

Log Number Range: 15-19136 to 15-19138

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: LCS-101915A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-101915A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCSD: NT5/PAB
Date Analyzed LCS: 10/19/15 11:46
LCSD: 10/19/15 12:12

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	50.0		50.0	100%	52.3		50.0	105%	4.5%
Bromomethane	37.0	Q	50.0	74.0%	39.3	Q	50.0	78.6%	6.0%
Vinyl Chloride	52.8		50.0	106%	57.8		50.0	116%	9.0%
Chloroethane	55.6	Q	50.0	111%	70.2	Q	50.0	140%	23.2%
Methylene Chloride	50.8		50.0	102%	55.6		50.0	111%	9.0%
Acetone	232		250	92.8%	254		250	102%	9.1%
Carbon Disulfide	56.8		50.0	114%	59.4		50.0	119%	4.5%
1,1-Dichloroethene	53.4		50.0	107%	56.8		50.0	114%	6.2%
1,1-Dichloroethane	52.3		50.0	105%	56.3		50.0	113%	7.4%
trans-1,2-Dichloroethene	53.0		50.0	106%	56.4		50.0	113%	6.2%
cis-1,2-Dichloroethene	51.0		50.0	102%	56.4		50.0	113%	10.1%
Chloroform	52.7		50.0	105%	56.9		50.0	114%	7.7%
1,2-Dichloroethane	48.1		50.0	96.2%	52.2		50.0	104%	8.2%
2-Butanone	236		250	94.4%	256		250	102%	8.1%
1,1,1-Trichloroethane	51.4		50.0	103%	55.0		50.0	110%	6.8%
Carbon Tetrachloride	50.4		50.0	101%	53.2		50.0	106%	5.4%
Vinyl Acetate	51.3		50.0	103%	57.3		50.0	115%	11.0%
Bromodichloromethane	49.2		50.0	98.4%	53.8		50.0	108%	8.9%
1,2-Dichloropropane	47.7		50.0	95.4%	52.4		50.0	105%	9.4%
cis-1,3-Dichloropropene	50.6		50.0	101%	54.6		50.0	109%	7.6%
Trichloroethene	49.0		50.0	98.0%	52.9		50.0	106%	7.7%
Dibromochloromethane	47.3		50.0	94.6%	52.0		50.0	104%	9.5%
1,1,2-Trichloroethane	48.9		50.0	97.8%	52.9		50.0	106%	7.9%
Benzene	48.8		50.0	97.6%	52.5		50.0	105%	7.3%
trans-1,3-Dichloropropene	50.6		50.0	101%	54.6		50.0	109%	7.6%
2-Chloroethylvinylether	35.3	Q	50.0	70.6%	42.2	Q	50.0	84.4%	17.8%
Bromoform	47.1		50.0	94.2%	51.5		50.0	103%	8.9%
4-Methyl-2-Pentanone (MIBK)	237		250	94.8%	266		250	106%	11.5%
2-Hexanone	234		250	93.6%	262		250	105%	11.3%
Tetrachloroethene	49.7		50.0	99.4%	51.3		50.0	103%	3.2%
1,1,2,2-Tetrachloroethane	45.8		50.0	91.6%	50.9		50.0	102%	10.5%
Toluene	47.6		50.0	95.2%	50.7		50.0	101%	6.3%
Chlorobenzene	47.8		50.0	95.6%	51.3		50.0	103%	7.1%
Ethylbenzene	49.5		50.0	99.0%	52.2		50.0	104%	5.3%
Styrene	49.0		50.0	98.0%	52.8		50.0	106%	7.5%
Trichlorofluoromethane	49.3		50.0	98.6%	50.8		50.0	102%	3.0%
1,1,2-Trichloro-1,2,2-trifluoroetha	53.0		50.0	106%	57.8		50.0	116%	8.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: LCS-101915A**
Page 2 of 2 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-101915A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
m,p-Xylene	98.5	100	98.5%	105	100	105%	6.4%
o-Xylene	47.9	50.0	95.8%	51.6	50.0	103%	7.4%
1,2-Dichlorobenzene	47.5	50.0	95.0%	51.1	50.0	102%	7.3%
1,3-Dichlorobenzene	49.5	50.0	99.0%	52.4	50.0	105%	5.7%
1,4-Dichlorobenzene	49.4	50.0	98.8%	52.2	50.0	104%	5.5%
Acrolein	240	250	96.0%	268	250	107%	11.0%
Iodomethane	60.3 Q	50.0	121%	64.4 Q	50.0	129%	6.6%
Bromoethane	55.0	50.0	110%	57.7	50.0	115%	4.8%
Acrylonitrile	48.5	50.0	97.0%	54.9	50.0	110%	12.4%
1,1-Dichloropropene	48.6	50.0	97.2%	51.9	50.0	104%	6.6%
Dibromomethane	47.1	50.0	94.2%	52.9	50.0	106%	11.6%
1,1,1,2-Tetrachloroethane	49.3	50.0	98.6%	53.1	50.0	106%	7.4%
1,2-Dibromo-3-chloropropane	41.9	50.0	83.8%	49.1	50.0	98.2%	15.8%
1,2,3-Trichloropropane	44.3	50.0	88.6%	47.8	50.0	95.6%	7.6%
trans-1,4-Dichloro-2-butene	44.7	50.0	89.4%	47.9	50.0	95.8%	6.9%
1,3,5-Trimethylbenzene	49.6	50.0	99.2%	52.2	50.0	104%	5.1%
1,2,4-Trimethylbenzene	48.0	50.0	96.0%	52.0	50.0	104%	8.0%
Hexachlorobutadiene	49.9	50.0	99.8%	53.6	50.0	107%	7.1%
1,2-Dibromoethane	48.0	50.0	96.0%	52.6	50.0	105%	9.1%
Bromochloromethane	50.5	50.0	101%	54.2	50.0	108%	7.1%
2,2-Dichloropropane	51.4	50.0	103%	56.1	50.0	112%	8.7%
1,3-Dichloropropane	47.1	50.0	94.2%	51.9	50.0	104%	9.7%
Isopropylbenzene	48.5	50.0	97.0%	51.5	50.0	103%	6.0%
n-Propylbenzene	49.9	50.0	99.8%	52.4	50.0	105%	4.9%
Bromobenzene	46.6	50.0	93.2%	50.0	50.0	100%	7.0%
2-Chlorotoluene	47.8	50.0	95.6%	51.2	50.0	102%	6.9%
4-Chlorotoluene	49.2	50.0	98.4%	52.0	50.0	104%	5.5%
tert-Butylbenzene	47.9	50.0	95.8%	51.4	50.0	103%	7.0%
sec-Butylbenzene	49.8	50.0	99.6%	53.2	50.0	106%	6.6%
4-Isopropyltoluene	49.9	50.0	99.8%	53.3	50.0	107%	6.6%
n-Butylbenzene	50.8	50.0	102%	54.2	50.0	108%	6.5%
1,2,4-Trichlorobenzene	52.1	50.0	104%	56.7	50.0	113%	8.5%
Naphthalene	46.4	50.0	92.8%	51.2	50.0	102%	9.8%
1,2,3-Trichlorobenzene	48.3	50.0	96.6%	53.3	50.0	107%	9.8%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	105%	111%
d8-Toluene	101%	102%
Bromofluorobenzene	98.9%	101%
d4-1,2-Dichlorobenzene	99.8%	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: LCS-102215A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-102215A
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/PAB
LCSD: NT5/PAB
Date Analyzed LCS: 10/22/15 11:02
LCSD: 10/22/15 11:27

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	48.3	50.0	96.6%	54.7	50.0	109%	12.4%
Bromomethane	40.3 Q	50.0	80.6%	38.9 Q	50.0	77.8%	3.5%
Vinyl Chloride	57.0	50.0	114%	57.6	50.0	115%	1.0%
Chloroethane	52.6	50.0	105%	64.6	50.0	129%	20.5%
Methylene Chloride	55.4 B	50.0	111%	60.2 B	50.0	120%	8.3%
Acetone	243	250	97.2%	248	250	99.2%	2.0%
Carbon Disulfide	57.4	50.0	115%	61.0	50.0	122%	6.1%
1,1-Dichloroethene	53.7	50.0	107%	59.0	50.0	118%	9.4%
1,1-Dichloroethane	51.8	50.0	104%	57.8	50.0	116%	10.9%
trans-1,2-Dichloroethene	51.9	50.0	104%	57.2	50.0	114%	9.7%
cis-1,2-Dichloroethene	51.3	50.0	103%	56.8	50.0	114%	10.2%
Chloroform	52.0	50.0	104%	57.8	50.0	116%	10.6%
1,2-Dichloroethane	53.1	50.0	106%	50.8	50.0	102%	4.4%
2-Butanone	243	250	97.2%	252	250	101%	3.6%
1,1,1-Trichloroethane	51.1	50.0	102%	58.1	50.0	116%	12.8%
Carbon Tetrachloride	52.0	50.0	104%	53.8	50.0	108%	3.4%
Vinyl Acetate	52.4	50.0	105%	55.6	50.0	111%	5.9%
Bromodichloromethane	51.3	50.0	103%	52.0	50.0	104%	1.4%
1,2-Dichloropropane	50.3	50.0	101%	50.9	50.0	102%	1.2%
cis-1,3-Dichloropropene	50.9	50.0	102%	51.4	50.0	103%	1.0%
Trichloroethene	50.2	50.0	100%	51.6	50.0	103%	2.8%
Dibromochloromethane	48.7	50.0	97.4%	49.6	50.0	99.2%	1.8%
1,1,2-Trichloroethane	50.1	50.0	100%	50.9	50.0	102%	1.6%
Benzene	53.7	50.0	107%	51.1	50.0	102%	5.0%
trans-1,3-Dichloropropene	50.9	50.0	102%	51.4	50.0	103%	1.0%
2-Chloroethylvinylether	38.8	50.0	77.6%	46.1	50.0	92.2%	17.2%
Bromoform	52.6	50.0	105%	49.6	50.0	99.2%	5.9%
4-Methyl-2-Pentanone (MIBK)	252	250	101%	243	250	97.2%	3.6%
2-Hexanone	245	250	98.0%	239	250	95.6%	2.5%
Tetrachloroethene	50.3	50.0	101%	53.4	50.0	107%	6.0%
1,1,2,2-Tetrachloroethane	49.6	50.0	99.2%	47.4	50.0	94.8%	4.5%
Toluene	49.1	50.0	98.2%	50.6	50.0	101%	3.0%
Chlorobenzene	48.8	50.0	97.6%	50.5	50.0	101%	3.4%
Ethylbenzene	49.8	50.0	99.6%	51.5	50.0	103%	3.4%
Styrene	50.0	50.0	100%	51.1	50.0	102%	2.2%
Trichlorofluoromethane	54.4	50.0	109%	63.4	50.0	127%	15.3%
1,1,2-Trichloro-1,2,2-trifluoroetha	51.7	50.0	103%	59.7	50.0	119%	14.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: LCS-102215A**
Page 2 of 2 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-102215A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19137 Project: Seaport Landing
Matrix: Soil 1044.02.01-04

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
m,p-Xylene	102	100	102%	103	100	103%	1.0%
o-Xylene	49.0	50.0	98.0%	50.3	50.0	101%	2.6%
1,2-Dichlorobenzene	50.9	50.0	102%	50.2	50.0	100%	1.4%
1,3-Dichlorobenzene	52.2	50.0	104%	51.6	50.0	103%	1.2%
1,4-Dichlorobenzene	52.0	50.0	104%	51.4	50.0	103%	1.2%
Acrolein	252	250	101%	266	250	106%	5.4%
Iodomethane	65.8 Q	50.0	132%	71.0 Q	50.0	142%	7.6%
Bromoethane	57.7 Q	50.0	115%	61.7 Q	50.0	123%	6.7%
Acrylonitrile	52.0	50.0	104%	53.1	50.0	106%	2.1%
1,1-Dichloropropene	50.0	50.0	100%	51.7	50.0	103%	3.3%
Dibromomethane	49.8	50.0	99.6%	50.2	50.0	100%	0.8%
1,1,1,2-Tetrachloroethane	50.7	50.0	101%	51.4	50.0	103%	1.4%
1,2-Dibromo-3-chloropropane	48.4	50.0	96.8%	46.0	50.0	92.0%	5.1%
1,2,3-Trichloropropane	49.9	50.0	99.8%	46.2	50.0	92.4%	7.7%
trans-1,4-Dichloro-2-butene	48.8	50.0	97.6%	45.7	50.0	91.4%	6.6%
1,3,5-Trimethylbenzene	51.8	50.0	104%	52.2	50.0	104%	0.8%
1,2,4-Trimethylbenzene	51.9	50.0	104%	52.2	50.0	104%	0.6%
Hexachlorobutadiene	52.5	50.0	105%	55.0	50.0	110%	4.7%
1,2-Dibromoethane	49.6	50.0	99.2%	49.8	50.0	99.6%	0.4%
Bromochloromethane	56.6	50.0	113%	54.5	50.0	109%	3.8%
2,2-Dichloropropane	52.2	50.0	104%	58.4	50.0	117%	11.2%
1,3-Dichloropropane	48.1	50.0	96.2%	47.8	50.0	95.6%	0.6%
Isopropylbenzene	52.3	50.0	105%	52.8	50.0	106%	1.0%
n-Propylbenzene	52.2	50.0	104%	52.6	50.0	105%	0.8%
Bromobenzene	49.8	50.0	99.6%	48.7	50.0	97.4%	2.2%
2-Chlorotoluene	51.1	50.0	102%	50.8	50.0	102%	0.6%
4-Chlorotoluene	51.8	50.0	104%	52.1	50.0	104%	0.6%
tert-Butylbenzene	50.4	50.0	101%	52.0	50.0	104%	3.1%
sec-Butylbenzene	52.6	50.0	105%	53.8	50.0	108%	2.3%
4-Isopropyltoluene	53.3	50.0	107%	54.1	50.0	108%	1.5%
n-Butylbenzene	54.1	50.0	108%	55.3	50.0	111%	2.2%
1,2,4-Trichlorobenzene	54.8	50.0	110%	54.7	50.0	109%	0.2%
Naphthalene	51.5	50.0	103%	50.3	50.0	101%	2.4%
1,2,3-Trichlorobenzene	51.8	50.0	104%	51.8	50.0	104%	0.0%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	109%	111%
d8-Toluene	102%	102%
Bromofluorobenzene	96.9%	98.8%
d4-1,2-Dichlorobenzene	103%	98.2%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1019

Lab Name: ARI

Client: MAUL FOSTER & ALONGI

ARI Job No: AON4

Project: SEAPORT LANDING

Lab File ID: 10191505

Lab Sample ID: MB1019

Date Analyzed: 10/19/15

Time Analyzed: 1237

Instrument ID: NT5

Heated Purge: (Y/N) Y

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SCV1015	SDJ0020-SCV1	10151519	1838
02	LCS1019	LCS1019	10191503	1146
03	LCS1019	LCS1019	10191504	1212
04	B01-S-4.5	AON4A	10191509	1537
05	B02-S-5.0	AON4B	10191510	1603
06	B03-S-5.0	AON4C	10191511	1628
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C

Sample ID: MB-101915A
METHOD BLANK

Lab Sample ID: MB-101915A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/19/15 12:37

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	Methylene Chloride	2.0	< 2.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	< 1.0	U
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.0	< 5.0	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.0	< 5.0	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	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
107-02-8	Acrolein	50	< 50	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	2.0	< 2.0	U
107-13-1	Acrylonitrile	5.0	< 5.0	U
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	< 5.0	U
96-18-4	1,2,3-Trichloropropane	2.0	< 2.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	< 5.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: MB-101915A**
Page 2 of 2 **METHOD BLANK**

Lab Sample ID: MB-101915A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed: 10/19/15 12:37

CAS Number	Analyte	LOQ	Result	Q
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.0	< 5.0	U
106-93-4	1,2-Dibromoethane	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0	U
91-20-3	Naphthalene	5.0	< 5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	< 5.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	99.9%
Bromofluorobenzene	97.4%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: MB-102215A
METHOD BLANK

Lab Sample ID: MB-102215A
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized:
Reported: 10/23/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT5/PAB
Date Analyzed: 10/22/15 11:53

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	**Methylene Chloride**	**2.0**	**2.2**	
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	< 1.0	U
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.0	< 5.0	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.0	< 5.0	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	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
107-02-8	Acrolein	50	< 50	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	2.0	< 2.0	U
107-13-1	Acrylonitrile	5.0	< 5.0	U
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	< 5.0	U
96-18-4	1,2,3-Trichloropropane	2.0	< 2.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	< 5.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: MB-102215A**
Page 2 of 2 **METHOD BLANK**

Lab Sample ID: MB-102215A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19137 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed: 10/22/15 11:53

CAS Number	Analyte	LOQ	Result	Q
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.0	< 5.0	U
106-93-4	1,2-Dibromoethane	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0	U
91-20-3	Naphthalene	5.0	< 5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	< 5.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	102%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: B01-GW-10.0
SAMPLE

Lab Sample ID: AON4D
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized:
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT3/MMH
Date Analyzed: 10/16/15 14:24

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	0.50	< 0.50	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.20	< 0.20	U
75-00-3	Chloroethane	0.20	< 0.20	U
75-09-2	Methylene Chloride	1.0	< 1.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.20	< 0.20	U
75-35-4	1,1-Dichloroethene	0.20	< 0.20	U
75-34-3	1,1-Dichloroethane	0.20	< 0.20	U
156-60-5	trans-1,2-Dichloroethene	0.20	< 0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	< 0.20	U
67-66-3	Chloroform	0.20	< 0.20	U
107-06-2	1,2-Dichloroethane	0.20	< 0.20	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.20	< 0.20	U
56-23-5	Carbon Tetrachloride	0.20	< 0.20	U
108-05-4	Vinyl Acetate	0.20	< 0.20	U
75-27-4	Bromodichloromethane	0.20	< 0.20	U
78-87-5	1,2-Dichloropropane	0.20	< 0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	< 0.20	U
79-01-6	Trichloroethene	0.20	< 0.20	U
124-48-1	Dibromochloromethane	0.20	< 0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	< 0.20	U
71-43-2	Benzene	0.20	< 0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	< 0.20	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.20	< 0.20	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.20	< 0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	< 0.20	U
108-88-3	**Toluene**	**0.20**	**1.2**	
108-90-7	Chlorobenzene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
100-42-5	Styrene	0.20	< 0.20	U
75-69-4	Trichlorofluoromethane	0.20	< 0.20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	< 0.20	U
179601-23-1	**m,p-Xylene**	**0.40**	**0.27**	**J**
95-47-6	**o-Xylene**	**0.20**	**0.11**	**J**
95-50-1	1,2-Dichlorobenzene	0.20	< 0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	< 0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	< 0.20	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B01-GW-10.0**
Page 2 of 2 **SAMPLE**

Lab Sample ID: AON4D QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19139 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-04
Date Analyzed: 10/16/15 14:24

CAS Number	Analyte	LOQ	Result	Q
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	0.20	< 0.20	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.20	< 0.20	U
74-95-3	Dibromomethane	0.20	< 0.20	U
630-20-6	1,1,1,2-Tetrachloroethane	0.20	< 0.20	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	< 0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	< 0.50	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.20	< 0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	< 0.20	U
87-68-3	Hexachlorobutadiene	0.50	< 0.50	U
106-93-4	1,2-Dibromoethane	0.20	< 0.20	U
74-97-5	Bromochloromethane	0.20	< 0.20	U
594-20-7	2,2-Dichloropropane	0.20	< 0.20	U
142-28-9	1,3-Dichloropropane	0.20	< 0.20	U
98-82-8	Isopropylbenzene	0.20	< 0.20	U
103-65-1	n-Propylbenzene	0.20	< 0.20	U
108-86-1	Bromobenzene	0.20	< 0.20	U
95-49-8	2-Chlorotoluene	0.20	< 0.20	U
106-43-4	4-Chlorotoluene	0.20	< 0.20	U
98-06-6	tert-Butylbenzene	0.20	< 0.20	U
135-98-8	sec-Butylbenzene	0.20	< 0.20	U
99-87-6	4-Isopropyltoluene	0.20	< 0.20	U
104-51-8	n-Butylbenzene	0.20	< 0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	< 0.50	U
91-20-3	Naphthalene	0.50	< 0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	< 0.50	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	96.7%
Bromofluorobenzene	98.0%
d4-1,2-Dichlorobenzene	103%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B02-GW-6**
Page 1 of 2 **SAMPLE**

Lab Sample ID: AON4E
LIMS ID: 15-19140
Matrix: Ground Water
Data Release Authorized:
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT3/MMH
Date Analyzed: 10/16/15 14:49

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	0.50	< 0.50	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.20	< 0.20	U
75-00-3	Chloroethane	0.20	< 0.20	U
75-09-2	Methylene Chloride	1.0	< 1.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	**Carbon Disulfide**	**0.20**	**0.40**	
75-35-4	1,1-Dichloroethene	0.20	< 0.20	U
75-34-3	1,1-Dichloroethane	0.20	< 0.20	U
156-60-5	trans-1,2-Dichloroethene	0.20	< 0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	< 0.20	U
67-66-3	Chloroform	0.20	< 0.20	U
107-06-2	1,2-Dichloroethane	0.20	< 0.20	U
78-93-3	**2-Butanone**	**5.0**	**0.85**	**J**
71-55-6	1,1,1-Trichloroethane	0.20	< 0.20	U
56-23-5	Carbon Tetrachloride	0.20	< 0.20	U
108-05-4	Vinyl Acetate	0.20	< 0.20	U
75-27-4	Bromodichloromethane	0.20	< 0.20	U
78-87-5	1,2-Dichloropropane	0.20	< 0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	< 0.20	U
79-01-6	Trichloroethene	0.20	< 0.20	U
124-48-1	Dibromochloromethane	0.20	< 0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	< 0.20	U
71-43-2	Benzene	0.20	< 0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	< 0.20	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.20	< 0.20	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.20	< 0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	< 0.20	U
108-88-3	**Toluene**	**0.20**	**0.34**	
108-90-7	Chlorobenzene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
100-42-5	Styrene	0.20	< 0.20	U
75-69-4	Trichlorofluoromethane	0.20	< 0.20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	< 0.20	U
179601-23-1	**m,p-Xylene**	**0.40**	**0.40**	
95-47-6	**o-Xylene**	**0.20**	**0.57**	
95-50-1	1,2-Dichlorobenzene	0.20	< 0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	< 0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	< 0.20	U

Lab Sample ID: AON4E
LIMS ID: 15-19140
Matrix: Ground Water
Date Analyzed: 10/16/15 14:49

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	0.20	< 0.20	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.20	< 0.20	U
74-95-3	Dibromomethane	0.20	< 0.20	U
630-20-6	1,1,1,2-Tetrachloroethane	0.20	< 0.20	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	< 0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	< 0.50	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	**1,3,5-Trimethylbenzene**	**0.20**	**0.19**	**J**
95-63-6	**1,2,4-Trimethylbenzene**	**0.20**	**0.37**	
87-68-3	Hexachlorobutadiene	0.50	< 0.50	U
106-93-4	1,2-Dibromoethane	0.20	< 0.20	U
74-97-5	Bromochloromethane	0.20	< 0.20	U
594-20-7	2,2-Dichloropropane	0.20	< 0.20	U
142-28-9	1,3-Dichloropropane	0.20	< 0.20	U
98-82-8	Isopropylbenzene	0.20	< 0.20	U
103-65-1	n-Propylbenzene	0.20	< 0.20	U
108-86-1	Bromobenzene	0.20	< 0.20	U
95-49-8	2-Chlorotoluene	0.20	< 0.20	U
106-43-4	4-Chlorotoluene	0.20	< 0.20	U
98-06-6	tert-Butylbenzene	0.20	< 0.20	U
135-98-8	sec-Butylbenzene	0.20	< 0.20	U
99-87-6	4-Isopropyltoluene	0.20	< 0.20	U
104-51-8	n-Butylbenzene	0.20	< 0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	< 0.50	U
91-20-3	Naphthalene	0.50	< 0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	< 0.50	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	104%
d8-Toluene	97.1%
Bromofluorobenzene	97.7%
d4-1,2-Dichlorobenzene	106%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B03-GW-10**
Page 1 of 2 **SAMPLE**

Lab Sample ID: AON4F
LIMS ID: 15-19141
Matrix: Ground Water
Data Release Authorized:
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Instrument/Analyst: NT3/MMH
Date Analyzed: 10/16/15 15:15

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	0.50	< 0.50	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.20	< 0.20	U
75-00-3	**Chloroethane**	**0.20**	**0.39**	
75-09-2	Methylene Chloride	1.0	< 1.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.20	< 0.20	U
75-35-4	1,1-Dichloroethene	0.20	< 0.20	U
75-34-3	**1,1-Dichloroethane**	**0.20**	**0.12**	**J**
156-60-5	trans-1,2-Dichloroethene	0.20	< 0.20	U
156-59-2	**cis-1,2-Dichloroethene**	**0.20**	**0.25**	
67-66-3	Chloroform	0.20	< 0.20	U
107-06-2	1,2-Dichloroethane	0.20	< 0.20	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.20	< 0.20	U
56-23-5	Carbon Tetrachloride	0.20	< 0.20	U
108-05-4	Vinyl Acetate	0.20	< 0.20	U
75-27-4	Bromodichloromethane	0.20	< 0.20	U
78-87-5	1,2-Dichloropropane	0.20	< 0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	< 0.20	U
79-01-6	Trichloroethene	0.20	< 0.20	U
124-48-1	Dibromochloromethane	0.20	< 0.20	U
79-00-5	**1,1,2-Trichloroethane**	**0.20**	**0.29**	
71-43-2	Benzene	0.20	< 0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	< 0.20	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.20	< 0.20	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.20	< 0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
108-90-7	Chlorobenzene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
100-42-5	Styrene	0.20	< 0.20	U
75-69-4	Trichlorofluoromethane	0.20	< 0.20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	< 0.20	U
179601-23-1	**m,p-Xylene**	**0.40**	**0.15**	**J**
95-47-6	o-Xylene	0.20	< 0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	< 0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	< 0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	< 0.20	U

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: B03-GW-10**
Page 2 of 2 **SAMPLE**

Lab Sample ID: AON4F
LIMS ID: 15-19141
Matrix: Ground Water
Date Analyzed: 10/16/15 15:15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	0.20	< 0.20	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.20	< 0.20	U
74-95-3	Dibromomethane	0.20	< 0.20	U
630-20-6	1,1,1,2-Tetrachloroethane	0.20	< 0.20	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	< 0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	< 0.50	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.20	< 0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	< 0.20	U
87-68-3	Hexachlorobutadiene	0.50	< 0.50	U
106-93-4	1,2-Dibromoethane	0.20	< 0.20	U
74-97-5	Bromochloromethane	0.20	< 0.20	U
594-20-7	2,2-Dichloropropane	0.20	< 0.20	U
142-28-9	1,3-Dichloropropane	0.20	< 0.20	U
98-82-8	Isopropylbenzene	0.20	< 0.20	U
103-65-1	n-Propylbenzene	0.20	< 0.20	U
108-86-1	Bromobenzene	0.20	< 0.20	U
95-49-8	2-Chlorotoluene	0.20	< 0.20	U
106-43-4	4-Chlorotoluene	0.20	< 0.20	U
98-06-6	tert-Butylbenzene	0.20	< 0.20	U
135-98-8	sec-Butylbenzene	0.20	< 0.20	U
99-87-6	4-Isopropyltoluene	0.20	< 0.20	U
104-51-8	n-Butylbenzene	0.20	< 0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	< 0.50	U
91-20-3	Naphthalene	0.50	< 0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	< 0.50	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery	
d4-1,2-Dichloroethane	105%
d8-Toluene	99.9%
Bromofluorobenzene	96.8%
d4-1,2-Dichlorobenzene	102%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: Trip Blank**
Page 1 of 2 **SAMPLE**

Lab Sample ID: AON4J
LIMS ID: 15-19174
Matrix: Groundwater
Data Release Authorized: MW
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/14/15
Date Received: 10/14/15

Instrument/Analyst: NT3/MMH
Date Analyzed: 10/16/15 13:58

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	0.50	< 0.50	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.20	< 0.20	U
75-00-3	Chloroethane	0.20	< 0.20	U
75-09-2	Methylene Chloride	1.0	< 1.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.20	< 0.20	U
75-35-4	1,1-Dichloroethene	0.20	< 0.20	U
75-34-3	1,1-Dichloroethane	0.20	< 0.20	U
156-60-5	trans-1,2-Dichloroethene	0.20	< 0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	< 0.20	U
67-66-3	Chloroform	0.20	< 0.20	U
107-06-2	1,2-Dichloroethane	0.20	< 0.20	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.20	< 0.20	U
56-23-5	Carbon Tetrachloride	0.20	< 0.20	U
108-05-4	Vinyl Acetate	0.20	< 0.20	U
75-27-4	Bromodichloromethane	0.20	< 0.20	U
78-87-5	1,2-Dichloropropane	0.20	< 0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	< 0.20	U
79-01-6	Trichloroethene	0.20	< 0.20	U
124-48-1	Dibromochloromethane	0.20	< 0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	< 0.20	U
71-43-2	Benzene	0.20	< 0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	< 0.20	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.20	< 0.20	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.20	< 0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
108-90-7	Chlorobenzene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
100-42-5	Styrene	0.20	< 0.20	U
75-69-4	Trichlorofluoromethane	0.20	< 0.20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	< 0.20	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	< 0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	< 0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	< 0.20	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: Trip Blank**
 SAMPLE

Lab Sample ID: AON4J
LIMS ID: 15-19174
Matrix: Groundwater
Date Analyzed: 10/16/15 13:58

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result	Q
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	0.20	< 0.20	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.20	< 0.20	U
74-95-3	Dibromomethane	0.20	< 0.20	U
630-20-6	1,1,1,2-Tetrachloroethane	0.20	< 0.20	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	< 0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	< 0.50	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.20	< 0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	< 0.20	U
87-68-3	Hexachlorobutadiene	0.50	< 0.50	U
106-93-4	1,2-Dibromoethane	0.20	< 0.20	U
74-97-5	Bromochloromethane	0.20	< 0.20	U
594-20-7	2,2-Dichloropropane	0.20	< 0.20	U
142-28-9	1,3-Dichloropropane	0.20	< 0.20	U
98-82-8	Isopropylbenzene	0.20	< 0.20	U
103-65-1	n-Propylbenzene	0.20	< 0.20	U
108-86-1	Bromobenzene	0.20	< 0.20	U
95-49-8	2-Chlorotoluene	0.20	< 0.20	U
106-43-4	4-Chlorotoluene	0.20	< 0.20	U
98-06-6	tert-Butylbenzene	0.20	< 0.20	U
135-98-8	sec-Butylbenzene	0.20	< 0.20	U
99-87-6	4-Isopropyltoluene	0.20	< 0.20	U
104-51-8	n-Butylbenzene	0.20	< 0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	< 0.50	U
91-20-3	Naphthalene	0.50	< 0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	< 0.50	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	98.1%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

EPA SW-846 indicates that vinyl chloride and styrene may degrade in the presence of acid preservative.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-101615A	Method Blank	10	102%	95.8%	96.8%	102%	0
LCS-101615A	Lab Control	10	100%	98.6%	97.5%	99.1%	0
LCSD-101615A	Lab Control Dup	10	101%	99.9%	98.1%	102%	0
AON4D	B01-GW-10.0	10	105%	96.7%	98.0%	103%	0
AON4E	B02-GW-6	10	104%	97.1%	97.7%	106%	0
AON4F	B03-GW-10	10	105%	99.9%	96.8%	102%	0
AON4J	Trip Blank	10	103%	98.1%	98.3%	101%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	(80-128)	(80-128)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 15-19139 to 15-19174

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C
Page 1 of 2

Sample ID: LCS-101615A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-101615A
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized: MW
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/MMH
LCSD: NT3/MMH
Date Analyzed LCS: 10/16/15 10:54
LCSD: 10/16/15 11:20

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	9.33	10.0	93.3%	9.57	10.0	95.7%	2.5%
Bromomethane	9.57	10.0	95.7%	9.85	10.0	98.5%	2.9%
Vinyl Chloride	9.16	10.0	91.6%	9.40	10.0	94.0%	2.6%
Chloroethane	9.67	10.0	96.7%	9.70	10.0	97.0%	0.3%
Methylene Chloride	9.50	10.0	95.0%	9.45	10.0	94.5%	0.5%
Acetone	51.6	50.0	103%	50.8	50.0	102%	1.6%
Carbon Disulfide	9.67	10.0	96.7%	9.62	10.0	96.2%	0.5%
1,1-Dichloroethene	9.35	10.0	93.5%	9.28	10.0	92.8%	0.8%
1,1-Dichloroethane	9.55	10.0	95.5%	9.53	10.0	95.3%	0.2%
trans-1,2-Dichloroethene	9.46	10.0	94.6%	9.37	10.0	93.7%	1.0%
cis-1,2-Dichloroethene	9.43	10.0	94.3%	9.71	10.0	97.1%	2.9%
Chloroform	9.53	10.0	95.3%	9.62	10.0	96.2%	0.9%
1,2-Dichloroethane	9.50	10.0	95.0%	9.50	10.0	95.0%	0.0%
2-Butanone	50.8	50.0	102%	50.6	50.0	101%	0.4%
1,1,1-Trichloroethane	10.0	10.0	100%	9.65	10.0	96.5%	3.6%
Carbon Tetrachloride	9.82	10.0	98.2%	10.0	10.0	100%	1.8%
Vinyl Acetate	7.25 Q	10.0	72.5%	7.46 Q	10.0	74.6%	2.9%
Bromodichloromethane	9.42	10.0	94.2%	9.69	10.0	96.9%	2.8%
1,2-Dichloropropane	9.39	10.0	93.9%	9.48	10.0	94.8%	1.0%
cis-1,3-Dichloropropene	9.77	10.0	97.7%	9.77	10.0	97.7%	0.0%
Trichloroethene	9.81	10.0	98.1%	9.92	10.0	99.2%	1.1%
Dibromochloromethane	9.02	10.0	90.2%	9.28	10.0	92.8%	2.8%
1,1,2-Trichloroethane	9.47	10.0	94.7%	9.23	10.0	92.3%	2.6%
Benzene	9.53	10.0	95.3%	9.75	10.0	97.5%	2.3%
trans-1,3-Dichloropropene	9.59	10.0	95.9%	9.65	10.0	96.5%	0.6%
2-Chloroethylvinylether	9.59	10.0	95.9%	9.49	10.0	94.9%	1.0%
Bromoform	9.64	10.0	96.4%	9.74	10.0	97.4%	1.0%
4-Methyl-2-Pentanone (MIBK)	50.5	50.0	101%	50.6	50.0	101%	0.2%
2-Hexanone	50.7	50.0	101%	52.2	50.0	104%	2.9%
Tetrachloroethene	9.57	10.0	95.7%	10.0	10.0	100%	4.4%
1,1,2,2-Tetrachloroethane	9.02	10.0	90.2%	9.16	10.0	91.6%	1.5%
Toluene	9.52	10.0	95.2%	9.55	10.0	95.5%	0.3%
Chlorobenzene	9.18	10.0	91.8%	9.42	10.0	94.2%	2.6%
Ethylbenzene	9.35	10.0	93.5%	9.77	10.0	97.7%	4.4%
Styrene	9.70	10.0	97.0%	9.85	10.0	98.5%	1.5%
Trichlorofluoromethane	9.68	10.0	96.8%	9.53	10.0	95.3%	1.6%
1,1,2-Trichloro-1,2,2-trifluoroetha	10.2	10.0	102%	10.4	10.0	104%	1.9%
m,p-Xylene	18.8	20.0	94.0%	19.4	20.0	97.0%	3.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: LCS-101615A**
Page 2 of 2 **LAB CONTROL SAMPLE**

Lab Sample ID: LCS-101615A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19139 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-04

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	9.50	10.0	95.0%	9.83	10.0	98.3%	3.4%
1,2-Dichlorobenzene	9.32	10.0	93.2%	9.74	10.0	97.4%	4.4%
1,3-Dichlorobenzene	9.43	10.0	94.3%	9.68	10.0	96.8%	2.6%
1,4-Dichlorobenzene	9.41	10.0	94.1%	9.58	10.0	95.8%	1.8%
Acrolein	30.0 Q	50.0	60.0%	33.3 Q	50.0	66.6%	10.4%
Iodomethane	9.69	10.0	96.9%	9.77	10.0	97.7%	0.8%
Bromoethane	9.97	10.0	99.7%	10.0	10.0	100%	0.3%
Acrylonitrile	9.62	10.0	96.2%	8.97	10.0	89.7%	7.0%
1,1-Dichloropropene	9.54	10.0	95.4%	9.29	10.0	92.9%	2.7%
Dibromomethane	9.54	10.0	95.4%	9.67	10.0	96.7%	1.4%
1,1,1,2-Tetrachloroethane	9.53	10.0	95.3%	10.0	10.0	100%	4.8%
1,2-Dibromo-3-chloropropane	7.79 Q	10.0	77.9%	8.44 Q	10.0	84.4%	8.0%
1,2,3-Trichloropropane	9.45	10.0	94.5%	9.75	10.0	97.5%	3.1%
trans-1,4-Dichloro-2-butene	9.75	10.0	97.5%	9.68	10.0	96.8%	0.7%
1,3,5-Trimethylbenzene	9.73	10.0	97.3%	9.99	10.0	99.9%	2.6%
1,2,4-Trimethylbenzene	9.75	10.0	97.5%	9.98	10.0	99.8%	2.3%
Hexachlorobutadiene	8.77	10.0	87.7%	9.34	10.0	93.4%	6.3%
1,2-Dibromoethane	9.76	10.0	97.6%	10.1	10.0	101%	3.4%
Bromochloromethane	8.94	10.0	89.4%	9.02	10.0	90.2%	0.9%
2,2-Dichloropropane	10.5	10.0	105%	10.5	10.0	105%	0.0%
1,3-Dichloropropane	9.16	10.0	91.6%	9.79	10.0	97.9%	6.6%
Isopropylbenzene	9.77	10.0	97.7%	10.0	10.0	100%	2.3%
n-Propylbenzene	9.80	10.0	98.0%	10.1	10.0	101%	3.0%
Bromobenzene	9.08	10.0	90.8%	9.95	10.0	99.5%	9.1%
2-Chlorotoluene	9.52	10.0	95.2%	9.76	10.0	97.6%	2.5%
4-Chlorotoluene	9.68	10.0	96.8%	10.2	10.0	102%	5.2%
tert-Butylbenzene	9.59	10.0	95.9%	9.94	10.0	99.4%	3.6%
sec-Butylbenzene	9.69	10.0	96.9%	10.1	10.0	101%	4.1%
4-Isopropyltoluene	9.90	10.0	99.0%	10.3	10.0	103%	4.0%
n-Butylbenzene	9.84	10.0	98.4%	10.4	10.0	104%	5.5%
1,2,4-Trichlorobenzene	8.69	10.0	86.9%	9.18	10.0	91.8%	5.5%
Naphthalene	8.13 Q	10.0	81.3%	8.51 Q	10.0	85.1%	4.6%
1,2,3-Trichlorobenzene	7.20 Q	10.0	72.0%	7.65 Q	10.0	76.5%	6.1%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	100%	101%
d8-Toluene	98.6%	99.9%
Bromofluorobenzene	97.5%	98.1%
d4-1,2-Dichlorobenzene	99.1%	102%

4A

VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB101615

Lab Name: ARI

Client: MAUL FOSTER & ALONGI

ARI Job No: AON4

Project: EAPORT LANDING

Lab File ID: 10161507

Lab Sample ID: MB101615

Date Analyzed: 10/16/15

Time Analyzed: 1211

Instrument ID: NT3

Heated Purge: (Y/N) N

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS101615	LCS101615	10161504	1054
02	LCSD101615	LCSD101615	10161505	1120
03	LOW101615	LOW101615	10161506	1145
04	TRIP BLANK	AON4J	10161511	1358
05	B01-GW-10.0	AON4D	10161512	1424
06	B02-GW-6	AON4E	10161513	1449
07	B03-GW-10	AON4F	10161514	1515
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: MB-101615A**
Page 1 of 2 **METHOD BLANK**

Lab Sample ID: MB-101615A
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized: MW
Reported: 10/19/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/MMH
Date Analyzed: 10/16/15 12:11

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
74-87-3	Chloromethane	0.50	< 0.50	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.20	< 0.20	U
75-00-3	Chloroethane	0.20	< 0.20	U
75-09-2	Methylene Chloride	1.0	< 1.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.20	< 0.20	U
75-35-4	1,1-Dichloroethene	0.20	< 0.20	U
75-34-3	1,1-Dichloroethane	0.20	< 0.20	U
156-60-5	trans-1,2-Dichloroethene	0.20	< 0.20	U
156-59-2	cis-1,2-Dichloroethene	0.20	< 0.20	U
67-66-3	Chloroform	0.20	< 0.20	U
107-06-2	1,2-Dichloroethane	0.20	< 0.20	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.20	< 0.20	U
56-23-5	Carbon Tetrachloride	0.20	< 0.20	U
108-05-4	Vinyl Acetate	0.20	< 0.20	U
75-27-4	Bromodichloromethane	0.20	< 0.20	U
78-87-5	1,2-Dichloropropane	0.20	< 0.20	U
10061-01-5	cis-1,3-Dichloropropene	0.20	< 0.20	U
79-01-6	Trichloroethene	0.20	< 0.20	U
124-48-1	Dibromochloromethane	0.20	< 0.20	U
79-00-5	1,1,2-Trichloroethane	0.20	< 0.20	U
71-43-2	Benzene	0.20	< 0.20	U
10061-02-6	trans-1,3-Dichloropropene	0.20	< 0.20	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.20	< 0.20	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.20	< 0.20	U
79-34-5	1,1,2,2-Tetrachloroethane	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
108-90-7	Chlorobenzene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
100-42-5	Styrene	0.20	< 0.20	U
75-69-4	Trichlorofluoromethane	0.20	< 0.20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.20	< 0.20	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U
95-50-1	1,2-Dichlorobenzene	0.20	< 0.20	U
541-73-1	1,3-Dichlorobenzene	0.20	< 0.20	U
106-46-7	1,4-Dichlorobenzene	0.20	< 0.20	U

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS-Method SW8260C **Sample ID: MB-101615A**
 METHOD BLANK

Lab Sample ID: MB-101615A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19139 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-04
Date Analyzed: 10/16/15 12:11

CAS Number	Analyte	LOQ	Result	Q
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Iodomethane	1.0	< 1.0	U
74-96-4	Bromoethane	0.20	< 0.20	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.20	< 0.20	U
74-95-3	Dibromomethane	0.20	< 0.20	U
630-20-6	1,1,1,2-Tetrachloroethane	0.20	< 0.20	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	< 0.50	U
96-18-4	1,2,3-Trichloropropane	0.50	< 0.50	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.20	< 0.20	U
95-63-6	1,2,4-Trimethylbenzene	0.20	< 0.20	U
87-68-3	Hexachlorobutadiene	0.50	< 0.50	U
106-93-4	1,2-Dibromoethane	0.20	< 0.20	U
74-97-5	Bromochloromethane	0.20	< 0.20	U
594-20-7	2,2-Dichloropropane	0.20	< 0.20	U
142-28-9	1,3-Dichloropropane	0.20	< 0.20	U
98-82-8	Isopropylbenzene	0.20	< 0.20	U
103-65-1	n-Propylbenzene	0.20	< 0.20	U
108-86-1	Bromobenzene	0.20	< 0.20	U
95-49-8	2-Chlorotoluene	0.20	< 0.20	U
106-43-4	4-Chlorotoluene	0.20	< 0.20	U
98-06-6	tert-Butylbenzene	0.20	< 0.20	U
135-98-8	sec-Butylbenzene	0.20	< 0.20	U
99-87-6	4-Isopropyltoluene	0.20	< 0.20	U
104-51-8	n-Butylbenzene	0.20	< 0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.50	< 0.50	U
91-20-3	Naphthalene	0.50	< 0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	< 0.50	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	95.8%
Bromofluorobenzene	96.8%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 20:46
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.44 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 13.3%

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	96	< 96 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	96	< 96 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
91-20-3	**Naphthalene**	**19**	**83**
106-47-8	4-Chloroaniline	96	< 96 U
87-68-3	Hexachlorobutadiene	19	< 19 U
59-50-7	4-Chloro-3-methylphenol	96	< 96 U
91-57-6	2-Methylnaphthalene	19	< 19 U
77-47-4	Hexachlorocyclopentadiene	96	< 96 U
88-06-2	2,4,6-Trichlorophenol	96	< 96 U
95-95-4	2,4,5-Trichlorophenol	96	< 96 U
91-58-7	2-Chloronaphthalene	19	< 19 U
88-74-4	2-Nitroaniline	96	< 96 U
131-11-3	Dimethylphthalate	19	< 19 U
208-96-8	**Acenaphthylene**	**19**	**22**
99-09-2	3-Nitroaniline	96	< 96 U
83-32-9	Acenaphthene	19	< 19 U
51-28-5	2,4-Dinitrophenol	190	< 190 U
100-02-7	4-Nitrophenol	96	< 96 U
132-64-9	**Dibenzofuran**	**19**	**12 J**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Date Analyzed: 10/28/15 20:46

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	96	< 96 U
121-14-2	2,4-Dinitrotoluene	96	< 96 U
84-66-2	**Diethylphthalate**	**19**	**18 J**
7005-72-3	4-Chlorophenyl-phenylether	19	< 19 U
86-73-7	**Fluorene**	**19**	**10 J**
100-01-6	4-Nitroaniline	96	< 96 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	96	< 96 U
85-01-8	**Phenanthrene**	**19**	**69**
86-74-8	Carbazole	19	< 19 U
120-12-7	**Anthracene**	**19**	**14 J**
84-74-2	Di-n-Butylphthalate	19	< 19 U
206-44-0	**Fluoranthene**	**19**	**53**
129-00-0	**Pyrene**	**19**	**69**
85-68-7	Butylbenzylphthalate	19	< 19 U
91-94-1	3,3'-Dichlorobenzidine	96	< 96 U
56-55-3	**Benzo(a)anthracene**	**19**	**26**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**48**	**37 J**
218-01-9	**Chrysene**	**19**	**34**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
50-32-8	**Benzo(a)pyrene**	**19**	**20**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**9.6 J**
53-70-3	Dibenz(a,h)anthracene	19	< 19 U
191-24-2	**Benzo(g,h,i)perylene**	**19**	**10 J**
90-12-0	**1-Methylnaphthalene**	**19**	**15 J**
TOTBFA	**Total Benzofluoranthenes**	**38**	**37 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.2%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	92.8%	d4-1,2-Dichlorobenzene	65.6%
d5-Phenol	76.0%	2-Fluorophenol	65.7%
2,4,6-Tribromophenol	72.1%	d4-2-Chlorophenol	70.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B02-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 22:34
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 3.13 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 22.4%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	190	< 190 U
111-44-4	Bis-(2-Chloroethyl) Ether	190	< 190 U
95-57-8	2-Chlorophenol	190	< 190 U
541-73-1	1,3-Dichlorobenzene	190	< 190 U
106-46-7	1,4-Dichlorobenzene	190	< 190 U
100-51-6	Benzyl Alcohol	190	< 190 U
95-50-1	1,2-Dichlorobenzene	190	< 190 U
95-48-7	2-Methylphenol	190	< 190 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	190	< 190 U
106-44-5	4-Methylphenol	190	< 190 U
621-64-7	N-Nitroso-Di-N-Propylamine	190	< 190 U
67-72-1	Hexachloroethane	190	< 190 U
98-95-3	Nitrobenzene	190	< 190 U
78-59-1	Isophorone	190	< 190 U
88-75-5	2-Nitrophenol	190	< 190 U
105-67-9	2,4-Dimethylphenol	960	< 960 U
65-85-0	Benzoic Acid	1,900	< 1,900 U
111-91-1	bis(2-Chloroethoxy) Methane	190	< 190 U
120-83-2	2,4-Dichlorophenol	960	< 960 U
120-82-1	1,2,4-Trichlorobenzene	190	< 190 U
91-20-3	Naphthalene	190	< 190 U
106-47-8	4-Chloroaniline	960	< 960 U
87-68-3	Hexachlorobutadiene	190	< 190 U
59-50-7	4-Chloro-3-methylphenol	960	< 960 U
91-57-6	**2-Methylnaphthalene**	**190**	**170 J**
77-47-4	Hexachlorocyclopentadiene	960	< 960 U
88-06-2	2,4,6-Trichlorophenol	960	< 960 U
95-95-4	2,4,5-Trichlorophenol	960	< 960 U
91-58-7	2-Chloronaphthalene	190	< 190 U
88-74-4	2-Nitroaniline	960	< 960 U
131-11-3	Dimethylphthalate	190	< 190 U
208-96-8	Acenaphthylene	190	< 190 U
99-09-2	3-Nitroaniline	960	< 960 U
83-32-9	**Acenaphthene**	**190**	**500**
51-28-5	2,4-Dinitrophenol	1,900	< 1,900 U
100-02-7	4-Nitrophenol	960	< 960 U
132-64-9	**Dibenzofuran**	**190**	**330**

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B02-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Date Analyzed: 10/28/15 22:34

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	960	< 960 U
121-14-2	2,4-Dinitrotoluene	960	< 960 U
84-66-2	Diethylphthalate	190	< 190 U
7005-72-3	4-Chlorophenyl-phenylether	190	< 190 U
86-73-7	**Fluorene**	**190**	**590**
100-01-6	4-Nitroaniline	960	< 960 U
534-52-1	4,6-Dinitro-2-Methylphenol	1,900	< 1,900 U
86-30-6	N-Nitrosodiphenylamine	190	< 190 U
101-55-3	4-Bromophenyl-phenylether	190	< 190 U
118-74-1	Hexachlorobenzene	190	< 190 U
87-86-5	Pentachlorophenol	960	< 960 U
85-01-8	**Phenanthrene**	**190**	**1,600**
86-74-8	Carbazole	190	< 190 U
120-12-7	**Anthracene**	**190**	**290**
84-74-2	Di-n-Butylphthalate	190	< 190 U
206-44-0	**Fluoranthene**	**190**	**1,200**
129-00-0	**Pyrene**	**190**	**930**
85-68-7	Butylbenzylphthalate	190	< 190 U
91-94-1	3,3'-Dichlorobenzidine	960	< 960 U
56-55-3	**Benzo(a)anthracene**	**190**	**260 M**
117-81-7	bis(2-Ethylhexyl)phthalate	480	< 480 U
218-01-9	**Chrysene**	**190**	**480**
117-84-0	Di-n-Octyl phthalate	190	< 190 U
50-32-8	Benzo(a)pyrene	190	< 190 U
193-39-5	Indeno(1,2,3-cd)pyrene	190	< 190 U
53-70-3	Dibenz(a,h)anthracene	190	< 190 U
191-24-2	Benzo(g,h,i)perylene	190	< 190 U
90-12-0	**1-Methylnaphthalene**	**190**	**170 J**
TOTBFA	**Total Benzofluoranthenes**	**380**	**260 J**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.0%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	84.6%	d4-1,2-Dichlorobenzene	64.2%
d5-Phenol	62.4%	2-Fluorophenol	68.4%
2,4,6-Tribromophenol	25.6%	d4-2-Chlorophenol	70.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B03-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4C
LIMS ID: 15-19138
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/21/15
Date Analyzed: 10/28/15 23:10
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: 22.3%

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	99	< 99 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	99	< 99 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
106-47-8	4-Chloroaniline	99	< 99 U
87-68-3	Hexachlorobutadiene	20	< 20 U
59-50-7	4-Chloro-3-methylphenol	99	< 99 U
91-57-6	2-Methylnaphthalene	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	99	< 99 U
88-06-2	2,4,6-Trichlorophenol	99	< 99 U
95-95-4	2,4,5-Trichlorophenol	99	< 99 U
91-58-7	2-Chloronaphthalene	20	< 20 U
88-74-4	2-Nitroaniline	99	< 99 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
99-09-2	3-Nitroaniline	99	< 99 U
83-32-9	Acenaphthene	20	< 20 U
51-28-5	2,4-Dinitrophenol	200	< 200 U
100-02-7	4-Nitrophenol	99	< 99 U
132-64-9	Dibenzofuran	20	< 20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B03-S-5.0**
Extraction Method: SW3546 **SAMPLE**

Lab Sample ID: AON4C
LIMS ID: 15-19138
Matrix: Soil
Date Analyzed: 10/28/15 23:10

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	99	< 99 U
121-14-2	2,4-Dinitrotoluene	99	< 99 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	99	< 99 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	99	< 99 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	99	< 99 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**50**	**150**
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	68.4%	2-Fluorobiphenyl	70.2%
d14-p-Terphenyl	95.2%	d4-1,2-Dichlorobenzene	63.8%
d5-Phenol	72.8%	2-Fluorophenol	65.2%
2,4,6-Tribromophenol	80.4%	d4-2-Chlorophenol	70.1%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

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
B01-S-4.5	71.2%	70.8%	92.8%	65.6%	76.0%	65.7%	72.1%	70.1%	0
B01-S-4.5 MS	76.8%	77.6%	99.4%	76.0%	86.8%	79.1%	86.7%	82.4%	0
B01-S-4.5 MSD	74.8%	79.6%	95.4%	68.8%	80.0%	73.9%	83.9%	79.2%	0
B02-S-5.0	66.0%	70.8%	84.6%	64.2%	62.4%	68.4%	25.6%	70.8%	0
B03-S-5.0	68.4%	70.2%	95.2%	63.8%	72.8%	65.2%	80.4%	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: 15-19136 to 15-19138

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Page 1 of 2 **MS/MSD**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/20/15

Date Analyzed MS: 10/28/15 21:22
MSD: 10/28/15 21:58
Instrument/Analyst MS: NT10/YZ
MSD: NT10/YZ
GPC Cleanup: Yes

Sample Amount MS: 10.43 g-dry-wt
MSD: 10.43 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 13.3 %

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 19 U	471 Q	479	98.3%	423 Q	479	88.3%	10.7%
Bis-(2-Chloroethyl) Ether	< 19 U	526	479	110%	509	479	106%	3.3%
2-Chlorophenol	< 19 U	434	479	90.6%	390	479	81.4%	10.7%
1,3-Dichlorobenzene	< 19 U	392	479	81.8%	367	479	76.6%	6.6%
1,4-Dichlorobenzene	< 19 U	388	479	81.0%	372	479	77.7%	4.2%
Benzyl Alcohol	< 19 U	26.8	479	5.6%	22.1	479	4.6%	19.2%
1,2-Dichlorobenzene	< 19 U	414	479	86.4%	391	479	81.6%	5.7%
2-Methylphenol	< 19 U	438	479	91.4%	400	479	83.5%	9.1%
2,2'-Oxybis(1-Chloropropane)	< 19 U	362	479	75.6%	369	479	77.0%	1.9%
4-Methylphenol	< 19 U	484	479	101%	438	479	91.4%	10.0%
N-Nitroso-Di-N-Propylamine	< 19 U	462	479	96.5%	462	479	96.5%	0.0%
Hexachloroethane	< 19 U	368	479	76.8%	347	479	72.4%	5.9%
Nitrobenzene	< 19 U	411	479	85.8%	390	479	81.4%	5.2%
Isophorone	< 19 U	452	479	94.4%	434	479	90.6%	4.1%
2-Nitrophenol	< 19 U	408	479	85.2%	389	479	81.2%	4.8%
2,4-Dimethylphenol	< 96 U	767	1440	53.3%	710	1440	49.3%	7.7%
Benzoic Acid	< 190 U	2380	2640	90.2%	2160	2640	81.8%	9.7%
bis(2-Chloroethoxy) Methane	< 19 U	406	479	84.8%	407	479	85.0%	0.2%
2,4-Dichlorophenol	< 96 U	1210	1440	84.0%	1300	1440	90.3%	7.2%
1,2,4-Trichlorobenzene	< 19 U	438	479	91.4%	430	479	89.8%	1.8%
Naphthalene	83	457	479	78.1%	474	479	81.6%	3.7%
4-Chloroaniline	< 96 U	182	1440	12.6%	194	1440	13.5%	6.4%
Hexachlorobutadiene	< 19 U	364	479	76.0%	368	479	76.8%	1.1%
4-Chloro-3-methylphenol	< 96 U	1300	1440	90.3%	877	1440	60.9%	38.9%
2-Methylnaphthalene	< 19 U	441	479	92.1%	479	479	100%	8.3%
Hexachlorocyclopentadiene	< 96 U	652	1440	45.3%	672	1440	46.7%	3.0%
2,4,6-Trichlorophenol	< 96 U	1190	1440	82.6%	1150	1440	79.9%	3.4%
2,4,5-Trichlorophenol	< 96 U	1420	1440	98.6%	1490	1440	103%	4.8%
2-Chloronaphthalene	< 19 U	407	479	85.0%	413	479	86.2%	1.5%
2-Nitroaniline	< 96 U	1380	1440	95.8%	1380	1440	95.8%	0.0%
Dimethylphthalate	< 19 U	419	479	87.5%	402	479	83.9%	4.1%
Acenaphthylene	22	422	479	83.5%	441	479	87.5%	4.4%
3-Nitroaniline	< 96 U	538	1440	37.4%	564	1440	39.2%	4.7%
Acenaphthene	< 19 U	459	479	95.8%	447	479	93.3%	2.6%
2,4-Dinitrophenol	< 190 U	2270	2640	86.0%	2160	2640	81.8%	5.0%
4-Nitrophenol	< 96 U	657	1440	45.6%	369	1440	25.6%	56.1%
Dibenzofuran	12 J	434	479	88.1%	428	479	86.8%	1.4%
2,6-Dinitrotoluene	< 96 U	1330	1440	92.4%	1320	1440	91.7%	0.8%
2,4-Dinitrotoluene	< 96 U	1310	1440	91.0%	1330	1440	92.4%	1.5%
Diethylphthalate	18 J	439	479	87.9%	442	479	88.5%	0.7%
4-Chlorophenyl-phenylether	< 19 U	388	479	81.0%	390	479	81.4%	0.5%
Fluorene	10 J	402	479	81.8%	413	479	84.1%	2.7%
4-Nitroaniline	< 96 U	872	1440	60.6%	855	1440	59.4%	2.0%
4,6-Dinitro-2-Methylphenol	< 190 U	2040	2640	77.3%	2050	2640	77.7%	0.5%
N-Nitrosodiphenylamine	< 19 U	399	479	83.3%	396	479	82.7%	0.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Page 2 of 2 **MS/MSD**

Lab Sample ID: AON4A QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed MS: 10/28/15 21:22
MSD: 10/28/15 21:58

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
4-Bromophenyl-phenylether	< 19 U	447	479	93.3%	424	479	88.5%	5.3%
Hexachlorobenzene	< 19 U	412	479	86.0%	410	479	85.6%	0.5%
Pentachlorophenol	< 96 U	1330	1440	92.4%	1270	1440	88.2%	4.6%
Phenanthrene	69	515	479	93.1%	512	479	92.5%	0.6%
Carbazole	< 19 U	506 Q	479	106%	481 Q	479	100%	5.1%
Anthracene	14 J	443	479	89.6%	441	479	89.1%	0.5%
Di-n-Butylphthalate	< 19 U	500	479	104%	484	479	101%	3.3%
Fluoranthene	53	464	479	85.8%	443	479	81.4%	4.6%
Pyrene	69	460	479	81.6%	463	479	82.3%	0.7%
Butylbenzylphthalate	< 19 U	442	479	92.3%	432	479	90.2%	2.3%
3,3'-Dichlorobenzidine	< 96 U	< 95.9 U	1440	NA	< 95.9 U	1440	NA	NA
Benzo(a)anthracene	26	449	479	88.3%	442	479	86.8%	1.6%
bis(2-Ethylhexyl)phthalate	37 J	479	479	92.3%	493	479	95.2%	2.9%
Chrysene	34	460	479	88.9%	454	479	87.7%	1.3%
Di-n-Octyl phthalate	< 19 U	405	479	84.6%	393	479	82.0%	3.0%
Benzo(a)pyrene	20	427	479	85.0%	406	479	80.6%	5.0%
Indeno(1,2,3-cd)pyrene	9.6 J	398	479	81.1%	380	479	77.3%	4.6%
Dibenz(a,h)anthracene	< 19 U	409	479	85.4%	389	479	81.2%	5.0%
Benzo(g,h,i)perylene	10 J	351	479	71.2%	326	479	66.0%	7.4%
1-Methylnaphthalene	15 J	380	479	76.2%	396	479	79.5%	4.1%
Total Benzofluoranthenes	37 J	914	959	91.4%	877	959	87.6%	4.1%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.
NA-No recovery due to high concentration of analyte in original sample and/or calculated negative recovery.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **MATRIX SPIKE**
Page 1 of 2

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/28/15 21:22
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.43 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 13.3%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	19	---
111-44-4	Bis-(2-Chloroethyl) Ether	19	---
95-57-8	2-Chlorophenol	19	---
541-73-1	1,3-Dichlorobenzene	19	---
106-46-7	1,4-Dichlorobenzene	19	---
100-51-6	Benzyl Alcohol	19	---
95-50-1	1,2-Dichlorobenzene	19	---
95-48-7	2-Methylphenol	19	---
108-60-1	2,2'-Oxybis(1-Chloropropane)	19	---
106-44-5	4-Methylphenol	19	---
621-64-7	N-Nitroso-Di-N-Propylamine	19	---
67-72-1	Hexachloroethane	19	---
98-95-3	Nitrobenzene	19	---
78-59-1	Isophorone	19	---
88-75-5	2-Nitrophenol	19	---
105-67-9	2,4-Dimethylphenol	96	---
65-85-0	Benzoic Acid	190	---
111-91-1	bis(2-Chloroethoxy) Methane	19	---
120-83-2	2,4-Dichlorophenol	96	---
120-82-1	1,2,4-Trichlorobenzene	19	---
91-20-3	Naphthalene	19	---
106-47-8	4-Chloroaniline	96	---
87-68-3	Hexachlorobutadiene	19	---
59-50-7	4-Chloro-3-methylphenol	96	---
91-57-6	2-Methylnaphthalene	19	---
77-47-4	Hexachlorocyclopentadiene	96	---
88-06-2	2,4,6-Trichlorophenol	96	---
95-95-4	2,4,5-Trichlorophenol	96	---
91-58-7	2-Chloronaphthalene	19	---
88-74-4	2-Nitroaniline	96	---
131-11-3	Dimethylphthalate	19	---
208-96-8	Acenaphthylene	19	---
99-09-2	3-Nitroaniline	96	---
83-32-9	Acenaphthene	19	---
51-28-5	2,4-Dinitrophenol	190	---
100-02-7	4-Nitrophenol	96	---
132-64-9	Dibenzofuran	19	---

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **MATRIX SPIKE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Date Analyzed: 10/28/15 21:22

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	96	---
121-14-2	2,4-Dinitrotoluene	96	---
84-66-2	Diethylphthalate	19	---
7005-72-3	4-Chlorophenyl-phenylether	19	---
86-73-7	Fluorene	19	---
100-01-6	4-Nitroaniline	96	---
534-52-1	4,6-Dinitro-2-Methylphenol	190	---
86-30-6	N-Nitrosodiphenylamine	19	---
101-55-3	4-Bromophenyl-phenylether	19	---
118-74-1	Hexachlorobenzene	19	---
87-86-5	Pentachlorophenol	96	---
85-01-8	Phenanthrene	19	---
86-74-8	Carbazole	19	---
120-12-7	Anthracene	19	---
84-74-2	Di-n-Butylphthalate	19	---
206-44-0	Fluoranthene	19	---
129-00-0	Pyrene	19	---
85-68-7	Butylbenzylphthalate	19	---
91-94-1	3,3'-Dichlorobenzidine	96	---
56-55-3	Benzo(a)anthracene	19	---
117-81-7	bis(2-Ethylhexyl)phthalate	48	---
218-01-9	Chrysene	19	---
117-84-0	Di-n-Octyl phthalate	19	---
50-32-8	Benzo(a)pyrene	19	---
193-39-5	Indeno(1,2,3-cd)pyrene	19	---
53-70-3	Dibenz(a,h)anthracene	19	---
191-24-2	Benzo(g,h,i)perylene	19	---
90-12-0	1-Methylnaphthalene	19	---
TOTBFA	Total Benzofluoranthenes	38	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	76.8%	2-Fluorobiphenyl	77.6%
d14-p-Terphenyl	99.4%	d4-1,2-Dichlorobenzene	76.0%
d5-Phenol	86.8%	2-Fluorophenol	79.1%
2,4,6-Tribromophenol	86.7%	d4-2-Chlorophenol	82.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **MATRIX SPIKE DUPLICATE**
Page 1 of 2

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/20/15
Date Analyzed: 10/28/15 21:58
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.43 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 13.3%

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	19	---
111-44-4	Bis-(2-Chloroethyl) Ether	19	---
95-57-8	2-Chlorophenol	19	---
541-73-1	1,3-Dichlorobenzene	19	---
106-46-7	1,4-Dichlorobenzene	19	---
100-51-6	Benzyl Alcohol	19	---
95-50-1	1,2-Dichlorobenzene	19	---
95-48-7	2-Methylphenol	19	---
108-60-1	2,2'-Oxybis(1-Chloropropane)	19	---
106-44-5	4-Methylphenol	19	---
621-64-7	N-Nitroso-Di-N-Propylamine	19	---
67-72-1	Hexachloroethane	19	---
98-95-3	Nitrobenzene	19	---
78-59-1	Isophorone	19	---
88-75-5	2-Nitrophenol	19	---
105-67-9	2,4-Dimethylphenol	96	---
65-85-0	Benzoic Acid	190	---
111-91-1	bis(2-Chloroethoxy) Methane	19	---
120-83-2	2,4-Dichlorophenol	96	---
120-82-1	1,2,4-Trichlorobenzene	19	---
91-20-3	Naphthalene	19	---
106-47-8	4-Chloroaniline	96	---
87-68-3	Hexachlorobutadiene	19	---
59-50-7	4-Chloro-3-methylphenol	96	---
91-57-6	2-Methylnaphthalene	19	---
77-47-4	Hexachlorocyclopentadiene	96	---
88-06-2	2,4,6-Trichlorophenol	96	---
95-95-4	2,4,5-Trichlorophenol	96	---
91-58-7	2-Chloronaphthalene	19	---
88-74-4	2-Nitroaniline	96	---
131-11-3	Dimethylphthalate	19	---
208-96-8	Acenaphthylene	19	---
99-09-2	3-Nitroaniline	96	---
83-32-9	Acenaphthene	19	---
51-28-5	2,4-Dinitrophenol	190	---
100-02-7	4-Nitrophenol	96	---
132-64-9	Dibenzofuran	19	---

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: B01-S-4.5**
Extraction Method: SW3546 **MATRIX SPIKE DUPLICATE**

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Date Analyzed: 10/28/15 21:58

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	96	---
121-14-2	2,4-Dinitrotoluene	96	---
84-66-2	Diethylphthalate	19	---
7005-72-3	4-Chlorophenyl-phenylether	19	---
86-73-7	Fluorene	19	---
100-01-6	4-Nitroaniline	96	---
534-52-1	4,6-Dinitro-2-Methylphenol	190	---
86-30-6	N-Nitrosodiphenylamine	19	---
101-55-3	4-Bromophenyl-phenylether	19	---
118-74-1	Hexachlorobenzene	19	---
87-86-5	Pentachlorophenol	96	---
85-01-8	Phenanthrene	19	---
86-74-8	Carbazole	19	---
120-12-7	Anthracene	19	---
84-74-2	Di-n-Butylphthalate	19	---
206-44-0	Fluoranthene	19	---
129-00-0	Pyrene	19	---
85-68-7	Butylbenzylphthalate	19	---
91-94-1	3,3'-Dichlorobenzidine	96	---
56-55-3	Benzo(a)anthracene	19	---
117-81-7	bis(2-Ethylhexyl)phthalate	48	---
218-01-9	Chrysene	19	---
117-84-0	Di-n-Octyl phthalate	19	---
50-32-8	Benzo(a)pyrene	19	---
193-39-5	Indeno(1,2,3-cd)pyrene	19	---
53-70-3	Dibenz(a,h)anthracene	19	---
191-24-2	Benzo(g,h,i)perylene	19	---
90-12-0	1-Methylnaphthalene	19	---
TOTBFA	Total Benzofluoranthenes	38	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.8%	2-Fluorobiphenyl	79.6%
d14-p-Terphenyl	95.4%	d4-1,2-Dichlorobenzene	68.8%
d5-Phenol	80.0%	2-Fluorophenol	73.9%
2,4,6-Tribromophenol	83.9%	d4-2-Chlorophenol	79.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
 LAB CONTROL

Lab Sample ID: LCS-102015 QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Data Release Authorized: MW Date Sampled: 10/12/15
Reported: 11/03/15 Date Received: 10/14/15

Date Extracted: 10/20/15 Sample Amount: 10.00 g
Date Analyzed: 10/28/15 17:10 Final Extract Volume: 1.0 mL
Instrument/Analyst: NT10/YZ Dilution Factor: 1.00
GPC Cleanup: Yes Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	459 Q	500	91.8%
Bis-(2-Chloroethyl) Ether	433	500	86.6%
2-Chlorophenol	432	500	86.4%
1,3-Dichlorobenzene	382	500	76.4%
1,4-Dichlorobenzene	373	500	74.6%
Benzyl Alcohol	239	500	47.8%
1,2-Dichlorobenzene	419	500	83.8%
2-Methylphenol	443	500	88.6%
2,2'-Oxybis(1-Chloropropane)	369	500	73.8%
4-Methylphenol	451	500	90.2%
N-Nitroso-Di-N-Propylamine	444	500	88.8%
Hexachloroethane	400	500	80.0%
Nitrobenzene	475	500	95.0%
Isophorone	489	500	97.8%
2-Nitrophenol	420	500	84.0%
2,4-Dimethylphenol	1140	1500	76.0%
Benzoic Acid	2400	2750	87.3%
bis(2-Chloroethoxy) Methane	381	500	76.2%
2,4-Dichlorophenol	1300	1500	86.7%
1,2,4-Trichlorobenzene	475	500	95.0%
Naphthalene	417	500	83.4%
4-Chloroaniline	57.0 J	1500	3.8%
Hexachlorobutadiene	382	500	76.4%
4-Chloro-3-methylphenol	1320	1500	88.0%
2-Methylnaphthalene	423	500	84.6%
Hexachlorocyclopentadiene	1310	1500	87.3%
2,4,6-Trichlorophenol	1350	1500	90.0%
2,4,5-Trichlorophenol	1360	1500	90.7%
2-Chloronaphthalene	435	500	87.0%
2-Nitroaniline	1490	1500	99.3%
Dimethylphthalate	435	500	87.0%
Acenaphthylene	402	500	80.4%
3-Nitroaniline	86.0 J	1500	5.7%
Acenaphthene	470	500	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: LCS-102015**
Page 2 of 2 **LAB CONTROL**

Lab Sample ID: LCS-102015 QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed: 10/28/15 17:10

Analyte	Lab Control		Spike Added	Recovery
2,4-Dinitrophenol	2620		2750	95.3%
4-Nitrophenol	1290		1500	86.0%
Dibenzofuran	439		500	87.8%
2,6-Dinitrotoluene	1380		1500	92.0%
2,4-Dinitrotoluene	1400		1500	93.3%
Diethylphthalate	461		500	92.2%
4-Chlorophenyl-phenylether	405		500	81.0%
Fluorene	424		500	84.8%
4-Nitroaniline	382		1500	25.5%
4,6-Dinitro-2-Methylphenol	2410		2750	87.6%
N-Nitrosodiphenylamine	315		500	63.0%
4-Bromophenyl-phenylether	427		500	85.4%
Hexachlorobenzene	417		500	83.4%
Pentachlorophenol	1310		1500	87.3%
Phenanthrene	462		500	92.4%
Carbazole	271	Q	500	54.2%
Anthracene	426		500	85.2%
Di-n-Butylphthalate	510		500	102%
Fluoranthene	474		500	94.8%
Pyrene	442		500	88.4%
Butylbenzylphthalate	501		500	100%
3,3'-Dichlorobenzidine	< 100	U	1500	NA
Benzo(a)anthracene	460		500	92.0%
bis(2-Ethylhexyl)phthalate	479		500	95.8%
Chrysene	456		500	91.2%
Di-n-Octyl phthalate	420		500	84.0%
Benzo(a)pyrene	412		500	82.4%
Indeno(1,2,3-cd)pyrene	471		500	94.2%
Dibenz(a,h)anthracene	475		500	95.0%
Benzo(g,h,i)perylene	436		500	87.2%
1-Methylnaphthalene	393		500	78.6%
Total Benzofluoranthenes	949		1000	94.9%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	80.6%
2-Fluorobiphenyl	81.6%
d14-p-Terphenyl	112%
d4-1,2-Dichlorobenzene	71.6%
d5-Phenol	83.7%
2-Fluorophenol	76.5%
2,4,6-Tribromophenol	84.7%
d4-2-Chlorophenol	76.7%

Reported in µg/kg (ppb)

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

AON0MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: MAUL FOSTER & ALONGI

ARI Job No: AON4

Project: SEAPORT LANDING

Lab File ID: AON0MB

Date Extracted: 10/20/15

Instrument ID: NT10

Date Analyzed: 10/28/15

Matrix: SOLID

Time Analyzed: 1633

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AON0LCSS1	AON0LCSS1	AON0SB	10/28/15
02	B01-S-4.5 MS	AON4AMS	AON4AMS	10/28/15
03	B01-S-4.5 MSD	AON4AMSD	AON4AMSD	10/28/15
04				
05				
06				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102015
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized: MW
Reported: 11/03/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Date Extracted: 10/20/15
Date Analyzed: 10/28/15 16:33
Instrument/Analyst: NT10/YZ
GPC Cleanup: Yes

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	LOQ	Result
108-95-2	Phenol	20	< 20 U
111-44-4	Bis-(2-Chloroethyl) Ether	20	< 20 U
95-57-8	2-Chlorophenol	20	< 20 U
541-73-1	1,3-Dichlorobenzene	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
621-64-7	N-Nitroso-Di-N-Propylamine	20	< 20 U
67-72-1	Hexachloroethane	20	< 20 U
98-95-3	Nitrobenzene	20	< 20 U
78-59-1	Isophorone	20	< 20 U
88-75-5	2-Nitrophenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	100	< 100 U
65-85-0	Benzoic Acid	200	< 200 U
111-91-1	bis(2-Chloroethoxy) Methane	20	< 20 U
120-83-2	2,4-Dichlorophenol	100	< 100 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
106-47-8	4-Chloroaniline	100	< 100 U
87-68-3	Hexachlorobutadiene	20	< 20 U
59-50-7	4-Chloro-3-methylphenol	100	< 100 U
91-57-6	2-Methylnaphthalene	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
91-58-7	2-Chloronaphthalene	20	< 20 U
88-74-4	2-Nitroaniline	100	< 100 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
99-09-2	3-Nitroaniline	100	< 100 U
83-32-9	Acenaphthene	20	< 20 U
51-28-5	2,4-Dinitrophenol	200	< 200 U
100-02-7	4-Nitrophenol	100	< 100 U
132-64-9	Dibenzofuran	20	< 20 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS **Sample ID: MB-102015**
Extraction Method: SW3546 **METHOD BLANK**

Lab Sample ID: MB-102015 QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19136 Project: Seaport Landing
Matrix: Soil 1044.02.01-04
Date Analyzed: 10/28/15 16:33

CAS Number	Analyte	LOQ	Result
606-20-2	2,6-Dinitrotoluene	100	< 100 U
121-14-2	2,4-Dinitrotoluene	100	< 100 U
84-66-2	Diethylphthalate	20	< 20 U
7005-72-3	4-Chlorophenyl-phenylether	20	< 20 U
86-73-7	Fluorene	20	< 20 U
100-01-6	4-Nitroaniline	100	< 100 U
534-52-1	4,6-Dinitro-2-Methylphenol	200	< 200 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
101-55-3	4-Bromophenyl-phenylether	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
86-74-8	Carbazole	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
91-94-1	3,3'-Dichlorobenzidine	100	< 100 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	50	< 50 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	81.8%	2-Fluorobiphenyl	80.6%
d14-p-Terphenyl	113%	d4-1,2-Dichlorobenzene	81.6%
d5-Phenol	86.9%	2-Fluorophenol	76.7%
2,4,6-Tribromophenol	74.9%	d4-2-Chlorophenol	87.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: B01-GW-10.0
SAMPLE

Lab Sample ID: AON4D
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 22:03
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
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: B01-GW-10.0**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: AON4D
LIMS ID: 15-19139
Matrix: Ground Water
Date Analyzed: 10/23/15 22:03

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

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	45.2%	2-Fluorobiphenyl	46.8%
d14-p-Terphenyl	48.8%	d4-1,2-Dichlorobenzene	43.2%
d5-Phenol	42.9%	2-Fluorophenol	45.6%
2,4,6-Tribromophenol	56.0%	d4-2-Chlorophenol	49.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: B02-GW-6
SAMPLE

Lab Sample ID: AON4E
LIMS ID: 15-19140
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 15:28
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 10.0

CAS Number	Analyte	RL	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	40	< 40 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	40	< 40 U
621-64-7	N-Nitroso-Di-N-Propylamine	20	< 20 U
67-72-1	Hexachloroethane	40	< 40 U
98-95-3	Nitrobenzene	20	< 20 U
78-59-1	Isophorone	20	< 20 U
88-75-5	2-Nitrophenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	**Benzoic Acid**	**400**	**97 J**
111-91-1	bis(2-Chloroethoxy) Methane	20	< 20 U
120-83-2	2,4-Dichlorophenol	60	< 60 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	60	< 60 U
59-50-7	4-Chloro-3-methylphenol	60	< 60 U
91-57-6	2-Methylnaphthalene	20	< 20 U
77-47-4	Hexachlorocyclopentadiene	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	60	< 60 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
91-58-7	2-Chloronaphthalene	20	< 20 U
88-74-4	2-Nitroaniline	60	< 60 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
99-09-2	3-Nitroaniline	60	< 60 U
83-32-9	Acenaphthene	20	< 20 U
51-28-5	2,4-Dinitrophenol	400	< 400 U
100-02-7	4-Nitrophenol	200	< 200 U
132-64-9	Dibenzofuran	20	< 20 U
606-20-2	2,6-Dinitrotoluene	60	< 60 U
121-14-2	2,4-Dinitrotoluene	60	< 60 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: B02-GW-6**
Extraction Method: SW3520C **SAMPLE**

Lab Sample ID: AON4E
LIMS ID: 15-19140
Matrix: Ground Water
Date Analyzed: 10/23/15 15:28

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	RL	Result
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	60	< 60 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	200	< 200 U
85-01-8	**Phenanthrene**	**20**	**12 J**
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**	**23**
129-00-0	**Pyrene**	**20**	**16 J**
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	60	< 60 U
218-01-9	**Chrysene**	**20**	**11 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	< 20 U
90-12-0	1-Methylnaphthalene	20	< 20 U
TOTBFA	Total Benzofluoranthenes	40	< 40 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.8%	2-Fluorobiphenyl	33.6%
d14-p-Terphenyl	24.8%	d4-1,2-Dichlorobenzene	40.8%
d5-Phenol	64.5%	2-Fluorophenol	56.0%
2,4,6-Tribromophenol	53.9%	d4-2-Chlorophenol	68.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: B03-GW-10
SAMPLE

Lab Sample ID: AON4F
LIMS ID: 15-19141
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 23:09
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: B03-GW-10
SAMPLE

Lab Sample ID: AON4F
LIMS ID: 15-19141
Matrix: Ground Water
Date Analyzed: 10/23/15 23:09

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

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	63.6%	2-Fluorobiphenyl	65.2%
d14-p-Terphenyl	61.6%	d4-1,2-Dichlorobenzene	55.2%
d5-Phenol	64.5%	2-Fluorophenol	63.2%
2,4,6-Tribromophenol	87.2%	d4-2-Chlorophenol	68.3%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

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
B01-GW-10.0	45.2%	46.8%	48.8%	43.2%	42.9%	45.6%	56.0%	49.9%	0
B02-GW-6	60.8%	33.6%	24.8%*	40.8%	64.5%	56.0%	53.9%	68.8%	1
B03-GW-10	63.6%	65.2%	61.6%	55.2%	64.5%	63.2%	87.2%	68.3%	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: 15-19139 to 15-19141

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: LCS-101915
LCS/LCSD

Lab Sample ID: LCS-101915
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted LCS/LCSD: 10/19/15

Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Phenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
Bis-(2-Chloroethyl) Ether	20.6		25.0	82.4%	15.0		25.0	60.0%	31.5%
2-Chlorophenol	18.3		25.0	73.2%	13.4		25.0	53.6%	30.9%
1,3-Dichlorobenzene	13.1		25.0	52.4%	10.0		25.0	40.0%	26.8%
1,4-Dichlorobenzene	13.5		25.0	54.0%	10.2		25.0	40.8%	27.8%
Benzyl Alcohol	17.9		25.0	71.6%	14.9		25.0	59.6%	18.3%
1,2-Dichlorobenzene	14.2		25.0	56.8%	10.9		25.0	43.6%	26.3%
2-Methylphenol	18.0		25.0	72.0%	13.6		25.0	54.4%	27.8%
2,2'-Oxybis(1-Chloropropane)	14.6		25.0	58.4%	11.1		25.0	44.4%	27.2%
4-Methylphenol	18.8		25.0	75.2%	15.1		25.0	60.4%	21.8%
N-Nitroso-Di-N-Propylamine	18.2		25.0	72.8%	16.1		25.0	64.4%	12.2%
Hexachloroethane	13.1		25.0	52.4%	10.4		25.0	41.6%	23.0%
Nitrobenzene	16.4		25.0	65.6%	12.3		25.0	49.2%	28.6%
Isophorone	16.8		25.0	67.2%	17.2		25.0	68.8%	2.4%
2-Nitrophenol	18.0		25.0	72.0%	13.7		25.0	54.8%	27.1%
2,4-Dimethylphenol	51.0		75.0	68.0%	44.5		75.0	59.3%	13.6%
Benzoic Acid	87.9	Q	138	63.7%	90.3	Q	138	65.4%	2.7%
bis(2-Chloroethoxy) Methane	16.9		25.0	67.6%	13.3		25.0	53.2%	23.8%
2,4-Dichlorophenol	56.8		75.0	75.7%	43.1		75.0	57.5%	27.4%
1,2,4-Trichlorobenzene	13.4		25.0	53.6%	10.4		25.0	41.6%	25.2%
Naphthalene	15.9		25.0	63.6%	11.8		25.0	47.2%	29.6%
4-Chloroaniline	46.2		75.0	61.6%	46.0		75.0	61.3%	0.4%
Hexachlorobutadiene	10.4		25.0	41.6%	8.1		25.0	32.4%	24.9%
4-Chloro-3-methylphenol	72.1		75.0	96.1%	65.3		75.0	87.1%	9.9%
2-Methylnaphthalene	13.4		25.0	53.6%	10.0		25.0	40.0%	29.1%
Hexachlorocyclopentadiene	26.8	Q	75.0	35.7%	20.2	Q	75.0	26.9%	28.1%
2,4,6-Trichlorophenol	71.9		75.0	95.9%	57.6		75.0	76.8%	22.1%
2,4,5-Trichlorophenol	71.6		75.0	95.5%	60.3		75.0	80.4%	17.1%
2-Chloronaphthalene	15.2		25.0	60.8%	11.8		25.0	47.2%	25.2%
2-Nitroaniline	60.1		75.0	80.1%	57.8		75.0	77.1%	3.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-101915**
Page 2 of 2 **LCS/LCSD**

Lab Sample ID: LCS-101915 QC Report No: AON4-Maul Foster & Alongi
LIMS ID: 15-19139 Project: Seaport Landing
Matrix: Ground Water 1044.02.01-04
Date Analyzed LCS: 10/23/15 14:22
LCSD: 10/23/15 14:55

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Dimethylphthalate	22.5	25.0	90.0%	23.4	25.0	93.6%	3.9%
Acenaphthylene	19.4	25.0	77.6%	15.8	25.0	63.2%	20.5%
3-Nitroaniline	66.9	75.0	89.2%	68.0	75.0	90.7%	1.6%
Acenaphthene	19.4	25.0	77.6%	15.6	25.0	62.4%	21.7%
2,4-Dinitrophenol	105 Q	138	76.1%	109 Q	138	79.0%	3.7%
4-Nitrophenol	60.9 Q	75.0	81.2%	64.1 Q	75.0	85.5%	5.1%
Dibenzofuran	16.2	25.0	64.8%	13.8	25.0	55.2%	16.0%
2,6-Dinitrotoluene	69.2	75.0	92.3%	65.7	75.0	87.6%	5.2%
2,4-Dinitrotoluene	75.1	75.0	100%	73.8	75.0	98.4%	1.7%
Diethylphthalate	22.4	25.0	89.6%	23.2	25.0	92.8%	3.5%
4-Chlorophenyl-phenylether	17.1	25.0	68.4%	15.5	25.0	62.0%	9.8%
Fluorene	19.4	25.0	77.6%	17.1	25.0	68.4%	12.6%
4-Nitroaniline	62.7	75.0	83.6%	66.6	75.0	88.8%	6.0%
4,6-Dinitro-2-Methylphenol	126	138	91.3%	127	138	92.0%	0.8%
N-Nitrosodiphenylamine	17.3	25.0	69.2%	17.3	25.0	69.2%	0.0%
4-Bromophenyl-phenylether	17.9	25.0	71.6%	16.7	25.0	66.8%	6.9%
Hexachlorobenzene	17.0	25.0	68.0%	15.4	25.0	61.6%	9.9%
Pentachlorophenol	60.6 Q	75.0	80.8%	61.9 Q	75.0	82.5%	2.1%
Phenanthrene	20.1	25.0	80.4%	19.6	25.0	78.4%	2.5%
Carbazole	25.3	25.0	101%	26.6	25.0	106%	5.0%
Anthracene	19.7	25.0	78.8%	19.5	25.0	78.0%	1.0%
Di-n-Butylphthalate	21.0	25.0	84.0%	22.7	25.0	90.8%	7.8%
Fluoranthene	21.1	25.0	84.4%	22.3	25.0	89.2%	5.5%
Pyrene	23.4	25.0	93.6%	24.2	25.0	96.8%	3.4%
Butylbenzylphthalate	23.4	25.0	93.6%	24.7	25.0	98.8%	5.4%
3,3'-Dichlorobenzidine	51.8	75.0	69.1%	55.8	75.0	74.4%	7.4%
Benzo(a)anthracene	20.9	25.0	83.6%	22.9	25.0	91.6%	9.1%
bis(2-Ethylhexyl)phthalate	22.0	25.0	88.0%	23.2	25.0	92.8%	5.3%
Chrysene	24.4	25.0	97.6%	26.1	25.0	104%	6.7%
Di-n-Octyl phthalate	22.7	25.0	90.8%	23.8	25.0	95.2%	4.7%
Benzo(a)pyrene	23.0	25.0	92.0%	25.3	25.0	101%	9.5%
Indeno(1,2,3-cd)pyrene	21.7	25.0	86.8%	23.6	25.0	94.4%	8.4%
Dibenz(a,h)anthracene	22.3	25.0	89.2%	23.8	25.0	95.2%	6.5%
Benzo(g,h,i)perylene	23.1	25.0	92.4%	25.0	25.0	100%	7.9%
1-Methylnaphthalene	16.2	25.0	64.8%	12.4	25.0	49.6%	26.6%
Total Benzofluoranthenes	46.2	50.0	92.4%	50.2	50.0	100%	8.3%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	64.8%	47.2%
2-Fluorobiphenyl	68.8%	50.4%
d14-p-Terphenyl	86.4%	87.6%
d4-1,2-Dichlorobenzene	56.0%	40.4%
d5-Phenol	72.8%	49.6%
2-Fluorophenol	65.3%	46.9%
2,4,6-Tribromophenol	78.1%	73.1%
d4-2-Chlorophenol	74.7%	52.8%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

AON4MBW1

Lab Name: ANALYTICAL RESOURCES INC
ARI Job No: AON4

Client: Maul Foster & Alongi
Project: Seaport Landing

Lab File ID: 15102304

Date Extracted: 10/19/15

Instrument ID: NT6

Date Analyzed: 10/23/15

Matrix: LIQUID

Time Analyzed: 1349

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	AOP0LCSW1	AOP0LCSW1	15102305	10/23/15
02	AOP0LCSDW1	AOP0LCSDW1	15102306	10/23/15
03	B02-GW-6	AON4E	15102307	10/23/15
04	B01-GW-10.0	AON4D	15102319	10/23/15
05	B03-GW-10	AON4F	15102321	10/23/15
06				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Extraction Method: SW3520C
Page 1 of 2

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized:
Reported: 10/26/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Date Extracted: 10/19/15
Date Analyzed: 10/23/15 13:49
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	2.0	< 2.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	2.0	< 2.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	2.0	< 2.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	3.0	< 3.0 U
105-67-9	2,4-Dimethylphenol	3.0	< 3.0 U
65-85-0	Benzoic Acid	20	< 20 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	3.0	< 3.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	3.0	< 3.0 U
59-50-7	4-Chloro-3-methylphenol	3.0	< 3.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	3.0	< 3.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	3.0	< 3.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	3.0	< 3.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	20	< 20 U
100-02-7	4-Nitrophenol	10	< 10 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	3.0	< 3.0 U
121-14-2	2,4-Dinitrotoluene	3.0	< 3.0 U

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: MB-101915
METHOD BLANK

Lab Sample ID: MB-101915
LIMS ID: 15-19139
Matrix: Ground Water
Date Analyzed: 10/23/15 13:49

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

CAS Number	Analyte	RL	Result
84-66-2	Diethylphthalate	1.0	< 1.0 U
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	3.0	< 3.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	10	< 10 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	3.0	< 3.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	2.0	< 2.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	74.0%	2-Fluorobiphenyl	74.0%
d14-p-Terphenyl	107%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	81.9%	2-Fluorophenol	77.3%
2,4,6-Tribromophenol	74.4%	d4-2-Chlorophenol	85.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Extraction Method: SW3546
Page 1 of 1

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Matrix: Soil

Date Received: 10/14/15

Data Release Authorized:
Reported: 10/27/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	LOQ	Result
AON4B	B02-S-5.0	10/23/15	10/26/15	10.0	**Diesel Range**	**64**	**5,300 E**
15-19137	HC ID: **DIESEL/MOTOR OIL**		FID9	1.0	**Motor Oil Range**	**130**	**17,000 E**
					o-Terphenyl		80.0%
AON4B DL	B02-S-5.0	10/23/15	10/26/15	10.0	**Diesel Range**	**640**	**5,800**
15-19137	HC ID: **DIESEL/MOTOR OIL**		FID9	10	**Motor Oil Range**	**1,300**	**19,000**
					o-Terphenyl		81.3%
MB-102315	Method Blank	10/23/15	10/26/15	10.0	Diesel Range	50	< 50 U
15-19138	HC ID: ---		FID9	1.0	Motor Oil Range	100	< 100 U
					o-Terphenyl		86.4%
AON4C	B03-S-5.0	10/23/15	10/26/15	10.0	Diesel Range	64	< 64 U
15-19138	HC ID: **MOTOR OIL**		FID9	1.0	**Motor Oil Range**	**130**	**160**
					o-Terphenyl		87.8%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
LOQ-Limit of Quantitation

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Client ID	OTER	TOT OUT
B02-S-5.0	80.0%	0
B02-S-5.0 DL	81.3%	0
102315MB	86.4%	0
102315LCS	90.3%	0
B03-S-5.0	87.8%	0
B03-S-5.0 MS	92.7%	0
B03-S-5.0 MSD	93.8%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19137 to 15-19138

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: B03-S-5.0
MS/MSD

Lab Sample ID: AON4C
LIMS ID: 15-19138
Matrix: Soil
Data Release Authorized:
Reported: 10/27/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Date Extracted MS/MSD: 10/23/15

Date Analyzed MS: 10/26/15 13:38
MSD: 10/26/15 14:00
Instrument/Analyst MS: FID9/ML
MSD: FID9/ML

Sample Amount MS: 7.81 g-dry-wt
MSD: 7.81 g-dry-wt
Final Extract Volume MS: 10 mL
MSD: 10 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 22.3%

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 64 U	1,670	1,920	87.0%	1,680	1,920	87.5%	0.6%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	92.7%	93.8%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-102315
LAB CONTROL

Lab Sample ID: LCS-102315
LIMS ID: 15-19138
Matrix: Soil
Data Release Authorized:
Reported: 10/27/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: NA
Date Received: NA

Date Extracted: 10/23/15
Date Analyzed: 10/26/15 12:33
Instrument/Analyst: FID9/ML

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 10 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	1,260	1,500	84.0%

TPHD Surrogate Recovery

o-Terphenyl	90.3%

Results reported in mg/kg

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/14/15

ARI Job: AON4
Project: Seaport Landing
1044.02.01-04

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
15-19137-AON4B	B02-S-5.0	7.78 g	10.0 mL	D	10/23/15
15-19138-102315MB1	Method Blank	10.0 g	10.0 mL	-	10/23/15
15-19138-102315LCS1	Lab Control	10.0 g	10.0 mL	-	10/23/15
15-19138-AON4C	B03-S-5.0	7.81 g	10.0 mL	D	10/23/15
15-19138-AON4CMS	B03-S-5.0	7.81 g	10.0 mL	D	10/23/15
15-19138-AON4CMSD	B03-S-5.0	7.81 g	10.0 mL	D	10/23/15

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3546

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Matrix: Soil

Data Release Authorized:
Reported: 10/20/15

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-101915 15-19136	Method Blank	10/19/15	10/20/15	1.0	Gas Diesel Oil o-Terphenyl	< 20 U < 50 U < 100 U 83.6%
AON4A 15-19136	B01-S-4.5 HC ID: ---	10/19/15	10/20/15	1.0	Gas Diesel Oil o-Terphenyl	< 20 U < 50 U < 100 U 94.8%
AON4B 15-19137	B02-S-5.0 HC ID: **DIESEL/MOTOR OIL**	10/19/15	10/20/15	5.0	Gas **Diesel** **Oil** o-Terphenyl	< 64 U **> 160** **> 320** 83.4%
AON4C 15-19138	B03-S-5.0 HC ID: **MOTOR OIL**	10/19/15	10/20/15	1.0	Gas Diesel **Oil** o-Terphenyl	< 20 U < 50 U **> 100** 93.7%

Reported in mg/kg (ppm)

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Client ID	O-TER	TOT OUT
101915MB	83.6%	0
B01-S-4.5	94.8%	0
B02-S-5.0	83.4%	0
B03-S-5.0	93.7%	0

	LCS/MB LIMITS	QC LIMITS
(O-TER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 15-19136 to 15-19138

ANALYTICAL RESOURCES INCORPORATED

TOTAL HCID RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Soil
Date Received: 10/14/15

ARI Job: AON4
Project: Seaport Landing
1044.02.01-04

ARI ID	Client ID	Sample Amt	Final Vol	Basis	Prep Date
15-19136-101915MB	Method Blank	10.0 g	5.00 mL	-	10/19/15
15-19136-AON4A	B01-S-4.5	8.69 g	5.00 mL	D	10/19/15
15-19137-AON4B	B02-S-5.0	7.78 g	5.00 mL	D	10/19/15
15-19138-AON4C	B03-S-5.0	7.78 g	5.00 mL	D	10/19/15

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Extraction Method: SW3510C

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Matrix: Ground Water

Data Release Authorized: B
Reported: 10/19/15

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result
MB-101615 15-19139	Method Blank	10/16/15	10/16/15	1.0	Gas	< 0.25 U
					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	84.8%
AON4D 15-19139	B01-GW-10.0 HC ID: ---	10/16/15	10/16/15	1.0	Gas	< 0.25 U
					Diesel	< 0.50 U
					Oil	< 0.50 U
					o-Terphenyl	83.4%
AON4E 15-19140	B02-GW-6 HC ID: **DIESEL/MOTOR OIL**	10/16/15	10/16/15	1.0	**Gas**	**> 0.25**
					Diesel	**> 0.50**
					Oil	**> 0.50**
					o-Terphenyl	NR
AON4F 15-19141	B03-GW-10 HC ID: **DIESEL/MOTOR OIL**	10/16/15	10/16/15	1.0	Gas	< 0.25 U
					Diesel	**> 0.50**
					Oil	**> 0.50**
					o-Terphenyl	77.4%

Reported in mg/L (ppm)

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Ground Water

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04

Client ID	O-TER	TOT OUT
MB-101615	84.8%	0
B01-GW-10.0	83.4%	0
B02-GW-6	NR	0
B03-GW-10	77.4%	0

	LCS/MB LIMITS	QC LIMITS
(O-TER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-19139 to 15-19141

ANALYTICAL RESOURCES INCORPORATED

TOTAL HCID RANGE HYDROCARBONS-EXTRACTION REPORT

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

ARI Job: AON4
Project: Seaport Landing
1044.02.01-04

ARI ID	Client ID	Sample Amt	Final Vol	Prep Date
15-19139-101615MB	Method Blank	500 mL	1.00 mL	10/16/15
15-19139-AON4D	B01-GW-10.0	500 mL	1.00 mL	10/16/15
15-19140-AON4E	B02-GW-6	500 mL	1.00 mL	10/16/15
15-19141-AON4F	B03-GW-10	500 mL	1.00 mL	10/16/15

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: B01-S-4.5
SAMPLE

Lab Sample ID: AON4A
LIMS ID: 15-19136
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Percent Total Solids: 78.5%

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	0.6	0.6	U
3050B	10/22/15	6010C	10/27/15	**7440-47-3**	**Chromium**	2	**45**	
3050B	10/22/15	6010C	10/27/15	7439-92-1	Lead	6	6	U
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.03	0.03	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: B02-S-5.0
SAMPLE

Lab Sample ID: AON4B
LIMS ID: 15-19137
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Percent Total Solids: 80.3%

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	**24**	
3050B	10/22/15	6010C	10/27/15	**7439-92-1**	**Lead**	6	**30**	
CLP	10/26/15	7471A	10/27/15	**7439-97-6**	**Mercury**	0.02	**0.07**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: B03-S-5.0
SAMPLE

Lab Sample ID: AON4C
LIMS ID: 15-19138
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
Date Sampled: 10/12/15
Date Received: 10/14/15

Percent Total Solids: 85.8%

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	**43**	
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	0.03	0.03	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: B01-GW-10.0
SAMPLE

Lab Sample ID: AON4D
LIMS ID: 15-19139
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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	**0.018**	
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: B02-GW-6
SAMPLE

Lab Sample ID: AON4E
LIMS ID: 15-19140
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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**	
3010A	10/20/15	6010C	10/26/15	**7440-47-3**	**Chromium**	0.005	**0.116**	
3010A	10/20/15	6010C	10/26/15	**7439-92-1**	**Lead**	0.02	**0.08**	
7470A	10/21/15	7470A	10/21/15	**7439-97-6**	**Mercury**	0.0001	**0.0001**	

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: B03-GW-10
SAMPLE

Lab Sample ID: AON4F
LIMS ID: 15-19141
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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	**0.006**	
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	**0.0007**	

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: B01-GW-10.0
SAMPLE

Lab Sample ID: AON4G
LIMS ID: 15-19142
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: B02-GW-6
SAMPLE

Lab Sample ID: AON4H
LIMS ID: 15-19143
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: B03-GW-10
SAMPLE

Lab Sample ID: AON4I
LIMS ID: 15-19144
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON4-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-04
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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: Seep-01
DUPLICATE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Mercury	7470A	0.0001 U	0.0001 U	0.0%	+/- 0.0001	L

Reported in mg/L

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: Seep-01
MATRIX SPIKE

Lab Sample ID: AON3H
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: 10/12/15
Date Received: 10/14/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Mercury	7470A	0.0001 U	0.0010	0.001	100%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	10/22/15	6010C	10/26/15	7440-38-2	Arsenic	5	5	U
3050B	10/22/15	6010C	10/26/15	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/22/15	6010C	10/26/15	7440-47-3	Chromium	0.5	0.5	U
3050B	10/22/15	6010C	10/26/15	7439-92-1	Lead	2	2	U
CLP	10/26/15	7471A	10/27/15	7439-97-6	Mercury	0.02	0.02	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19216
Matrix: Soil
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	213	200	106%	
Cadmium	6010C	51.7	50.0	103%	
Chromium	6010C	52.6	50.0	105%	
Lead	6010C	208	200	104%	
Mercury	7471A	0.52	0.50	104%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
3010A	10/20/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
3010A	10/20/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
3010A	10/20/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
3010A	10/20/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19218
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.09	2.00	104%	
Cadmium	6010C	0.496	0.500	99.2%	
Chromium	6010C	0.531	0.500	106%	
Lead	6010C	2.04	2.00	102%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	10/21/15	6010C	10/26/15	7440-38-2	Arsenic	0.05	0.05	U
6010C	10/21/15	6010C	10/26/15	7440-43-9	Cadmium	0.002	0.002	U
6010C	10/21/15	6010C	10/26/15	7440-47-3	Chromium	0.005	0.005	U
6010C	10/21/15	6010C	10/26/15	7439-92-1	Lead	0.02	0.02	U
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19220
Matrix: Ground Water
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	2.15	2.00	108%	
Cadmium	6010C	0.531	0.500	106%	
Chromium	6010C	0.522	0.500	104%	
Lead	6010C	2.09	2.00	104%	
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: METHOD BLANK

Lab Sample ID: AON3MB
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
7470A	10/21/15	7470A	10/21/15	7439-97-6	Mercury	0.0001	0.0001	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

FORM-I

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: AON3LCS
LIMS ID: 15-19363
Matrix: Groundwater
Data Release Authorized:
Reported: 10/28/15

QC Report No: AON3-Maul Foster & Alongi
Project: Seaport Landing
1044.02.01-02
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Mercury	7470A	0.0020	0.0020	100%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%

FORM-VII

APPENDIX C

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NUMBER 1044.02.01-04 | DECEMBER 8, 2015 | GRAYS HARBOR HISTORICAL SEAPORT AUTHORITY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater and soil samples collected at the Seaport Landing Property, located adjacent to the Chehalis River at 500 North Custer Street in Aberdeen, Washington. The samples were collected on October 12, 2015.

Analytical Resources, Inc. (ARI) performed the analyses. ARI report numbers AON4 and AMQ7 were reviewed. Samples initially logged in as AMQ7 were re-logged as AON4 for some analyses. The samples and analyses are listed below.

Analysis	Reference
Hydrocarbon Identification (HCID)	NWTPH-HCID
Diesel and Motor Oil	NWTPH-Dx
Total and Dissolved Mercury	USEPA 7470A/7471A
Total and Dissolved metals	USEPA 6010C
Semivolatile Organic Compounds (SVOCs)	USEPA 8270D
Volatile Organic Compounds (VOCs)	USEPA 8260C

NWTPH = Northwest Total Petroleum Hydrocarbons.
USEPA = U.S. Environmental Protection Agency.

Samples Analyzed		
Report AON4		**Report AMQ7**
B01-S-4.5	B02-GW-6	B02-GW-6
B02-S-5.0	B03-GW-10	B03-GW-10
B03-S-5.0	Trip Blank	-
B01-GW-10.0	-	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2014a,b) and appropriate laboratory and method-specific guidelines (ARI, 2014; USEPA, 1986).

Total and dissolved metals concentrations in the same sample were compared with one another. All total metals results were greater than associated dissolved metals results.

All aqueous USEPA Method 8260C 2-chloroethyl vinyl ether results were rejected by the reviewer because the compound is not stable in method-recommended acid-preserved containers. Qualified results are summarized below:

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AON4	B01-GW-10.0	2-Chloroethyl vinyl ether	1.0 U	1.0 R
AON4	B02-GW-6	2-Chloroethyl vinyl ether	1.0 U	1.0 R
AON4	B03-GW-10	2-Chloroethyl vinyl ether	1.0 U	1.0 R
AON4	Trip Blank	2-Chloroethyl vinyl ether	1.0 U	1.0 R

In report AON4, USEPA Method 8270D benzo(a)anthracene result for sample B02-S-5.0 was qualified "M" by ARI due to a low spectral match. The reviewer qualified the result "U" as not detected at the reporting limit consistent with USEPA National Functional Guidelines for semivolatile data review (USEPA, 2014).

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B02-S-5.0	Benzo(a)anthracene	260 M	190 U

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

In report AQM7, the NWTPH-Dx extraction for samples B02-GW-6 and B03-GW-10 was performed 17 days after the 14-day holding time. All results were detected above reporting limits and have been qualified by the reviewer with "J" as estimated.

Report	Sample	Component	Laboratory-Reported Result (mg/L)	Result of Record (mg/L)
AQM7	B02-GW-6	Diesel	40	40 J
AQM7	B02-GW-6	Motor Oil	110	110 J
AQM7	B03-GW-10	Diesel	0.5	0.5 J
AQM7	B03-GW-10	Motor Oil	1.5	1.5 J

All remaining extractions and analyses were performed within the recommended holding-time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch.

In report AON4, the USEPA Method 8260C method blank (MB-102215A) associated with a dilution reanalysis for sample B02-S-5.0 had a detection of methylene chloride above the reporting limit. Sample B02-S-5.0 was non-detect for methylene chloride in both the primary and diluted analyses, and the method blank associated with the primary analysis (MB-101915A) was non-detect for methylene chloride; thus, no results were qualified by the reviewer.

All remaining method blanks were non-detect.

Trip Blanks

In report AON4, a trip blank was submitted for USEPA Method 8260C analysis. The trip blank was non-detect for all target analytes.

Equipment Rinsate Blanks

Equipment rinsate blanks were not submitted for analysis because only dedicated sampling equipment was used.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance limits, except where otherwise noted. Surrogate results that exceeded percent recovery acceptance limits due to sample or extract dilution were not qualified by the reviewer.

In report AON4, the aqueous matrix USEPA Method 8270D surrogate p-terphenyl-d14 result was below the lower percent recovery acceptance limit of 28%, at 24.8% for sample B02-GW-6. The remaining surrogates had results within percent recovery acceptance limits and the exceedance was marginal; thus, no results were qualified.

In report AON4, the NWTPH-HCID surrogate o-terphenyl had no quantifiable result for sample B02-GW-6 due to matrix interference. NWTPH-HCID is a semi-quantitative method; thus, no results were qualified by the reviewer.

All remaining surrogate recoveries were within acceptance limits.

INTERNAL STANDARD RECOVERY RESULTS

The samples were spiked with internal standard compounds to evaluate instrument performance on individual samples.

ARI indicated in the case narrative for report AON4 that the soil matrix USEPA Method 8260C internal standard 1,4-dichlorobenzene-d4 exceeded control limits for sample B01-S-4.5. The sample was reanalyzed with similar results, which indicates that the sample matrix was the cause of the low internal standard recovery. The reviewer confirmed that the internal standard response was between $\geq$ 20% and < 50% of the same internal standard response for the initial calibration midpoint. Associated results were all non-detect and reporting limits were qualified with "UJ" as estimated.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B01-S-4.5	Benzene	1.2 U	1.2 UJ
AON4	B01-S-4.5	Bromodichloromethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	Bromoform	1.2 U	1.2 UJ
AON4	B01-S-4.5	Carbon tetrachloride	1.2 U	1.2 UJ
AON4	B01-S-4.5	Chlorodibromomethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	Dibromomethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	1,2-Dichloropropane	1.2 U	1.2 UJ
AON4	B01-S-4.5	cis-1,3-Dichloropropene	1.2 U	1.2 UJ
AON4	B01-S-4.5	trans-1,3-Dichloropropene	1.2 U	1.2 UJ
AON4	B01-S-4.5	1,1,1-Trichloroethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	1,1,2-Trichloroethane	1.2 U	1.2 UJ

The reviewer confirmed with ARI that remaining internal standards not reported by the laboratory were within acceptance limits for percent recovery.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency.

In report AON4, the soil matrix USEPA Method 8270D MS/MSD results for 3,3'-dichlorobenzidine were below the lower percent recovery acceptance limit of 10%, at 0%. The laboratory control sample (LCS) also had 0% recovery for 3,3'-dichlorobenzidine. Additionally, the MS/MSD had results for benzyl alcohol below the lower percent recovery acceptance limit of 19%, at 5.6% and 4.5%, respectively. The LCS had a low, but acceptable result for benzyl alcohol, at 47.8%. The MS/MSD was prepared with sample B01-S-4.5, which is considered representative of the matrices for site soil samples. All samples were non-detect for 3,3'-dichlorobenzidine and benzyl alcohol, and were qualified with "R" as rejected by the reviewer.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B01-S-4.5	3,3'-Dichlorobenzidine	96 U	96 R
AON4	B01-S-4.5	Benzyl alcohol	19 U	19 R
AON4	B02-S-5.0	3,3'-Dichlorobenzidine	960 U	960 R
AON4	B02-S-5.0	Benzyl alcohol	190 U	190 R
AON4	B03-S-5.0	3,3'-Dichlorobenzidine	99 U	99 R
AON4	B03-S-5.0	Benzyl alcohol	20 U	20 R

In report AON4, the soil matrix USEPA Method 8270D MS/MSD exceeded RPD acceptance limits for 4-chloro-3-methylphenol and 4-nitrophenol, at 38.9% and 56.1%, respectively. The associated samples were non-detect for these two compounds; thus, no results were qualified by the reviewer.

All remaining MS/MSD results were within acceptance limits for percent recovery and relative percent differences (RPDs).

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. In report AQM7, the NWTPH-Dx batch quality control did not include a laboratory duplicate or other assessment of batch precision. Associated sample results were qualified due to holding-time exceedance. No additional qualification was required.

All remaining duplicate samples were extracted and analyzed at the required frequency. All laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

In report AON4, the aqueous matrix USEPA Method 8260C LCS had a result for 1,2-dibromo-3-chloropropane below the lower percent recovery acceptance limit of 79%, at 77.9%. The LCS/LCSD also had 1,2,3-trichlorobenzene results below the lower percent recovery acceptance limit of 80%, at 72.0% and 76.5%, respectively. The exceedances were minor; thus, no results were qualified by the reviewer.

In report AON4, the soil matrix USEPA Method 8270D LCS result for 4-chloroaniline was below the lower percent recovery acceptance limit of 11%, at 3.8%. The result for 3-nitroaniline was below the lower percent recovery acceptance limit of 22%, at 5.7%. The associated MS/MSD had low, but acceptable percent recoveries for 4-chloroaniline and 3-chloroaniline, which were greater than 10%. All associated sample results were non-detect and have been qualified by the reviewer with "UJ" as estimated in the table below. The LCS

result for 3,3'-dichlorobenzidine was 0%. The associated MS/MSD also had 0% recoveries and all associated sample results are qualified in the MS/MSD section above.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B01-S-4.5	3-Nitroaniline	96 U	96 UJ
AON4	B01-S-4.5	4-Chloroaniline	96 U	96 UJ
AON4	B02-S-5.0	3-Nitroaniline	960 U	960 UJ
AON4	B02-S-5.0	4-Chloroaniline	960 U	960 UJ
AON4	B03-S-5.0	3-Nitroaniline	99 U	99 UJ
AON4	B03-S-5.0	4-Chloroaniline	99 U	99 UJ

In report AON4, the aqueous matrix USEPA Method 8270D LCSD result for 2,2'-oxybis (1-chloropropane) was below the lower percent recovery acceptance limit of 47%, at 44.4%. The LCS result was within the percent recovery acceptance limit; thus, no results were qualified. The LCS/LCSD exceeded RPD acceptance limits of 30% for phenol, bis(2-chloroethyl)ether, and 2-chlorophenol. Associated samples were non-detect; thus, no results were qualified.

All remaining LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. Field duplicate samples were not submitted for analysis.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. ARI reported CCV-qualified results. Quality control and surrogate results that met percent recovery acceptance limits but were also flagged due to CCV exceedances did not result in data qualification.

In report AON4, the soil matrix USEPA Method 8260C CCV analyzed on 10/19/2015 exceeded percent drift acceptance limits for bromomethane, chloroethane, idodomethane, and 2-chloroethyl vinyl ether. The USEPA Method 8260C CCV analyzed on 10/22/2015 exceeded percent drift acceptance limits for bromomethane, bromoethane, iodomethane, and dichlorodifluoromethane. The CCV analyzed on 10/22/2015 was associated with only a dilution analysis for sample B02-S-5.0, where only 1,2,4-trimethylbenzene results will be used; thus no qualification is required. Non-detect results associated with the CCV exceedances were qualified as estimated by the reviewer with "UJ." Qualified results are summarized below.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B01-S-4.5	Bromomethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	Chloroethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	Iodomethane	1.2 U	1.2 UJ
AON4	B01-S-4.5	2-Chloroethyl vinyl ether	5.9 U	5.9 UJ
AON4	B02-S-5.0	Bromomethane	1.5 U	1.5 UJ
AON4	B02-S-5.0	Chloroethane	1.5 U	1.5 UJ
AON4	B02-S-5.0	Iodomethane	1.5 U	1.5 UJ
AON4	B02-S-5.0	2-Chloroethyl vinyl ether	7.4 U	7.4 UJ
AON4	B03-S-5.0	Bromomethane	1.1 U	1.1 UJ
AON4	B03-S-5.0	Chloroethane	1.1 U	1.1 UJ
AON4	B03-S-5.0	Iodomethane	1.1 U	1.1 UJ
AON4	B03-S-5.0	2-Chloroethyl vinyl ether	5.3 U	5.3 UJ

In report AON4, the soil matrix USEPA Method 8270D CCV analyzed on 10/28/2015 exceeded percent drift acceptance limits for phenol, carbazole, and 3,3'-dichlorobenzidine. All associated sample results were non-detect and have been qualified as estimated by the reviewer with "UJ." Results for 3,3'-dichlorobenzidine were qualified in the MS/MSD section and are not additionally qualified. Qualified results are summarized below.

Report	Sample	Component	Laboratory-Reported Result (ug/kg)	Result of Record (ug/kg)
AON4	B01-S-4.5	Phenol	19 U	19 UJ
AON4	B01-S-4.5	Carbazole	19 U	19 UJ
AON4	B02-S-5.0	Phenol	190 U	190 UJ
AON4	B02-S-5.0	Carbazole	190 U	190 UJ
AON4	B03-S-5.0	Phenol	20 U	20 UJ
AON4	B03-S-5.0	Carbazole	20 U	20 UJ

In report AON4, the aqueous matrix USEPA Method 8270D CCV analyzed on 10/23/2015 exceeded percent drift acceptance limits for benzoic acid, hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-nitrophenol, and pentachlorophenol. Associated sample results that were non-detect have been qualified as estimated by the reviewer with "UJ." Associated sample results detected between the reporting limit and MDL were already flagged as estimated and were not additionally qualified by the reviewer. Qualified results are summarized below.

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AON4	B01-GW-10.0	Benzoic acid	20 U	20 UJ
AON4	B01-GW-10.0	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON4	B01-GW-10.0	2,4-Dinitrophenol	20 U	20 UJ
AON4	B01-GW-10.0	4-Nitrophenol	10 U	10 UJ

Report	Sample	Component	Laboratory-Reported Result (ug/L)	Result of Record (ug/L)
AON4	B01-GW-10.0	Pentachlorophenol	10 U	10 UJ
AON4	B02-GW-6	Benzoic acid	97 J	97 J
AON4	B02-GW-6	Hexachlorocyclopentadiene	100 U	100 UJ
AON4	B02-GW-6	2,4-Dinitrophenol	400 U	400 UJ
AON4	B02-GW-6	4-Nitrophenol	200 U	200 UJ
AON4	B02-GW-6	Pentachlorophenol	200 U	200 UJ
AON4	B03-GW-10	Benzoic acid	20 U	20 UJ
AON4	B03-GW-10	Hexachlorocyclopentadiene	5.0 U	5.0 UJ
AON4	B03-GW-10	2,4-Dinitrophenol	20 U	20 UJ
AON4	B03-GW-10	4-Nitrophenol	10 U	10 UJ
AON4	B03-GW-10	Pentachlorophenol	10 U	10 UJ

The reviewer confirmed with ARI that remaining CCVs not reported by the laboratory were within acceptance limits for percent recovery.

REPORTING LIMITS

ARI evaluated USEPA Methods 8260C and 8270D results to one-half the MRL. Non-detect results were reported at the RL or limit of quantitation. Remaining results were evaluated and reported to MRLs. Results reported between MRL and one-half of the MRL or between the EDL and RL were qualified by the laboratory with "J" as estimated.

Samples requiring dilutions because of high analyte concentrations and/or matrix interferences had elevated MDLs and/or RLs.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

ARI reissued report AON4 with revised page numbers recorded on the lower left portion of each page. The original page numbers recorded on the lower right portion of each page do not represent the correct, current report page numbers.

In report AON4, the trip blank sample was not recorded on the chain-of-custody. The laboratory also noted that a sample label on the total metals container for B03-GW-10 was labeled with B02-GW-10. The reviewer confirmed that the correct sample name was assigned to the sample container.

In report AON4, NWTPH-Dx and NWTPH-Gx analyses were requested by MFA after NWTPH-HCID was completed. A record of the request is included in the report. The NWTPH-Dx analysis, requested for samples B02-GW-6 and B03-GW-10, and the NWTPH-Gx analysis requested for sample B02-GW-6, was not performed. NWTPH-Gx was canceled by MFA. NWTPH-Dx was reported in report AMQ7.

No additional issues were found.

REFERENCES

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