



*Engineering Evaluation/Cost Analysis
Pier 99 – Portland Site
Portland, Oregon*

Prepared for:
U.S. Environmental Protection Agency

June 13, 2013
1975-00

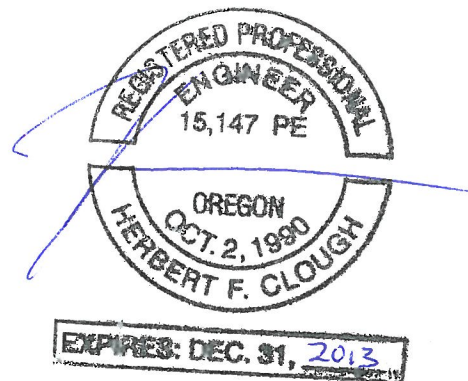


***Engineering Evaluation/Cost Analysis
Pier 99 – Portland Site
Portland, Oregon***

**Prepared for:
U.S. Environmental Protection Agency**

**June 13, 2013
1975-00**

*John P. Foxwell, R.G.
Senior Associate Hydrogeologist*



*Herb Clough, P.E.
Principal*

Table of Contents

1.0 INTRODUCTION	1
1.1 Purpose and Scope	1
1.2 Report Organization	2
2.0 SITE DESCRIPTION AND BACKGROUND	3
2.1 Site Location, Description, and History	3
2.3 Geology and Hydrogeology	6
2.4 Summary of Previous Investigations	7
3.0 SUMMARY OF EE/CA DATA GAP INVESTIGATION	10
3.1 EE/CA Work Plan Scope of Work	11
3.2 Bank and Building Visual Assessment Results	11
3.3 Subsurface Investigation Results	13
3.4 Analytical Results	17
3.5 Sources, Nature, and Extent of Contamination	21
4.0 APPLICABLE OR RELEVANT AND APPROPRIATE REGULATIONS	23
4.1 Land Use, Permitting, and Resource Study ARARs	23
4.2 Federal and State Cleanup and Screening Levels	24
5.0 REMOVAL ACTION EVALUATION	26
5.1 Land Use Summary	26
5.2 Updated Conceptual Site Model	26
5.3 Removal Screening	28
6.0 IDENTIFICATION OF REMOVAL ACTION OBJECTIVES	30
6.3 Removal Action Areas	31
7.0 TECHNOLOGY EVALUATION AND REMOVAL ACTION ALTERNATIVE DEVELOPMENT	32
7.1 No Action	32
7.2 OU3 – Remove Gravel Filter, Clean and Plug Discharge Line	33
7.3 OU3 – Remove Gravel Filter, Clean and Remove Discharge Line	35
7.4 OU3 – Cap Gravel Filter, Clean and Plug Discharge Line	37
7.5 OU1 – Bank Stabilization	39
7.6 OU1 – Bank Removal and Stabilization	40
8.0 COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES	42
8.1 Gravel Filter Area Alternatives	42
8.2 Bank Area Alternatives	43
9.0 RECOMMENDED REMOVAL ACTION ALTERNATIVE	44
9.1 Biological Evaluation	44
9.2 Cultural Resource Evaluation	45
9.3 Removal Action Data Gaps	45
9.4 Removal Schedule	46
10.0 REFERENCES	47

Tables

- 1 Soil Sample Results - Metals
- 2 Soil Sample Results – Butyltins and PCBs
- 3 Soil Sample Results – Organochlorine Pesticides
- 4 Soil Sample Results – SVOCs
- 5 Soil Sample Results - TPH
- 6 Groundwater Sampling Results
- 7 Comparative Analysis of Cleanup Action Alternatives

Figures

- 1 Site Location Map
- 2 Site Vicinity Plan
- 3 Current Site Plan
- 4 Historical Features
- 5 Historical Sampling Locations
- 6 Sampling Locations and Laboratory Analyses
- 7 Soil Results: Metals and TBT
- 8 Soil Results: Pesticides, PCBs, and B(a)P
- 9 Conceptual Site Model
- 10 Principal Threat Evaluation
- 11 Removal Summary

Appendices

- A USACE Aerial Photographs
- B Historical and Current Maps
- C Historical Sampling Results
- D Visual Assessment Photograph Log
- E Lithologic Logs
- F Laboratory Quality Assurance/Quality Control Review and Analytical Laboratory Reports
- G EE/CA Cost Estimates

Executive Summary

This document presents the Engineering Evaluation/Cost Analysis (EE/CA) for the Pier 99 – Portland Site located at 1610 North Pier 99 Street, in Portland, Oregon (the Site; Figure 1). The EE/CA assesses potential removal actions to reduce risks to human health and the environment associated with contamination at the Site. This EE/CA was prepared pursuant to an Administrative Settlement Agreement and Order (AO) dated August 30, 2012 between the U.S. Environmental Protection Agency (EPA) and the property owner, Mr. Milton Brown. For this EE/CA, the site was divided into Operable Units (OUs) including:

- Operable Unit 1 – Bank Area
- Operable Unit 2 – Eastern Solid Waste Storage Area (Eastern Unimproved Area)
- Operable Unit 3 – Gravel Filter Area and Upland Boat Maintenance Repair Area
- Operable Unit 4 – Former Crane Area

The property is a 1.07-acre parcel that is roughly rectangular, located along the western edge of the Interstate Highway (I-5) bridge over North Portland Harbor – Columbia River. The entire Site is located on a levee that is under the jurisdiction of the United States Corps of Engineers (USACE) and managed by the Peninsula Drainage District Number 1 (Pen 1). The riverward boundary between the Site and submerged lands owned by the Oregon Division of State Lands (DSL) is defined as the line of ordinary high water. The investigation area also includes areas located off-Site that were apparently used by former tenants.

The current property owner, Milton Brown, acquired the property in 1988. Current site uses include residential uses of the house on the property and general shop and storage uses in the work shop. Current in-water uses adjacent to the site include moorage of marine vessels, house boats, and pleasure craft. Historical land uses of the Site include ship building and repair, and a machine shop. The first available records of ship building and/or repair date to the 1930s. Historical land uses in the site vicinity also included ship building and repair, as well as a large livestock yard.

Previous investigations included an Expanded Preliminary Assessment (XPA) performed for Mr. Brown in 2003, a Preliminary Assessment (PA) completed for EPA in 2007, and a Site Inspection including comprehensive sampling for EPA in 2008. A data gap investigation was completed prior to preparing the EE/CA.

The removal action evaluation was prepared in general accordance with the EPA Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA (EPA540-R-93-057; EPA, 1993). The removal action screening incorporates both a determination of whether a given waste material is present at concentrations considered to be a principal threat, and determination of the likelihood of a principal threat waste to migrate to a receptor. Constituents that exceed the human health and ecological removal screening levels are considered principal threat chemicals.

At OU1, principal threat materials (metals, pesticides, phthalates, and polycyclic aromatic hydrocarbons [PAHs]) were detected along the bank at concentrations that exceed the removal screening criteria. Clearing of the bank during the removal action was not permitted at the time of the data gap investigation, so it was not feasible to verify the stability of the bank for the purpose of evaluating whether a transport pathway may be present. The proposed removal action for this area includes clearing the vegetation, evaluating the stability of the bank, taking steps to further stabilize the bank, and re-vegetating the bank.

At OU2, sample location WS02SS exceeds the human health and ecological removal screening levels in the Eastern Unimproved Area. This sample is located at the top of the bank, near the suspected location of the gravel filter discharge. The area in the vicinity of WS02SS will be managed as a component of the proposed removal action for OU3, which removes soils at the end of the discharge pipe. Only one other sample location in the Eastern Unimproved Area exceeds removal screening levels (WS01SS). Additional removal is not proposed for the remainder of the Eastern Unimproved Area. There is only one sample location where principal threat materials would remain present above ecological screening levels, and the other proposed removal actions will remove transport pathways from this area to the river.

At OU3, the presence of metals, TBT, pesticides, phthalates, and PAHs in the gravel filter and MH-1 sediments indicate principal threat wastes are contained in the gravel filter and the associated discharge line. These concentrations and their locations within the gravel filter system suggest a removal is necessary. In this case, principal threat wastes and a migration pathway are present.

At OU4, the results of the data gap investigation indicate that removal is not needed for the former crane area soil or groundwater at the site.

Based on the results of this EE/CA, the recommended removal actions for the Site are OU3 Gravel Filter Removal and Pipe Removal and OU1 Bank Stabilization. These alternatives were selected for the following reasons.

- Gravel filter and discharge pipe removal removes the potential for exposure for future Site workers to chemicals at concentrations that exceed RMLs and prevents migration to the river. Bank stabilization and maintenance by the owner and Pen 1 will prevent migration of contaminants in the bank to the river. Soil in the vicinity of WS02SS would also be removed as part of the gravel filter discharge pipe removal.
- The gravel filter and discharge pipe removal is a permanent action.
- Bank stabilization will manage contaminated soil in place by removing invasive vegetation and debris, and stabilizing the bank. This removal action is consistent with Pen 1 and USACE levee management requirements.
- The timeframe to implement both components of the removal is reasonable.

1.0 Introduction

This document presents the Engineering Evaluation/Cost Analysis (EE/CA) for the Pier 99 – Portland Site located at 1610 North Pier 99 Street, in Portland, Oregon (the Site; Figure 1). The EE/CA assesses potential removal actions to reduce risks to human health and the environment associated with contamination at the Site. This EE/CA was prepared pursuant to an Administrative Settlement Agreement and Order (AO) dated August 30, 2012 between the U.S. Environmental Protection Agency (EPA) and the property owner, Mr. Milton Brown. This EE/CA has been prepared in general accordance with the EPA Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA (EPA540-R-93-057; EPA, 1993). Figure 1 presents a Site location map; Figure 2 presents a Site vicinity plan.

For this EE/CA, the site was divided into Operable Units (OUs), based on language in the AO. The OUs are shown on Figure 3. The OUs include:

- Operable Unit 1 – Bank Area
- Operable Unit 2 – Eastern Solid Waste Storage Area (Eastern Unimproved Area)
- Operable Unit 3 – Gravel Filter Area and Upland Boat Maintenance Repair Area
- Operable Unit 4 – Former Crane Area

Note that the Eastern Solid Waste Storage Area was identified as a potential source area from a complaint of improper disposal of waste into a dumpster (Secor, 2003). The complaint was investigated and a No Further Action (NFA) issued. No other historical documentation was identified that identifies this area as a location for waste disposal or storage. The area will be referred to herein as the Eastern Unimproved Area to be consistent with prior documented use.

1.1 Purpose and Scope

The objectives of this EE/CA are to identify the goals of a removal action, to evaluate potential removal action alternatives (RAA), and to recommend the most appropriate response approach to address risks associated with highly concentrated or mobile contamination at the Site. Following EE/CA guidance (EPA, 2000) and 40 Code of Federal Regulations (CFR 300.415[b][2]), the selected RAA must:

- Remove or manage imminent risks to human health and the environment;
- Comply with applicable or relevant and appropriate requirements (ARARs) of federal and state environmental laws;
- Be cost-effective;
- Use permanent solutions and innovative treatment technologies to the extent practicable; and

-
- Satisfy the regulatory preference for treatment that reduces contaminant toxicity, mobility, or volume.

To meet the objectives, the scope of this EE/CA included the following:

- Identify a list of proven technologies and process options that address the removal action objectives (RAOs);
- Assemble the retained technologies and process options into the most feasible removal actions; and
- Comparative analysis of each alternative with respect to the comprehensiveness of the removal action (effectiveness), complexity of the problem to be addressed and the action itself (implementability), and reasonableness of cost.

1.2 Report Organization

The following is a brief overview of the organization of the report.

- Site Description and Background (Section 2) — A description of the Site, including location, geology and hydrogeology, Site history, and a summary of previous environmental investigations. This section also discusses the OUs at the Site.
- EE/CA Data Gap Investigation (Section 3) — A presentation of the scope and results of field sampling activities conducted to address data gaps identified in the EE/CA Work Plan, including description of the source, nature, and extent of contamination identified at the Site.
- Applicable or Relevant and Appropriate Requirements (ARARs; Section 4) — Summarizes federal, state, and local regulations and screening levels applicable to Site removal action.
- Removal Action Evaluation (Section 5) — Describes the land use, updated conceptual site model (CSM), and human health and ecological removal screening for the Site. This section includes a description of the nature and extent of the contaminants of interest, transport pathways, and exposure pathways for human health and ecological receptors.
- Identification of Removal Action Objectives (Section 6) — Presentation of removal action objectives (RAOs) that specify the contaminants(s) and media of concern, the exposure route(s) and receptor(s), and an acceptable contaminant concentration or range of concentrations for each exposure scenario. Preliminary remediation goals (PRGs) based on ARARs were established as part of the RAO development process.
- Identification and Screening of Removal Action Alternatives (Section 7) — A description of the removal alternatives that were developed in consultation with EPA. These removal alternatives form the basis for the comparative analysis of removal action alternatives.

-
- Comparative Analysis of Removal Action Alternatives (Section 8) — After completing the detailed screening, the feasible removal alternatives were then ranked. Based on the results of the comparison rankings, a removal action alternative is recommended.
 - Recommended Removal Action Alternatives (Section 10) — This section provides a summary of the recommendations for removal action, preliminary schedule, and ARARs specific to the removal action.

2.0 Site Description and Background

This section provides background information on the Site, including Site setting and description, historical ownership and operations, and regional geology and hydrogeology.

2.1 Site Location, Description, and History

2.1.1 Site Location and Description

The Site is located in Portland, Oregon (as shown on Figure 1). The property is a 1.07-acre parcel that is roughly rectangular, located along the western edge of the Interstate Highway (I-5) bridge over North Portland Harbor – Columbia River. North Portland Harbor – Columbia River is the name given to the portion of the Columbia River that runs between Hayden Island and North Portland. The entire Site is located on a levee that is under the jurisdiction of the United States Corps of Engineers (USACE) and managed by the Peninsula Drainage District Number 1 (Pen 1). The riverward boundary between the Site and submerged lands owned by the Oregon Division of State Lands (DSL) is defined as the line of ordinary high water.

The investigation area also includes areas located off-Site that were apparently used by former tenants. The gravel filter area, the majority of the discharge line from the gravel filter, and most of the eastern unimproved area are located off the site, in an area that was formerly occupied by a highway off-ramp. This property is owned by the State of Oregon. No information on lease agreements or other access/use agreements have been identified. The owner has confirmed that he did not construct the gravel filter. The owner suspected that the gravel filter was constructed by the Oregon Department of Transportation (ODOT) to drain the area north of the flood wall. ODOT reviewed their files and stated they did not construct the filter. No confirmed information regarding the construction date for the gravel filter or the party that constructed the filter has been identified.

Figure 2 shows the Site vicinity plan. The property is bounded by the Northwest Boat Center and the I-5 Bridge to the east, the North Portland Harbor – Columbia River to the north, Pier 99 moorage and Diversified Marine to the west, and a parking area to the south. Current site uses include residential uses of the house on the property and general shop and storage uses in the work shop. Current in-water uses adjacent to the site include moorage of marine vessels, house boats, and pleasure craft.

Two sets of stairs/walkways lead from the top of the bank on the property down to the docks. Figure 3 shows the Site features. Located at the top of the western walkway is a residence. Located at the top of the eastern walkway are the shop building, a driveway, a shed, and paved area currently used for parking. Near the eastern portion of the Site on the southern edge of the driveway, a manhole allows access to the gravel filter drainage system.

Three outfalls were reported (E&E, 2009) to discharge to the North Portland Harbor – Columbia River (Figure 4). The westernmost outfall is a City of Portland outfall that drains a portion of N Marine Drive and property south of the Site currently owned by the State of Oregon and leased to ODOT. This outfall does not include drainage from the Site. No information has currently been obtained regarding the construction or drainage basin of the central outfall and this outfall is not visible from the docks. Based on field reconnaissance (Section 3.2.1), this outfall is not believed to exist. The easternmost outfall is also not visible at its reported location. Based on the orientation of the piping that leaves the manhole for the gravel filter area, the outfall should be located on the bank, riverward of the former crane pad. A grate located near the eastern walkway serves as an outlet to drain stormwater from the parking lot to the bank.

2.1.2 Site History

The history of land use activities on and immediately surrounding the Site was researched to identify former operations that may have caused or contributed to potential environmental contamination. Figure 4 shows historical site features. The sources used for this research are listed in the following table.

Description	Provider or Interviewee	Dates of Coverage or Range of Site Knowledge	Date Reviewed or Contacted	Comment
Historical Aerial Photographs	U.S. Army Corps of Engineers (USACE)	1936, 1940, 1956, 1961, 1971, 1980, and 1996	November 26, 2012	See Appendix A
Historical Fire Insurance Maps	EDR search of Sanborn® maps	1950, 1952, and 1966	November 1, 2012	See Appendix B
Historical Pen 1 Map	Pen 1	1940	February 25, 2013	See Details Below
Prior Environmental Documentation	Milton Brown	2003 to 2008	November 2012	See Section 2.4

Observations of Site and adjacent property uses based on a review of the historical aerial photographs and fire insurance maps detailed above are summarized below.

- 1936: The boat and machine shops and a dock are located on the Site. Several boats and docks are adjacent to the Bank Area to the east and west of the Site. The I-5 Bridge is to the east, undeveloped land to the south and west, and the Expo Center (formerly used as a livestock exposition center) is located to the southwest.

-
- 1940: The residence is located on the west side of the Site. Two sheds (Boat Storage and unknown shed) are located on the eastern portion of the Site and additional dock structures are located adjacent to the Site in North Portland Harbor. Two buildings (restaurant and a service station) are located south of the Site and the Kiernan Livestock Farms are located to the south and west of the Site. The Kiernan Livestock Farm has several small structures. The City of Portland outfall, catch basin, and storm sewer pipes are located to the west of the Site.
 - 1950: A road (presumed to be Marine Drive) is located south of the Site at the location of the former unknown shed. A boat building is located on the eastern portion of the Site. An apartment building, residence, and a store are located south of the service station.
 - 1952: No change to the Site. The residence south of the service station was converted to an office.
 - 1956: Significant development to the south and southwest appears, including the Expo Center parking area, roadways, and possible storage yard. Several structures south of the service station are built. Clearing of vegetation and over water operations appear to the west of the Site. Two dock structures appear directly north and northeast of the Site across North Portland Harbor.
 - 1961: Interstate 5 has been constructed and a southbound off-ramp is located over the eastern portion of the Site. The boat storage and boat building have been removed. The restaurant and service station south of the Site are removed and additional structures appear in the storage yard. Over-water operations appear adjacent to and to the west of the Site and significant dock structures appear across North Portland Harbor from the Site.
 - 1966: No change.
 - 1971: No change to the Site. Significant changes to the I-5 northbound on-ramp appear to the southeast of the Site. Buildings are removed in the storage yard south of the Site, structures appear to the west, and a dock structure appears adjacent and to the west of the Site.
 - 1980: No change to the Site. The storage yard south of the Site has been removed.
 - 1996: No change to the Site. The I-5 off-ramp over top of the Site has been removed. Significant roadway construction appeared directly south of the Site.

Based on documents provided by the property owner, Milton Brown, historical river-related operations began at the Site in 1937. From approximately 1937 to 1975, the Site operated as a marine vessel production, service, repair, and painting facility under the name of Westerlund's Boat and Machine Shop (Westerlund). During Westerlund's operations, private and commercial vessels were reportedly built and repaired at the Site, and manufacturing of marine transmissions also occurred. The Site originally consisted of a floating barge with a crane at the approximate location of the western span of the I-5 Bridge. The steel crane and the existing building were placed at the Site in 1947 and a floating drydock attached to the eastern walkway was noted in 1972. The floating drydock was mentioned to be operated by a Ron Church;

however, information pertaining to Mr. Church's operations has not been identified. In 1975, Schrouder's Machine Shop (Schrouder) was operating at the Site and took over operations of Westerlund's boat yard following Frede Westerlund's death. Schrouder operated at the Site until 1984 (Rand, 2003; SECOR, 2003).

From 1984 until 1986, the Site was operated as an upholstery shop under the name George's Upholstery (SECOR, 2003). From 1986 until 1988, the Site was operated as a marine vessel storage and repair facility under the name Harbor 2 Boatyard (SECOR, 2003).

Schooner Creek Boat Works (Schooner Creek) moved to the Site and began operations as a marine vessel repair and paint shop sometime in 1988. Milton Brown acquired the property later in 1988. Facility operations included marine vessel storage, painting, fiberglass and metalwork repair, and general repair of marine vessels. Boats were both brought in on dollies and picked from the river using the on-site steel crane and brought up to the work shop for repairs. Operations ceased in July 2000 when Schooner Creek moved operations to another facility. However, Schooner Creek maintained a lease at the Site until December 2001, at which time Guy Boyden took over the property and operated under the name Mermaid Marine (Rand, 2003).

During the 12 years Schooner Creek was performing operations at the Site, the Oregon Department of Environmental Quality (DEQ) received six pollution complaints alleging that activities were contaminating the North Portland Harbor – Columbia River and nearby properties. Complaints filed include: improper disposal of chemicals at the Site in September 1991; stripping of marine paint into the North Portland Harbor – Columbia River in October 1992; sanding a boat without containment in October 1992; strong paint smell coming from the boat yard in June 1999; oil slick to river from crane crankcase in April 2002; and "old problems" at the Site in April 2002. The April 2002 complaint referred to the condition of the Site and identified previous complaints (SECOR, 2003).

According to Schooner Creek, boat maintenance and repair activities occurred over the concrete pad that drains in part into the gravel filter area (E&E, 2008; Figure 3). The gravel filter area drains into the manhole observed on the southeastern portion of the property and potentially discharges into North Portland Harbor – Columbia River.

In December 2001, Milton Brown purchased the property. Since that time the Site has been used as a residence, workshop for a houseboat repair company (tenant lease), and parking and access to boat slips in North Portland Harbor – Columbia River.

2.3 Geology and Hydrogeology

The geology beneath the site consists of fill used to construct the levee, which is expected to be underlain by overbank deposits from the Columbia River and remaining geologic units that comprise the Portland

Basin. The local bedrock is the Columbia River Basalt. The depth to bedrock in the vicinity of the site was not mapped in publications reviewed for this EE/CA, but it is expected to occur at depths of 1,000 feet or greater. Sampling at the Site has been limited to soil sampling within approximately 25 feet of the ground surface. Swanson et al., 1993, defines the hydrogeological units present beneath the site from the ground surface with increasing depth, as follows:

- Fill Material (Fill)
- Overbank Deposits (OD)
- Columbia River Sand Aquifer (CRSA)
- Unconsolidated Gravel Aquifer (UGA)
- Troutdale Gravel Aquifer (TGA)
- Confining Unit 1 (CU1)
- Troutdale Sand Aquifer (TSA)
- Confining Unit 2 (CU2)
- Sand and Gravel Aquifer (SGA)
- Confining Unit 3 (CU3)
- Undifferentiated Fine-Grained Sediments (UFS)
- Columbia River Basalt Group (CRBG)

Depth to groundwater at the Site is expected to be controlled by the river stage. Accounting for river stage variations (USACE, 2004), depth to groundwater is expected to range from approximately 6 to 27 feet below the ground surface (bgs). During the 2013 Data Gap Investigation, groundwater was encountered at approximately 20 feet bgs. The depth of the first water-bearing aquifer widely used as a groundwater resource, the CRSA, is expected to first occur between approximately 50 and 60 feet bgs.

2.4 Summary of Previous Investigations

2.4.1 Expanded Preliminary Assessment and Request for Closure

In 2003, at the request of DEQ, Mr. Milton Brown, owner of the Site, had an Expanded Preliminary Assessment (XPA) performed on the property. Eight surface soil samples (SS-1 through SS-8) were collected during the XPA and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) Metals (EPA Method 1311/Series6000/7000), volatile organic compounds (VOCs; EPA Method 8260b), total petroleum hydrocarbons (TPH)-diesel (Method NWTPH-Dx), and TPH-oil (Method NWTPH-Dx). Sample results for the surface soil samples are presented in Tables C-1 through C-3 contained in Appendix C. Two samples were collected from the slope, north of the work shop and machine shop area; two samples were collected

from the gravel filter area; two samples were collected from the eastern gravel area; and two samples were collected adjacent to the crane (SECOR, 2003). Sample locations are shown on Figure 5.

During the XPA, petroleum and lead contamination were detected in soil near the crane. Based on the findings of the XPA, excavation was completed. Approximately 22 cubic yards of contaminated soil were reportedly removed from the area immediately surrounding the crane. After the soil excavation, three additional samples were collected and analyzed for TPH (NWTPH-Dx) and total lead (EPA Method 6000/7000). One sample was collected from the vertical extent of the excavation (7 feet bgs) and two samples were collected from the sidewalls (4 and 5 feet bgs). These samples, collected from 4 to 7 feet bgs contained TPH and lead. Sample results for the confirmation soil samples are presented in Table C-4 contained in Appendix C. TPH as diesel was detected at a concentration of 376 milligrams per kilogram (mg/kg) in the excavation bottom and TPH as oil was detected in the excavation bottom and the northern sidewall at concentrations of 2,200 and 1,700 mg/kg, respectively. Total lead was detected in confirmation samples ranging from 8.25 to 95.8 mg/kg. Figure 5 displays the locations of the confirmation samples. The concentrations of confirmation samples were below the site-specific risk-based concentrations (RBCs) for TPH calculated using a spreadsheet document provided by DEQ for (SECOR, 2003).

2.4.2 START Preliminary Assessment

In 2008, a preliminary assessment (PA) for the Site was completed by Ecology & Environment, Inc. (E&E) on behalf of the EPA. The PA discussed the Site history and current and former waste handling practices and identified several possible sources of hazardous substances at the Site. The PA concluded that historical boat building, repair, and refurbishing activities at the 1610 North Pier 99 site could be a source of sediment contamination in the Columbia River, and further investigation was recommended. Contaminants of concern were identified to be metals, VOCs, semi-volatile organic compounds (SVOCs), copper oxide, organotins, and, possibly polychlorinated biphenyls (PCBs; E & E, 2008).

2.4.3 Site Inspection Investigation

In October 2008, E&E conducted surface soil and sediment sampling at areas identified as being potential source areas or areas that may have been contaminated through migration from potential sources areas. The areas investigated were identified based on the E&E PA, interviews with former workers, and regulatory agencies, as well as a review of background information. Potential source areas identified by E&E included the following:

- **Upland Boat Maintenance and Repair Areas.** These areas consist of a work shop, former machine shop, and asphalt concrete pad where vessels were repaired. These areas drain to the nearby gravel filter and/or onto the slope that leads to North Portland Harbor – Columbia River. The original purpose of the gravel filter was not determined. A manhole allows access to the gravel filter drainage system. Based on orientation of the piping that leaves the manhole for the

-
- gravel filter area, the outfall (eastern) should be located on the bank, riverward of the former crane pad.
- **Stormwater Outfalls/Surface Runoff (Eastern Walkway).** Two Site-related stormwater outfalls were reported on the Site (in addition to the outfall owned and operated by the City of Portland). One outfall appears to drain the gravel filter. Also, E&E considered the entire riverbank a potential source.
 - **Eastern Unimproved Area.** The eastern unimproved area was where materials, equipment, and boat stands were stored on pavement and the location of former rigging and paint sheds. The sheds stored materials such as marine paints, solvents and fuels, and resins (Rander, 2003). This area was identified as a storage area for solid waste, potentially containing the same contaminants that are found in the boat maintenance and repair areas.
 - **Work Over Water (Sediments).** Former boat maintenance and repair activities may have occurred over the water at the docks.

Seven surface soil samples (0 to 6 inches bgs) were collected from known (former crane engine and cabin) or suspected areas of soil contamination. One surface soil sample was collected from the gravel filter area (UP01SS); two surface soil samples were collected from the eastern unimproved area (WS01SS and WS02SS); and three surface soil samples (OP01SS through OP03SS) were collected on the slope between the upland area and North Portland Harbor – Columbia River, as shown on Figure 5. Sample results for the surface soil samples are presented in Tables C-1 through C-3, contained in Appendix C.

Twenty-one sediment samples (0 to 6 inches below the mudline) were collected. Five background sediment samples were collected upstream of the Site. Sixteen sediment samples (CR01SD through CR07SD and DO02SD through DO10SD) were collected from the vicinity of the Pier 99 docks. Sample results for the sediment samples are provided in Table C-5, contained in Appendix C.

The results of chemical analyses at each source area completed during the Site Investigation (SI) are summarized below.

- **Eastern Walkway.** At this area in the former Boat Maintenance and Repair Area, three surface soil samples were collected on the slope between the upland area and North Portland Harbor – Columbia River indicate the presence of four organotins, five pesticides/PCBs, seven SVOCs, and 10 Target Analyte List (TAL) metals at concentrations above expected background concentrations.
- **Gravel Filter Area.** Analytical results from sample UP01SS indicate the presence of three organotins, three pesticides/PCBs, five SVOCs, and 12 TAL metals at concentrations above expected background concentrations.
- **Eastern Unimproved Area.** Two surface soil samples were collected from the eastern unimproved area (WS01SS and WS02SS). Sample WS01SS was collected from a grass-covered

mound of soil that covered the eastern half of the eastern unimproved area. Sample WS02SS was collected adjacent to a pile of debris. Sample results indicate the presence of three organotins, four pesticides/PCBs, four SVOCs, and 13 TAL metals at concentrations above expected background concentrations.

- **Work Over Water (Sediments).** Analytical results for the dock area and the Columbia River samples indicate that the presence of one TAL metal (copper) detected above expected background concentrations. No pesticides/PCBs, organotins, or SVOCs were detected in any of the sediment samples.

E&E concluded that the 1610 North Pier 99 site contains sources of hazardous substances. The primary sources included the gravel filter area (pesticides/PCBs, SVOCs, and metals), and the eastern unimproved area (organotins, pesticides/PCBs, SVOCs, and metals). E&E also concluded that contamination is migrating from Site sources towards sediment targets based on the three surface soil samples collected on the slope between the upland area and North Portland Harbor – Columbia River (organotins, pesticides/PCBs, SVOCs, and metals). Sample results for the sediment samples collected from below the Pier 99 docks do not support this conclusion. The E&E sediment sampling results indicated the presence of one metal (copper) at a concentration above expected background concentration. Organotins, pesticides/PCBs, or SVOCs were not detected in the E&E sediment samples. In the absence of an obvious single point of surface water runoff (the Site does not have a stormwater collection and drainage system), E&E concluded that the length of the property that fronts the North Portland Harbor – Columbia River was the transport pathway, or probable point of exposure, to the river.

Based on the results of the SI, EPA identified the following areas as data gaps in the AO Statement of Work, which provided the basis for the data gap investigation:

- The eastern walkway that extends to the Pier 99 docks, near former sample location OP02SS;
- The Eastern Unimproved Area, near former sample location WS02SS;
- The gravel filter area located on the southwest side of the upland boat maintenance repair area, near former sample location UP01SS;
- Former crane area; and
- Sediment that may be contained in any surface drains that originate and/or terminate from the Site.

3.0 Summary of EE/CA Data Gap Investigation

The following describes the scope of work and procedures performed to complete the EE/CA data gap investigation for the Site and presents the results. Work was conducted in accordance with the approved EE/CA Work Plan, Sampling and Analysis Plan (SAP), and Quality Assurance Project Plan (QAPP).

3.1 EE/CA Work Plan Scope of Work

As described in Section 2.4, previous investigations had been performed at the Site in 2003 and 2008 and data gaps were identified by EPA that needed to be assessed to characterize the Site and evaluate removal actions. The data gaps and the corresponding work scope were as follows:

- Completing a site and bank visual assessment to verify locations and orientations of outfalls and other possible discharge points from the site.
- Completing nine direct-push and two test pit explorations at the Site to sample subsurface soil and groundwater at the Eastern Unimproved Area, Gravel Filter area, the upland boat maintenance repair area, and the former crane area.
- Completing manual surface and near-surface soil sampling at five locations along the riverbank and four locations in the eastern unimproved area.
- Sampling sediments (if present) within the manholes for the on-site storm sewer system.

3.2 Bank and Building Visual Assessment Results

Based largely on the E&E SI, the bank of the Site fronting the North Portland Harbor – Columbia River was reported to be the location of three possible entry points to the river: gravel filter outfall (eastern outfall), central outfall (not located), and the length of the bank that fronts the river (referred to as the Bank Area). The purpose of the Site and Bank visual assessment was to identify any additional potential sources from underneath the existing structures (Work Shop/Formal Machine Shop) and confirm the location of discharge points or outfalls located on the central and eastern portion of the Bank.

Historical Sanborn Maps, USACE aerial photographs, and City of Portland records maintained online via the PortlandMaps website were reviewed to assist in the identification of source areas related to the existing Work Shop and construction of outfalls located on the Bank. The Sanborn Maps are included as Appendix B and the USACE aerial photographs are contained in Appendix A. In addition, site visits prior to, during, and following the EE/CA data gap investigation involved observations of the Bank to identify relevant features. A photographic log of the Bank and Building assessment are included as Appendix D.

Specific field tasks related to the bank and building survey are described below.

3.2.1 Bank Assessment

Historical Document Review. Historical Sanborn Maps from 1950, 1952, and 1960 and USACE aerial photographs from 1936, 1940, 1956, 1961, 1971, 1980, and 1996 were reviewed to assess the three possible entry points (outfalls) to the river and identify any additional potential sources. Two of the three outfalls previously identified in the 2008 investigation were not identified on the Sanborn Maps or USACE

aerial photographs. City of Portland records identified the location of the outfall that is located on the western portion of the Site (Figure 4), and shows that it discharges stormwater collected from inlets and manholes along N Marine Drive, south and southwest of the Site. There is no stormwater contribution from the Site that flows to this outfall.

Site Reconnaissance. During site visits from September 2012 through February 2013, reconnaissance along the bank were conducted to document and confirm the location of the outfalls at the Site. Photographs documenting the Bank Area are included in Appendix D. The City of Portland outfall identified on the western portion of the Site (upland Bank Area) was identified during a September 2012 site visit. This outfall and associated manhole at the top of the bank are shown in Photograph Nos. 2 and 3 contained in Appendix D. During the site visits, a unknown pipe on the bank was observed in the central portion of the Site directly east of the walkway to the docks located between the house and work shop (Figure 6). This pipe is shown on Photographs 3 and 4. Based on the condition and location of the pipe, this pipe is believed to be debris on the bank. Specific information regarding the origin and possible upland connections to this pipe have not been identified.

The central outfall presented on Figure 6 and identified during the 2008 E&E SI Investigation was not observed during Apex site visits. Based on correspondence with E&E personnel, the potential presence of an outfall at this location was based on the sound of running water and was not visually observed.

A surface drain was located directly east and at the top of the walkway to the docks adjacent to the work shop (Figure 4). Stormwater from this surface drain flows from the parking lot area and drains to the bank (see Photographs 5 and 6). The drain appeared to be constructed recently based on the condition of the Portland-cement concrete completion. As-built drawings or additional information on the surface drain was not identified.

During the bank assessments, the outfall or discharge pipe connected to the Gravel Filter Area could not be located. Photograph 7 displays the manhole and drainage pipe trending towards the outfall location. Additional information regarding this outfall is described below.

Gravel Filter Outfall Video Inspection and GPR Trace. Additional investigations to locate the pipe discharging from the gravel filter area were conducted on January 17 and 25 and February 25, 2013. On January 17, 2013, Locates Down Under, Inc. (LDU) of Oregon City, Oregon conducted a private utility locate of the data gap investigation area and a video inspection of the Gravel Filter Area manhole and associated discharge pipe. During the utility locate, the subsurface pipe discharging the Gravel Filter Area could not be identified using an electromagnetic device. No underground structures were located with the magnetometer survey conducted for the purpose of locating underground utilities.

On January 25, 2013, LDU conducted a video inspection of the Gravel Filter Area manhole and associated discharge pipe. The inspection indicated that the discharge pipe was constructed of concrete, was approximately 8 inches in diameter, and extended approximately 60 feet to the north-northeast of the manhole. At approximately 60 feet, the video equipment encountered an obstruction and/or buildup of pipe debris that restricted further investigation. During the video inspection, the perforated pipe within the gravel filter was inspected and was determined to extend approximately 170 feet to the west from the entry point to the manhole. At 170 feet, the perforated pipe appeared to be crushed.

On February 25, 2013, LDU used ground penetrating radar (GPR) to investigate the location of the Gravel Filter Area discharge pipe. Apex collected global positioning system (GPS) data points of the discharge pipe during the GPR survey (Figure 6). The GPR traced the discharge pipe to the edge of the asphalt concrete where the discharge pipe horizontally intersected a utility corridor. The discharge pipe was approximately 4 feet bgs and the utility corridor approximately 13 feet bgs. The discharge pipe after the intersection with the utility corridor was not located. Photographs 9 through 11 display the limits of the GPR trace and intersection of the gravel filter area discharge pipe and utility corridor. Figure 5 shows the extent of the GPR trace on the discharge pipe and the approximate location of the utility corridor.

Bank Assessment Results. Based on review of historical records; observations during bank reconnaissance, the video inspection; and the GPR trace of the bank, the parking lot surface drain, and the gravel filter outfall are the possible transport pathways to the bank that were observed. The central and eastern outfalls documented in the Site Inspection Investigation Report (E&E, 2008) and shown on Figure 5 were not identified during the bank reconnaissance. Based on these results and coupled with the fact that the outfalls mapped by E&E were based on auditory observations, not direct observation by E&E, these outfalls likely do not exist. No other sources were identified during the bank survey.

3.2.2 Building Survey

The interior of the shop building and the crawl space beneath the building were viewed on several occasions during the mobilization for the data gap investigation. Plumbing connections in the building were verified to be connected to the City sanitary sewer system. No floor drains were identified in the building and this was confirmed by the current tenant. Beneath the building, an approximately 4-inch polyvinyl chloride (PVC) pipe was observed (Photograph 12). This pipe had no connections and was determined to be at least 25 feet deep, extending towards the bank. No other information is available on the possible former uses of this pipe.

3.3 Subsurface Investigation Results

The data gap investigation was conducted from February 19 through 22, 2013. Apex arranged site access with the property owner and completed underground utility locates using a private utility locator (LDU) to locate underground utilities at each proposed exploration location, and calling the Oregon One-Call system.

The data gap investigation methods and procedures are described in the SAP, presented in Appendix A of the EE/CA Work Plan (Apex, 2013). Apex completed project oversight and field sampling for the data gap investigation. Stratus Corporation (Stratus) of Gaston, Oregon provided drilling and excavation services for the installation of direct-push and test pit explorations.

The direct push, surface soil, and test pit explorations were continuously logged, sampled, and field screened using photoionization detector (PID) and sheen test procedures in accordance with the SAP. Lithologic logs from soil and test pit explorations are contained in Appendix E. The location of each data gap sampling location was recorded with a sub-meter grade GPS.

3.3.1 Operable Unit 1 — The Bank Area

Six surface soil samples (SS-9 through SS-11 and SS-18) were collected along the Bank that extends along the shoreline of the Site (Figure 5). Access to each of the sampling locations was made by cutting paths through the blackberry bushes that cover the bank. The sampler was equipped with fall arrest gear during sampling due to the limited access and steep terrain. Five surface soil samples (SS-9 through SS-12 and SS-18) were collected along the Bank at an approximate depth of 0.5 foot bgs, and one surface sample (SS-13) was collected at a depth of 1.6 feet bgs to assess the vertical distribution of contaminants in this area. Surface soil samples SS-10 and SS-18 were collected downslope of the location where sample OP02SS was collected. In addition, SS-11 was collected downslope of the surface drain to document potential impacts from stormwater runoff. Bank soil consisted of sandy silt with trace gravels. Laboratory analyses completed for these samples are shown on Figure 6.

Surface soils in the Bank Area consist of fine to medium-grained sands to the maximum depth explored, which is approximately 7 inches bgs, with the exception of locations SS-9 and SS-18. At these explorations, the surface soils consist predominantly of a silt with fine-grained sand. The surface soil conditions at location SS-10 through SS-13 are consistent with sand fill used to construct the levee, while the surface soil at SS-9 and SS-18 is consistent with deposition given that their locations are further downslope of SS-10 through SS-13 and are near the high water line.

3.3.2 Operable Unit 2 — The Eastern Unimproved Area

Two direct push explorations (B-4 and B-5) and four surface soil samples (SS-14 through SS-17) were completed in the Eastern Unimproved Area to characterize the surface soils in this former work area. Exploration B-5 was completed to assess the vertical extent of contamination on the vicinity of the former sample location WS02SS. The direct-push explorations were completed to depths ranging between 25 and 30 feet bgs. Laboratory analyses completed for samples B-4 and B-5 and SS-14 through SS-17 are shown on Figure 6.

Subsurface soils in the Eastern Unimproved Area consist of fine-grained sand to approximately 13 feet bgs. The sand grades to a sandy silt and then a silt at a depth of approximately 16 to 22 feet bgs. The subsurface soil conditions are consistent with sand fill used to construct the levee. The depth to groundwater at direct-push exploration B-4 was 20 feet bgs.

3.3.3 Operable Unit 3 — The Gravel Filter Area and Upland Boat Maintenance Repair Area

Three test pit explorations (TP-1 through TP-3) and three direct-push explorations (B-6 through B-8) were completed in the gravel filter area (near former sample location UP01SS) and the upland boat maintenance repair area to characterize the nature and extent of contamination associated with the gravel filter. Two soil samples were collected from TP-1 and TP-3 and three soil samples were collected at TP-2. Soil samples at TP-1 through TP-3 were collected at an approximate 18-inch depth interval within the gravel filter and from beneath the bottom of the gravel filter at approximately 36 inches bgs. One soil sample from TP-2 was also collected at approximately 4.5 feet bgs below the base of the gravel filter. The test pit explorations were completed using an excavator and the excavator operator was instructed to remove the soil at each test pit location place it in a pile at the ground surface adjacent to the pit. Once sampling was complete, the soil was replaced in the hole in the same order as removed (i.e., last out is first in). Soil samples were collected from the sidewall of the test pit at the corresponding depth interval using a decontaminated stainless steel spoon or hand auger. Soil samples beneath 24 inches were collected directly from soil in the excavator bucket that was not in direct contact with the bucket. Laboratory analyses completed for the direct-push exploration samples from the gravel filter are shown on Figure 6.

Three direct-push explorations (B-6 through B-8) were completed to assess whether migration from the gravel filter has occurred and to assess the constructed extent of the gravel filter. The direct-push explorations were completed to a depth of 30 feet bgs. Soil samples from direct-push explorations B-6 and B-7 were collected at approximately 5-foot intervals and soil samples from B-8 were collected at approximately 2.5-foot intervals. Laboratory analyses completed for the direct-push exploration samples from the gravel filter are shown on Figure 6.

Subsurface soils near the Gravel Filter Area consist of fine- to medium-grained sand to approximately 10 to 13 feet bgs and then grades to silt to the maximum depth explored, which was approximately 35 feet bgs. The depth to groundwater at direct-push exploration B-9 was 21.6 feet bgs.

One stormwater sediment sample (MH-1) was collected from the manhole (MH-1) directly east of the gravel filter area (Figure 6). The sediment sample was collected with a hand auger that was pushed and rotated downward until the auger became filled with sediment. Once filled, the auger was removed from the manhole and emptied into a stainless steel bowl and homogenized before filling the applicable sample containers. Laboratory analyses completed for the manhole sample are shown on Figure 6.

The test pit and direct-push explorations provide information used to verify the construction dimensions of the gravel filter. The dimensions of the of the gravel filter appear to match the footprint of the filter that is expressed on the ground surface. Based on field observations and soil condition in B-6 through B-8, the gravel filter is 2 feet wide west of TP-1 and four feet wide east of TP-1. Based on the test-pit excavations, the gravel filter is comprised of gravel to an approximate depth of 3.5 feet bgs followed by a medium-grained sand that is characteristic of the levee fill at the Site. An approximate 4-inch perforated pipe extends from the manhole east of the gravel filter area to the western boundary of the gravel filter. The perforated pipe varies with depth and was observed at a depth of 1.9 feet bgs inside the manhole, 2.6 feet bgs at TP-1, 3 feet bgs at TP-2, 1.6 feet bgs at TP-3, and 1.9 feet at the western extent. The perforated pipe is placed within the gravel and above the medium-grained sand that constitutes the filter material. Photographs 13 and 14 display the perforated pipe and the location within the gravel filter. Additionally, field observations made during TP-1 exploration indicate that the gravel filter extends to an approximate depth of 3 feet bgs before encountering the concrete footing of the flood wall directly to the south (Figure 6). The medium-grained sand was not present above the concrete observed in TP-1.

Upland Boat Maintenance Repair Area. Direct-push exploration (B-9) was completed on the northern extent of the upland boat maintenance repair area to first encountered groundwater. The direct-push exploration was completed to a depth of between 30 feet bgs using a Geoprobe™ rig. Soil samples from direct-push exploration B-9 were collected at approximately 2.5-foot intervals.

A depth-discrete grab groundwater sample was collected at direct-push exploration B-9 (Figure 6). A temporary well was installed at a depth of 30 feet bgs and was screened from 26 to 30 feet bgs. The temporary well was abandoned within 24 hours after installation. Temporary well construction details and field screening data are shown on the log included in Appendix E. Laboratory analyses completed for the samples from the boat maintenance area are shown on Figure 6.

3.3.4 Operable Unit 4 — The Former Crane Area

Three direct-push explorations (B-1 through B-3) were completed to first encountered groundwater (approximately 22 feet bgs) around the former crane engine and control cabin to characterize the extent of constituents observed during confirmation sampling in 2003. One grab groundwater sample was collected from the bottom depth of the direct-push exploration at B-3. Temporary well construction details and field screening data are shown on the log included in Appendix E.

The direct-push explorations were completed to depths ranging between 25 and 35 feet bgs using a Geoprobe™ rig. Soil samples were collected at approximately 2.5-foot intervals. Lithologic logs from completed soil explorations are contained in Appendix E. Eight soil samples were submitted to the analytical laboratory. Laboratory analyses completed for the samples from the boat maintenance area are shown on Figure 6.

A depth-discrete grab groundwater sample was collected at direct-push exploration B-3 (Figure 6). A temporary well was installed at a depth of 30 feet bgs and was screened from 26 to 30 feet bgs. The temporary well at direct-push location B-3 was driven an additional 5 feet bgs due to a silted-in screen. Temporary well construction details and field screening data are shown on logs included in Appendix E. The groundwater sample was collected using a peristaltic pump and submitted to the analytical laboratory for the analyses shown on Figure 6.

Subsurface soils near the Former Crane Area consist of fine- to medium-grained sand to approximately 15 to 20 feet bgs and then grades to silt to the maximum depth explored, which was approximately 30 feet bgs. The depth to groundwater at direct-push exploration B-3 was 21.5 feet bgs.

3.4 Analytical Results

Results of the soil and groundwater sampling conducted in February 2013 are discussed in the following sections. Soil analytical results are presented in Tables 1 through 5 and groundwater analytical results are presented in Table 6. Figure 6 shows the laboratory analytical plan and Figures 7 and 8 summarize the analytical results. Laboratory analytical data reports and a QA/QC review of the data results are included in Appendix F.

3.4.1 Operable Unit 1 – Bank Area

Six surface soil samples (SS-9 through SS-13 and SS-18) were collected along the bank area (Figure 6). TAL 23 metals were detected in the samples and the results are summarized in Table 1. Locations with the relatively higher metals concentrations were collected from SS-9 and SS-11. The soil sample collected from SS-18 was submitted for three indicator metals (copper, lead, and zinc). This sample (SS-18), collected downslope of SS-10 had lower concentrations of copper, lead, and zinc (43.5 mg/kg, 12.5 mg/kg, and 94.0 mg/kg, respectively), as compared to samples higher on the bank. Concentrations of copper in samples SS-9 through SS-13 ranged from 433 to 6,500 mg/kg, lead from 128 to 989 mg/kg, and zinc from 213 to 1,070 mg/kg.

The analytical results for organic compounds indicated the following.

- Aroclor 1254 and 1260 were detected in surface soil samples from SS-9 through SS-13 (Table 2). Concentrations of Aroclor 1254 ranged from 27 to 1,600 micrograms per kilogram ($\mu\text{g/kg}$) with the highest concentration detected at SS-13. Aroclor 1260 was detected in samples from SS-9, SS-10, and SS-12 at concentrations ranging from 38 $\mu\text{g/kg}$ to 420 $\mu\text{g/kg}$ and was not detected in samples collected from SS-11 and SS-13.
- Organochlorine pesticides were detected in the bank samples and the analytical results are presented in Table 3. Concentrations of the DDX compounds detected this sample group ranged from 1.6 $\mu\text{g/kg}$ to 99 $\mu\text{g/kg}$ for 4,4'DDE, 2.4 $\mu\text{g/kg}$ to 1,300 $\mu\text{g/kg}$ for 4,4'DDD, and 12 $\mu\text{g/kg}$ to

1,600 µg/kg for 4,4'DDT. The soil sample collected from SS-13 had the highest detected concentrations of the DDX compounds, relative to the other samples in this sample group.

- SVOCs that were detected in this sample group consisted primarily of PAHs, phthalates, and, to a lesser extent, phenols and benzyl alcohol. The highest concentrations of PAHs were observed in SS-13, relative to the other bank area samples.

3.4.2 Operable Unit 2 – Eastern Unimproved Area

Three soil samples collected from direct-push explorations B-4 and B-5 and four surface soil samples collected from SS-14 through SS-17 were submitted for analyses of three indicator metals (copper, lead, and zinc). Concentrations of copper ranged from 18.7 to 105 mg/kg, lead from 16.3 to 94.0 mg/kg, and zinc from 63.5 to 183 mg/kg. In accordance with the work plan, the two samples (B-4 [3.5-5.0] and SS-14) with highest detected concentrations were subsequently analyzed for SVOCs, organochlorine pesticides, PCBs, and the remaining TAL metals. In addition, the sample (B-4 [3.5-5.0]) with the highest metals concentrations was analyzed for butyltins. Analytical results for metals are presented in Table 1.

TAL 23 metals were detected in samples B-4 (3.5-5.0) and SS-14 with the exception of antimony, selenium, silver, and thallium. Concentrations of metals detected that exceeded Oregon DEQ (2013) default background metal concentrations were copper at all sample locations, lead at 94.0 mg/kg (B-4 [3.5-5.0]), mercury at 0.87 mg/kg (B-4 [3.5-5.0]), and zinc at 183 mg/kg (B-4 [3.5-5.0]). Butyltin concentrations were detected at B-4 (3.5-5.0) ranging from 150 to 170 µg/kg (Table 1).

The analytical results for organic compounds indicated the following:

- Aroclors 1254 and 1260 were detected in samples B-4 (3.5-5.0) and SS-14 at concentrations ranging from 11 to 14 µg/kg, and Aroclor 1242 was detected in sample B-4 (3.5-5.0) at a concentration of 31 µg/kg. Table 2 presents the analytical results of butyltin and PCB analyses.
- Organochlorine pesticides were not detected in samples SS-14 and B-4 (3.5-5.0), with the exception of 4,4'DDT in sample B-4 (3.5-5.0) at a concentration of 3.7 µg/kg (Table 3).
- SVOCs detected in samples B-4 (3.5-5.0) and SS-14 were primarily PAHs and phthalates (Table 4).

Groundwater analytical results are presented in Table 6. Concentrations of VOCs, SVOCs, PCBs, and organochlorine pesticides were not detected in the groundwater sample (B-4), with the exception of toluene at 4.1 micrograms per liter (µg/L), total xylenes at 1.75 µg/L, and naphthalene at 0.029 µg/L. Dissolved metals were detected in the grab groundwater sample.

3.4.3 Operable Unit 3 — The Gravel Filter Area and Upland Boat Maintenance Repair Area

Gravel Filter Area. Five soil samples collected from test pits TP-2 and TP-3 were submitted for TAL 23 metals. In accordance with the work plan one sample (TP-2 [1.5-2.0]) collected from the within the gravel filter and one sample (TP-2 [4.5-5.0]) collected from the native material below the gravel filter were analyzed for VOCs, organochlorine pesticides, PCBs, and butyltins.

Analytical results for metals are presented in Table 1. TAL 23 metals were detected in the samples collected from the gravel filter, with the exception of selenium and thallium. Concentrations of metals detected that exceeded Oregon DEQ (2013) default background metal concentrations were antimony from 3.1 to 21.9 mg/kg, arsenic at 12 mg/kg, barium at 936 mg/kg, cadmium from 1.3 to 1.8 mg/kg, chromium from 85.2 to 127 mg/kg, copper from 200 to 45,100 mg/kg, lead from 122 to 4,210 mg/kg, mercury from 0.38 to 1.06 mg/kg, nickel at 85.0 mg/kg, silver at 2.3 mg/kg, and zinc from 259 to 1,660 mg/kg. The highest concentrations of metals were typically detected in the samples collected at a depth corresponding to 1.5 to 2 feet bgs, within the gravel filter area.

The analytical results for organic compounds indicated the following:

- Butyltins were detected at the samples from TP-2 with concentrations ranging from 3,000 to 64,000 µg/kg.
- PCBs were detected in the samples from TP-2 with concentrations of Aroclor 1254 at 160 and 400 µg/kg and Aroclor 1260 at 70 and 130 µg/kg. Table 2 presents the analytical results of butyltin and PCB analyses.
- Organochlorine pesticides were not detected in the TP-2 samples, with the exception of gamma-chlordane in TP-2 (4.5-5.0) at 1.5 µg/kg and 4,4'DDD in both samples at concentrations of 6.3 and 51 µg/kg. Organochlorine pesticides results are presented in Table 3.
- SVOCs were detected in both samples from TP-2 and consisted primarily of PAHs and phthalates. Bis(2-ethylhexyl)phthalate concentrations ranged from 1,900 to 7,600 µg/kg and detected concentrations of benzo(a)pyrene ranged from 98 to 620 µg/kg in the samples from TP-2.

Six samples collected from direct-push explorations B-6 through B-8 were submitted for analyses of three indicator metals (copper, lead, and zinc). These metals were detected at concentrations below default background concentrations. Three samples (B-6 [8.5-10.0], B-7 [9.0-10.0], and B-8 [3.0-4.0]) were subsequently analyzed for PCBs and the remaining TAL metals. In addition, sample B-8 (3.0-4.0) was analyzed for organochlorine pesticides and SVOCs (Table 1). TAL 23 metals were detected in samples with the exception of antimony, selenium, silver, and thallium. Concentrations of metals detected did not exceed Oregon DEQ (2013) default background metal concentrations. PCBs, organochlorine pesticides and SVOCs were not detected in the sample B-8 (3.0-4.0).

Concentrations of VOCs, SVOCs, PCBs, and organochlorine pesticides were not detected in the groundwater sample (B-9 [26-30]), with the exception of toluene at 0.70 µg/L and naphthalene at 0.39 µg/L.

Stormwater Manhole. One sediment sample (MH-1) was collected from MH-1 (Figure 6). In accordance with the work plan, this sample was analyzed for SVOCs, organochlorine pesticides, PCBs, metals, and butyltins. Analytical results for metals are presented in Table 1. TAL 23 metals were detected in MH-1 with the exception of beryllium, selenium, and thallium. Concentrations of metals detected that exceeded Oregon DEQ (2013) default background metal concentrations were antimony at 12.5 mg/kg, arsenic at 30.4 mg/kg, cadmium at 72.4 mg/kg, chromium at 540 mg/kg, copper at 4,360 mg/kg, lead at 3,910 mg/kg, mercury at 0.80 mg/kg, nickel at 362 mg/kg, and zinc at 2,740 mg/kg. The analytical results for organic compounds indicated:

- Butyltin concentrations were detected at MH-1 ranging from 4,400 to 10,000 µg/kg.
- Aroclors 1254 and 1260 were detected in the sample MH-1 at concentrations of 580 and 320 µg/kg, respectively. Table 2 presents the analytical results of butyltin and PCB analyses.
- Organochlorine pesticides were not detected in sample MH-1, with the exception of gamma-chlordane, alpha-chlordane, and 4,4'DDD. Organochlorine pesticides results are presented in Table 3.
- SVOCs, primarily PAHs and phthalates, were detected in the sample MH-1. Bis(2-ethylhexyl)phthalate was detected at a concentration of 18,000 µg/kg. Table 4 presents the results of SVOC analysis.

Upland Boat Maintenance Area. One soil sample was collected from direct-push explorations B-9 and submitted for analyses of three indicator metals (copper, lead, and zinc). These concentrations were below DEQ default background concentrations (Table 1).

Groundwater analytical results are presented in Table 6. Concentrations of VOCs, SVOCs, PCBs, and organochlorine pesticides were not detected in the groundwater sample (B-9 [26-30]), with the exception of toluene at 0.70 µg/L and naphthalene at 0.39 µg/L. Dissolved metals were detected in the grab groundwater sample at concentrations below expected background concentrations.

3.4.4 Operable Unit 4 — Former Crane Area

Eight soil samples collected from direct-push explorations B-1 through B-3 were submitted for diesel- and oil-range TPH analysis per NW-TPHDx. Diesel- and oil-range TPH were not detected in soil samples from the former crane area, with the exception of the sample collected from B-2 at a depth of 7 to 8 feet bgs at a concentration of 140 mg/kg. In accordance with the work plan, this sample B-2 (7.0-8.0) was subsequently analyzed for SVOCs, organochlorine pesticides, PCBs, metals, and butyltins. Additional analytical results from this area indicated the following.

-
- Analytical results for metals are presented in Table 1. TAL 23 metals were detected in B-2 (7.0-8.0) with the exception of antimony, beryllium, selenium, silver, and thallium. Concentrations of metals detected that exceeded Oregon DEQ (2013) default background metal concentrations were arsenic at 9.8 mg/kg, cadmium at 2.7 mg/kg, copper at 72.7 mg/kg, lead at 139 mg/kg, mercury at 0.63 mg/kg, and zinc at 341 mg/kg.
 - Butyltin concentrations were detected at B-2 (7.0-8.0) ranging from 3.3 to 760 µg/kg (Table 2).
 - PCBs were not detected in the B-2 (7.0-8.0) sample, with the exception of Aroclor 1260 at a concentration of 62 µg/kg. Table 2 presents the analytical results of butyltin and PCB analyses.
 - Organochlorine pesticides were not detected in the sample, with the exception of 4,4'DDE and 4,4'DDT at concentrations of 1.2 and 9.7 µg/kg, respectively. Organochlorine pesticides results are presented in Table 3.
 - SVOCs that were detected in the sample from B-2 (7.0-8.0) were only PAHs. The detected benzo(a)pyrene concentration was 8.8 µg/kg (Table 4).

Groundwater analytical results are presented in Table 6. Concentrations of VOCs, SVOCs, PCBs, and organochlorine pesticides were not detected in the groundwater sample (B-3 [26-30]), with the exception of diethyl phthalate at 0.39 µg/L. Dissolved metals were detected in the grab groundwater sample at concentrations below expected background concentrations.

3.5 Sources, Nature, and Extent of Contamination

Metals (primarily copper and lead), butyltins, PCBs (Aroclor 1254 and 1260), PAHs, and phthalates are the primary contaminants of interest at the site. After considering historical and current land uses in the site and the vicinity, we have identified the following potential sources of the contaminants at the Site:

- Deposition of particulates resulting from on-shore and off-shore sandblasting for bank and upland areas;
- Wash down of sandblasting and/or oily residues to the gravel filter and the bank (via the storm drain near the eastern walkway);
- Anthropogenic background – given the legacy of industrial and river-related land uses at the Site and vicinity, some of the contamination observed on the bank is likely anthropogenic background; and
- In the 1950s and 1960s, Multnomah County with the City of Portland formerly applied DDT. DDT, DDD, and DDE were frequently used to control insects/pests on livestock. The former stockyards south of the site could also be sources of DDT, DDD, and/or DDE.

Based on the results of the EE/CA data gap investigation and the 2008 SI, concentrations of chemicals are primarily confined to the upland areas. The 2008 SI largely did not detect contaminants in offshore

sediment. While the range of sample analysis for sediment samples during the 2008 SI was similarly as extensive as the range of analyses required by EPA for the EE/CA data gap investigation, in sediment, the 2008 SI only identified elevated concentrations of copper at a single location in sediment concentrations. While contaminants are present at upland areas, the relatively clean sediment concentrations provide a line of evidence that conditions are stable and not degrading offshore sediments.

The nature and extent of contamination in each OU is described in the remainder of this section. Figures 7 and 8 summarize the analytical results for the main contaminants of interest at the Site. Figure 7 shows concentrations of arsenic, copper, lead, mercury, and TBT and Figure 8 shows concentrations of organochlorine pesticides (4,4-DDE, 4,4-DDD, 4,4-DDT, and benzo(a) pyrene). The figures also show the data points that exceeded relevant human health screening levels (DEQ RBCs for excavation and construction workers, and EPA RSLs for industrial direct contact).

3.5.1 Operable Unit 1 – Bank Area

Arsenic, lead, Aroclor 1254, and select SVOCs exceeds one or more of the EPA RSL for Industrial Soil Direct Contact and Oregon DEQ RBCs for excavation and construction workers. Concentrations of metals, butyltins, PCBs, DDT, DDD, DDE, PAHs, and phthalates, (among others) are present in bank area samples. Concentrations of these analytes are variable across the bank area. The area generally represented by SS-11 and SS-13 represents the area with the highest relative concentrations in the bank area, which also corresponds to the area of the surface drain. Sample results from this area exceed relevant DEQ and EPA screening levels. Bank samples were collected at a depth of 0.5 foot bgs, with the exception of SS-13 (1.6 feet bgs). Samples collected on the bank downslope of the surface drain (SS-11) exhibited the highest concentrations of SVOCs. The sample collected on the west side of the work shop (SS-9) typically exhibited the highest concentrations of metals, and the sample collected at depth (SS-13) at the location of historical sample location OP02SS exhibited the highest concentration of Aroclor 1254. Butyltins were not analyzed in Bank Area (OU1) samples on a widespread basis. In ship repair situations, like at Pier 99, butyltins occur with other metals derived from sandblasting residuals (e.g., copper and lead). Copper, lead, and other metals act as an indicator for TBT.

3.5.2 Operable Unit 2 – Eastern Unimproved Area

Concentrations of metals, butyltins, PCBs, and PAHs (among others) are present in samples from the Eastern Unimproved Area. The sample results indicate these compounds are limited to surface soil; decreasing concentration trends with depth for copper, lead, and zinc are observed in B-5. The detected concentrations do not exceed EPA RSLs for Industrial Soil Direct Contact, except for the lead concentration in sample WS02SS. Oregon DEQ RBCs for excavation and construction workers were not exceeded in samples collected in surface soils and at depth (3.5-5.0).

3.5.3 Operable Unit 3 — Gravel Filter Area, Upland Boat Maintenance Repair Area, and Surface Drain Sediments

Concentrations of metals, butyltins, PCBs, DDT, DDD, DDE and PAHs (among others) are present within the gravel filter. Samples collected within the gravel filter exceed several relevant DEQ or EPA screening levels. Samples collected below the gravel filter (TP-2 (4.5-5) and TP-3 (1.5-2.0)) and adjacent to the gravel filter (B-6 through B-8) indicate that migration is not occurring laterally or vertically from the gravel filter. Samples from the manhole sediment contain similar concentrations of compounds as detected in the filter. Sample WS02SS, collected from near the expected terminus of the pipe, has concentrations of copper, lead, and TBT that are elevated compared to nearby samples, suggesting that some bank contamination has occurred as a result of the gravel filter operation.

3.5.4 Operable Unit 4 — Former Crane Area

Soil sample results for TPH from B-1 through B-4 were largely not detected. The only sample where TPH was detected was B-2 (7.0 to 8.0). This interval corresponds to the former leave surface of the 2003 SECOR remedial excavation that was terminated due to stability concerns. Concentrations of PCBs, pesticides, and PAHs (among others) were also detected at concentrations that are below applicable human health screening criteria. Target analytes in groundwater were generally not detected. When detected, the detected concentrations were below applicable screening levels.

4.0 Applicable or Relevant and Appropriate Regulations

This section describes the land use and cleanup requirements that apply or may be relevant to a removal action completed for the Site. Removal action activities would likely be completed under the broad permit waiver authority granted to EPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The ARARs represent permit or cleanup conditions that will be upheld during removal action activities. The discussion of ARARs includes land use and permitting ARARs in addition to cleanup ARARs.

4.1 Land Use, Permitting, and Resource Study ARARs

Pen 1 Requirements. Pen 1 manages the Columbia River levee system that comprises the bank. As such, Pen 1 administers and enforces the USACE requirements for working in the levee. Any explorations or excavations within the levee require review from Pen 1 and the USACE, including specific procedures for drilling, excavations, and backfill, and specific procedures for site restoration. Additionally, Pen 1 will limit any removal work in the levee system to periods of low water, commonly encountered during late August and September. Pen 1 monitors the river stage and will approve work based on river stage and predicted weather patterns.

Columbia River Crossing Restoration Plan. The proposed Columbia River Crossing project may likely span the eastern portion of the Site. Final designs are not complete, but preliminary designs to not incorporate bridge structures on the bank of the Site, but restoration of the bank in the project would likely be a requirement for the crossing project. Restoration of the Site following the removal action should consider the requirements of the Draft Conceptual Restoration Plan (November 2012) available at http://www.columbiarivercrossing.org/FileLibrary/TechnicalReports/CRC_OR_JPA_ATT_D.pdf. The Draft restoration plan states:

“The levee on the south side of North Portland Harbor will be disturbed as little as possible. Where grading is unavoidable, the cross-section will be restored and planted to match the adjacent existing conditions...Existing native riparian vegetation will be retained where overhead and adjacent bridge structures and construction access allows. Native shrubs will be used to revegetate the riverbank above the highest average daily high water line...”

City Planning Overlays and Permit Requirements. The site is located within an environmental conservation overlay (c) zone and within a Portland International Airport (PDX) noise abatement overlay.

The Environmental Conservation (c) zone conserves important resources and functional values in areas where the resources and functional values can be protected while allowing environmentally sensitive urban development. This is a development oriented overlay which would not likely result in restrictions for a removal action.

The PDX overlay zone reduces the impact of aircraft noise on development within the noise impact area surrounding the Portland International Airport. The zone achieves this by limiting residential densities and by requiring noise insulation, noise disclosure statements, and noise easements. This is a development-oriented overlay which would not likely result in restrictions for a removal action.

Depending on the volume of soils removed during the removal action, City of Portland Site Development permit requirements could be required for grading. The threshold requirement for a grading permit is 10 cubic yards.

Endangered Species Act Resource Studies. Resource studies required under the Endangered Species Act (e.g., biological assessment) are required for in-water work. The scope of the AO and the scope of the removal actions are limited to areas above the high water line. Therefore, biological assessment and other resource studies required under the Endangered Species Act are not required. At the request of EPA, notice of the removal action will be provided to the National Marine Fisheries Service.

4.2 Federal and State Cleanup and Screening Levels

EPA is requiring preparation of the EE/CA and a possible removal action at the site. EPA's authority for these requirements is based on CERCLA. The state of Oregon has promulgated cleanup regulations (DEQ

Hazardous Substance Remedial Action Rules) under Oregon Administrative Rules (OAR) Division 340-122. In general, Oregon cleanup requirements follow a risk-based approach.

Removal actions are required if there is a release or threat of release into the environment of a hazardous substance, or a release or threat of release into the environment of a pollutant or contaminant which may present an imminent and substantial danger to public health or welfare. This determination must be based on a consideration of the appropriateness of a removal action in relation to several factors:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;
- Actual or potential contamination of drinking water supplies or sensitive ecosystems;
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release;
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;
- Threat of fire or explosion;
- The availability of other appropriate federal or state mechanisms to respond to the release; and
- Other situations or factors that may pose threats to public health or welfare or the environment.

Principal threat chemicals were evaluated for human health and ecological receptors using EPA's Removal Management Levels (RMLs; EPA, 2012) for human health and adjusted sediment screening levels for ecological risks (EPA does not have removal screening criteria for ecological risks). The human health and ecological principal threat evaluation is described in detail in Section 5.3. The presence of any of the removal action factors listed above, or the presence of principal threat chemicals and a potentially complete exposure pathway, will provide the decision point for whether removal is required.

Oregon's cleanup regulations target risk levels of 10^{-6} excess cancer risk for individual carcinogenic compounds and a hazard index of 1 for non-carcinogenic compounds. These risk levels are applied to applicable exposure pathways such as residential, urban residential, commercial, and construction workers. Non-time-critical removal actions do not account for cleanup to these levels, as these actions are not intended to be final remedial actions. If feasible and at a reasonable cost, the removal actions contemplated for the site will account for cleanup to Oregon's RBCs for the applicable pathways summarized in Section 5.2. Concentrations of metals and chemical compounds in soil may exceed RBCs in parts of the site where removal action is not completed.

5.0 Removal Action Evaluation

The removal action evaluation was prepared in general accordance with the EPA Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA (EPA540-R-93-057; EPA, 1993). The removal action evaluation includes: (1) an evaluation of the potential for contaminants in site soil to migrate to the North Portland Harbor – Columbia River; and (2) removal screening accounting for both human health risks and potential ecological effects to aquatic receptors.

5.1 Land Use Summary

The Site is located in an area of predominantly river-related industrial uses and is zoned IG2 for general industrial use. The surface of the Site is entirely comprised of paved or graveled exterior areas, as well as the on-Site structures. The bank area is vegetated, primarily with blackberries and non-native vegetation. The entire site is located on a levee that is actively managed by Pen 1. Additional river-related industrial property is located adjacent to the Site to the south and west, the I-5 Bridge is located to the east, and the North Portland Harbor – Columbia River is located to the north. No change in land use of the Site is anticipated. Depending on final design details, the proposed Columbia Crossing Bridge may include a portion of the Site.

5.2 Updated Conceptual Site Model

Information regarding current and reasonably likely future land uses and the results of the data gap investigation were used to update the CSM that describes potential human and ecological exposures at the Site. Figure 9 presents the conceptual site exposure model. Exposure pathways have been identified for both current and potential future on-Site receptors and ecological endpoints based on the data gap investigation.

The following constituents have been detected in soil (0 to 15 feet bgs) or within the upland gravel filter area at concentrations above one or more applicable or relevant screening levels (Tables 1 through 4):

- Metals (antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc);
- Tri-butyltin;
- Pesticides and PCBs (Aroclor 1254, gamma-chlordane, alpha-chlordane, 4,4' DDE, 4,4' DDD, 4,4' DDT); and
- SVOCs (primarily phthalates and PAHs, also phenol and 4-methylphenol).

On-site receptors include industrial workers, residents, construction workers, and excavation (utility) workers. Potential human health exposure pathways are:

-
- Inhalation of dust and particulates; and
 - Direct contact with soil.

The removal action screening considers industrial and occupational exposures. There is a single residence located on the west end of the site that is a rental property. Residential land use screening was not applied during the removal evaluation for the following reasons:

- The predominant land use at the site and immediate vicinity is industrial, and rental properties have tenants that vacate well before the 30-year averaging time for residential exposures.
- The Columbia River Crossing (CRC) project includes a span that passes over or very near the residence (Attachment B). The entire property will be considered a “take” by the Columbia River Crossing. It is understood that the State of Oregon intends to take possession of the entire site via foreclosure or sale as part of the project, and it is unlikely the state would retain this small residence during CRC construction because of its location in proximity to the bridge structure.
- The residential structure is considered a nonconforming upgrade by Pen 1. Zoning and USACE levee management regulations do not allow for residential structures. The zoning designation for the site is General Industrial (IG2) and it is included in the City of Portland Comprehensive Plan as Industrial Sanctuary (IS). Zoning designation, Comprehensive Plan designation, and USACE levee management regulations will prevent redevelopment of the property for residential purposes.
- Should the CRC project not happen, the owner is willing to have the current tenants vacate and discontinue rental of this property for residential uses.

Based on the data gaps identified by EPA in the AO and the conclusions of the E&E SI Report, bank erosion or discharge from storm sewer outfalls, with aquatic species uptake, and fish consumption by humans is a human health pathway that is considered. Based on the general absence of compounds in sediment sampling locations from the E&E SI, this pathway currently appears to be incomplete. In sediments adjacent to Pier 99, organotins, pesticides/PCBs, and SVOCs were not detected, and metals were not detected above background concentrations, except for copper in one sample.

The riverbank would not be considered to be functional riparian habitat. It is largely covered with Himalayan Blackberry and appears to be lacking critical habitat. Additionally, the riverbank at the site is part of a functioning levee that is maintained by Pen 1. Pen 1 maintains vegetation on the bank in a state that prevents erosion and deposition into the river, and implements a monitoring and maintenance program to prevent bank erosion.

VOCs have not been detected at the site, with the exception of toluene and total xylenes at low concentrations in groundwater (below EPA Maximum Contaminant Levels for water). Therefore, the volatilization pathways (vapor intrusion or volatilization to outdoor air) are not considered complete.

Groundwater is not used at the site. Therefore, groundwater ingestion pathways are not considered complete.

Potential ecological endpoints include:

- Potential bank erosion to river sediments or discharge via storm sewer outfall to river sediments.

Terrestrial ecological endpoints are not evaluated in the removal screening due to the industrial character of the site and vicinity, as well as the general lack of habitat.

5.3 Removal Screening

As described previously, removal screening incorporates both a determination of whether a given waste material is present at a concentrations considered to be a principal threat, and determination of the likelihood of a principal threat waste to migrate to a receptor. For human health risks, EPA (2012) developed Removal Management Levels (RMLs) to aid in identifying concentrations of chemical compounds in media that constitute a principal threat. For ecological removal screening, EPA has not published removal screening levels or other specific guidance for incorporating ecological risk into removal actions. EPA requires Removal Actions to address ecological risk when there is an imminent and substantial threat posed to ecological receptors. This EE/CA identifies principal threat chemicals based on the primary ecological endpoint that is protection of aquatic receptors in the Columbia River, North Portland Harbor.

The ecological removal screening incorporates a surrogate approach to DEQ's hot spot criteria for ecological receptors. For the ecological screening, ecological removal screening criteria consisting of 10 times the EPA Region 3 sediment benchmarks, and other applicable sediment screening levels to a limited degree, were used. The surrogate approach was modeled after Oregon's Hazardous Substance Remedial Action Rules for hot spots of contamination (OAR 340-122-115(3) I_ (A) (iii):

OAR 340-122-115(31)(b): For media other than groundwater or surface water (e.g., contaminated soil, debris, sediments, and sludges; drummed waste; 'pools' of dense, non-aqueous phase liquids submerged beneath groundwater or in fractured bedrock; and non-aqueous phase liquids floating on groundwater), if hazardous substances present a risk to human health or the environment exceeding the acceptable risk level, the extent to which the hazardous substances:

(A) Are present in concentrations exceeding risk-based concentrations corresponding to:

(i) 100 times the acceptable risk level for human exposure to each individual carcinogen;

(ii) 10 times the acceptable risk level for human exposure to each individual non-carcinogen;

(iii) 10 times the acceptable risk level for individual ecological receptors or populations of ecological receptors to each individual hazardous substance;

(B) Are reasonably likely to migrate to such an extent that the conditions specified in subsection (a) or paragraphs (b)(A) or (b)(C) would be created; or

(C) Are not reliably containable, as determined in the feasibility study.

Removal screening for TBT accounts for human health risks only. Sediment screening levels are generally not available for TBT because TBT sediment data is commonly used to screen sediments to evaluate whether pore water or fish tissue sampling may be needed. EPA Region 10 does not recommend using sediment data as the basis for remedy selection and recommends that these decisions be made based on pore water or fish tissue sampling results (<http://water.epa.gov/polwaste/sediments/cs/csnews18.cfm>).

PSDDA Issue Paper 10/96 does report a sediment screening value of 73 µg TBT/kg (Michelson et al., 1996). This screening level is a sediment concentration that is used as a decision point in the sediment evaluation process to evaluate whether bioassay testing of pore water is required. The 2008 EPA SI conducted by E&E collected approximately 20 sediment samples offshore of the site. TBT was either not detected or detected at concentrations well below the PSDDA screening level. These results are not included in the summary table of the E&E SI Report (E&E, 2009) but can be found beginning on page 161 of the SI report.

The compounds that exceed these human health and ecological removal screening levels are shown on each data table and highlighted on Figure 10. Figure 10 summarizes the principal threat evaluation. Note that concentrations from the 2013 Data Gap Investigation (Tables 1 through 6) and the historical data (Appendix C) were used for the principal threat evaluation. This figure summarizes compounds that are detected:

- At concentrations above EPA RMLs for human health risk corresponding to 10^{-4} excess human health risks and a HQ of 3 for non-carcinogenic effects; and
- At concentrations greater than 10 times the EPA Region 3 freshwater sediment benchmarks (ecological principal threat criteria).

Shaded values in Tables 1 through 6 indicate concentrations that exceed one or both of the principal threat criteria. The results of the removal screening indicate:

- Concentrations of lead and TBT within the gravel filter or MH-1 sediment exceed EPA RMLs;
- Concentrations of antimony, cadmium, copper, chromium, cadmium, lead, nickel, zinc, DDD, DDT indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, and bis(2-ethylhexyl) phthalate in gravel filter or MH-1 sediment exceed the ecological principal threat level for migration from upland sources to river sediments via the gravel filter;
- Concentrations of lead at sample point WS02SS in the Eastern Unimproved Area exceed EPA RMLs;
- Concentrations of copper, zinc, and bis (2-ethylhexyl) Phthalate at sample point WS02SS and concentrations of copper and DDD at sample point WS01SS exceed the ecological principal threat level in the Eastern Unimproved Area;
- Concentrations of lead in sample SS-11 exceed EPA RMLs; and

-
- Concentrations of copper, lead, antimony, mercury, DDE, DDD, DDT, endosulfan sulfate, indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene, and/or bis(2-ethylhexyl) phthalate exceed the ecological principal threat level in bank area sample locations.

The presence of metals, TBT, pesticides, phthalates, and PAHs in the gravel filter and MH-1 sediments indicates principal threat wastes are contained in the gravel filter and the associated discharge line. These concentrations and their locations within the gravel filter system suggest a removal is necessary. In this case, principal threat wastes and a migration pathway are present.

Metals pesticides, phthalates, and PAHs were detected along the bank at concentrations that exceed the RMLs or the ecological criteria (10x EPA Region 3 sediment benchmarks). As described previously, the bank is maintained by Pen 1 as part of a functioning levee system. For this reason, clearing of the bank during the removal action was not permitted at the time of the data gap investigation. It is the goal of Pen 1's management and inspection program to maintain the levees in a condition that prevents bank erosion, and thereby the potential for deposition in the river. However, because of the very dense nature of the vegetation, it was not feasible to provide a determination that the bank is stable. Therefore, it is not known if a pathway is present from the bank to the water.

Two sample locations in the Eastern Unimproved (WS01SS and WS02SS) have concentrations of chemicals detected that exceed either RMLs or the ecological principal threat criteria. The detected concentrations in the remainder of the sample locations from the Eastern Unimproved Area do not exceed these criteria.

6.0 Identification of Removal Action Objectives

Removal Action Objectives (RAOs) are medium-specific goals for removing or managing imminent threat to human health and the environment and provide the framework for developing and evaluating removal action alternatives. RAOs were developed to address pathways that pose imminent threats by minimizing migration or removing site contaminants.

RAOs are site-specific goals for protecting human health and the environment established on the basis of the nature and extent of the contamination, resources that are currently and potentially threatened, and the potential for human and environmental exposure. The RAOs specify the contaminants of concern, potential exposure routes and receptors, and acceptable contaminant concentrations (or range of acceptable contaminant concentrations for each exposure route).

Based on current site data and evaluations of potential risk, contaminants of concern for removal include metals (primarily copper and lead), TBT, organochlorine pesticides (primarily DDE, DDD, DDT, and endosulfan sulfate), PAHs (indeno(1,2,3-cd)pyrene, benzo(b)fluoranthene), and bis(2-ethylhexyl) phthalate. The removal evaluation identified that these contaminants of concern in soil constitute principal threat

chemicals for human health exposure or migration to North Portland Harbor – Columbia River. Therefore, the RAOs include:

- Prevent direct contact by workers (industrial, excavation, and construction) to contaminated soil in excess of RMLs; and
- Prevent migration of contaminated soils to the North Portland Harbor – Columbia River.

6.3 Removal Action Areas

The Removal Action Area (RAA) consists of portions of the Site where contaminants of concern are present in excess of RMLs or the site-specific ecological criteria of 10 times the EPA Region 3 freshwater sediment benchmarks. These areas include:

- Operable Unit 1 – Bank Area (including the vicinity of sample WS02SS); and
- Operable Unit 3 – Gravel Filter Area and Upland Boat Maintenance Repair Area.

The proposed removal area for the Bank Area is shown on Figure 11. Concentrations of metals or pesticides at SS-9, SS-11, SS-13, OP02SS, and SS-14 constitute principal threat material. Based on the results from the SS-10/SS-18 sample pair, principal threat material appears to be limited to the first 12 inches of soil. While one data point is insufficient to fully describe the interval over which principal threat material may be present, the contaminants of concern generally have low solubility, suggesting the vertical extent of contamination is limited.

At the Eastern Unimproved Area, the only sample results that exceed the removal screening criteria are samples WS01SS and WS02SS. Removal action is not proposed to account for this OU. Also, given its location, sample WS02SS is more appropriately considered a bank sample. As a component of the gravel filter removal action (OU3), excavation to remove contaminated soil at the end of the gravel filter discharge pipe will be completed. Soil removal at the location of sample WS02SS is included as a component of this removal action. Soil removal at sample location WS01SS is not planned based on a single sample and the location of WS01SS is not located in area where overland transport to the river is a complete transport pathway.

The proposed removal area for the Gravel Filter Area is shown on Figure 11. Principal threat chemicals are present within the gravel filter and the discharge pipe. Because the gravel filter is connected to a discharge pipe that extends to the bank area, the pathway between the gravel filter and a discharge point near the river constitutes a complete exposure pathway. Removal would address migration from the gravel filter, and migration within the drainage pipe to the discharge point.

7.0 Technology Evaluation and Removal Action Alternative Development

Removal action alternatives were conceptually reviewed with EPA prior to preparing this EE/CA in email correspondence and teleconferences. Based on these discussions, the list of removal action alternatives to be considered includes:

- OU3 – Remove gravel filter, clean and plug discharge line;
- OU3 – Remove gravel filter, clean and remove discharge line;
- OU3 – Cap gravel filter, clean and plug discharge line;
- OU1 – Bank stabilization; and
- OU1 – Bank soil removal and stabilization.

As described in Section 1.1, the removal alternatives are evaluated in this section using the three criteria below.

- Effectiveness. Effectiveness pertains to the ability to meet the objectives and relative permanence within the scope of the removal action. The effectiveness criterion also considers short-term risks to the community during implementation, potential for risks to the environment during implementation, and the timeframe for the removal action.
- Implementability. Implementability refers to the ease or difficulty of implementing the removal action, considering technical, mechanical and regulatory requirements, as well as the availability of equipment and services to needed to complete the removal action.
- Cost. Cost criteria consider both the capital and the operation and maintenance (O&M) costs of the proposed technology, compare costs between technologies, and compare the cost of the technology to the resulting benefits.

7.1 No Action

This alternative consists of no further action and leaving the Site in its current condition. Implementation of the No Action alternative would not reduce the risks to human or ecological receptors.

Effectiveness. This alternative is not considered effective. The No Action alternative does not meet the removal objectives. Since no remedial action is completed, the No Action alternative can be implemented in a reasonable time frame.

Implementability. Because there are no actions taken, the No Action alternative can be readily implemented.

Cost. There are no costs associated with the No Action alternative.

7.2 OU3 – Remove Gravel Filter, Clean and Plug Discharge Line

This alternative would include the physical removal of the waste soil and debris (collectively, waste materials) from the gravel filter, the disposal of the waste materials at an approved solid waste landfill, the cleaning of the discharge line to remove contaminated sediments, and plugging the line to remove the pathway to the bank area. The excavation would include the full depth of the gravel filter (identified by the presence of the large-diameter filter rock) and 6 to 12 inches of underlying soil overexcavation. Confirmation sampling would be completed for any component of the removal action involving soil excavation. Additional excavation will be completed for the gravel filter and discharge pipe removal if confirmation sampling results indicate that soil concentrations exceed the EPA RMLs.

To reduce the cost of waste materials disposal, the material excavated from the gravel filter may be screened through a mechanical screen to separate the filter rock from the finer-grained soil (less than 1 inch in size) and waste materials. The rock fraction would be retained for use as backfill. Based on the sieve analysis done on the gravel filter material, it is expected that approximately 75 percent of the excavated volume would consist of the filter rock and would be retained. The remaining soil/waste fraction would require off-site disposal. Salvageable debris (i.e., large metal or woody debris) would be removed and recycled. The decision regarding screening will be made once contractor bids for the work are received. The EE/CA work plan will address the final design parameters with respect to the screening operations, and also present the methodology that will be utilized to confirm the screening sufficiently removes soil that has adhered to the rock matrix.

Confirmation sampling of the gravel filter excavation bottom and sidewalls would be used to document the effectiveness of the excavation alternative. Based on the available data, it is expected that removal of the gravel filter rock will remove the contaminated materials such that the gravel filter will no longer pose a threat to long-term human health. The screened rock fraction would also be used as fill elsewhere on the site. The gravel filter excavation will be backfilled with clean sand and compacted. Pen 1 will require that compaction testing be performed and that PEN 1 receive a copy of the results.

This alternative also includes the plugging of the discharge line from the filter and a limited excavation (estimated at 10 cubic yards) with confirmation sampling from the distal end of the discharge pipe to remove anticipated contaminated materials (including sample locations WS02SS). The end of pipe excavation is proposed to remove concentrated soils that may be located at the end of the pipe and to remove soils around sample location WS02SS. Additional excavation at the end of the pipe is not planned based on confirmation sampling results because this location is physically located on the bank (OU1). The need for any additional excavation would be managed under the removal action for the bank area (OU1).

During the data gap investigation, the end of the pipe could not be located. It is suspected that the pipe terminates near sample WS02SS, and this sample is assumed to be indicative of conditions at the end of the pipe. The end of the pipe will be located by excavation. Following cleaning and soil removal, each end of the pipe would be sealed with grout.

The implementation of the excavation alternative would provide protection immediately after completion by the removal of the gravel filter waste material and discharge pipe sediment. Potential future migration to the bank area would be mitigated by the plugging of the drain line.

Effectiveness. The excavation and discharge plugging alternative is considered effective, as follows.

- This alternative protects human health and the environment by physically removing the contaminant mass from the gravel filter and containing it in a managed waste facility. Plugging the discharge pipe prevents future contaminant migration to the bank area via the discharge pipe.
- The alternative complies with the cleanup standards by physical removal of the contaminant mass.
- Based on the data set for the gravel filter, gravel filter removal will reduce long-term human health risks to acceptable levels because the contaminated soil mass is expected to be removed.
- The alternative includes confirmation sampling of the excavation extent at the filter and end of pipe removal areas to demonstrate the effectiveness of the remedy.
- There is little risk to the community during implementation. All loads would be covered leaving the site during transport to the landfill. Work associated with this alternative will be completed well above the high water mark, which limits the potential for adverse effects to aquatic receptors in the river.

Implementability. This alternative is considered readily implementable, with the following considerations:

- This alternative relies on common earth moving equipment to complete the removal.
- This alternative requires coordination with Pen 1 and must be conducted during a low water work window (anticipated August and September).
- Erosion controls following the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control Best Management Practices (BMPs) installed above the high water line.

Cost. The estimated cost for this alternative is \$77,000. The design/construction cost is estimated to be approximately \$50,000. The remaining costs (\$27,700) include the completion report and a 30% contingency. There are no long-term operational costs associated with this alternative. A breakdown of the cost estimate is provided in Appendix G.

7.3 OU3 – Remove Gravel Filter, Clean and Remove Discharge Line

This alternative would include the physical removal of the waste soil and debris (collectively, waste materials) from the gravel filter, disposal of the waste materials at an approved solid waste landfill, cleaning the discharge line to remove contaminated sediments, and the physical removal of the full length of the discharge line to remove the pathway to the bank area. The filter excavation would include the full depth of the filter (identified by the presence of the large-diameter filter rock) and 6 to 12 inches of underlying soil overexcavation. Confirmation sampling would be completed for any component of the removal action involving soil excavation. Additional excavation will be completed if confirmation sampling results indicate that soil concentrations exceed the EPA RMLs.

To reduce the cost of waste materials disposal, the material excavated from the gravel filter may be screened through a mechanical screen to separate the filter rock from the finer-grained soil (less than 1 inch in size) and waste materials. The rock fraction would be retained for use as backfill. Based on the sieve analysis done on the gravel filter material, it is expected that approximately 75 percent of the excavated volume would consist of the filter rock and would be retained and the remaining soil/waste fraction would require off-site disposal. Salvageable debris (i.e., large metal or woody debris) would be removed and recycled (assumed to be 10 percent of the excavated volume). The decision regarding screening will be made once contractor bids for the work are received. The EE/CA work plan will address the final design parameters with respect to the screening operations, and also present the methodology that will be utilized confirm the screening sufficiently removes soil that has adhered to the rock matrix.

Confirmation sampling of the gravel filter excavation bottom and sidewalls would be used to document the effectiveness of the excavation alternative. Based on the available data, it is expected that removal of the gravel filter rock would remove the contaminated materials such that the gravel filter would no longer pose a threat to long-term human health. The screened rock fraction would also be used as fill elsewhere on the site. The gravel filter excavation will be backfilled with clean sand and compacted. Pen 1 will require that compaction testing be performed and that PEN 1 receive a copy of the results.

This alternative also includes the removal of the discharge line from the filter and a limited excavation (estimated at 10 cubic yards), with confirmation sampling, from the distal end of the discharge pipe to remove anticipated contaminated materials (including sample locations WS02SS). The end of pipe excavation is proposed to remove concentrated soils that may be located at the end of the pipe and to remove soils around sample location WS02SS. Additional excavation at the end of the pipe is not planned based on confirmation sampling results because this location is physically located on the bank (OU1). The need for any additional excavation would be managed under the removal action for the bank area (OU1).

During the data gap investigation, the end of the pipe could not be located. It is suspected that the pipe terminates near sample W202SS. Following the removal of sediment from the pipe, the full length of the pipe would be removed by excavation (together with the additional excavation at the end of the pipe). The

pipe excavation would be backfilled with clean imported rock and compacted to a visibly non-yielding condition.

The implementation of the excavation alternative would provide protection immediately after completion by the removal of the gravel filter waste material and discharge pipe sediment. Potential future migration to the bank area would be mitigated by the removal of the drain line.

Effectiveness. The excavation and discharge pipe removal alternative is considered effective, as follows.

- This alternative protects human health and the environment by physically removing the contaminant mass from the gravel filter and containing it in a managed waste facility. Removal of the discharge pipe prevents future contaminant migration to the bank area via the discharge pipe.
- The alternative complies with the cleanup standards by the physical removal of the contaminant mass.
- Based on the data set for the gravel filter, gravel filter removal will reduce long-term human health risks to acceptable levels because the contaminated soil mass is would be removed.
- The alternative includes confirmation sampling of the excavation extent at the filter and end of pipe removal areas to demonstrate the effectiveness of the remedy.
- There is little risk to the community during implementation. All loads would be covered leaving the site during transport to the landfill. Work associated with this alternative will be completed well above the high water mark, which limits the potential for adverse effects to aquatic receptors in the river.

Implementability. This alternative is considered readily implementable, with the following considerations.

- This alternative relies on common earth moving equipment to complete the removal.
- This alternative requires coordination with Pen 1 and must be conducted during a low water work window (anticipated late August and September).
- Erosion controls following the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

Cost. The estimated present worth cost for this alternative is \$88,000. The design/construction cost is estimated to be approximately \$57,700. The remaining costs (\$30,300) include the completion report and a 30% contingency. There are no long-term operational costs associated with this alternative. A breakdown of the cost estimate is provided in Appendix G.

7.4 OU3 – Cap Gravel Filter, Clean and Plug Discharge Line

Description. Under this alternative, an engineered cap, consisting of Portland cement concrete (or similar material) will be installed over the gravel filter to prevent direct contact with soil. The cap also protects the impacted media from erosion. In addition, the alternative would include cleaning existing sediment from the gravel filter discharge pipe and plugging the pipe to prevent discharge from the gravel filter into nearby the North Portland Harbor. In concept, a cap would consist of at least a 4-inch-thick layer of Portland cement concrete over the gravel filter rock. Cap design would be completed by a registered Professional Engineer consistent with commonly accepted engineering practices. Oregon's cleanup rules do not have minimum requirements for cap design. Caps are designed and constructed for a specific purpose. For example, caps that are covering leachable materials are designed to prevent infiltration and direct water away from the contaminated area. When non-leachable materials are being covered, soil covers are suitable. Because this EE/CA is intended to evaluate and select a removal alternative, design level details are not required. Should a cap be selected as a final remedy, EPA will have an opportunity to comment on all aspects of the cap design before approval and implementation. Confirmation sampling would be completed for any component of the removal action involving soil excavation, and additional excavation may be required based on the confirmation sampling results.

This alternative also includes a limited excavation (estimated at 10 cubic yards) with confirmation sampling from the distal end of the discharge pipe to remove anticipated contaminated materials (including sample locations WS02SS). The end of pipe excavation is proposed to remove concentrated soils that may be located at the end of the pipe and to remove soils around sample location WS02SS. Additional excavation at the end of the pipe is not planned based on confirmation sampling results because this location is physically located on the bank (OU1). The need for any additional excavation would be managed under the removal action for the bank area (OU1).

During the data gap investigation, the end of the pipe could not be located. It is suspected that the pipe terminates near sample WS02SS. The end of the pipe will be located by excavation. Following cleaning and soil removal, each end of the pipe would be sealed with grout.

This removal action alternative protects people and the ecological migration pathway, although exposures to impacted soil could occur in the future if all or portions of the cap were removed or disturbed.

A cap management plan would be used to define how soil at the site would be managed in the future (such as might be associated with future construction activity). It is expected that the contamination left in place and capped would persist indefinitely (i.e., the inorganics would not be expected to degrade with time) and the cap would require ongoing inspection and maintenance to ensure its integrity. Long-term cap management requirements would be memorialized in a restrictive covenant.

Effectiveness. The capping of the gravel filter and discharge pipe plugging would be considered effective, as follows.

- This alternative protects human health and the environment using engineering controls that will prevent direct contact with contaminants in the gravel filter.
- The results of the EE/CA data gap investigation show that the chemicals detected in the gravel filter are not migrating to or within groundwater. However, if the capping alternative is explored further, leachability testing would be required to document the gravel filter chemicals are not mobile.
- Plugging the gravel filter discharge pipe will prevent future transport of contaminants to the bank area.
- The alternative includes confirmation sampling of the excavation extent at the end of pipe removal area to demonstrate the effectiveness of the remedy.
- There is little risk to the community during implementation. All loads would be covered leaving the site during transport to the landfill. Work associated with this alternative will be completed well above the high water mark, which limits the potential for adverse effects to aquatic receptors in the river.

Implementability. This alternative is considered to have poor implementability, with the following considerations:

- This alternative relies on common earth moving equipment to complete the removal.
- This alternative requires elevation survey and engineering design to provide suitable grades for stormwater flow away from the cap area.
- This alternative requires approval and recording of a restrictive covenant from the state (property owner of the parcel where the gravel filter is located). There is no guarantee that the property owner would agree.
- This alternative requires a cap maintenance plan, annual inspections, reporting, and ongoing maintenance for an indefinite period.
- This alternative requires coordination with Pen 1 and must be conducted during a low water work window (anticipated late July or early August).
- Erosion controls following the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

Cost. The estimated present worth cost for this alternative is \$127,000. The design/construction cost is estimated to be approximately \$43,400, and the present-worth long-term costs (inspections and maintenance) come to a total of \$36,000 over the next 30 years. The remaining costs (\$47,200) include the

completion report, cap management plan, and a 30% contingency. A breakdown of the cap cost estimate is provided in Appendix G.

7.5 OU1 – Bank Stabilization

Description. The bank is heavily vegetated with invasive blackberry bushes, which were not permitted to be cleared during the data gap investigation. This alternative manages contamination that is located in the bank in place, and prevents potential migration from the bank to the river through a combination of jute matting and re-vegetation. These actions represent the minimum stabilization techniques that will be implemented under the supervision of a geotechnical engineer or engineering geologist. Under this alternative, current vegetation (blackberries) would be removed from the bank adjacent to the work shop and former crane engine pad. Following removal of the vegetation, the bank will be inspected by a geotechnical engineer or engineering geologist in order to make a determination of whether additional bank stabilization requirements, beyond the measures discussed below, are needed.

The area would be cleared of debris and reinforced with jute matting or a similar material. Topsoil would be added (6-inch thickness) and the bank would be planted with grass (Pen 1's specified vegetation for levee improvements). This alternative would require compliance with the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

This alternative relies on owner maintenance of the bank for a period of one year to continue removal of blackberries and other invasive vegetation that returns while the grass on the bank is being established. After one year, the bank would be returned to management by Pen 1, who, through their monitoring and maintenance programs, would be responsible for long-term maintenance moving forward.

The Removal Action Report that would be prepared subsequent to the removal action would include a comprehensive discussion of the contaminants that remain in the bank area and the responsibility for monitoring and maintenance of the bank by Pen 1 and/or the owner during the interim period prior to the state taking possession of the property. The information will be presented in sufficient detail for the state to utilize the information to plan and implement an appropriate monitoring program once the state takes possession of the site.

Effectiveness. The bank stabilization alternative is considered effective, as follows.

- This alternative protects human health and the environment through the use of stabilization techniques (grading, erosion control fabric) and re-vegetation to prevent migration of suspended sediments from upland areas to the river and also to stabilize contamination within the bank ; and
- Regular inspection of the bank will be used to document the effectiveness of the remedy at preventing erosion and allow for timely maintenance as needed.

-
- There is little risk to the community during implementation. No contaminated soil would be transported from the site.

Implementability. This alternative is considered to be readily implementable, with the following considerations:

- This alternative relies on common earth moving equipment to complete the removal.
- This alternative requires intensive monitoring and maintenance over a period of approximately one year to permanently remove invasive vegetation.
- Long-term inspection and maintenance is consistent with existing Pen 1 responsibilities.
- This alternative requires coordination with Pen 1 and must be conducted during a low water work window (anticipated late July or early August).
- Erosion controls following the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

Cost. The estimated present worth cost for this alternative is \$95,000. The design/construction cost is estimated to be approximately \$63,000. The remaining costs (\$32,000) include the completion report, soil management plan, and a 30% contingency. A breakdown of the cost estimate is provided in Appendix G. Long-term inspection and maintenance costs are not included in this analysis as this would be under the purview of Pen 1.

7.6 OU1 – Bank Removal and Stabilization

The bank is heavily vegetated with invasive blackberry bushes, which were not permitted to be cleared during the data gap investigation. Under this alternative, the bank material with the highest relative concentrations of contaminants would be excavated and the remainder of the bank would be stabilized as described in Section 7.5. To estimate the volume of soil that would be removed under this alternative, the bank area was divided into representative sub-areas around each of the sample locations (such that any location within the sub-area is closest to the representative sample location). An analysis of the efficiency of removing each sub-area was done to determine which areas would benefit most from removal, with each sub-area ranked in order of efficiency (the highest ranking given to those sub-areas where the most mass is removed in the least soil volume). As a result of this analysis, the majority of the contaminant mass would be removed by excavating a total volume of 130 cubic yards around samples OP02SS, SS-13, SS-11, and SS-9 (in descending order of efficiency) – a total of 92 percent of the known contaminant mass is removed in these sub-areas by excavating 54 percent of the bank area volume. Confirmation sampling following removal will be used to confirm the removal objectives have been met.

Following the completion of the bulk excavation, remaining vegetation would be removed from the bank and the bank will be inspected by a geotechnical engineer in order to make a determination of whether additional bank stabilization requirements, beyond the measures discussed below, are needed.

Excavations would be graded with the other bank materials into a consistent profile. Topsoil, beyond the layer described below, may be placed if low spots are present and a consistent profile cannot be achieved. The bank area would be cleared of debris and reinforced with jute matting or a similar material. Topsoil would be added (minimum 6-inch thickness) across the entire bank area and would be planted with grass (Pen 1's specified vegetation for levee improvements). This alternative would require compliance with the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

This alternative relies on owner maintenance of the bank for a period of one year to continue removal of blackberries and other invasive vegetation that returns while the grass on the bank is being established. After one year, the bank would be returned to management by Pen 1. Pen 1, through their monitoring and maintenance programs, would be responsible for long-term maintenance moving forward.

The Removal Action report that is prepared subsequent to the removal action will include a comprehensive discussion of the contaminants that remain in the bank area and the responsibility for monitoring and maintenance of the bank by Pen 1 and/or the owner during the interim period prior to the state taking possession of the property. The information will be presented in sufficient detail for the state to utilize the information to plan and implement an appropriate monitoring program once the state takes possession of the site.

Effectiveness. The bank stabilization alternative is considered effective, as follows.

- This alternative protects human health and the environment by removing areas of higher contamination and stabilizing the bank, preventing future migration of contaminants to the river.
- This alternative reduces potential long-term risks by: (1) removing the most heavily contaminated soils from the bank area; and (2) using of stabilization techniques (grading, erosion control fabric) and re-vegetation to prevent migration of suspended sediments from upland areas to the river and also to stabilize contamination within the bank.
- Regular inspection of the bank will be used to document the effectiveness of the remedy at preventing erosion and allow for timely maintenance as needed.
- There is little risk to the community during implementation. All loads would be covered leaving the site during transport to the landfill.

Implementability. This alternative is considered to be readily implementable, with the following considerations:

-
- This alternative relies on common earth moving equipment to complete the removal.
 - This alternative requires intensive monitoring and maintenance over a period of approximately one year to permanently remove invasive vegetation.
 - Long-term inspection and maintenance is consistent with existing Pen 1 responsibilities.
 - This alternative requires coordination with Pen 1 and must be conducted during a low water work window (anticipated late July or early August).
 - Erosion controls following the City of Portland Erosion Control Manual during and after implementation, including temporary erosion control BMPs installed above the high water line.

Cost. The estimated cost for this alternative is \$153,000. The design/construction cost is estimated to be approximately \$107,700. The remaining costs (\$45,300) include the completion report, and a 30% contingency. A breakdown of the cost estimate is provided in Appendix G.

8.0 Comparative Analysis of Removal Action Alternatives

Following the analysis of each of the retained removal action alternatives in Section 7 above, a comparative analysis of each alternative was completed as a means of ranking the removal action alternatives the operable units where removal action will be completed.

The comparative analysis is a one-to-one assessment of the relative merits of each alternative for each of the evaluation criteria. Table 7 summarizes the comparative analysis for both the OU1 alternatives and the OU3 alternatives (each set of alternatives are considered independently). For each comparison, the individual alternatives were ranked as favorable (+), equal (0), or unfavorable (-) in relation to the other alternative(s) for each of the evaluation criteria. The rankings of (+), (0), or (-) were given a score of 1, 0, or -1, respectively. The scores are summed at the right of the table for each alternative, and the alternatives are ranked from most to least favorable.

8.1 Gravel Filter Area Alternatives

For the gravel filter area, the following alternatives were evaluated:

- No action
- Remove gravel filter, clean and plug discharge line;
- Remove gravel filter and remove discharge line; and
- Cap gravel filter, clean and plug discharge line.

Effectiveness. All three alternatives (not including No Action) either remove or manage contaminated soils and mitigate the possibility of future transport to the river. The two removal alternatives were considered to be more effective than capping, primarily because the contaminated soil within the gravel filter is removed. The pipe removal alternative is marginally more effective than the plugging alternative as plugging relies on the long-term integrity of the plug to remain effective. No Action is not considered an effective removal alternative because it does not account for any actions to remove contamination or manage contamination pathways.

Implementability. The No Action alternative is considered to be the most implementable alternative since it does not include any site activity. The two removal alternatives are considered to be similarly implementable. Both rely on removal of contaminants in the gravel filter area, using essentially the same equipment. The pipe removal alternative, however, includes more excavation volume and is therefore marginally less implementable. Capping is considered the least implementable alternative, primarily because the gravel filter is located on an adjacent, off-Site property, which will make access and the process of enacting a restrictive covenant difficult. Capping will require a modest site-specific engineering design effort to ensure final grades adequately convey stormwater from the cap area, and long term monitoring for an indefinite period of time.

Cost. The total present-worth costs for the alternatives are summarized as follows:

- OU3 – Remove gravel filter, clean and plug discharge line - \$77,000
- OU3 – Remove gravel filter, clean and remove discharge line - \$88,000
- OU3 – Cap gravel filter, clean and plug discharge line - \$127,000

8.2 Bank Area Alternatives

For the bank area, the following alternatives were evaluated:

- No action
- Bank stabilization; and
- Bank soil removal and stabilization.

Effectiveness. Two of the alternatives (not including No Action) either remove or manage contaminated soils and eliminate the possibility of future transport to the river. Both alternatives will prevent migration of contaminants in bank soils to the river. The Bank Stabilization alternative is considered slightly more effective because it limits the potential for disturbance and subsequent shoreline impacts. No Action is not considered an effective removal alternative because it does not account for any actions to remove contamination or manage contamination pathways.

Implementability. The No Action alternative is considered to be the most implementable alternative since it does not include any site activity. The Bank Stabilization alternative was considered to be more implementable because Pen 1 and USACE will seek to avoid actions that could compromise the levee. Both will require the use of earth moving equipment on the bank and will be subject to the same Pen 1 requirements for work on a USACE jurisdictional levee.

Cost. The total present-worth costs for the alternatives are summarized as follows:

- OU1 — Bank Stabilization - \$95,000
- OU1 — Bank Stabilization with Removal - \$153,000

9.0 Recommended Removal Action Alternative

Based on the results of this EE/CA, the recommended removal actions for the Site are OU3 Gravel Filter Removal and Pipe Removal and OU1 Bank Stabilization. These alternatives were selected for the following reasons.

- OU3 gravel filter and discharge pipe removal removes the potential for exposure for future Site workers and prevents migration to the river. OU1 Bank stabilization and maintenance by the owner and Pen 1 will prevent migration of contaminants in the bank to the river. Soil in the vicinity of WS02SS (OU2) would also be removed as part of the OU3 gravel filter discharge pipe removal.
- The OU1 gravel filter and discharge pipe removal is a permanent action. This alternative also eliminates the difficulty of maintaining a cap off-Site.
- OU1 bank stabilization, while interim, will remove vegetation and debris and result in conditions that will result in the least levee disturbance and be more acceptable to Pen 1 and USACE. Vegetation that will be planted consistent with USACE requirements will also be consistent with the Draft restoration plan for the Columbia River Crossing project (see discussion in Section 4.1).
- The timeframe to implement the OU 1 and OU3 removal is reasonable.

9.1 Biological Evaluation

The proposed removal action will take place entirely above the high water mark. This will not trigger requirements for Biological Assessment under the Endangered Species Act (ESA).

The Oregon Biodiversity Information Center (OBIC) was contacted to conduct a database search within a 2-mile radius of the site for the purpose of providing a database search of protected species that may be present or have been observed. The database report indicated records of 27 protected plants and terrestrial, avian, and aquatic species. Additionally, EPA conducted a search of the United States Fish and

Wildlife Service (USFW) database of threatened and endangered species. EPA identified that 16 ESA protected aquatic species were present in the Columbia River.

The scope of the removal action is either: (1) within improved areas of the Site; or (2) within levees that are under the jurisdiction of the USACE and management of Pen 1. Neither of these already-improved areas represent critical habitat for avian or terrestrial species. The removal action will be conducted adjacent to the North Portland harbor - Columbia River, which provides habitat for aquatic receptors including ESA listed salmonids.

Based on the habitat characteristics for each species and the location (urban industrialized), size (<1.0 acre) and condition (urban, industrialized) of the project site, EPA determined that it is highly unlikely that any ESA-listed or proposed species would be present on the project site. Therefore, the EPA determined that cleanup activities on the Pier 99 site would result in discountable effects and therefore constitute a "No Effect" determination.

9.2 Cultural Resource Evaluation

The proposed removal action will take place entirely in areas of the site that are already developed or otherwise improved. The Oregon State Historic Preservation Office (SHPO) was contacted to conduct a database search of cultural resources at the site or vicinity. SHPO replied that there are no records of cultural resource surveys conducted within the immediate site vicinity. SHPO cautioned that excavation should cease immediately if possible cultural resources are identified during excavation.

Archeological resources have been evaluated within the footprint of the CRC project. The CRC website at: http://www.columbiarivercrossing.org/PublicMeetings/OpenHouses/Sec106_OH.aspx describes that no archaeological resources have been identified, although analysis of the sediments from borehole investigations suggests archaeological resources may be preserved in the deep soils along the shore.

The recommended removal action excavation includes site grading, and re-vegetation at a facility that was previously constructed on an artificial levee system. Based on the shallow nature of these activities and that the activities are confined to the artificial levee, encountering cultural resources is not anticipated. If conditions are encountered that suggest an unanticipated discovery, excavation will cease in this area. The SHPO office will be notified and a qualified archeologist will be retained to determine if cultural resources are present and to assist with devising an excavation plan.

9.3 Removal Action Data Gaps

The data set along the bank and at the end of the gravel filter outfall represent a minimum amount of data sufficient for identifying and evaluating a removal action. Once vegetation is cleared, additional sampling

will be required in order to confirm that removal at the end of the gravel filter discharge pipe has been completed to a sufficient extent.

9.4 Removal Schedule

The removal schedule is dependent on the negotiation of a new administrative order with EPA. Work is limited to periods of low water in the Columbia River that commonly occur in August and September. PEN 1 monitors the river stage and will approve work based on river stage and predicted weather patterns. Assuming the new administrative order is prepared by mid-July 2013, 30 days will be required for Removal Action Work Plan (design document) and procurement, assuming EPA's permit waiver authority under the Superfund Program is utilized. The removal action will require approximately 2 weeks to complete.

10.0 References

- Ecology and Environment, Inc (E&E), 2008. *Abbreviated Preliminary Assessment 1610 North Pier 99 Site, for United States Environmental Protection Agency, Contract Number EP-S7-06-02, Seattle, Washington.* January 2008.
- E&E, 2009. *Final 1610 North Pier 99 Site Inspection Report, Portland, Oregon. Technical Direction Document Number: 08-03-0006.* August 2009.
- Oregon Department of Environmental Quality, 2002, *DEQ Site Assessment Program – Strategy Recommendation, Former Schooner Creek Boat Works.* January 24, 2002.
- Oregon Department of Environmental Quality, 2013. *Background Levels of Metals in Soil for Cleanups.* March 20, 2013.
- Rander, Steve, 2003. *Letter Report to DEQ Northwest Region; Old Facility 1523 N. Marine Dr., Portland, Oregon, ECSI #3526.* January 14, 2003.
- Secor International Incorporated, 2003a. *Letter Report to DEQ; Investigation of Complaints, Mr. Milton Brown, Former Schooner Creek Boat Works, North Pier 99/North Marine Drive, Portland, Oregon, SECOR Project No.: 15OT.09417.01.0002.* August 26, 2003.
- Secor International Incorporated, 2003b. *Final Expanded Preliminary Assessment and Site Closure Report Using Risk Based Contaminant Levels for Mr. Milton Brown, Former Schooner Creek Boat Works, North Pier 99/North Marine Drive, Portland, Oregon.* December 30, 2003.
- USACE, 2004. *Portland-Vancouver Harbor Information Package, Second Edition. Reservoir Regulation and Water Quality Section.* USACE Portland District, November 2004.
- U.S. Environmental Protection Agency, 1993. *Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA.* Office of Solid Waste and Emergency Response, PB93-963402, 9360.0-32, EPA540-R-93-057, August 1993.
- U.S. Environmental Protection Agency, 2001. *A Guide to Principal Threat and Low Level Threat Wastes.* Office of Solid Waste and Emergency Response. Superfund Publication 9380.3-06FS, November 1991.
- U.S. Environmental Protection Agency, 2004. *Region III BTAG Freshwater Screening Benchmarks.* 2004. <http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fw/screenbench.htm>
- U.S. Environmental Protection Agency, 2012. *Regional Removal Management Levels for Chemicals (RMLs),* <http://www.epa.gov/region4/superfund/programs/riskassess/rml/rmlgntable.html> November 2012.

Table 1
Soil Sample Results - Metals
Pier 99 - Pier West
EE/CA Report

Sample ID	Date Sampled	Sample Depth (feet)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
			mg/kg (ppm)																							
Stormwater Sediment																										
MH-1	1/25/2013	--	8,170	12.5 N	30.4	265 N	<0.36	72.4*	6,550	540	35.7	4,360*	202,000	3,910*	10,400	1,150*	0.80	362*	476	<14.5 N	0.5	236	<7.3	35.0	2,740*	
Eastern Unimproved Area																										
B-4 (3.5-5.0)	2/20/2013	3.5-5.0	7,570	<1.6 N	5.1	126	0.3	0.3	3,310 *	13.2	7.4	105 N*	16,200	94.0	2,860	224	0.87	11.9	835	<3.1	<0.4	270	<1.6	38.6	183 N	
B-5 (3.5-4.5)	2/20/2013	3.5-4.5	--	--	--	--	--	--	--	--	--	69.6 N*	--	29.7	--	--	--	--	--	--	--	--	--	--	86.1 N	
B-5 (8.5-10)	2/20/2013	8.5-10	--	--	--	--	--	--	--	--	--	18.7 N*	--	16.3	--	--	--	--	--	--	--	--	--	--	101 N	
SS-14	2/21/2013	0.5	8,460	<1.6 N	4.3	109	0.8	<0.1	16,300	68.4	8.09	101	19,100	45.2	4,950	287	0.04	28.2	827	<3.2	<0.4 N	285	<1.6	52.1	66.3	
SS-15	2/21/2013	0.5	--	--	--	--	--	--	--	--	--	48.6	--	24.5	--	--	--	--	--	--	--	--	--	--	76.6	
SS-16	2/21/2013	0.5	--	--	--	--	--	--	--	--	--	34.6	--	31.3	--	--	--	--	--	--	--	--	--	--	63.5	
SS-17	2/21/2013	0.5	--	--	--	--	--	--	--	--	--	65.2	--	37.2	--	--	--	--	--	--	--	--	--	--	151	
Upland Boat Maintenance Repair Area																										
B-9 (12.5-15.0)	2/21/2013	12.5-15.0	--	--	--	--	--	--	--	--	--	24.4	--	7.4	--	--	--	--	--	--	--	--	--	--	56.4	
Gravel Filter Area																										
TP-2 (1.5-2.0)	2/19/2013	1.5-2.0	7,420	21.9 N*	12	297*	0.2	1.8	5,700	85.2 N*	19.4	45,100	15,100	4,210 *	4,590	229	1.06 *	85.0 *	297	<3.8	2.3 N	656 N	<1.9	28.3	1,660	
TP-2 (3.5)	2/19/2013	3.5	8,980	<1.7 N*	8.0	936 *	0.3	0.6	4,490	55.8 N*	9.7	1,750	21,400	126 *	5,000	354	--	24.7 *	1070	<3.5	<0.4 N	225 N	<1.7	54.5	259	
TP-2 (4.50-5.0)	2/19/2013	4.5-5.0	7,050	<1.8 N*	5.1	113 *	0.3	<0.1	3,480	31.3 N*	7.9	1,630	18,400	122 *	3,600	295	0.38 *	16.7 *	732	<3.7	<0.5 N	240 N	<1.8	45.0	151	
TP-3 (1.5-2.0)	2/19/2013	1.5-2.0	7,840	3.1 N*	5.1	126 *	0.3	1.3	3,650	127 N*	10.8	11,800	26,700	539 *	6,610	398	--	46.4 *	716	<3.6	0.5 N	298 N	<1.8	40.5	744	
TP-3 (3.5)	2/19/2013	3.5	5,920	<1.6 N*	2.3	80.9	0.2	<0.1	2,650	13.6 N*	5.4	200	12,200	13.2 *	2,920	162	--	11.1 *	726	<3.3	<0.4 N	245 N	<1.6	30.9	61.6	
B-6 (3.5-5.0)	2/21/2013	3.5-5.0	--	--	--	--	--	--	--	--	--	6.8	--	3.2	--	--	--	--	--	--	--	--	--	--	32.6	
B-6 (3.5-5.0) DUP	2/21/2013	3.5-5.0	--	--	--	--	--	--	--	--	--	7.1	--	3.1	--	--	--	--	--	--	--	--	--	--	34.5	
B-6 (8.5-10.0)	2/21/2013	8.5-10.0	5,810	<2.1 N	<2.1	71.4	0.2	0.2	10,800	10.2	4.98	8.2	11,700	3.0	2,980	164	0.07	9.5	763	<4.2	<0.5	519	<2.1	31.5	36.5	
B-7 (3.5-5.0)	2/21/2013	3.5-5.0	--	--	--	--	--	--	--	--	--	10.1	--	3.7	--	--	--	--	--	--	--	--	--	--	37.7	
B-7 (9.0-10.0)	2/21/2013	9.0-10.0	7,850	<2.3 N	2.3	112	0.3	0.3	4,890	12.9	6.68	13.1	15,000	4.6	3,590	231	0.04	12.1	1,010	<4.6	<0.6	342	<2.3	37.5	44.0	
B-8 (3.0-4.0)	2/21/2013	3.0-4.0	4,890	<1.5 N	1.7	56.5	0.4	<0.1	2,360	7.8	4.69	7.0	10,100	3.3	2,190	146	<0.02	8.2	622	<3.1	<0.4 N	244	<1.5	26.0	33.7	
B-8 (9.0-10.0)	2/21/2013	9.0-10.0	12,800	<2.4 N	4.2	151	0.5	0.5	4,580	19.3	9.06	24.7	24,900	8.1	5,410	378	0.03	16.9	1,410	<4.7	<0.6	360	<2.4	51.8	58.5	
Former Crane Engine Pad																										
B-2 (7.0-8.0)	2/20/2013	7.0-8.0	11,200	<2.0 N	9.8	151	<0.1	2.7	4,870	16.5	7.8	72.7 *	19,900	139 N*	4,200	293	0.63	13.6	1,020	<4.0	<0.5	376	<2.0	47.4	341	
Bank																										
SS-9	2/21/2013	0.5	12,700	37.0 N	13	298	1.0	3.1	9,660	102	13.4	4,130	28,100	638	4,840	476	2.98	33.4	2,950	<4.2	0.9 N	384	<2.1	49.9	1,070	
SS-10	2/21/2013	0.5	13,600	<2.2 N	5.4	150	1.1	<0.1	3,590	69.2	9.54	433	28,100	128	4,820	291	0.39	32.4	1,340	<4.3	<0.5 N	291	<2.2	50.8	213	
SS-11	2/22/2013	0.5	13,500	4.9 N	13.3	203	1.0	<0.1	8,230	56.8	13.8	6,500	25,400	989	4,320	460	1.07	28.7	1,420	<4.1	0.6 N	309	<2.0	53.5	380	
SS-12	2/22/2013	0.5	14,200	<2.4 N	4.3	130	1.0	0.4	6,910	21.8	11.0	450	23,300	151	4,040	478	0.21	16.0	2,200	<4.9	<0.6 N	290	<2.4	56.3	345	
SS-13	2/22/2013	1.6-2	10,700	3.3 N	25.4	234	1.1	0.4	4,650	44.1	13.6	2,650	31,100	636	3,570	489	6.26	24.4	886	<3.8	0.5 N	326	<1.9	66.8	612	
SS-18	2/21/2013	0.5	--	--	--	--	--	--	--	--	--	43.5	--	12.5	--	--	--	--	--	--	--	--	--	--	94.0	
Applicable Screening Levels																										
EPA Region Removal Management Level, HQ = 3			3,000,000	1,200	160	570,000	6,000	2,400	--	4,600,000 ¹³	910	120,000	2,100,000	800	--	68,000	130	59,000	--	15,000	15,000	--	31	--	920,000	
EPA Region 3 Freshwater Sediment Benchmarks ¹⁰			--	2	9.8	--	--	0.99	--	43.4	50	31.6	20,000	35.8	--	460	0.18	22.7	--	2	1.0	--	--	--	121	
Relevant Screening Levels																										
DEQ Construction Worker RBCs for Direct Contact			--	--	13	60,000	610	150	--	460,000 ¹³	--	12,000	--	800	--	7,200	93	6,100	--	--	1,500	--	--	--	--	
DEQ Excavation Worker RBCs for Direct Contact			--	--	370	>1,000,000	17,000	4,300	--	>1,000,000 ¹³	--	340,000	--	800	--	200,000	2,600	170,000	--	--	43,000	--	--	--	--	
EPA RSLs for Industrial Soil Direct Contact			990,000	410	1.6	190,000	2,000	800	--	1,500,000 ¹³	300	41,000	720,000	800	--	23,000	43	20,000	--	5,100	5,100	--	11	--	310,000	
Background Concentrations																										
Oregon DEQ Default Background Metal Concentrations			52,300 ¹⁴	0.56	8.8	790	2.0	0.63	--	76	--	34	36,100 ¹⁴	79	--	1,800	0.23	47	--	0.71	0.82	--	5.2	180	180	

Notes:

- Target Analyte List (TAL) metals analyzed per Environmental Protection Agency (EPA) Method 6010C Low Level (LL).
- Mercury analyzed per per EPA Method 7471B.
- mg/kg = milligrams per kilogram (parts per million).
- Bold type indicates detected concentration above the Method Reporting Limit (MRL)..
- < = The analyte was not detected at or above the MRL.
- * = Matrix spike recovery (MS) or duplicate (MSD) outside limits based on heterogeneous samples. These data are not flagged as an estimated concentration.
- N = Matrix spike recovery (MS) or duplicate (MSD) outside limits based on heterogeneous samples. These data are flagged as an estimated concentration.
- = Not applicable or not analyzed.
- EPA Removal Management Levels (RMLs) , November 2012.
- EPA Region 3 Freshwater Sediment SLVs from Mid-Atlantic Risk Assessment: Ecological Risk Assessment - Freshwater Sediment Screening Benchmarks, 2004.
Note the 10x attenuation factor referenced in report text is not applied to the levels reported above.
- DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
- EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
- Oregon DEQ Background Metal Concentrations (Portland Basin) from Background Levels of Metals in Soils for Cleanups, March 2013.
- Chromium (III) concentration used for applicale screening level.
- Oregon DEQ background metal concentration does not exist for specific metal, Clark County, Washington background metal concentration used.
- Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table 2
Soil Sampling Results - Butyltins and PCBs
Pier 99 - Pier West
EE/CA Report

Sample ID	Date Sampled	Sample Depth (feet)	Organotins (µg/kg)				Polychlorinated Biphenyls (µg/kg)										Total Detected PCBs
			Di-n-butyltin	n-Butyltin	Tetra-n-butyltin	Tri-n-butyltin	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268		
			µg/kg (ppb)														
Stormwater Sediment																	
MH-1	1/25/2013		4,400	4,700	<74	10,000	<37	<74	<37	<37	<37	580	320	<37	<37	900	
Eastern Unimproved Area																	
B-4 (3.5-5.0)	2/20/2013	3.5-5.0	170	150	<1.3	150	<10	<20	<10	31	<10	14	11	<10	<10	56	
SS-14	2/21/2013	0.5	--	--	--	--	<10	<20	<10	<10	<10	11 P	12	<10	<10	23	
Gravel Filter Area																	
TP2 (1.5-2.0)	2/19/2013	1.5-2.0	29,000	6,900	<1,300	29,000	<10	<20	<10	<10	<10	400	130	<10	<10	530	
TP2 (4.5-5.0)	2/19/2013	4.5-5.0	9,600	3,000	<3,100	64,000	<9.9	<20	<9.9	<9.9	<9.9	160	70	<9.9	<9.9	230	
B-6 (8.5-10.0)	2/21/2013	8.5-10.0	--	--	--	--	<8.5	<17	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	--	
B-8 (3.0-4.0)	2/21/2013	3.0-4.0	--	--	--	--	<10	<20	<10	<10	<10	<10	<10	<10	<10	--	
Former Crane Engine Pad																	
B-2 (7.0-8.0)	2/20/2013	7.0-8.0	78	20	3.3	760 D	<9.9	<20	<9.9	<9.9	<9.9	<9.9	52 P	<9.9	<9.9	52	
Bank																	
SS-9	2/21/2013	0.5	--	--	--	--	<9.4	<19	<9.4	<9.4	<9.4	610	420	<9.4	<9.4	1,030	
SS-10	2/21/2013	0.5	--	--	--	--	<9.9	<20	<9.9	<9.9	<9.9	27	38	<9.9	<9.9	65	
SS-11	2/22/2013	0.5	--	--	--	--	<97	<200	<97	<97	<97	950	<97	<97	<97	950	
SS-12	2/22/2013	0.5	--	--	--	--	<11	<21	<11	<11	<11	69	41	<11	<11	110	
SS-13	2/22/2013	1.6-2	--	--	--	--	<85	<170	<85	<85	<85	1,600	<85	<85	<85	1,600	
Applicable Screening Level Values																	
EPA Region 3 Removal Management Level, HQ = 3			550,000	550,000	550,000	550,000	110,000	54,000	54,000	74,000	74,000	32,000	74,000	--	--	74,000	
PEL (MacDonald et al, 2000) ⁹			--	--	--	--	--	--	--	--	--	340	--	--	--	277	
Relevant Screening Level Values																	
DEQ Construction Worker RBCs for Direct Contact			--	--	--	--	--	--	--	--	--	--	--	--	--	4,400	
DEQ Excavation Worker RBCs for Direct Contact			--	--	--	--	--	--	--	--	--	--	--	--	--	120,000	
EPA RSLs 9 Industrial Soil Direct Contact			180,000	180,000	180,000	180,000	21000	540	540	740	740	740	740	--	--	740	

- Notes:*
- Organotins analyzed per the Krone Method.
 - Polychlorinated Biphenyls (PCBs) per Environmental Protection Agency (EPA) Method 8081B.
 - µg/kg = = micrograms per kilogram (parts per billion).
 - Bold type indicates detected concentration above the Method Reporting Limit (MRL)..
 - < = The analyte was not detected at or above the MRL.
 - = Not applicable or not analyzed.
 - P = The confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results because of interference and the data are considered estimated values.
 - EPA Removal Management Levels (RMLs) , November 2012.
 - MacDonalad et al., 2000; Development and Evaluation of Consensus-Based Sediment Quality Guideline for Freshwater Ecosystems. Environmental Contamination and Toxicity 39: 20-31.
Note the 10x attenuation factor referenced in report text is not applied to levels reported above.
 - DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
 - EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
 - Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table 3
Soil Sampling Results - Organochlorine Pesticides
Pier 99 - Pier West
EE/CA Report

Sample ID	Date Sampled	Sample Depth (feet)	Organchlorine Pesticides																					
			alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	gamma-Chlordane	Endosulfan I	alpha-Chlordane	Dieldrin	4,4'DDE	Endrin	Endosulfan II	4,4'DDD	Endrin Aldehyde	Endosulfan Sulfate	4,4'-DDT	Endrin Ketone	Methoxychlor	Toxaphene	
			µg/kg (ppb)																					
Stormwater Sediment																								
MH-1	1/25/2013	--	<3.7	<3.7	<3.7	<3.7	<3.7	<3.7	<3.7	9.3 P	<3.7	3.8	<27 i	<3.7	<3.7	<13 i	37	<3.7	<3.7	<31 i	<3.7	<5.9 i	<410 i	
Eastern Unimproved Area																								
B-4 (3.5-5.0)	2/20/2013	3.5-5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.7	<1.0	<1.0	<50	
SS-14	2/21/2013	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.6 i	<1.0	<1.0	<50	
Gravel Filter Area																								
TP2 (1.5-2.0)	2/19/2013	1.5-2.0	<2.0	<2.0	<2.0	<2.5 i	<2.0	<2.0	<38 i	<3.3 i	<2.0	<2.0	<7.3 i	<2.8 i	<2.0	<8.1 i	51 P	<2.0	<2.0	<14 i	<2.1 i	<2.6 i	<390 i	
TP2 (4.5-5.0)	2/19/2013	4.5-5.0	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<2.0 i	1.5 P	<0.99	<0.99	<2.0 i	<0.99	<0.99	<2.3 i	6.3	<0.99	<0.99	<6.5 i	<0.99	<1.6 i	<110 i	
B-8 (3.0-4.0)	2/21/2013	3.0-4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50	
Former Crane Engine Pad																								
B-2 (7.0-8.0)	2/20/2013	7.0-8.0	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	1.2	<0.99	<0.99	<0.99	<0.99	<0.99	9.7	<0.99	<1.6 i	<200 i
Bank																								
SS-9	2/21/2013	0.5	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<21 i	<6.8 i	<1.9	<1.9	<10 i	44	<1.9	<8.8 i	390	<1.9	45	310	<2.0 i	<13 i	<1,200 i	
SS-10	2/21/2013	0.5	<0.99	<0.99	<0.99	<0.99	1.2 P	<0.99	<0.99	<0.99	<2.5 i	<0.99	2.2 P	<0.99	<0.99	<1.1 i	2.4	<0.99	<0.99	<9.3 i	<0.99	<0.99	<59 i	
SS-11	2/22/2013	0.5	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<12 i	12 P	<4.9	<4.9	<17 i	16 P	<4.9	<19 i	170	<4.9	11	130	<4.9	5.5 P	<720 i	
SS-12	2/22/2013	0.5	1.8 P	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.2 i	1.6	<1.1	<1.8 i	1.4 P	<1.1	<1.4 i	12 i	<1.5 i	<1.1	<72 i	
SS-13	2/22/2013	1.6-2	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.4 i	16 P	<4.3 i	<1.7	<26 i	99	<2.4 i	<5.3 i	1,300	<1.7	100	1,600	<6.8 i	<6.5 i	<750 i	
Applicable Screening Level Values																								
EPA Region 3 Removal Management Level, HQ = 3			27,000	96,000	210,000	--	38,000	10,000	38,000	--	11,000,000	650,000	11,000	510,000	550,000	11,000,000	720,000	-	--	700,000	--	9,200,000	160,000	
EPA Region 3 Freshwater Sediment Benchmarks ⁹			6	5	2.37	6,400	68	2	2.47	3.24	2.9	3.24	1.9	3.16	2.22	14	4.88	--	5.4	4.16	--	18.7	0.1	
Relevant Screening Level Values																								
DEQ Construction Worker RBCs for Direct Contact			2,600	--	15,000	--	3,700	950	1,800	55,000	1,400,000	55,000	1,000	58,000	71,000	1,400,000	83,000	--	--	58,000	--	--	15,000	
DEQ Excavation Worker RBCs for Direct Contact			71,000	--	400,000	--	100,000	26,000	51,000	1,500,000	40,000,000	1,500,000	29,000	1,600,000	2,000,000	40,000,000	2,300,000	--	--	1,600,000	--	--	420,000	
EPA RSLs Industrial Soil Direct Contact			270	960	2,100	--	380	100	190	6,500,000	3,700,000	6,500	110	5,100	180,000	3,700,000	7,200	--	--	7,000	--	3,100,000	16,000	

Notes:

- Organochlorine pesticides per Environmental Protection Agency (EPA) Method 8081B.
- µg/kg = = micrograms per kilogram (parts per billion).
- Bold type indicates detected concentration above the Method Reporting Limit (MRL)..
- < = The analyte was not detected at or above the MRL..
- = Not applicable or not analyzed.
- i = Elevated due to chromatographic interference.
- P = The confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results and the data is considered estimated.
- EPA EPA Removal Management Levels (RMLs) , November 2012.
- EPA Region 3 Freshwater Sediment SLVs from Mid-Atlantic Risk Assessment: Ecological Risk Assessment - Freshwater Sediment Screening Benchmarks, 2004.
Note the 10x attenuation factor referenced in report text is not applied to the levels.
- DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
- EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
- Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table 4
Soil Sampling Results - SVOCs
Pier 99 - Pier West
EE/CA Report

Location	Stormwater Sediment	Eastern Unimproved Area		Gravel Filter Area			Former Crane Engine Pad	Bank					Applicable Screening Level Values		Relevant Screening Level Values			
Sample ID	MH-1	B-4 (3.5-5.0)	SS-14	TP2 (1.5-2.0)	TP2 (4.5-5.0)	B-8 (3.0-4.0)	B-2 (7.0-8.0)	SS-9	SS-10	SS-11	SS-12	SS-13	EPA Region 3 Removal Management Level, HQ = 3	EPA Region 3 Freshwater Sediment Benchmarks ⁵	DEQ Construction Worker RBCs for Direct Contact	DEQ Excavation Worker RBCs for Direct Contact	EPA RSLs Industrial Soil Direct Contact	
Date Sampled	1/25/13	2/20/13	2/21/13	2/19/13	2/19/13	2/21/13	2/20/13	2/21/13	2/21/13	2/22/13	2/22/13	2/22/13						
Sample Depth (feet)		(3.5-5.0)	0.5	1.5-2.0	4.5-5.0	3.0-4.0	7.0-8.0	0.5	0.5	0.5	0.5	1.6-2						
Analyte	µg/kg (ppb)																	
Bis(2-chloroethyl) Ether	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	100,000	--	--	--	1,000	
Phenol	<880	<300	<1,500	<370	<190	<30	<150	<150	<150	560	<150	<750	550,000,000	420	--	--	180,000,000	
2-Chlorophenol	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	15,000,000	31.2	--	--	5,100,000	
1,3-Dichlorobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	--	4,430	--	--	--	
1,4-Dichlorobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	76,000,000	599	1,200,000	34,000,000	12,000	
1,2-Dichlorobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	30,000,000	16.5	19,000,000	520,000,000	9,800,000	
Benzyl Alcohol	730	<200	<1,000	37,000	1,500	<20	<98	<100	<100	4,500	<99	<500	180,000,000	--	--	--	62,000,000	
Bis(2-chloroisopropyl) Ether	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	--	--	--	--	--	
2-Methylphenol	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	92,000,000	--	--	--	31,000,000	
Hexachloroethane	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	1,300,000	1,027	240,000	6,600,000	43,000	
N-Nitrosodi-n-propylamine	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	25,000	--	--	--	250	
4-Methylphenol	<300	<100	<500	1,000	77	<10	<49	<50	<50	190	<50	<250	180,000,000	670	--	--	62,000,000	
Nitrobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	2,400,000	--	--	--	24,000	
Isophorone	<300	<100	<500	180	<61	<10	<49	<50	<50	<50	<50	<250	180,000,000	--	--	--	1,800,000	
2-Nitrophenol	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	--	--	--	--	--	
2,4-Dimethylphenol	<1,500	<500	<2,500	<610	<310	<50	<250	<250	<250	<250	<250	<1,300	37,000,000	29	--	--	12,000,000	
Bis(2-chloroethoxy)methane	<300	<100	<500	<150	<75	<10	<49	<50	<50	<50	<50	<250	5,500,000	--	--	--	1,800,000	
2,4-Dichlorophenol	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	5,500,000	117	--	--	1,800,000	
Benzoic Acid	<5,900	<2,000	<10,000	<4,000	<2,000	<200	<1,000	<1,000	<1,000	<1,000	<1,000	<5,000	7,400,000,000	650	--	--	2,500,000,000	
1,2,4-Trichlorobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	820,000	2,100	--	--	99,000	
Naphthalene	<300	5.9	<4.9	460	18	<5.0	6.6	76	6.1	18	8.7	36	1,800,000	176	580,000	16,000,000	18,000	
4-Chloroaniline	<300	<100	<500	<200	<100	<10	<50	<50	<50	<50	<50	<250	860,000	--	--	--	8,600	
Hexachlorobutadiene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	1,800,000	--	--	--	22,000	
4-Chloro-3-methylphenol	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	180,000,000	--	--	--	62,000,000	
2-Methylnaphthalene	<300	5.7	<4.9	69	9.4	<5.0	<5.0	31	4.7	13	10	23	6,600,000	20.2	--	--	2,200,000	
Hexachlorocyclopentadiene	<1,500	<500	<2,500	<1,000	<500	<50	<250	<250	<250	<250	<250	<1,300	11,000,000	--	--	--	3,700,000	
2,4,6-Trichlorophenol	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	1,800,000	213	240,000	6,600,000	160,000	
2,4,5-Trichlorophenol	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	180,000,000	--	--	--	62,000,000	
2-Chloronaphthalene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	250,000,000	--	--	--	82,000,000	
2-Nitroaniline	<590	<200	<1,000	<250	<130	<20	<98	<100	<100	<100	<99	<500	18,000,000	--	--	--	6,000,000	
Acenaphthalene	<300	7.3	6.7	37	<5.0	<5.0	13	5.5	<3.7	7.9	<4.1	22	--	5.9	--	--	--	
Dimethyl Phthalate	2,300	100 D	<500	57,000	3,100	<10	<49	690	450	7,500	530	990	--	--	--	--	--	
2,6-Dinitrotoluene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	1,900,000	--	240,000	6,600,000	620,000	
Acenaphthene	<300	<5.0	<4.9	54	7.2	<5.0	<5.0	9.2	6.4	16	11	13	99,000,000	6.7	19,000,000	520,000,000	33,000,000	
3-Nitroaniline	<590	<200	<1,000	<250	<130	<20	<98	<100	<100	<100	<99	<500	--	--	--	--	--	
2,4-Dinitrophenol	<5,900	<2,000	<10,000	<4,000	<2,000	<200	<1,000	<1,000	<1,000	<1,000	<1,000	<5,000	3,700,000	--	--	--	1,200,000	
Dibenzofuran	<300	<5.0	<4.9	24	6.5	<5.0	<5.0	11	<3.7	8.7	4.5	14	3,100,000	415	--	--	1,000,000	
4-Nitrophenol	<3,000	<1,000	<5,000	<1,300	<610	<100	<490	<500	<500	<500	<500	<2,500	--	--	--	--	--	
2,4-Dinitrotoluene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	550,000	41.6	--	--	5,500	
Fluorene	<300	<5.0	<4.9	37	8.2	<5.0	<5.0	7.4	4.2	12	7.2	18	66,000,000	77.4	12,000,000	340,000,000	22,000,000	
4-Chlorophenyl Phenyl Ether	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	--	--	--	--	--	
Diethyl Phthalate	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	1,500,000,000	603	--	--	490,000,000	
4-Nitroaniline	<590	<200	<1,000	<250	<130	<20	<98	<100	<100	260	<99	<500	7,400,000	--	--	--	86,000	
2-Methyl-4,6-dinitrophenol	<3,000	<1,000	<5,000	<1,300	<610	<100	<490	<500	<500	<500	<500	<2,500	150,000	--	--	--	49,000	
N-Nitrosodiphenylamine	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	35,000,000	2,680	--	--	350,000	
4-Bromophenyl Phenyl Ether	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	--	1,230	--	--	--	
Hexachlorobenzene	<300	<100	<500	<130	<61	<10	<49	<50	<50	<50	<50	<250	110,000	20	12,000	330,000	1,100	
Pentachlorophenol	<3,000	<1,000	< 5,000	<1,300	<610	<100	<490	<500	<500	<500	<500	<2,500	270,000	504	31,000	860,000	2,700	
Phenanthrene	800	18	24	450	73	<5.0	36	120	55	120	99	190	--	204	--	--	--	
Anthracene	<300	7.4	14	82	9.0	<5.0	17	18	12	26	20	37	500,000,000	57.2	93,000,000	>1,000,000,000	170,000,000	
Di-n-butyl Phthalate	1,200	<200	<1,000	18,000	490	<20	<98	<100	<100	1,400	<99	<500	180,000,000	6,470	--	--	62,000,000	
Fluoranthene	1,100	43	76	1,000	220	<5.0	110	200	120	300	210	270	66,000,000	423	8,900,000	250,000,000	22,000,000	
Pyrene	1,100	56	95	1,100	200	<5.0	150	190	120	280	200	260	50,000,000	195	6,700,000	190,000,000	17,000,000	
Butyl Benzyl Phthalate	580	<100	<500	1,400	91	<10	<49	61	62	470	150	<250	91,000,000	10,900	--	--	910,000	
3,3'-Dichlorobenzidine	<3,000	<1,000	<5,000	<1,300	<610	<100	<490	<500	<500	<500	<500	<2,500	380,000	127	37,000	1,000,000	3,800	
Benz(a)anthracene	330	36	75	490	100	<5.0	62	88	71									

Table 5
Soil Sampling Results - TPH
Pier 99 - Pier West
EE/CA Report

Sample ID	Date Sampled	Sample Depth (feet)	TPH-d	TPH-o
			mg/kg (ppm)	
Former Crane Engine Pad				
B-1 (8.0-10.0)	2/20/2013	8.0-10.0	<30	<120
B-1 (18.5-20.0)	2/20/2013	18.5-20.0	<36	<150
B-2 (7.0-8.0)	2/20/2013	7.0-8.0	<32	140 O
B-2 (19.0-20.0)	2/20/2013	19.0-20.0	<35	<140
B-3 (7.0-10.0)	2/19/2013	7.0-10.0	<31	<130
B-3 (12.5-15.0)	2/19/2013	12.5-15.0	<33	<140
B-3 (18.0-20.0)	2/19/2013	18.0-20.0	<35	<140
B-3 (22.5-25.0)	2/19/2013	22.5-25.0	<33	<140
Applicable Screening Level Values				
EPA Region 3 Removal Management Level, HQ = 3			--	--
EPA Region 3 Freshwater Sediment SLVs			--	--
Relevant Screening Level Values				
DEQ Construction Worker RBCs for Direct Contact			4,600	4600
DEQ Excavation Worker RBCs for Direct Contact			>1,000,000	>1,000,000 ¹¹
EPA RSLs Industrial Soil Direct Contact			--	--

Notes:

1. TPH-d = Northwest Total Petroleum Hydrocarbons Diesel Range Organics
2. TPH-o = Northwest Total Petroleum Hydrocarbons Residual Range Organics
3. mg/kg = milligrams per kilogram (parts per million).
4. Bold type indicates detected concentration above the Method Reporting Limit (MRL)..
5. < = The analyte was not detected at or above the MRL.
6. -- = Not applicable or not analyzed.
7. O = The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
8. EPA EPA Removal Management Levels (RMLs) , November 2012.
9. EPA Region 3 Freshwater Sediment SLVs from Mid-Atlantic Risk Assessment: Ecological Risk Assessment - Freshwater Sediment Screening Benchmarks, January 2004.
10. DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
11. EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
12. DEQ RBC for generic diesel/heating oil used.
13. Shaded cells represent detected concentrations that exceed the Principal Threat Criteria.

Table 6
Groundwater Sampling Results
Pier 99 - Pier West
EE/CA Report

Volatile Organic Compounds				
Location	Former Crane Engine Pad	Eastern Unimproved Area	Upland Boat Maintenance Repair Area	Screening Level Values
Sample ID	B-3 (26-30)	B-4	B-9 (26-20) GW	DEQ Level II
Date Sampled	2/19/2013	2/20/2013	2/21/2013	Ecological SLVs for Freshwater
µg/L (ppb)				
Dichlorodifluoromethane	<0.50	<0.50	<0.50	--
Chloromethane	<0.50	<0.50	<0.50	--
Vinyl Chloride	<0.50	<0.50	<0.50	--
Bromomethane	<0.50	<0.50	<0.50	--
Chloroethane	<0.50	<0.50	<0.50	--
Trichlorofluoromethane	<0.50	<0.50	<0.50	--
1,1-Dichloroethene	<0.50	<0.50	<0.50	25
Acetone	<20	<20	<20	1,500
Carbon Disulfide	<0.50	<0.50	<0.50	0.92
Methylene Chloride	<2.0	<2.0	<2.0	2,200
trans-1,2-Dichloroethene	<0.50	<0.50	<0.50	590
1,1-Dichloroethane	<0.50	<0.50	<0.50	47
2,2-Dichloropropane	<0.50	<0.50	<0.50	--
cis-1,2-Dichloroethene	<0.50	<0.50	<0.50	590
2-Butanone (MEK)	<20	<20	<20	14,000
Bromochloromethane	<0.50	<0.50	<0.50	--
Chloroform	<0.50	<0.50	<0.50	1,240
1,1,1-Trichloroethane (TCA)	<0.50	<0.50	<0.50	11
Carbon Tetrachloride	<0.50	<0.50	<0.50	74
1,1-Dichloropropene	<0.50	<0.50	<0.50	--
Benzene	<0.50	<0.50	<0.50	130
1,2-Dichloroethane (EDC)	<0.50	<0.50	<0.50	20,000
Trichloroethene (TCE)	<0.50	<0.50	<0.50	21,900
1,2-Dichloropropane	<0.50	<0.50	<0.50	5,700
Dibromomethane	<0.50	<0.50	<0.50	--
Bromodichloromethane	<0.50	<0.50	<0.50	--
cis-1,3-Dichloropropene	<0.50	<0.50	<0.50	--
4-Methyl-2-pentanone (MIBK)	<20	<20	<20	170
Toluene	<0.50	4.1	0.70	9.8
trans-1,3-Dichloropropene	<0.50	<0.50	<0.50	244
1,1,2-Trichloroethane	<0.50	<0.50	<0.50	9,400
Tetrachloroethene (PCE)	<0.50	<0.50	<0.50	840
2-Hexanone	<20	<20	<20	99
1,3-Dichloropropane	<0.50	<0.50	<0.50	--
Dibromochloromethane	<0.50	<0.50	<0.50	--
1,2-Dibromomethane (EDB)	<2.0	<2.0	<2.0	--
Chlorobenzene	<0.50	<0.50	<0.50	50
Ethylbenzene	<0.50	<0.50	<0.50	7.3
1,1,1,2-Tetrachloroethane	<0.50	<0.50	<0.50	186
m,p-Xylenes	<0.50	1.2	<0.50	1.8
o-Xylene	<0.50	0.55	<0.50	--
Styrene	<0.50	<0.50	<0.50	--
Bromoform	<0.50	<0.50	<0.50	--
Isopropylbenzene	<2.0	<2.0	<2.0	--
1,1,2,2-Tetrachloroethane	<0.50	<0.50	<0.50	2,400
Bromobenzene	<2.0	<2.0	<2.0	--
n-Propylbenzene	<2.0	<2.0	<2.0	--
1,2,3-Trichloropropane	<0.50	<0.50	<0.50	--
2-Chlorotoluene	<2.0	<2.0	<2.0	--
1,3,5-Trimethylbenzene	<2.0	<2.0	<2.0	--
4-Chlorotoluene	<2.0	<2.0	<2.0	--
tert-Butylbenzene	<2.0	<2.0	<2.0	--
1,2,4-Trimethylbenzene	<2.0	<2.0	<2.0	--
sec-Butylbenzene	<2.0	<2.0	<2.0	--
4-Isopropyltoluene	<2.0	<2.0	<2.0	--
1,3-Dichlorobenzene	<0.50	<0.50	<0.50	71
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	15
n-Butylbenzene	<2.0	<2.0	<2.0	--
1,2-Dichlorobenzene	<0.50	<0.50	<0.50	14
1,2-Dibromo-3-chloropropane	<2.0	<2.0	<2.0	--
1,2,4-Trichlorobenzene	<2.0	<2.0	<2.0	110
Hexachlorobutadiene	<2.0	<2.0	<2.0	9.3
Naphthalene	<2.0	<2.0	<2.0	620
1,2,3-Trichlorobenzene	<2.0	<2.0	<2.0	--

Semi-Volatile Organic Compounds				
	Former Crane Engine Pad	Eastern Unimproved Area	Upland Boat Maintenance Repair Area	Screening Level Values
	B-3 (26-30)	B-4	B-9 (26-20) GW	DEQ Level II
	2/19/2013	2/20/2013	2/21/2013	Ecological SLVs for Freshwater
µg/L (ppb)				
Bis(2-chloroethyl) Ether	<0.22	<0.20	<0.23	--
Phenol	<0.53	<0.48	<0.56	110
2-Chlorophenol	<0.53	<0.48	<0.56	2,000
1,3-Dichlorobenzene	<0.22	<0.20	<0.23	71
1,4-Dichlorobenzene	<0.22	<0.20	<0.23	15
1,2-Dichlorobenzene	<0.22	<0.20	<0.23	14
Benzyl Alcohol	<0.53	<0.48	<0.56	8.6
Bis(2-chloroisopropyl) Ether	<0.22	<0.20	<0.23	--
2-Methylphenol	<0.53	<0.48	<0.56	13
Hexachloroethane	<0.22	<0.20	<0.23	540
N-Nitrosodi-n-propylamine	<0.22	<0.20	<0.23	117
4-Methylphenol	<0.53	<0.48	<0.56	--
Nitrobenzene	<0.22	<0.20	<0.23	540
Isophorone	<0.22	<0.20	<0.23	2,340
2-Nitrophenol	<0.53	<0.48	<0.56	--
2,4-Dimethylphenol	<4.3	<3.9	<4.5	42
Bis(2-chloroethoxy)methane	<0.22	<0.20	<0.23	--
2,4-Dichlorophenol	<0.53	<0.48	<0.56	3,650
Benzoic Acid	<5.3	<4.8	<5.6	42
1,2,4-Trichlorobenzene	<0.22	<0.20	<0.23	110
Naphthalene	<0.22	0.029	0.028	620
4-Chloroaniline	<0.22	<0.20	<0.23	--
Hexachlorobutadiene	<0.22	<0.20	<0.23	9.3
4-Chloro-3-methylphenol	<0.53	<0.48	<0.56	--
2-Methylnaphthalene	<0.22	<0.019	<0.024	--
Hexachlorocyclopentadiene	<1.1	<0.96	<1.2	5.2
2,4,6-Trichlorophenol	<0.53	<0.48	<0.56	970
2,4,5-Trichlorophenol	<0.53	<0.48	<0.56	--
2-Chloronaphthalene	<0.22	<0.20	<0.23	--
2-Nitroaniline	<0.22	<0.20	<0.23	--
Acenaphthalene	<0.22	<0.019	<0.024	--
Dimethyl Phthalate	<0.22	<0.20	<0.23	3
2,6-Dinitrotoluene	<0.22	<0.20	<0.23	230
Acenaphthene	<0.22	<0.019	<0.024	520
3-Nitroaniline	<1.1	<0.96	<1.2	--
2,4-Dinitrophenol	<4.3	<3.9	<4.5	--
Dibenzofuran	<0.22	<0.019	<0.024	3.7
4-Nitrophenol	<2.2	<2.0	<2.3	150
2,4-Dinitrotoluene	<0.22	<0.20	<0.23	230
Fluorene	<0.22	<0.019	<0.024	3.9
4-Chlorophenyl Phenyl Ether	<0.22	<0.20	<0.23	--
Diethyl Phthalate	0.39	<0.20	<0.23	210
4-Nitroaniline	<1.1	<0.96	<1.2	--
2-Methyl-4,6-dinitrophenol	<2.2	<2.0	<2.3	--
N-Nitrosodiphenylamine	<0.22	<0.20	<0.23	210
4-Bromophenyl Phenyl Ether	<0.22	<0.20	<0.23	1.5
Hexachlorobenzene	<0.22	<0.20	<0.23	--
Pentachlorophenol	<1.1	<0.96	<1.2	15
Phenanthrene	<0.22	<0.019	<0.024	6.3
Anthracene	<0.22	<0.019	<0.024	13
Di-n-butyl Phthalate	<0.22	<0.20	<0.23	--
Fluoranthene	<0.22	<0.019	<0.024	6.16
Pyrene	<0.22	<0.019	<0.024	--
Butyl Benzyl Phthalate	<0.22	<0.20	<0.23	19
3,3'-Dichlorobenzidine	<2.2	<2.0	<2.3	--
Benz(a)anthracene	<0.22	<0.019	<0.024	0.027
Chrysene	<0.22	<0.019	<0.024	--
Bis(2-ethylhexyl) Phthalate	<1.1	<0.96	<1.2	3
Di-n-octyl Phthalate	<0.22	<0.20	<0.23	708
Benzo(b)fluoranthene	<0.22	<0.019	<0.024	--
Benzo(k)fluoranthene	<0.22	<0.019	<0.024	--
Benzo(a)pyrene	<0.22	<0.019	<0.024	0.014
Indenol(1,2,3-cd)pyrene	<0.22	<0.019	<0.024	--
Dibenz(a,h)anthracene	<0.22	<0.019	<0.024	--
Benzo(g,h,i)perylene	<0.22	<0.019	<0.024	--

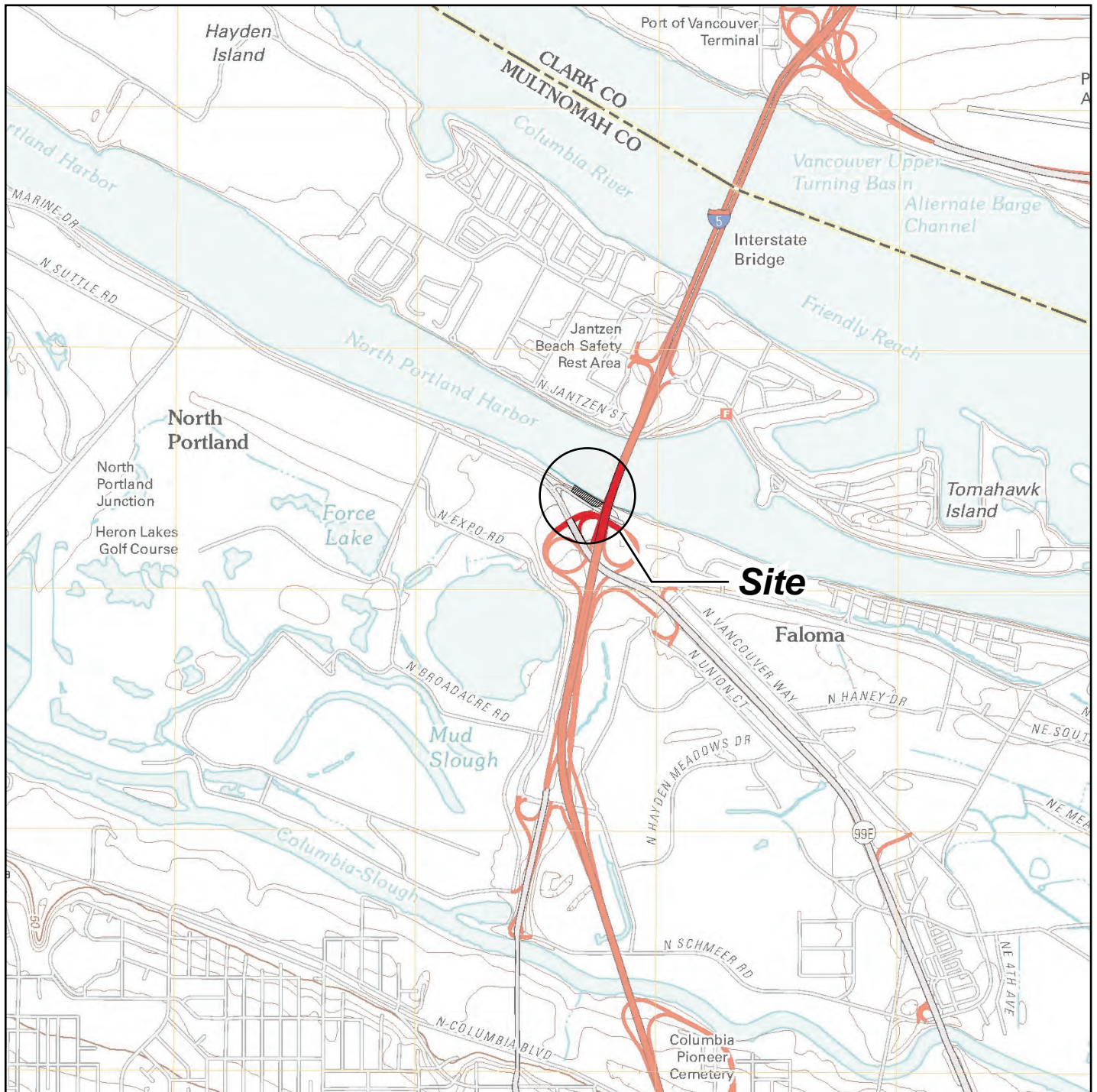
Dissolved Metals				
	Former Crane Engine Pad	Eastern Unimproved Area	Upland Boat Maintenance Repair Area	Screening Level Values
	B-3 (26-30)	B-4	B-9 (26-20) GW	DEQ Level II
	2/19/2013	2/20/2013	2/21/2013	Ecological SLVs for Freshwater
µg/L (ppb)				
Aluminum	<2.0	<2.0	<2.0	87
Antimony	<10	<10	<10	1,600
Arsenic	<10	<10	<10	150
Barium	114	62.9	57.5	4
Beryllium	<0.40	<0.40	<0.40	5.3
Cadmium	<0.50	<0.50	<0.50	2.2
Calcium	67,100	68,900	64,700	116,000
Chromium	<2.0	<2.0	<2.0	74
Cobalt	5.3	4.4 J	1.5	23
Copper	<2.0	2.6	2.4	9
Iron	<20	<20	<20	1,000
Lead	<10	<10	<10	2.5
Magnesium	32,700	35,700	38,100	82,000
Manganese	2,780	1,940	1,110	120
Mercury	<0.20	<0.20	<0.2	0.77
Nickel	27.4	42.9 J	38.8	52
Potassium	2,760	804	683	53,000
Selenium	<20	<20	<20	5
Silver	<2.0	<2.0	<2.0	0.12
Sodium	19,300	23,500	22,100	680,000
Thallium	<10	<10	<10	40
Vanadium	5.6	9.9 J	10.7	20
Zinc	111	25.6	16.6	120

Polychlorinated Biphenyls				
	Former Crane Engine Pad	Eastern Unimproved Area	Upland Boat Maintenance Repair Area	Screening Level Values
	B-3 (26-30)	B-4	B-9 (26-20) GW	DEQ Level II
	2/19/2013	2/20/2013	2/21/2013	Ecological SLVs for Freshwater
µg/L (ppb)				
Aroclor 1016	<0.022	<0.021	<0.023	--
Aroclor 1221	<0.043	<0.041	<0.045	0.28
Aroclor 1232	<0.022	<0.021	<0.023	0.58
Aroclor 1242	<0.022	<0.021	<0.023	0.053
Aroclor 1248	<0.022	<0.021	<0.023	0.081
Aroclor 1254	<0.022	<0.021	<0.023	0.033
Aroclor 1260	<0.022	<0.021	<0.023	94
Aroclor 1262	<0.022	<0.021	<0.023	--
Aroclor 1268	<0.022	<0.021	<0.023	--
Total PCBs	--	--	--	0.014

Notes:

1. Volatile Organic Compounds (VOCs) per Environmental Protection Agency (EPA) 8260B.
2. Semi-VOCs (SVOCs) per EPA Method 8270D.
3. Organochlorine pesticides per EPA Method 8081B.
4. PCBs per EPA Method 8082;
5. Dissolved TAL Metals per EPA Method 6010C.
6. Dissolved mercury per EPA Method 7470A.
7. µg/kg = = micrograms per kilogram (parts per billion).
8. Bold type indicates detected concentration above the Method Reporting Limit (MRL)..
9. < = The analyte was not detected at or above the MRL.
10. -- = Not applicable or not analyzed.
11. DEQ Level II Ecological SLVs from *Oregon Department of Environmental Quality: Guidance for Ecological Risk Assessment - Level II Screening Level Values, December 2001*.
12. J = The relative percent difference between this sample and the duplicate exceed control criteria.
13. Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Organchlorine Pesticides				
	Former Crane Engine Pad	Eastern Unimproved Area	Upland Boat Maintenance Repair Area	Screening Level Values
	B-3 (26-30)	B-4	B-9 (26-20) GW	DEQ Level II
	2/19/2013	2/20/2013	2/21/2013	Ecological SLVs for Freshwater
µg/L (ppb)				
alpha-BHC	<0.0011	<0.0011	<0.0012	2.2
beta-BHC	<0.0011	<0.0011	<0.0012	2.2
gamma-BHC	<0.0011	<0.0011	<0.0012	0.08
delta-BHC	<0.0011	<0.0011	<0.0012	--
Heptachlor	<0.0011	<0.0011	<0.0012	0.0038
Aldrin	<0.0011	<0.0011	<0.0012	0.06
Heptachlor epoxide	<0.0011	<0.0011	<0.0012	0.0038
gamma-Chlordane	<0.0011	<0.0011	<0.0012	0.0043
Endosulfan I	<0.0011	<0.0011	<0.0012	0.056
alpha-Chlordane	<0.0011	<0.0011	<0.0012	0.0043
Dieldrin	<0.0011	<0.0011	<0.0012	0.056
4,4'DDE	<0.0011	<0.0011	<0.0012	--
Endrin	<0.0011	<0.0011	<0.0012	0.036
Endosulfan II	<0.0011	<0.0023 i	<0.0012	0.056
4,4'DDD	<0.0011	<0.0011	<0.0012	0.001
Endrin Aldehyde	<0.0011	<0.0011	<0.0012	--
Endosulfan Sulfate	<0.0011	<0.0011	<0.0012	--
4,4'-DDT	<0.0011	<0.0011	<0.0012	0.001
Endrin Ketone	<0.0011	<0.0011	<0.0012	--
Methoxychlor	<0.0011	<0.0011	<0.0012	0.03
Toxaphene	<0.053	<0.051	<0.056	0.0002



Note: Base map prepared from USGS 7.5-minute quadrangle of Portland, OR, dated 2011 as provided by USGS.gov.

0 2,000 4,000
Approximate Scale in Feet



Site Location Map

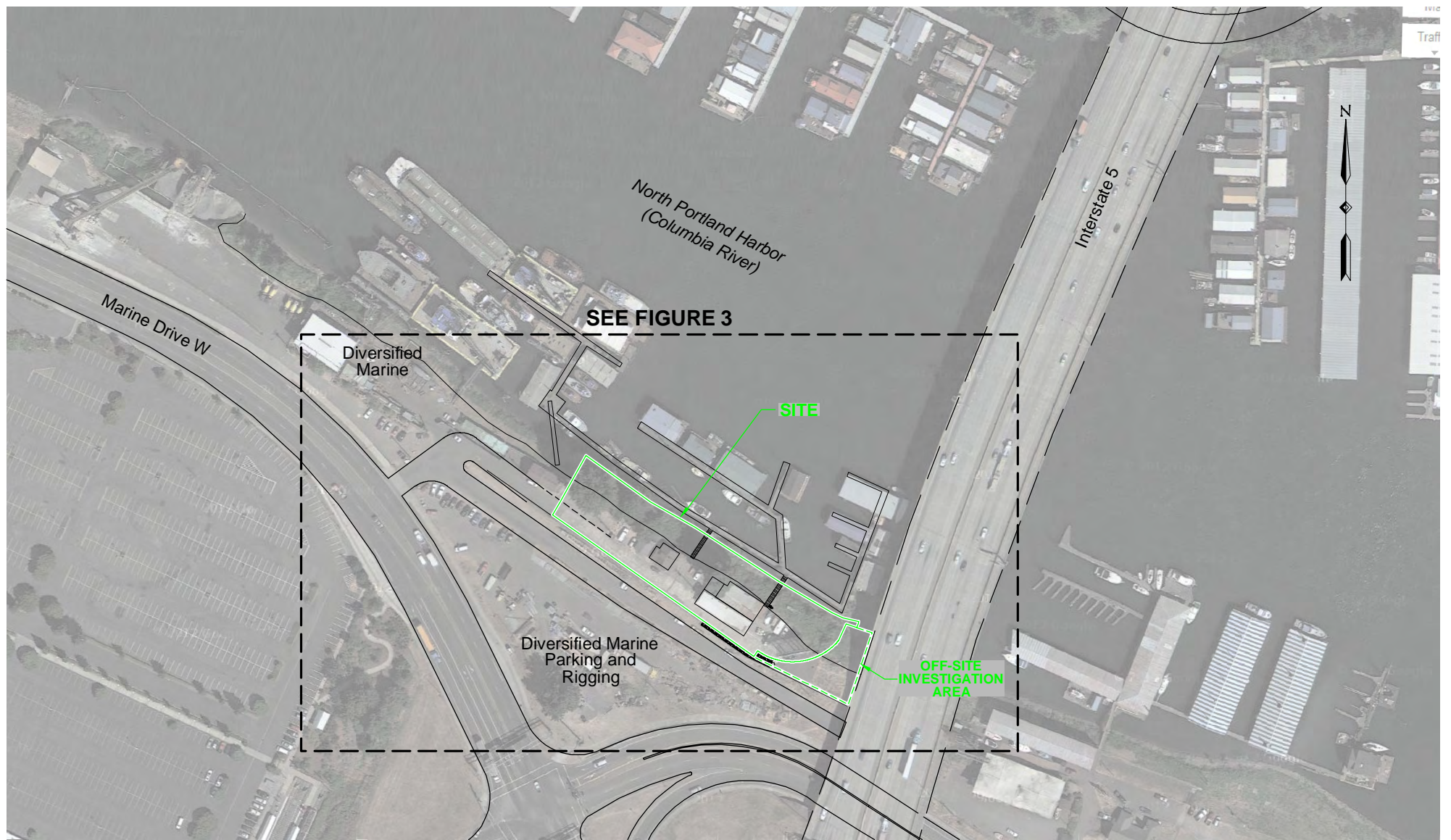
EE/CA Report
Pier 99 - Portland Site
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	1975-00
April 2013	

Figure
1



Note: Base map prepared from Google Maps (aerial dated August 2012) and tax lot boundaries from City of Portland datasets (2010).

0 200 400
Scale in Feet

Site Vicinity Plan

EE/CA Report
Pier 99 – Portland Site
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

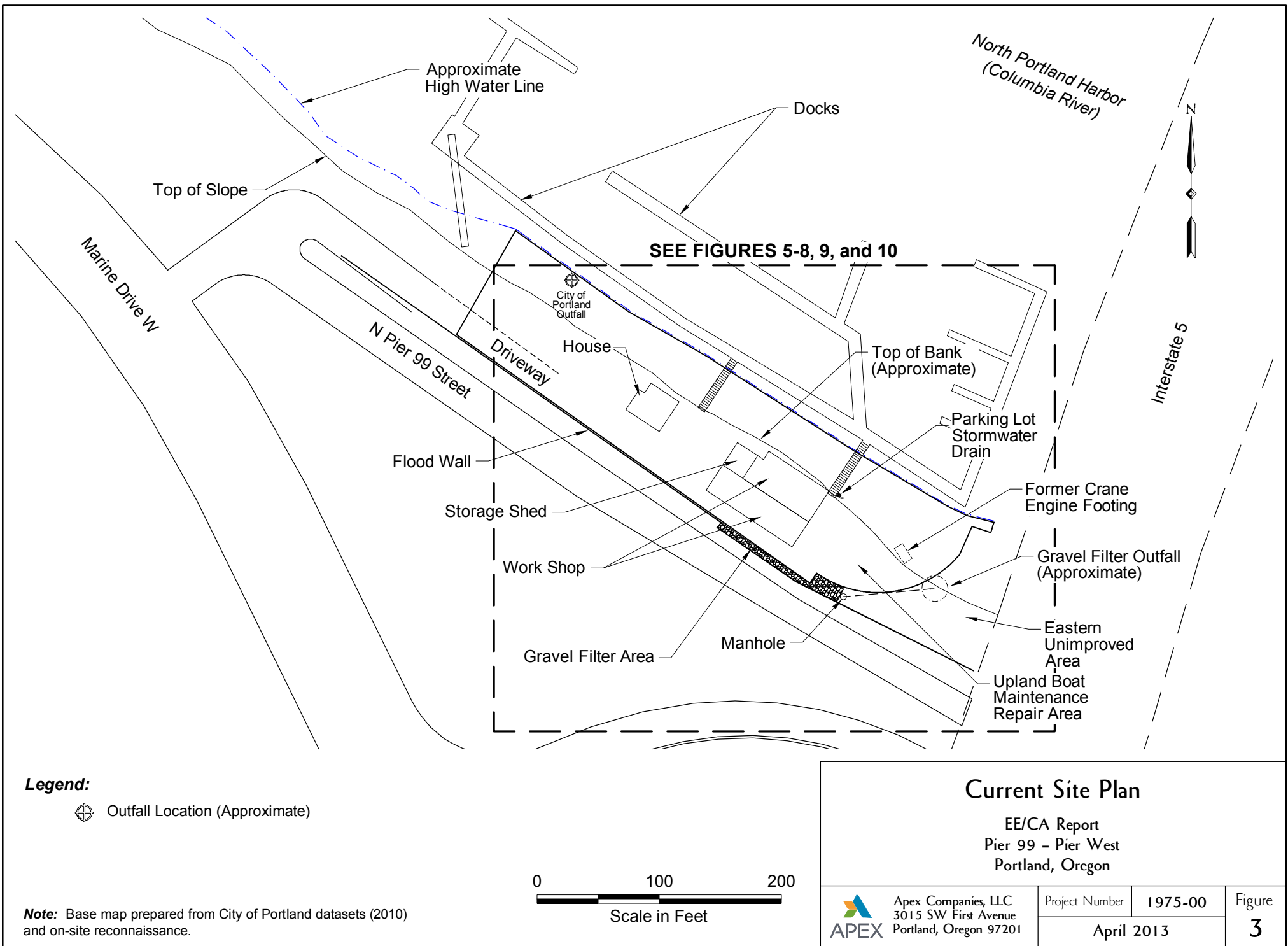
Project Number

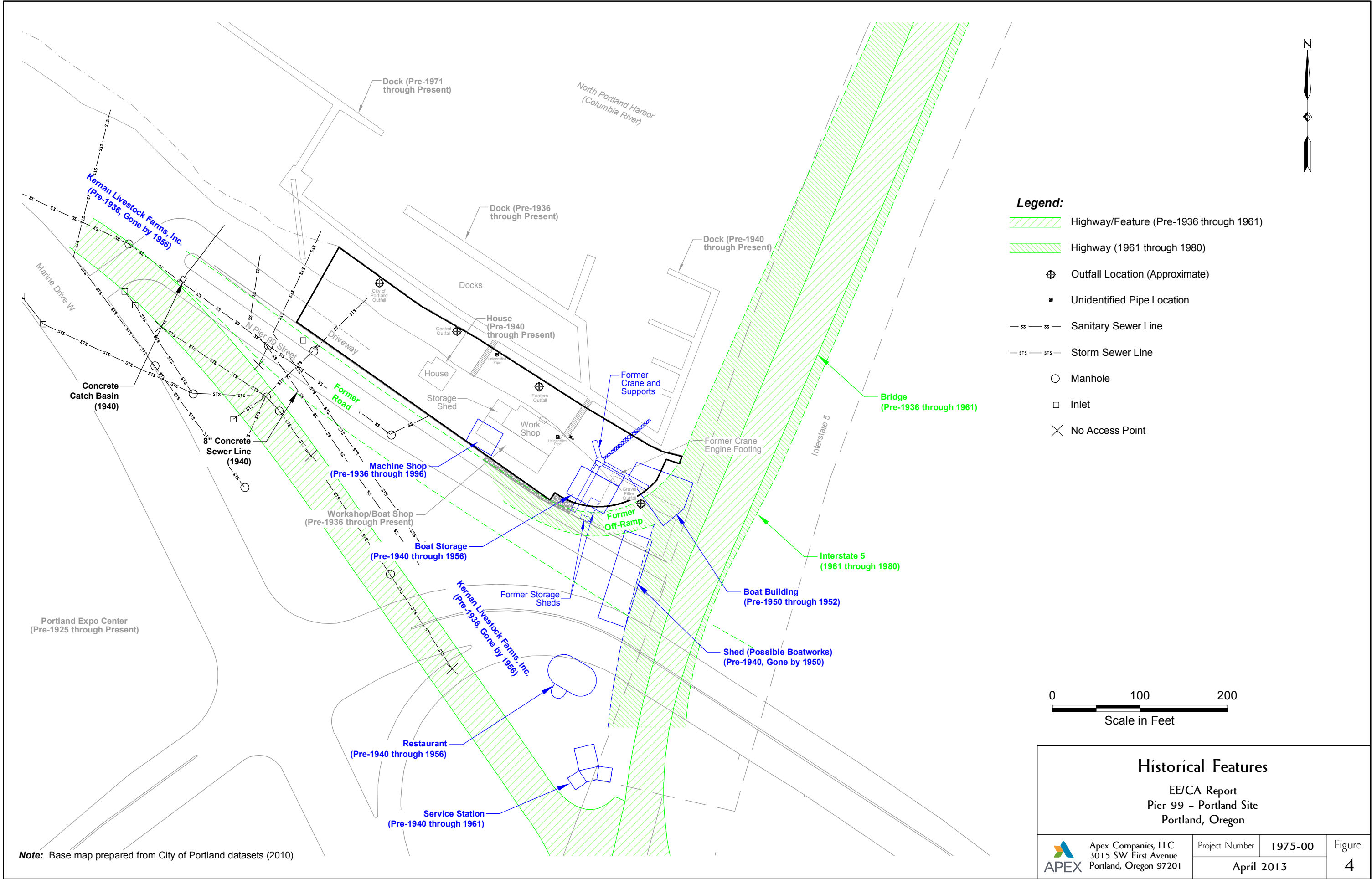
1975-00

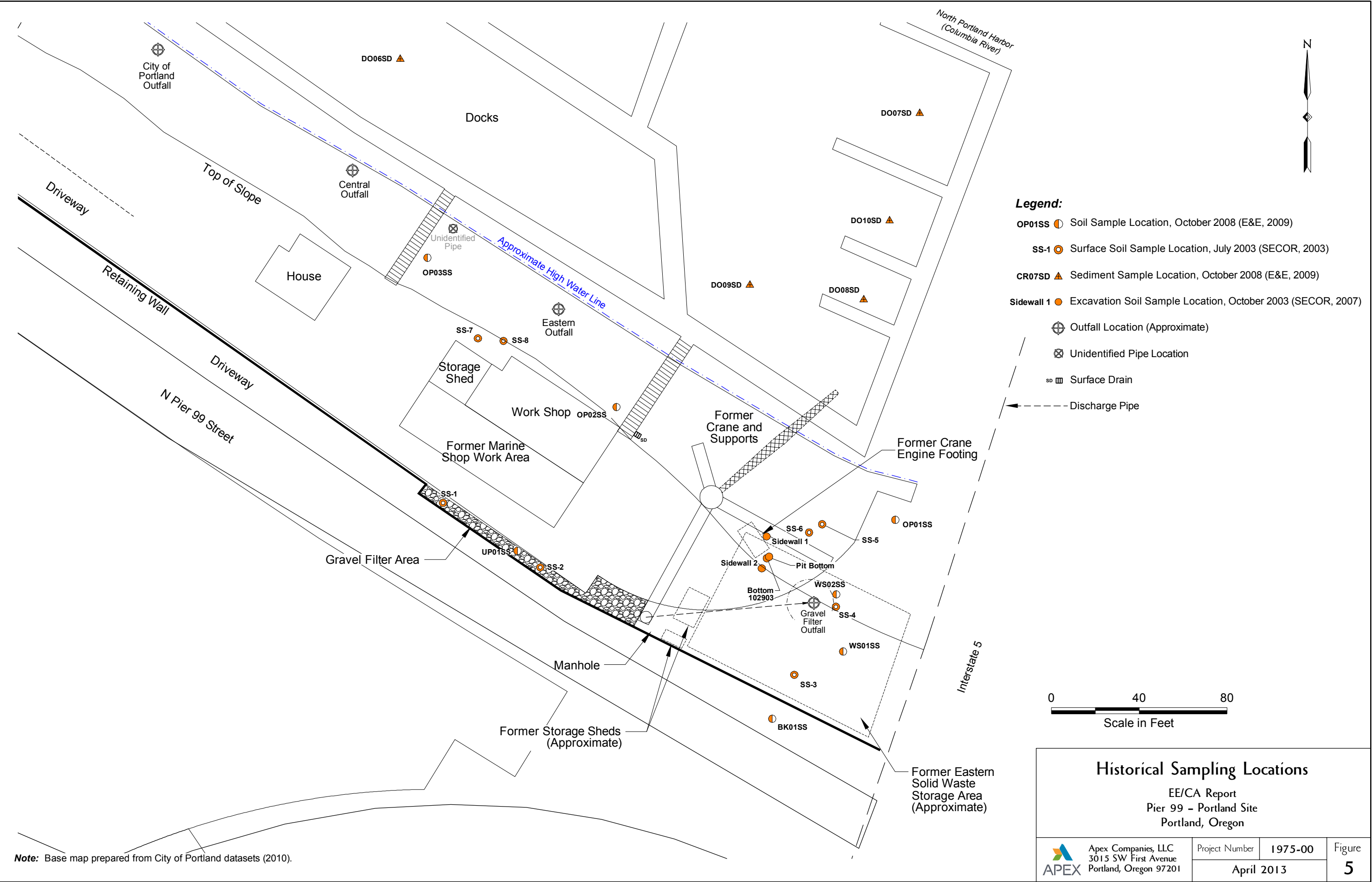
April 2013

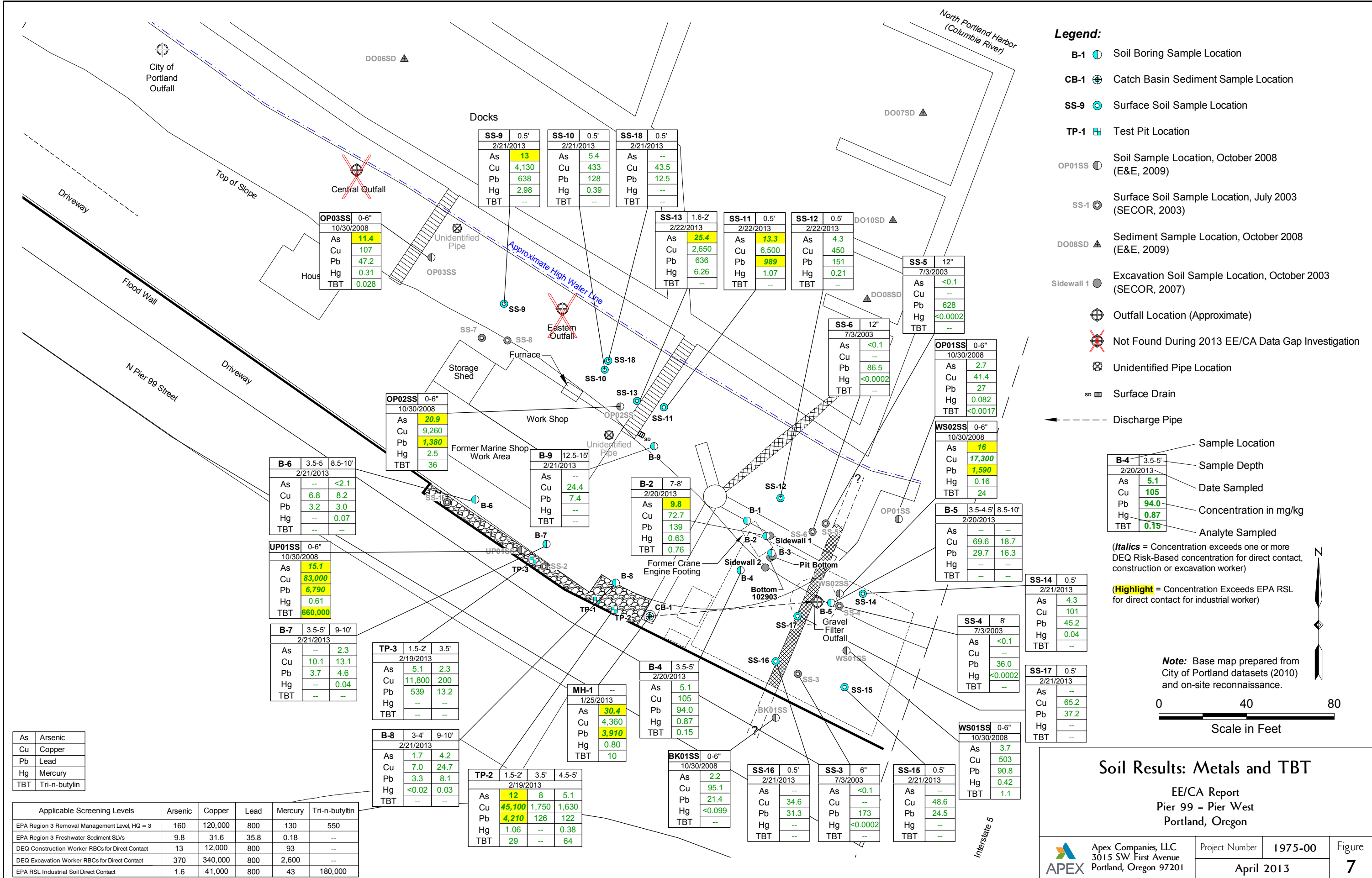
Figure

2



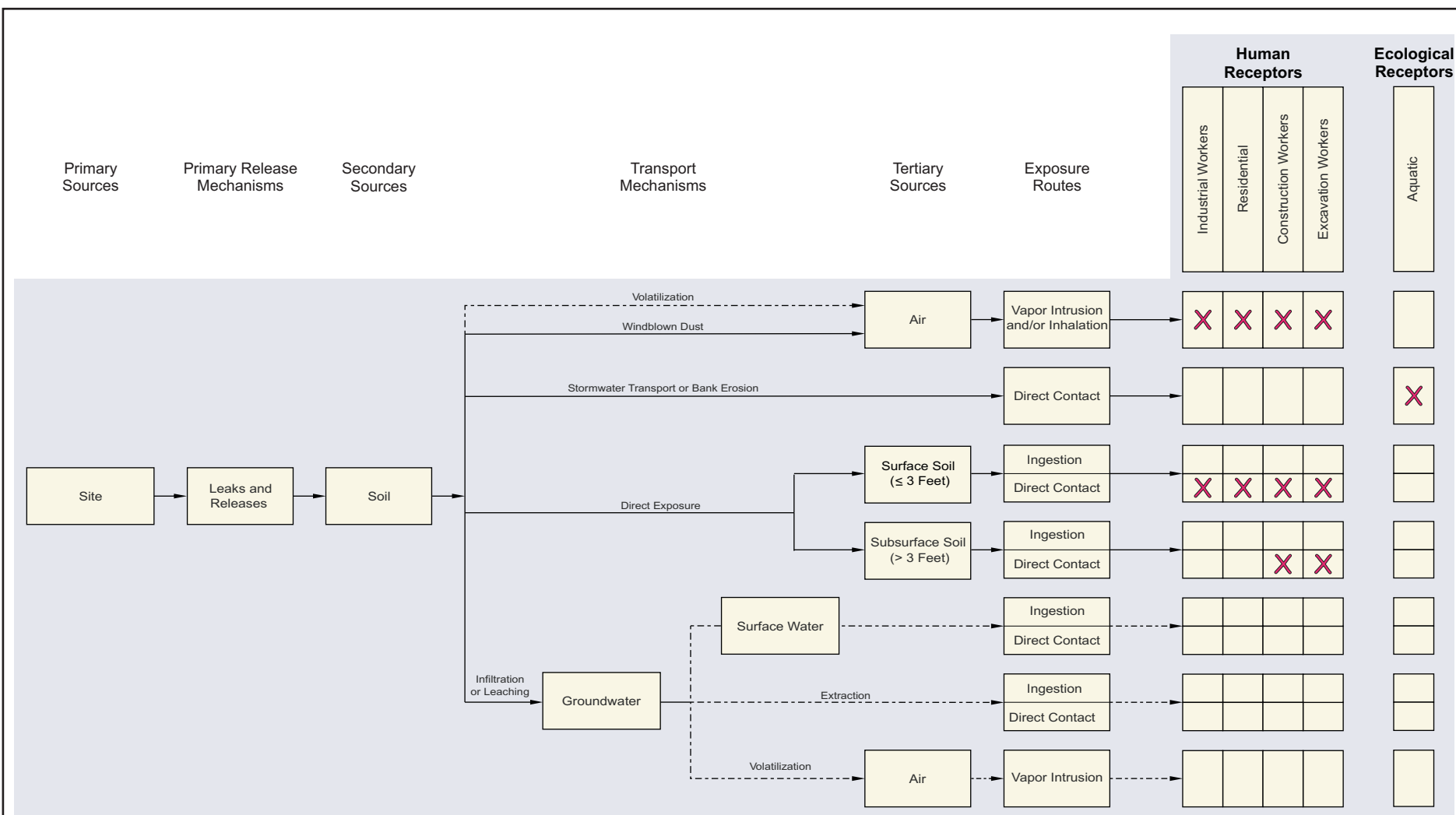






As	Arsenic
Cu	Copper
Pb	Lead
Hg	Mercury
TBT	Tri-n-butyltin

Applicable Screening Levels	Arsenic	Copper	Lead	Mercury	Tri-n-butyltin
EPA Region 3 Removal Management Level, HQ = 3	160	120,000	800	130	550
EPA Region 3 Freshwater Sediment SLVs	9.8	31.6	35.8	0.18	--
DEQ Construction Worker RBCs for Direct Contact	13	12,000	800	93	--
DEQ Excavation Worker RBCs for Direct Contact	370	340,000	800	2,600	--
EPA RSL Industrial Soil Direct Contact	1.6	41,000	800	43	180,000



Legend:

- X Potentially Complete Exposure Pathway
- > Contaminant Pathway not Present or Complete

Conceptual Site Exposure Model

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

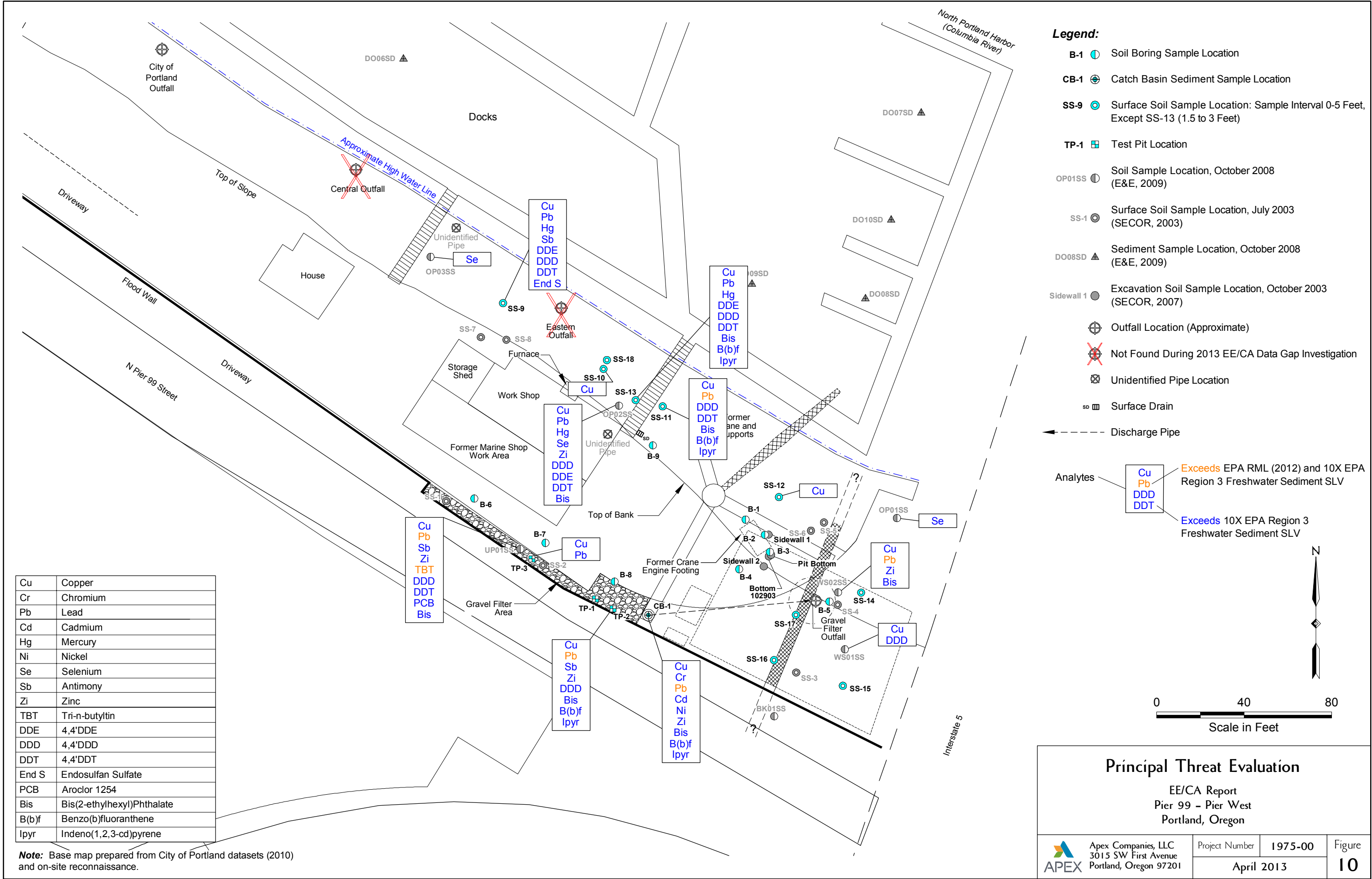
Project Number

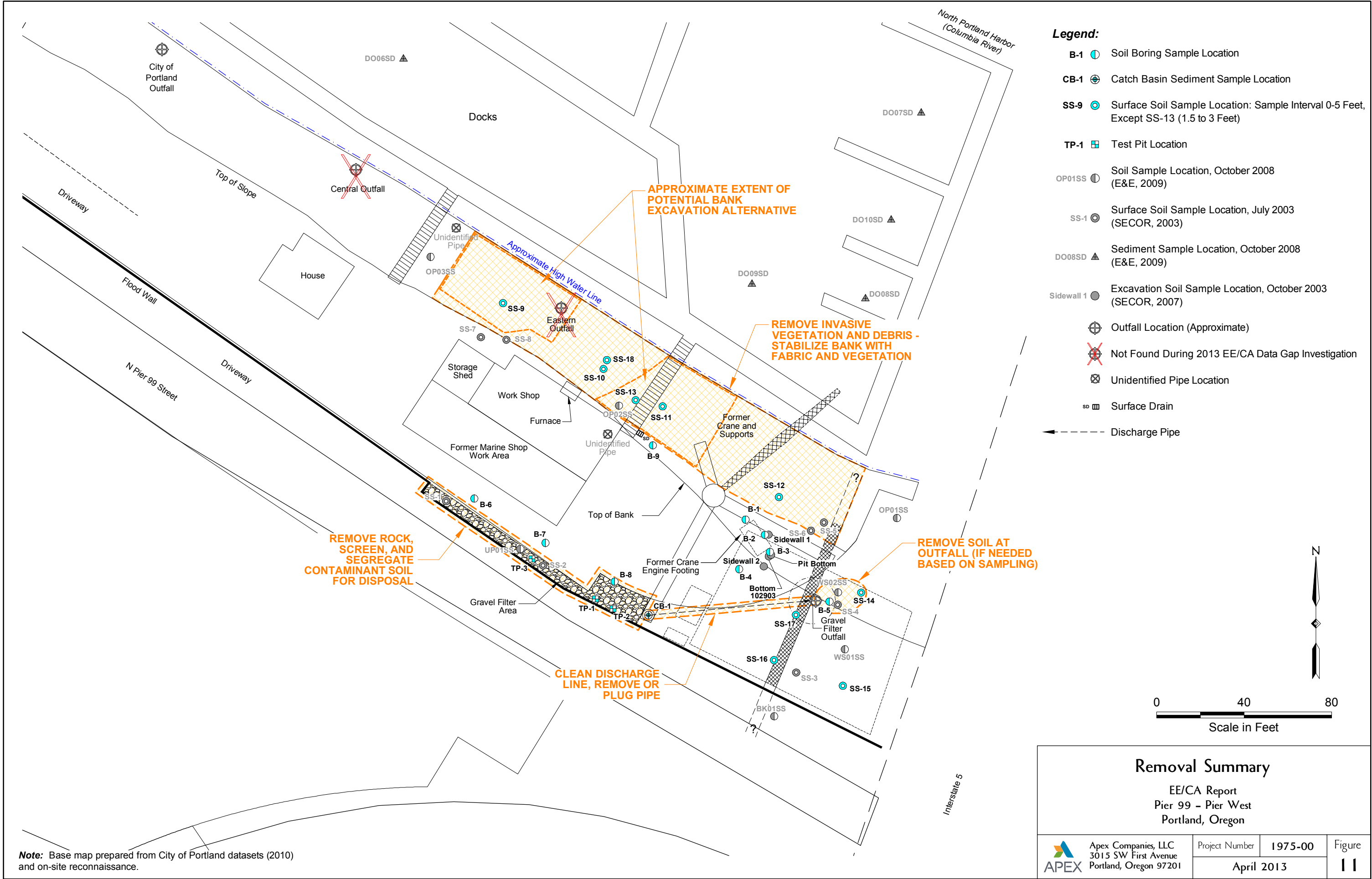
1975-00

April 2013

Figure

9

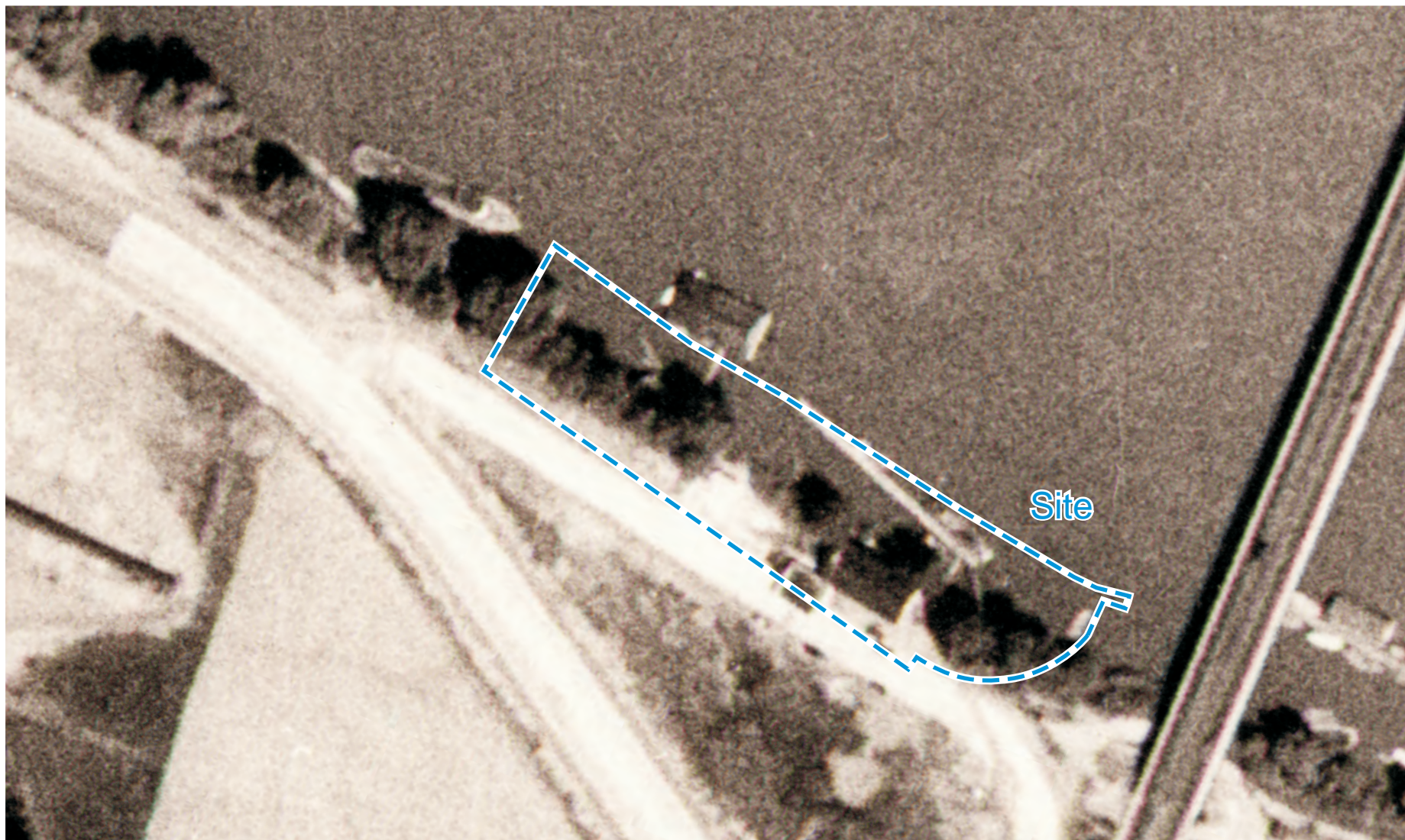




Note: Base map prepared from City of Portland datasets (2010) and on-site reconnaissance.

Appendix A

USACE Aerial Photographs



0 100 200
Approximate Scale in Feet

1936 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure
A-1



0 100 200
Approximate Scale in Feet

1940 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



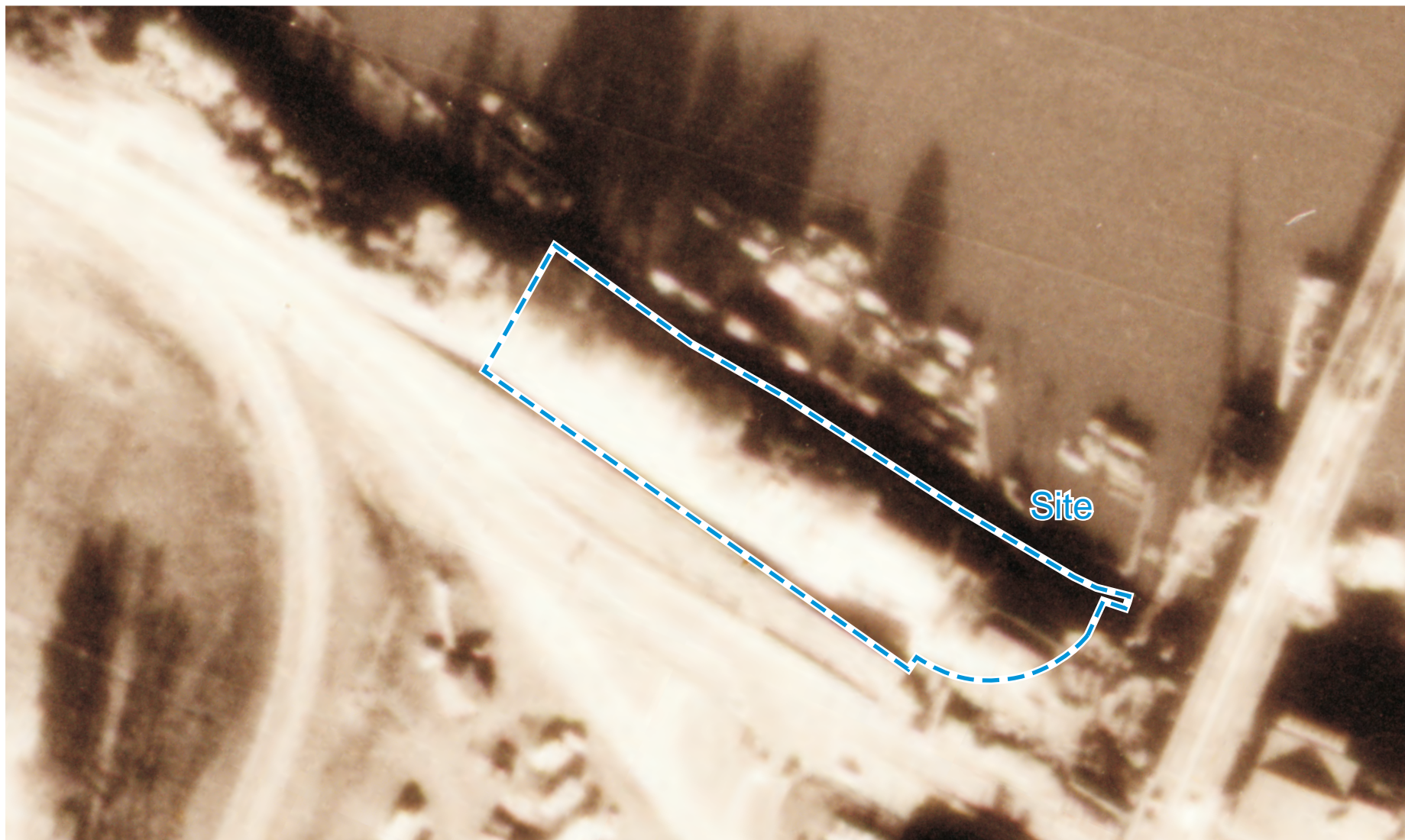
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure
A-2



0 100 200
Approximate Scale in Feet

1956 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure

A-3



0 100 200
Approximate Scale in Feet

1961 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

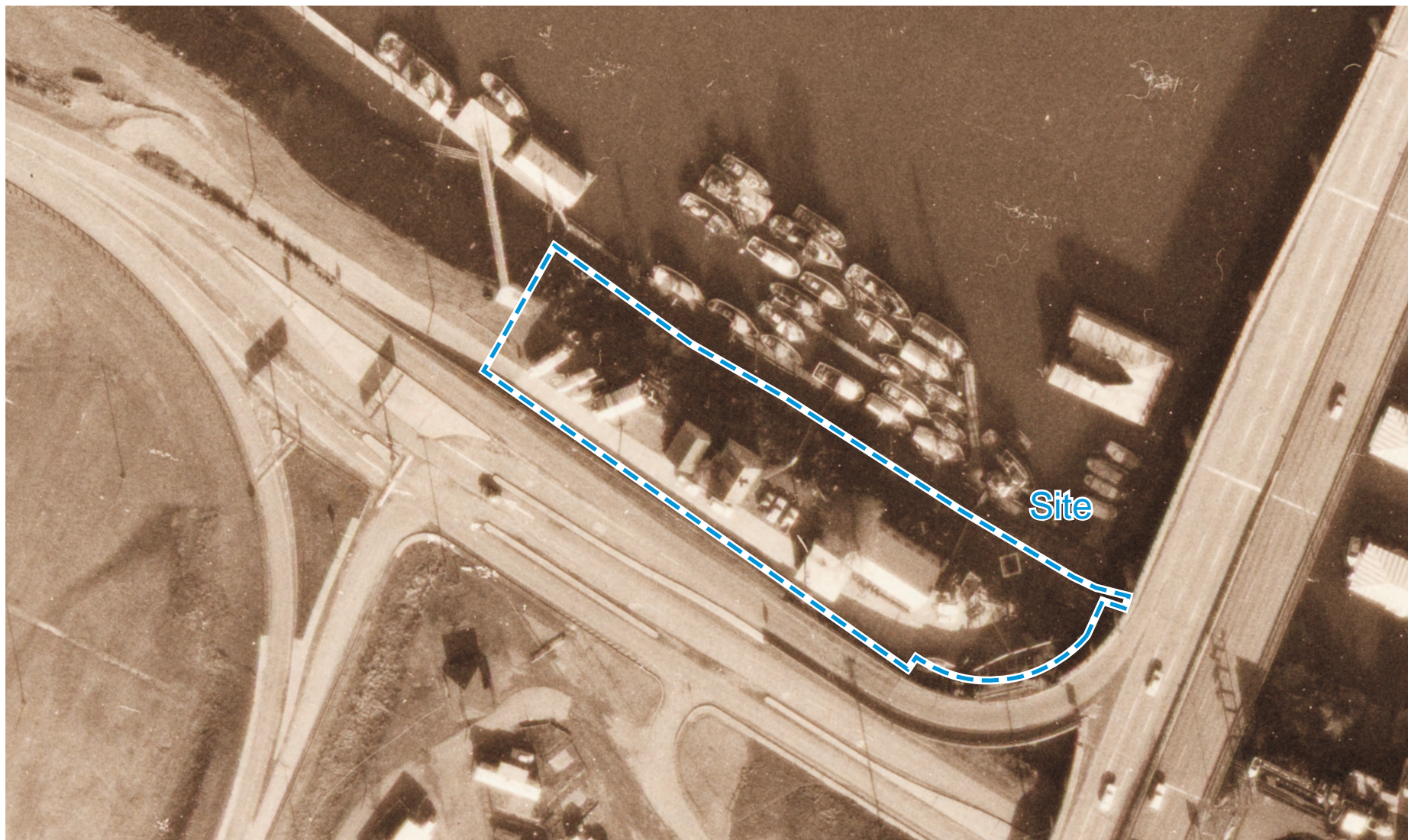
Project Number

1975-00

April 2013

Figure

A-4



0 100 200
Approximate Scale in Feet

1971 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

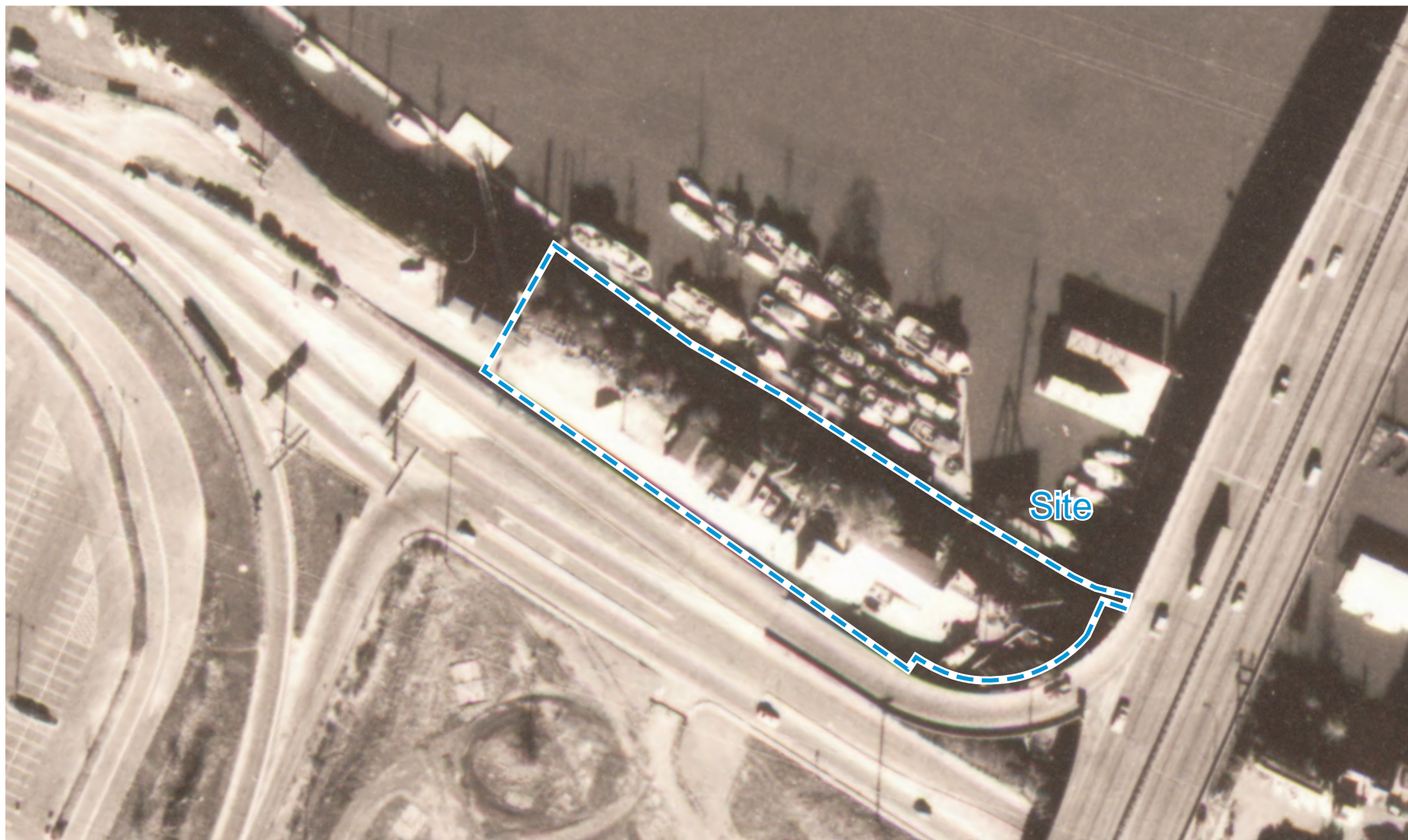
Project Number

1975-00

April 2013

Figure

A-5



0 100 200
Approximate Scale in Feet

1980 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

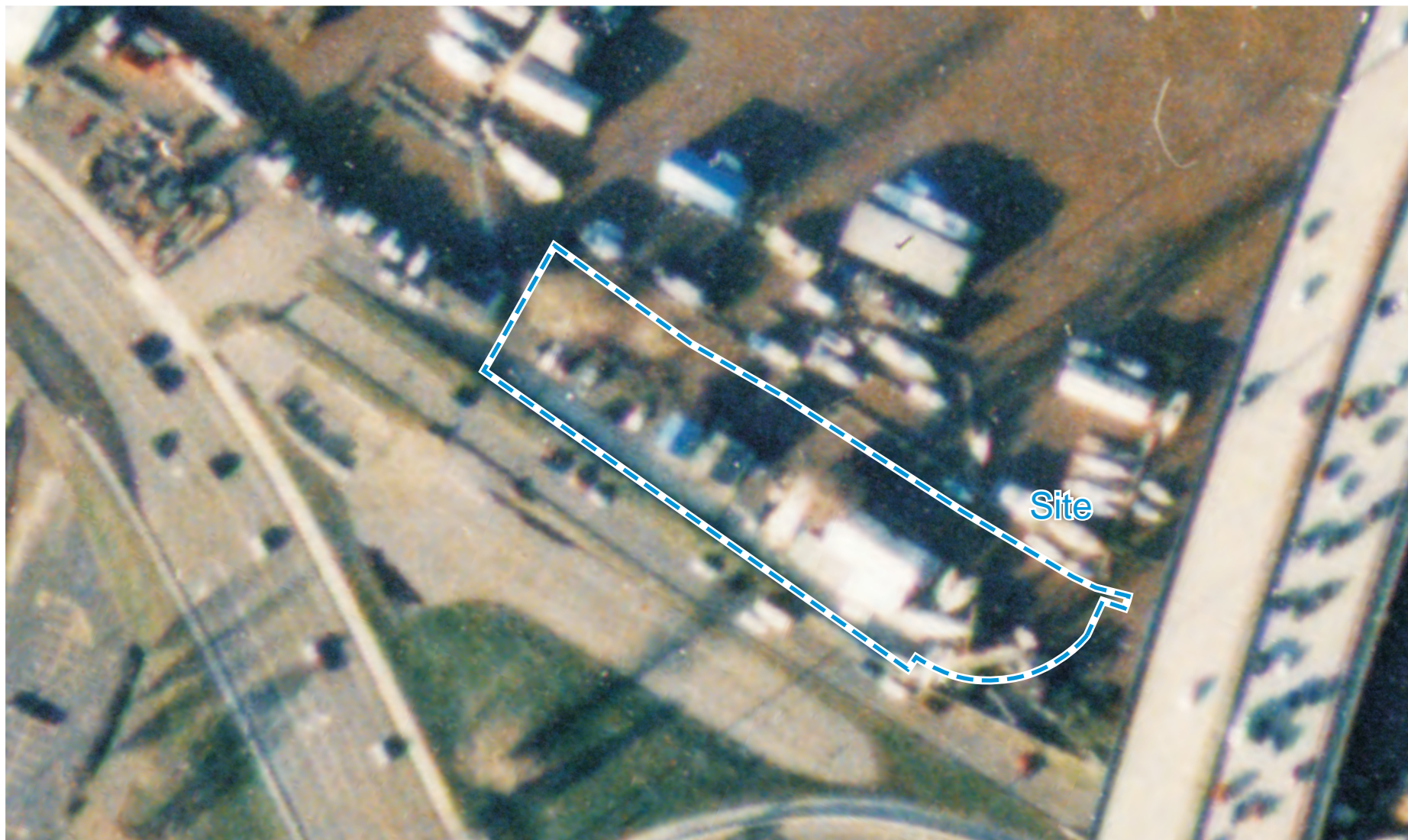
Project Number

1975-00

April 2013

Figure

A-6



0 100 200
Approximate Scale in Feet

1996 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure

A-7



0 100 200
Approximate Scale in Feet

NOTE: Aerial provided by Google Earth.

2004 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure

A-8



0 100 200
Approximate Scale in Feet

NOTE: Aerial provided by Google Maps.

2012 Aerial Photograph

EE/CA Report
Pier 99 - Pier West
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number

1975-00

April 2013

Figure

A-9

Appendix B

Historical and Current Maps



Pier 99 - Portland Site

1610 N Pier 99 Street
Portland, OR 97217

Inquiry Number: 3445260.1
November 01, 2012

Certified Sanborn® Map Report

Certified Sanborn® Map Report

11/01/12

Site Name:

Pier 99 - Portland Site
1610 N Pier 99 Street
Portland, OR 97217

Client Name:

Apex Companies LLC
3015 SW First Avenue
Portland, OR 97201



EDR Inquiry # 3445260.1

Contact: Ashleigh Fines

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Apex Companies LLC were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Pier 99 - Portland Site
Address: 1610 N Pier 99 Street
City, State, Zip: Portland, OR 97217
Cross Street:
P.O. # 320001975-00
Project: Pier 99 - Portland Site
Certification # D36C-421B-AA42



Sanborn® Library search results
Certification # D36C-421B-AA42

Maps Provided:

1966
1952
1950

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☒ Library of Congress
- ☒ University Publications of America
- ☒ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Apex Companies LLC (the client) is permitted to make up to THREE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

Disclaimer - Copyright and Trademark notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2012 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

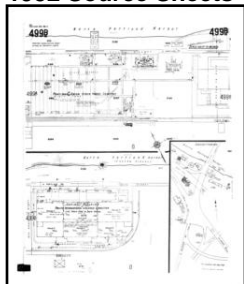
Sanborn Sheet Thumbnails

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.



1966 Source Sheets

1952 Source Sheets



Volume 4, Sheet 499b

1950 Source Sheets



Volume 4, Sheet 499b

1966 Certified Sanborn Map



The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.

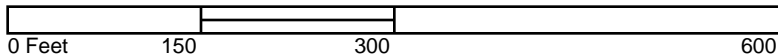
Certification #

D36C-421B-AA42

Site Name: Pier 99 - Portland Site
 Address: 1610 N Pier 99 Street
 City, ST, ZIP: Portland OR 97217
 Client: Apex Companies LLC
 EDR Inquiry: 3445260.1
 Order Date: 11/1/2012 5:29:02 PM
 Certification #: D36C-421B-AA42
 Copyright: 1966



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



1952 Certified Sanborn Map

(150) PORTLAND, ORE. VOL. 4

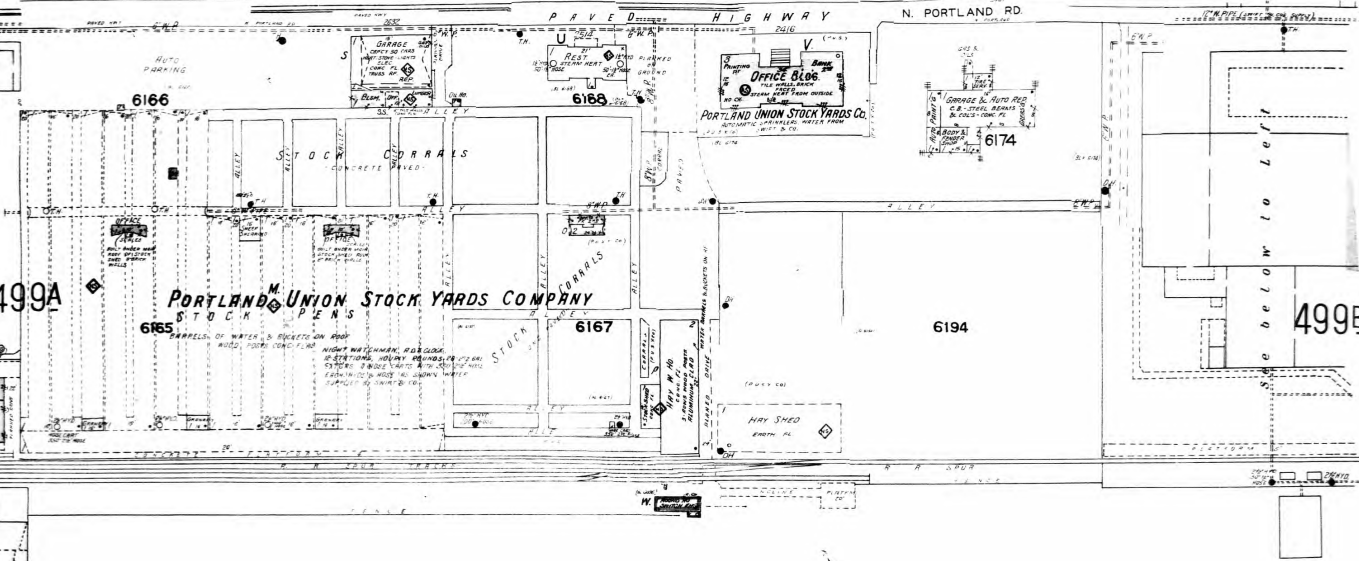
499B

6191 (150)
TERRITORY SHOWN ON THIS SHEET
OUTSIDE OF CORPORATE LIMITS

North Portland Harbor

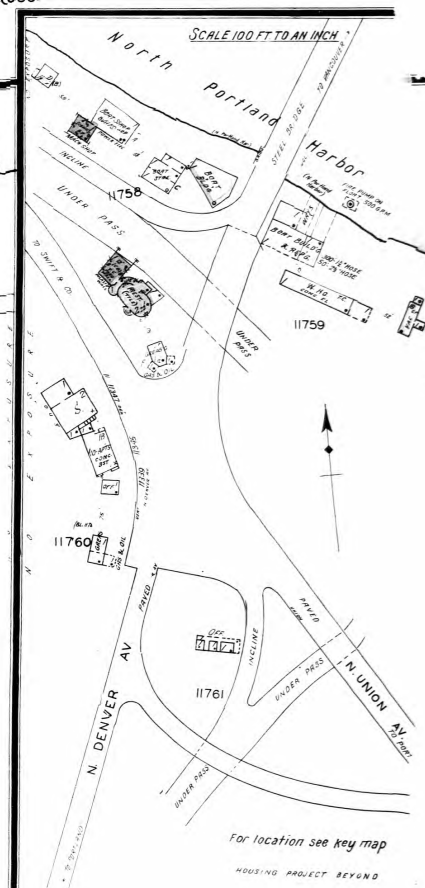
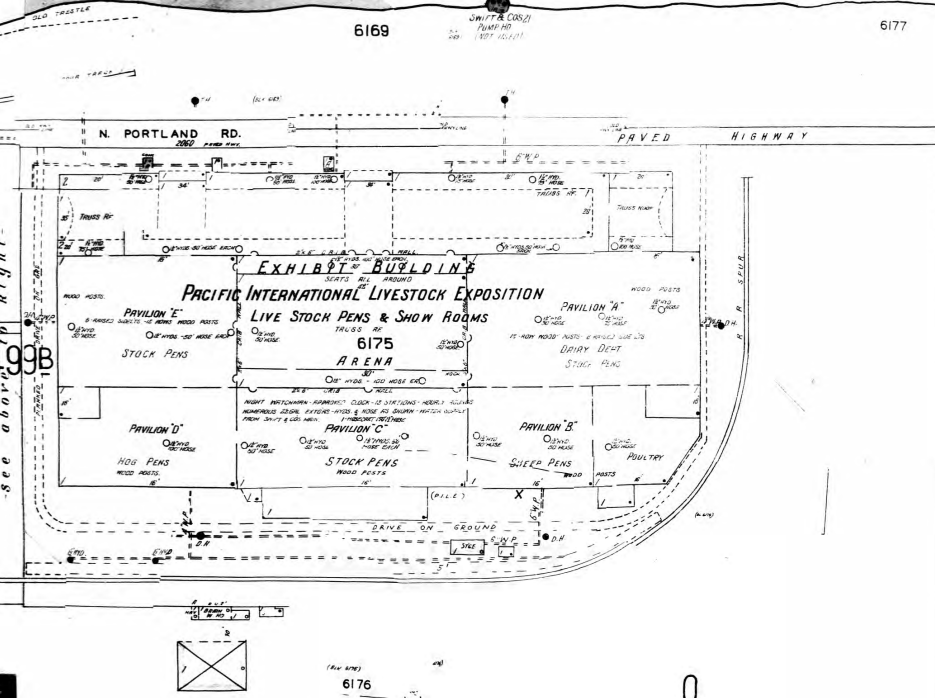
499B

SCALE 100 FT. TO AN INCH



6094 6095 0

North Portland Harbor
(OREGON SLOUGH)



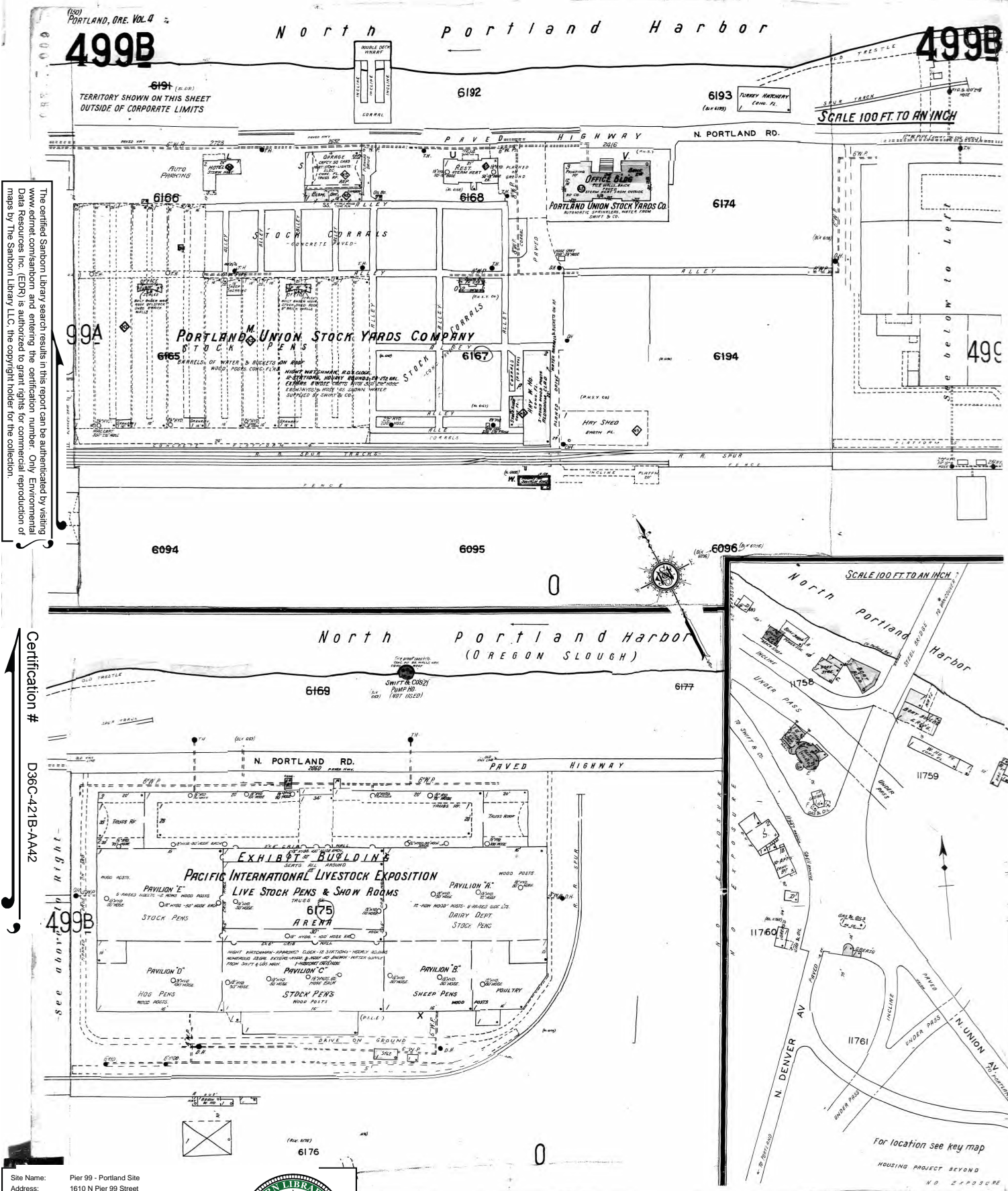
The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.

Certification # D36C-421B-AA42

Site Name: Pier 99 - Portland Site
Address: 1610 N Pier 99 Street
City, ST, ZIP: Portland OR 97217
Client: Apex Companies LLC
EDR Inquiry: 3445260.1
Order Date: 11/1/2012 5:29:02 PM
Certification # D36C-421B-AA42
Copyright: 1952



1950 Certified Sanborn Map

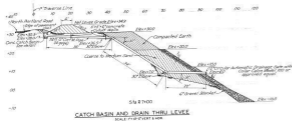
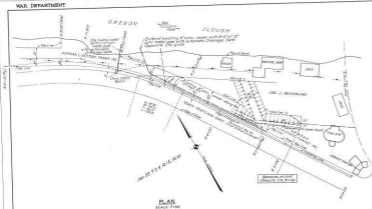


The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.

Certification # D36C-421B-AA42

Site Name: Pier 99 - Portland Site
 Address: 1610 N Pier 99 Street
 City, ST, ZIP: Portland OR 97217
 Client: Apex Companies LLC
 EDR Inquiry: 3445260.1
 Order Date: 11/1/2012 5:29:02 PM
 Certification # D36C-421B-AA42
 Copyright: 1950



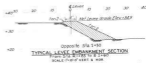


CATCH BASIN AND DRAIN THRU LEVEE
SCALE 1" = 10' VERT & HOR

Note: Deduct length of 30' ellbows in computing length of pipe.



TYPICAL LEVEE EMBANKMENT SECTION
FROM STA 3+15 TO STA 3+10
SCALE 1" = 10' VERT & HOR



TYPICAL LEVEE EMBANKMENT SECTION
FROM STA 3+30 TO STA 3+25
SCALE 1" = 10' VERT & HOR

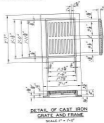


SECTION



PLAN
CATCH BASIN DETAILS
SCALE 1" = 1'-0"

Note: Contractor may substitute either rectangular steel or cast iron grate and frame similar or equal to the above.



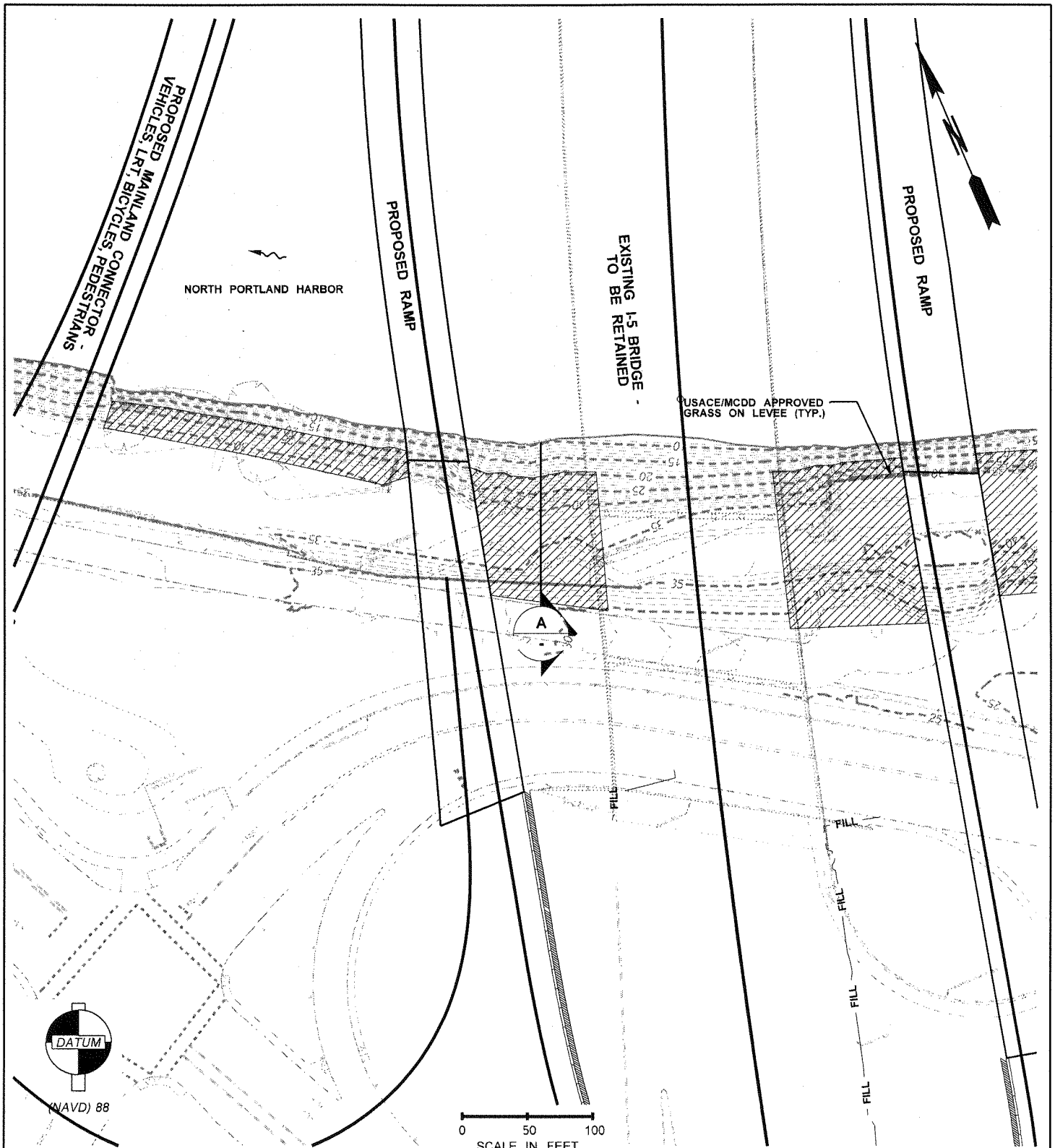
DETAIL OF CAST IRON GRATE AND FRAME
SCALE 1" = 1'-0"

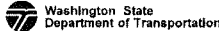
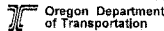

This is the drawing referred to in Change Order dated 1943 for improvements to Peninsula Drainage District, Multnomah Co., Oregon.

SUPPLEMENTAL DRAWING

COLUMBIA RIVER & TRIBUTARIES
WASHINGTON & OREGON
PENINSULA DRAINAGE DIST. NO. 1
MULTNOMAH COUNTY, OREGON
PROPOSED IMPROVEMENTS - FLOOD CONTROL
U.S. ENGINEER OFFICE, PORTLAND, OREGON DISTRICT
DATE: 1943
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]

CLW-106-1/5



PURPOSE: JPA (404)	REFERENCE:	 Washington State Department of Transportation  Oregon Department of Transportation
PROPOSED: RIVERBANK RESTORATION	APPLICANT:	
LOCATION: NORTH PORTLAND HARBOR - SOUTH BANK	COUNTY: MULTNOMAH	
DATUM: NAVD88	NEAR: PORTLAND, OR	
ADJACENT PROPERTY OWNERS:	WATER BODY: COLUMBIA RIVER (NPH)	
	DATE: 11-12-2012	
		SHEET: 1 OF: 9

Appendix C

Historical Sampling Results

Table C-1
Surface Soil Sampling Results - Metals
Pier 99 - Portland Site
EE/CA

Sample ID	Location	Date Sampled	Sample Depth (inches)	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Vanadium	Zinc
				mg/kg (ppm)																
BK01SS	Background	10/30/2008	0-6	5,570	<6 JL	2.2	70	0.36 JQ (0.50 SQL)	9.5	4.3 JQ (5.0 SQL)	95.1	12,100	21.4	207	<0.099	9	0.8 JQ (3.5 SQL)	<0.99	32.4	88.3
SS-5	Former Crane Area	7/3/2003	12	--	--	<0.1 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--	--	628	--	<0.0002 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--
SS-6		7/3/2003	12	--	--	<0.1 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--	--	86.5	--	<0.0002 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--
SS-1	Upland	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
UP01SS		10/30/2008	0-6	6,650	48.4	15.1	599	7.5	201	15.4	83,000	38,100	6,790	465	0.61	94.7	3.6 JQ	5.2	33.7	4,130
SS-3	Waste Storage Area	7/3/2003	6	--	--	<0.1 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--	--	173	--	<0.0002 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--
SS-4		7/3/2003	8	--	--	<0.1 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--	--	36.0	--	<0.0002 ⁸	--	<0.1 ⁸	<0.1 ⁸	--	--
WS01SS		10/30/2008	0-6	9,830	<6.3	3.7	86.1	0.8	15.2	8.4	503	16,300	90.8	277	0.42	11.7	1.1 JQ	<1	40	169
WS02SS		10/30/2008	0-6	5,850	14.7	16	274	4.4	79.3	14.4	17,300	52,200	1,590	574	0.16	150	4.2	1.1	55.8	1,240
SS-7	Overland Pathway	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-8		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
OP01SS		10/30/2008	0-6	9,900	--	2.7	124	0.97	15.4	6.2 JQ	41.4	16,100	27	365	0.082 JQ	13.1	39.9	--	--	127
OP02SS		10/30/2008	0-6	7,750	--	20.9	379	4.9	87.8	15.4	9,260	27,400	1,380	419	2.5	38.4	50.5	--	--	2,170
OP03SS		10/30/2008	0-6	13,500	--	11.4	135	1.1	26.6	8.6	107	22,700	47.2	441	0.31	18.9	51.8	--	--	169
Applicable Screening Levels																				
EPA Region Removal Management Level, HQ = 3		--	3,000,000	1,200	160	570,000	2,400	4.6E+06	910	120,000	2,100,000	800	68,000	130	59,000	15,000	15,000	--	920,000	
EPA Region 3 Freshwater Sediment Benchmarks ¹⁰		--	--	2	9.8	--	0.99	43.4	50	31.6	20,000	35.8	460	0.18	22.7	2	1.0	--	121	
Relevant Screening Levels																				
DEQ Construction Worker RBCs for Direct Contact		--	--	--	13	60,000	150	460,000 ¹³	--	12,000	--	800	7,200	93	6,100	--	1,500	--	--	
DEQ Excavation Worker RBCs for Direct Contact		--	--	--	370	>1,000,000	4,300	>1,000,000 ¹	--	340,000	--	800	200,000	2,600	170,000	--	43,000	--	--	
EPA RSLs for Industrial Soil Direct Contact		--	990,000	410	1.6	190,000	800	1,500,000 ¹³	300	41,000	720,000	800	23,000	43	20,000	5,100	5,100	--	310,000	
Background Concentrations																				
Oregon DEQ Default Background Metal Concentrations		--	52,300 ¹⁶	0.56	8.8	790	0.63	76	--	34	36,100 ¹⁶	79	1,800	0.23	47	0.71	0.82	180	180	

Notes:

1. Bold type indicates the sample result is above the sample quantitation limit.
2. H = High bias.
3. J = The analyte was positively identified. The associated numerical result is an estimate.
4. L = Low bias.
5. mg/kg = milligrams per kilogram (parts per million).
6. Q = The result is estimated because the concentration is below the Contract Required Quantitation Limit.
7. < = The analyte was not detected at or above the reported result.
8. TCLP Metals analysis per EPA Methods 1311/6000/7000 Series concentrations reported in milligrams per liter.
9. -- = Not applicable or not analyzed.
10. EPA Removal Management Levels (RMLs) , November 2012.
11. EPA Region 3 Freshwater Sediment SLVs from Mid-Atlantic Risk Assessment: Ecological Risk Assessment - Freshwater Sediment Screening Benchmarks, 2004.
Note the 10x attenuation factor referenced in report text is not applied to the levels reported above.
12. DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
13. EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
14. Oregon DEQ Background Metal Concentrations (Portland Basin) from Background Levels of Metals in Soils for Cleanups, March 2013.
15. Chromium (III) concnecration used for applicale screening level.
16. Oregon DEQ background metal concentration does not exist for specific metal, Clark County, Washington background metal concentration used.
17. Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table C-2
Surface Soil Sampling Results - SVOCs, PCBs, and Butyltins
Pier 99 - Portland Site
EE/CA

Sample ID	Location	Date Sampled	Sample Depth (inches)	Organotins (µg/kg)				Pesticides/Polychlorinated Biphenyls (µg/kg)						Semi-Volatile Organics (µg/kg)						
				Dibutyltin	Monobutyltin	Tetra-n-butyltin	Tributyltin	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aroclor-1248	Aroclor-1254	Heptachlor epoxide	Benzaldehyde	Bis(2-ethylhexyl)phthalate	Butylbenzyl phthalate	Dimethyl phthalate	Di-n-butylphthalate	Fluoranthene	Phenol
				µg/kg (ppb)																
BK01SS	Background	10/30/2008	0-6	36	36 JL	<3.6	48	0.39 JQ (3.4 SQL)	<3.4	1.2 JQ (3.4 SQL)	<34	<34	<1.8	43 JQ (180 SQL)	93 JQ (180 SQL)	15 JQ (180 SQL)	200	22 JQ (180 SQL)	71 JQ (180 SQL)	14 JQ (180 SQL)
SS-5	Former Crane Area	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-6		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
SS-1	Upland	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
UP01SS		10/30/2008	0-6	210,000 JL	84,000	--	660,000	2,700	--	370	--	3,800	<210	4,600 JH	11,000	--	48,000	26,000	--	3,100
SS-3	Waste Storage Area	7/3/2003	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-4		7/3/2003	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
WS01SS		10/30/2008	0-6	210 JL	240	--	1,100	76	--	33 JL	--	130 JL	4.5 JL	140 JQ	210 JQ	--	660	160 JQ	--	74 JQ
WS02SS		10/30/2008	0-6	8,400 JL	3,200	--	24,000	32 JQ	--	33 JQ	--	380 JL	<18	2,000 JH	5,100	--	17,000	52,000	--	680 JQ
SS-7	Overland Pathway	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-8		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
OP01SS		10/30/2008	0-6	<1.7	<1.7	<4.7	<1.7	0.28 JQ	0.74 JQ	<4.3	<43	12 JQ	--	230 JH	45 JQ	<220	8.6 JQ	7.7 JQ	66 JQ	49 JQ
OP02SS		10/30/2008	0-6	9,000 JL	7,500	190	36,000	930	58	180 JL	1,200	1,600	--	3,000 JH	6,400	2,200	21,000	2,100	2,500	2,200
OP03SS		10/30/2008	0-6	220	210	<4.7	28	8 JL	<4.3	19	<43	68 JL	--	240 JH	160 JQ	17 JQ	99 JQ	22 JQ	65 JQ	55 JQ
Applicable Screening Level Values																				
EPA Region 3 Removal Management Level, HQ = 3				550,000	--	550,000	550,000	720,000	510,000	700,000	74,000	32,000	38,000	--	12,000,000	91,000,000	--	180,000,000	66,000,000	550,000,000
EPA Region 3 Freshwater Sediment Benchmarks ⁹				--	--	--	--	4.88	3.16	4.16	--	340	2.47	--	180	10,900	--	6,470	423	420
Relevant Screening Level Values																				
DEQ Construction Worker RBCs for Direct Contact				--	--	--	--	83,000	58,000	58,000	--	--	1,800	--	--	--	--	--	8,900,000	--
DEQ Excavation Worker RBCs for Direct Contact				--	--	--	--	2,300,000	1,600,000	1,600,000	--	--	51,000	--	--	--	--	--	250,000,000	--
EPA RSLs 9 Industrial Soil Direct Contact				180,000	--	180,000	180,000	7,200	5,100	7,000	740	740	190	--	--	910,000	--	62,000,000	22,000,000	180,000,000

Notes:

1. Bold type indicates the sample result is above the sample quantitation limit.
2. H = High bias.
3. J = The analyte was positively identified. The associated numerical result is an estimate.
4. L = Low bias.
5. µg/kg = = micrograms per kilogram (parts per billion).
6. Q = The result is estimated because the concentration is below the Contract Required Quantitation Limit.
7. < = The analyte was not detected at or above the reported result.
8. EPA Removal Management Levels (RMLs) , November 2012.
9. DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
10. EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
11. Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table C-3
Surface Soil Sampling Results - VOCs
Pier 99 - Portland Site
EE/CA

Sample ID	Location	Date Sampled	Sample Depth (inches)	Volatile Organic Compounds (VOCs)															
				2-Butanone (MEK)	Chloroethane	1,2-Dibromoethane	Dibromo-chloro-ethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Styrene	Tetrachloroethene	1,1,1-Trichlorethene	Trichloroethene	1,2,4-Trimethylbenzene	Trichloro-fluoro-methane	Vinyl Chloride
				µg/kg (ppb)															
SS-5	Former Crane Area	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-6		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-1	Upland	7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-2		7/3/2003	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SS-3	Waste Storage Area	7/3/2003	6	<1.0	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.157	<0.100	<0.100	<0.100	0.101	<0.100	<0.100
SS-4		7/3/2003	8	<0.100	<1.0	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
SS-7	Overland Pathway	7/3/2003	12	<0.100	<1,000	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
SS-8		7/3/2003	12	<0.100	<1,000	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100

- Notes:**
- Bold type indicates the sample result is above the sample quantitation limit.
 - µg/kg = = micrograms per kilogram (parts per billion).
 - < = The analyte was not detected at or above the reported result.
 - Volatile Organic Compounds (VOCs) per Environmental Protection Agency (EPA) 8260B.
 - DEQ Level II Ecological SLVs from *Oregon Department of Environmental Quality: Guidance for Ecological Risk Assessment - Level II Screening Level Values, December 2001*.
 - Shaded cells represent detected concentrations that exceed the Pincipal Threat Criteria.

Table C-4

Former Crane Area Excavation Confirmation Samples

Pier 99 - Portland Site

EE/CA

Sample ID	Date Sampled	Sample Depth (feet)	TPH-GRO	TPH-DRO	TPH-ORO	Total Lead
			mg/kg dry (ppm)			
Pit Bottom	10/23/2003	7.0	<20.0	376	2,200	51.6
Sidewall #1	10/23/2003	4.0	<20.0	<125	1,700	95.8
Sidewall #2	10/23/2003	5.0	<20.0	<50.0	<100	8.25
Relevant Screening Level Values						
DEQ Construction Worker RBCs for Direct Contact				4,600	4600	800
DEQ Excavation Worker RBCs for Direct Contact				>1,000,000	1,000,000	800
EPA RSLs Industrial Soil Direct Contact				--	--	800

Notes:

1. Bold type indicates the sample result is above the sample quantitation limit.
2. mg/kg = milligrams per kilogram (parts per million).
3. < = The analyte was not detected at or above the reported result.
4. EPA Removal Management Levels (RMLs) , November 2012.
5. EPA Region 3 Freshwater Sediment SLVs from Mid-Atlantic Risk Assessment: Ecological Risk Assessment - Freshwater Sediment Screening Benchmarks, 2004.
Note the 10x attenuation factor referenced in report text is not applied to the levels reported above.
6. DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
7. EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table* , updated November 2012.
8. Oregon DEQ Background Metal Concentrations (Portland Basin) from Background Levels of Metals in Soils for Cleanups, March 2013.
9. Shaded cells represent detected concentrations that exceed the Principal Threat Criteria.

Table C-5
Near Shore Sediment Samples - Metals and Organotins
Pier 99 - Portland Site
EE/CA

Sample ID	Location	Date Sampled	Sample Depth (inches)	Aluminum	Arsenic	Barium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Vanadium	Zinc	Dibutyltin	Monobutyltin	Tetra-n-butyltin	Tributyltin	Tripentyltin
				Metals (mg/kg)														Organotins (µg/kg)				
BK01SD	Background	10/29/2008	0-6	2,250	1.2 JQ (1.3 SQL)	26.4	1,770	3.1	5.4	5,390	1.8	753	82.4	3.5 JQ (5.2 SQL)	101 JH	14.1	17.8	<1.6	<1.6 JL	<4.4	<1.6	160
BK02SD		10/29/2008	0-6	4,780	2.2	59.9	2,810	8.1	8.6	10,700	3.8	1,920	190	8	410 JH	32.5	43.3	<1.7	<1.7	<4.6	<1.7	165
BK03SD		10/29/2008	0-6	6,020	2.3	69.6	2,750	8.5	13.6	10,700	4	2,130	209	8.2	541 JH	27.2	47.5	<2	<2 JL	<5.3	<2	200
DO02SD	Dock Area	10/29/2008	0-6	6,100	2.2	83.4	3,120	9.5	15.1	11,800	6.2	2,470	283	9.3	596 JH	30.5	57.9	<1.8	<1.8	<5	<1.8	270
DO03SD		10/28/2008	0-6	5,440	3	73.4	3,140	9.5	11.6	12,500	4.9	2,320	237	9.1	507 JH	36.9	52.9	0 R	0 R	0 R	176 R	210
DO04SD		10/28/2008	0-6	4,410	2.2	62.8	2,720	8.5	8.7	9,980	4.8	1,990	231	8.6	398 JH	30.6	46.1	0 R	0 R	0 R	0 R	210
DO05SD		10/29/2008	0-6	4,310	1.7	52.6	2,700	7.9	9.4	10,400	4.7	1,940	213	8.1	393 JH	30.1	47.2	0 R	0 R	0 R	0 R	200
DO06SD		10/29/2008	0-6	5,970	1.9	79.8	3,000	8.9	16.2	11,100	6.2	2,340	240	8.8	565 JH	29.2	55.1	0 R	0 R	0 R	0 R	250
DO07SD		10/29/2008	0-6	3,730	1.9	66.2	2,400	6.8	2,580	9,020	4.5	1,650	190	7.1	310 JH	27	50	0 R	0 R	0 R	0 R	260
DO08SD		10/29/2008	0-6	3,580	1.8	49.3	2,320	6.7	8.3	9,030	4.9	1,720	172	7.5	309 JH	25.9	43.1	0 R	0 R	0 R	0 R	190
DO09SD		10/29/2008	0-6	6,290	2	84.5	3,250	9.5	13.8	12,100	5.4	2,580	289	9.6	614 JH	32.6	61.2	0 R	0 R	0 R	0 R	190
DO10SD		10/29/2008	0-6	4,390	1.6	63.4	2,710	8.1	8.3	10,000	4	2,090	213	8.4	410 JH	31.2	49.3	<1.7	<1.7	<4.7	<1.7	190
CR01SD		Columbia River	10/28/2008	0-6	4,370	1.5	92.5	2,750	6.6	7.3	8,300	2.8	1,690	174	7	409 JH	22.7	37.8	<1.6	<1.6 JL	<4.4	<1.6
CR02SD	10/28/2008		0-6	3,280	1.3 JQ	41	2,230	5.5	5.5	6,990	2.4	1,430	213	6.8	211 JH	18.8	28.7	<1.7	<1.7 JL	<4.5	<1.7	150
CR03SD	10/28/2008		0-6	2,510	1.7	28.3	1,840	3.1	6	5,860	1.7	864	105	4.4 JQ	125 JH	15	22.7	<1.5	<1.5 JL	<4	<1.5	84
CR04SD	10/28/2008		0-6	2,010	1.2 JQ	22.3 JQ	1,770	3	5.2	4,980	1.7	905	170	4.5 JQ	105 JH	13.8	20.9	<1.7	<1.7	<4.5	<1.7	160
CR05SD	10/28/2008		0-6	6,130	2.3	90.2	3,670	10.4	39.8	14,300	9.1	2,800	272	10.5	631 JH	37	99.9	<1.7	<1.7	<4.7	<1.7	230
CR06SD	10/28/2008		0-6	2,740	1.7	41.8	2,050	8.7	5.3	6,690	1.8	1,210	178	6.2	135 JH	17.7	29.6	<1.7	<1.7	<4.6	<1.7	170
CR07SD	10/28/2008		0-6	2,810	1.4	34.2	2,130	4.4	5.6	6,680	2.3	1,190	142	5.6	184 JH	17.5	28.1	<1.6	<1.6	<4.4	<1.6	170
Applicable Screening Levels																						
EPA Region Removal Management Level, HQ = 3				3,000,000	160	570,000	--	4,600,000 ¹³	120,000	2,100,000	800	--	68,000	59,000	--	--	920,000	550,000	550,000	550,000	550,000	550,000
EPA Region 3 Freshwater Sediment Benchmarks ¹⁰				--	9.8	--	--	43.4	31.6	20,000	35.8	--	460	22.7	--	--	121	--	--	--	--	--
Relevant Screening Levels																						
DEQ Construction Worker RBCs for Direct Contact				--	13	60,000	--	460,000 ¹³	12,000	--	800	--	7,200	6,100	--	--	--	--	--	--	--	--
DEQ Excavation Worker RBCs for Direct Contact				--	370	>1,000,000	--	>1,000,000 ¹³	340,000	--	800	--	200,000	170,000	--	--	--	--	--	--	--	--
EPA RSLs for Industrial Soil Direct Contact				990,000	1.6	190,000	--	1,500,000 ¹³	41,000	720,000	800	--	23,000	20,000	--	--	310,000	180,000	180,000	180,000	180,000	180,000
Background Concentrations																						
Oregon DEQ Default Background Metal Concentrations				52,300 ¹⁴	8.8	790	--	76	34	36,100 ¹⁴	79	--	1,800	47	--	180	180					

Notes:

1. Bold type indicates the sample result is above the sample quantitation limit.
2. H = High bias.
3. J = The analyte was positively identified. The associated numerical result is an estimate.
4. L = Low bias.
5. µg/kg = = micrograms per kilogram (parts per billion).
6. Q = The result is estimated because the concentration is below the Contract Required Quantitation Limit.
7. < = The analyte was not detected at or above the reported result.
8. DEQ RBCs from *Risk-Based Concentrations for Individual Chemicals*, June 2012.
9. EPA Regional Screening Levels (RSLs) for Industrial Soil from *Regional Screening Level (RSL) Summary Table*, updated November 2012.
10. Oregon DEQ Background Metal Concentrations (Portland Basin) from Background Levels of Metals in Soils for Cleanups, March 2013.

Appendix D

Visual Assessment Photograph Log

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00



Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 1	
Photo Date: 09/19/2012	
Orientation: South	
Description: Outfall located on the western portion of the property determined to be the City of Portland outfall draining N. Marine Drive.	
Photo No: 2	
Photo Date: 01/17/2012	
Orientation: North	
Description: Manhole at the top of the bank above the City of Portland outfall.	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00

Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 3	
Photo Date: 09/19/2012	
Orientation: South	
Description: Pipe presumed to be the location identified as the central outfall during previous investigations.	
Photo No: 4	
Photo Date: 11/02/2012	
Orientation: South	
Description: Close up of the pipe identified in photo no. 2.	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00



Client: Milton O. Brown
Location: Portland, Oregon

<p>Photo No: 5</p>	
<p>Photo Date: 01/25/2013</p>	
<p>Orientation: South</p>	
<p>Description:</p> <p>Surface drain located east of the work shop.</p>	
<p>Photo No: 6</p>	
<p>Photo Date: 01/17/2013</p>	
<p>Orientation: Northeast</p>	
<p>Description:</p> <p>Area that potentially drains to the surface drain.</p>	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00

Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 7	
Photo Date: 11/02/2012	
Orientation: Northeast	
Description: Inside the manhole associated with the gravel filter and associated piping draining towards the Bank Area.	
Photo No: 8	
Photo Date: 11/02/2012	
Orientation: South	
Description: Approximate location of the gravel filter area discharge pipe in the bank.	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00

Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 9	
Photo Date: 02/25/2013	
Orientation: Northeast	
Description: Limits of GPR trace.	
Photo No: 10	
Photo Date: 2/25/2013	
Orientation: North-Northeast	
Description: Intersection of gravel filter area discharge pipe and utility corridor..	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00



Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 11	
Photo Date: 02/25/2013	
Orientation: Northeast	
Description: Extent of gravel filter area discharge pipe located with GPR trace.	
Photo No: 12	
Photo Date: 01/25/2013	
Orientation: West	
Description: Polyethylene pipe observed under building.	

APPENDIX D PHOTOGRAPH LOG

Project Name: Pier 99
Project Number: 1975-00

Client: Milton O. Brown
Location: Portland, Oregon

Photo No: 13	
Photo Date: 02/19/2013	
Orientation: Southeast	
Description: Perforated pipe within the gravel filter.	
Photo No: 14	
Photo Date: 02/19/2013	
Orientation: Southwest	
Description: Perforated pipe in gravel filter placed under gravel and above the sand layer.	

Appendix E

Lithologic Logs

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:

MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

SAND and GRAVEL	Standard Penetration Resistance in Blows/Foot	SILT or CLAY	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
<u>Density</u>		<u>Density</u>		
Very loose	0 - 4	Very soft	0 - 2	<0.125
Loose	4 - 10	Soft	2 - 4	0.125 - 0.25
Medium dense	10 - 30	Medium stiff	4 - 8	0.25 - 0.5
Dense	30 - 50	Stiff	8 - 15	0.5 - 1.0
Very dense	>50	Very Stiff	15 - 30	1.0 - 2.0
		Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture.
Sl. Moist	Some perceptible moisture, probably below optimum.
Moist	Probably near optimum moisture content.
Wet	Much perceptible moisture, probably above optimum.

Minor Constituents

Minor Constituents	Estimated Percentage
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Sampling Symbols

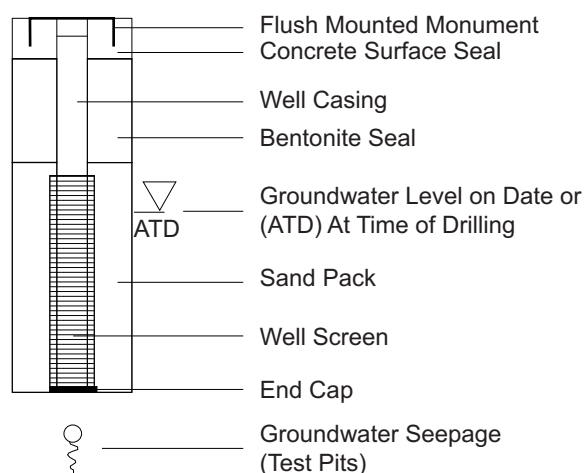
BORING AND PUSH-PROBE SYMBOLS

	Recovery
	No Recovery
	Temporarily Screened Interval
PID	Photoionization Detector Reading
W	Water Sample
	Sample Submitted for Chemical Analysis
NS	No Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
BF	Biogenic Film

TEST PIT SOIL SAMPLES

	Grab (Jar)
	Bag
	Shelby Tube

Groundwater Observations and Monitoring Well Construction



Key to Exploration Logs

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	1975-00
April 2013	

Figure
Key



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-2**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 20, 2013**

Site Conditions: **Overcast, 40s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **--**

Surface Elevation: **--**

Boring Details and Notes:

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	
5	B-2(4-5)		<5	NS	4-Inches top soil with organics and gravel over thin SILT layer, brown (10YR 4/3), medium stiff Gravelly SAND; pulverized gravels up to 2" sub-angular in medium sand, concrete debris.	5
			<5	NS	Silty SAND (SM); brown (10YR 4/3), slightly moist, medium dense, poorly graded, (70% fine sand, 30% silt).	
	B-2(6-10)		<5	NS	4-6-Inch lens of sandy GRAVEL.	
	B-2(7-8)		<5	NS	3-Inch lens of SILT; brown (10YR 5/2).	
10			<5	NS	SAND (SP); slightly moist, medium dense, poorly graded, (95% fine sand).	10
	B-2(11-12)		<5	NS		
	B-2(12-14)		<5	NS	Gravelly sandy SILT (ML); dark brown (10YR 3/3), moist, poorly graded, (40% silt, 30% medium sand, 30% fine angular gravel).	
	B-2(15-17)		<5	NS	SILT (ML); dark brown (10YR 4/3), moist, (90% medium plastic silt fines, 10% fine sand).	
15			<5	NS		15
	B-2(18-19)		<5	NS	Lens of GRAVEL with sand; coarse.	
	B-2(20-21)		<5	NS	SAND (SP); brown (10YR 4/3), slightly moist, medium dense, poorly graded, (90% fine sand, 10% fines).	
20			<5	NS	Becomes SILT with sand; moist, medium stiff, (85% plastic silt, 15% very fine sand).	20
	B-2(22-25)		<5	NS	Gravelly SAND (SP); dark grayish brown (10YR 4/2), moist, dense, poorly graded, (65% medium sand, 25% sub-angular gravel, 10% fines).	
25			<5	NS	SILT with sand (ML); brown (10 YR 4/3), wet, soft to medium stiff, (80% plastic silt, 20% very fine sand).	25
			<5	NS	Becomes grayish brown with reddish mottling, slightly moist, stiff.	
					Bottom of Boring at 25.0' BGS.	
30						30
35						35



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-3**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 19, 2013**

Site Conditions: **Overcast, 40s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **21.58'**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	
5		B-3(2.5-5)	<5	NS	Surface soil with mulch and organics.
			<5	NS	Sandy SILT (ML); dark brown (7.5YR 5/2), slightly moist, medium stiff, (80% low plastic silt, 15% fine sand, <5% gravel and concrete debris).
			<5	NS	Plastic sheeting, moist.
10		B-3(7-10)	<5	NS	
			<5	NS	SAND (SP); brown (7.5R 5/4), slightly moist, medium dense, poorly graded, (90% fine to very fine sand, 10% silt fines, little to no gravel).
			<5	NS	Becomes siltier, low plastic.
15		B-3(12.5-15)	<5	NS	
			<5	NS	Silty SAND (SM), brown (7.5YR 5/4), moist, soft to medium stiff, (70% very fine sand, 30% medium plastic silt).
			<5	NS	Becomes soft.
20		B-3(16-18)	<5	NS	
			<5	NS	Becomes SILT with sand (ML); medium stiff, (75% silt, 25% very fine sand, some gravel).
		B-3(18-20)	<5	NS	Becomes soft.
			<5	NS	Becomes mottled strong brown (7.5YR 4/6).
25		B-3(22.5-25)	<5	NS	
			<5	NS	Becomes soft.
			<5	NS	Lens of SAND (SP); occasional very fine gravel.
			<5	NS	Becomes Silty SAND (SM); very soft, wet, (60% very fine sand, 40% silt).
		B-3(25-27.5)	<5	NS	
			<5	NS	Becomes medium stiff, occasional rounded gravel.
30		B-3(27.5-30)	<5		
			<5		Sandy SILT (ML); dark greenish gray (GLEY 4/5G), moist, medium stiff, (65% silt, 35% very fine sand).
35					Bottom of Boring at 30.0' BGS.

B-3-(26-30)
(Water Sample)



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-4**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 20, 2013**

Site Conditions: **Overcast, 40s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **20.0'**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	
5		B-4(35-5)	<5	NS	5-Inches of asphalt over silty SAND (SM); dark brown (10YR 3/3), slightly moist, medium dense, occasional angular to sub-angular gravels.
			<5	NS	Becomes SAND (SP); brown, poorly graded, fine, <10% fines.
			<5	NS	2-Inch lens of SILT (MH); mottled dark gray.
10		B-4(6-10) B-4(7-8)	<5	NS	SAND (SP); very fine, very few fine gravels, more fines.
			<5	NS	SAND with silt (SP); moist, medium soft, (85% very fine sand, 15% silt).
			<5	NS	Transitions SILT (ML); brown (10YR 4/3), soft to medium dense.
15		B-4(11-15) B-4(12-15)	<5	NS	Silty SAND (ML); brown (10YR 5/3), slightly moist, medium dense, poorly graded, (85% very fine sand, 15% silt).
			<5	NS	Sandy SILT (ML); brown (10YR 5/3), very moist, soft, (60% silt, 40% very fine sand).
			<5	NS	Becomes drier, medium stiff.
20		B-4(19-20)	<5	NS	SAND with silt (SP); brown (10YR 5/3), slightly moist, medium dense, poorly graded, (75% medium sand, 15% silt, <5% sub-angular gravel).
25		B-4(21-25) B-4(21-25)	<5	NS	SILT (ML); brown (10YR 5/5) with strong brown mottling, slightly moist, medium stiff with soft lenses, (85% silt, 10-15% very fine sand, 0-5% gravels).
			<5	NS	Becomes grayish brown (10YR 5/2), stiff, (95% fines).
			<5	NS	Bottom of Boring at 25.0' BGS.

B-4-(21-25)
(Water Sample)



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-5**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 20, 2013**

Site Conditions: **Overcast, 40s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **--**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	
5	B-5(3.5-4.5)		<5	NS	SAND with silt and gravel (SP); dark brown (10YR 3/3), moist, dense, (40% coarse sand, 30% fine sand, 20% low plastic fines, 10% coarse gravel).
10	B-5(6.5-10)		<5	NS	Sandy SILT (SP); dark brown (10YR 3/4), moist, very stiff, (60% medium plastic fines, 20% medium sand, 20% fine sand).
15	B-5(14-15)		<5	NS	Sandy SILT (SM); medium brown (10YR 4/4), moist, stiff, (70% medium plastic fines, 30% medium to coarse sand).
20	B-5(18.5-20)		<5	NS	SILT (SM); medium brown (10YR 4/6), moist to wet, soft, (90% high plastic fines, 10% fine sand).
25	B-5(23.5-25)		<5	NS	Becomes soft to medium stiff.
30	B-5(28.5-30)		<5	NS	Becomes wet. Becomes drier, stiff.
35					Bottom of Boring at 30.0' BGS.



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-6**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 21, 2013**

Site Conditions: **Overcast, 40s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

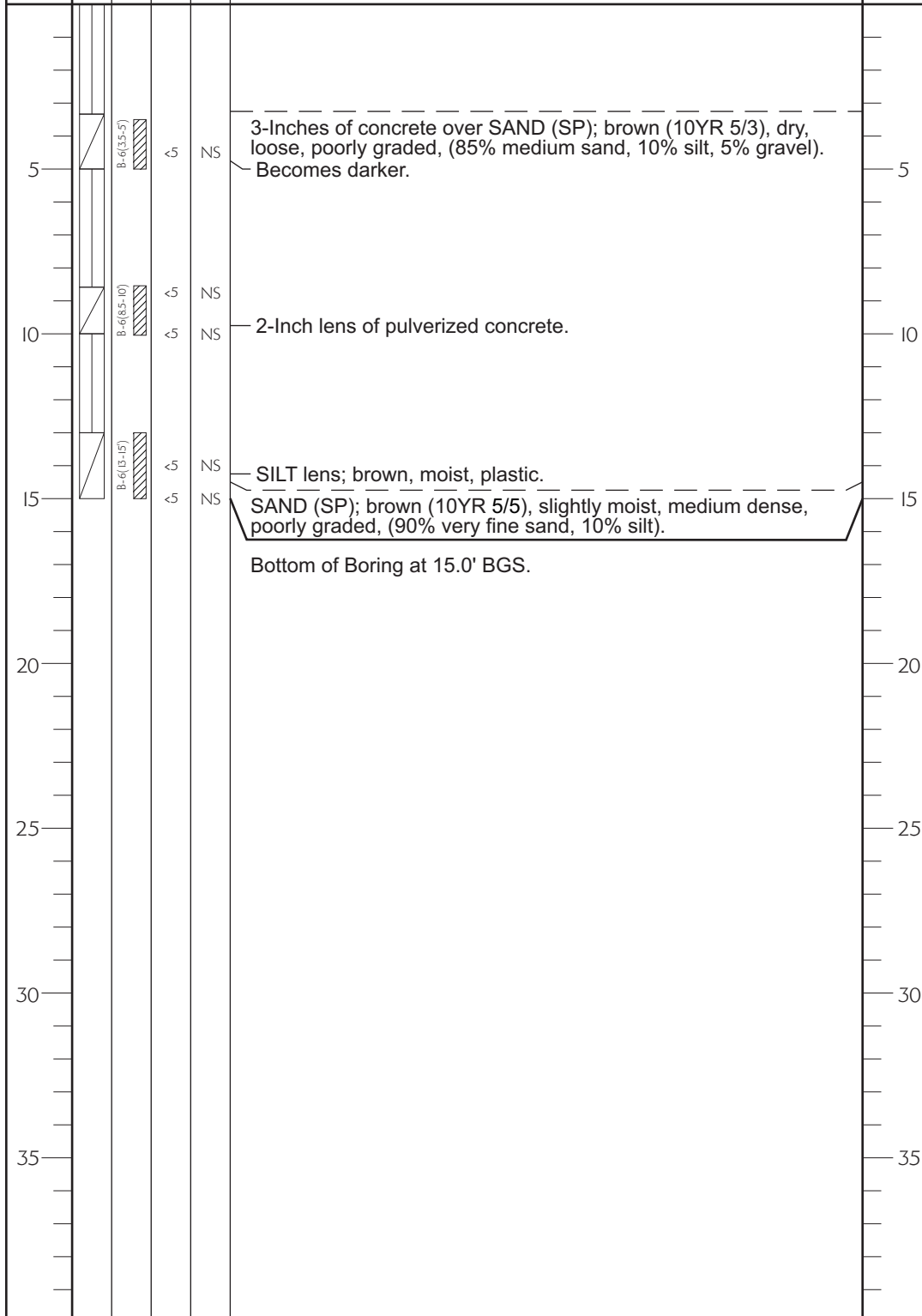
Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **--**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description





Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-7**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 21, 2013**

Site Conditions: **Rain, 30s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **--**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	
5		B-7(35-5)	<5	NS	3-4" concrete over medium SAND: brown (10YR 5/3), moist, medium loose, poorly graded with occasional gravel throughout. 1.5-Inch angular gravel.	5
			<5	NS		
					6" slough above	
					SAND as above.	
10		B-7(9-10)	<5	NS	SILT (ML); brown (10YR 4/3), soft, moist, plastic, (90% silt, 10% very fine sand).	10
					Same SILT as above.	
15		B-7(4-15)	<5	NS	2-Inch medium SAND as above.	15
					Bottom of Boring at 15.0' BGS.	
20						20
25						25
30						30
35						35



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-8**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 21, 2013**

Site Conditions: **Overcast, 30s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **21.9'**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	
5	B-8(3-4)		<5	NS	4" concrete over poorly graded medium SAND (SP); yellowish brown (10YR 5/4), soft, moist, medium dense, (90% sand, 10% fines).
					SAND as above.
10	B-8(9-10)		<5	NS	Gravelly sand (SP), dark gray (10YR 4/1) dry, dense, (60% sand, 30% fine gravel, 10% silt).
			<5	NS	Silty SAND (SP); brown (10YR 4/3), moist, medium dense, poorly graded, fine sand, (60% sand 40% silt).
15	B-8(13-15)		<5	NS	SILT (ML); brown (10YR 4/3).moist, medium stiff, plastic, (85% silt, 15% fine sand).
			<5	NS	Medium sand lens.
					Fine sand, <5% fines, moist, medium dense, poorly graded.
20	B-8(18-20)		<5	NS	Siltier material, low plasticity.
			<5	NS	Medium sand with gravels (up to 1").
					Returns to fine sand.
25	B-8(23-25)		<5	NS	3-Inch slough.
			<5	NS	Gravelly sand.
			<5	NS	Silt (ML); brown (10YR 4/3) moist, soft, plastic, (<10% fine sand).
					Becomes pale brown with reddish mottling
			<5	NS	1-Inch slough, sand coarse.
30	B-8(29-30)		<5	NS	SILT (ML); brown (10YR 3/4), moist, soft, plastic, <10% fine sand.
			<5		8-Inch slough.
			<5		SILT (ML); greenish gray (GLEY 2 4/10BG), soft to medium stiff, moist, plastic, (90% silt, 10% very fine sand).
35	B-8(33-35)		<5		Bottom of Boring at 35.0' BGS.



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 - Portland Site
Portland, Oregon

Boring Number: **B-9**

Project Number: **1975-00**

Logged By: **I Maguire**

Date: **February 21, 2013**

Site Conditions: **Overcast, 30s (°F)**

Drilling Contractor: **Stratus**

Drilling Equipment: **7822DT Geoprobe**

Sampler Type: **2.25 Macro-Core**

Depth to Water (ATD): **21.6'**

Surface Elevation: **--**

Boring Details and Notes:

Lithologic Description

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	
5			<5	NS	4-Inches of pulverized concrete over sandy GRAVEL (GW); loose, well-graded, (60% subangular gravel, 40% medium to coarse sand). Limited recovery, large rock caught in cutting shoe.
10					4-Inch gravelly SAND (SW); pale pulverized concrete over same sandy gravel, gravels up to 2-inches well graded, loose.
15	B-9(12.5-15)		<5	NS	SAND (SP); brown (10YR 4/3), slightly moist, medium dense, poorly graded, (85% fine sand, 15% silt). Becomes moist, very fine grained.
20	B-9(16-20)		<5	NS	Sandy SILT (ML), brown (10YR 4/3), moist, soft to medium stiff, (70% low plastic silt, 30% very fine sand). Becomes SAND (SP); same as above.
25	B-9(23.5-25)		<5	NS	SILT with sand (ML); brown (10YR 4/3), moist, soft, (80% plastic silt, 20% very fine sand).
30	B-9(27.5-30)		<5	NS	Becomes SAND (SP); brown (10YR 5/3), slightly moist, dense, poorly graded, (>90% fine sand, <10% fines). SILT (ML); brown, very moist, soft, (85% silt, 15% very fine sand).
35					Gravelly SAND (SP); grayish brown (10YR 4/2), moist, medium dense, poorly graded fine sand with coarse gravels. SILT (ML); brown, becomes dark greenish gray (GLEY 2 4/10B). Bottom of Boring at 30.0' BGS.

B-9-(26-30)
(Water Sample)



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 – Portland Site
Portland, Oregon

Project Number: **1975-00**

Test Pit Location: **See Figure 2**

Surface Elevation: **Not Measured**

Excavation Contractor: **Stratus**

Date Completed: **February 19, 2013**

Excavation Equipment: **Excavator**

Logged By: **I Maguire**

	Sample ID	PID	Sheen		Test Pit Number: TP-1
					Date: February 19, 2013
5	TP-1(15)	<5	NS	GRAVEL (GW); gray, 2-inch minus, paint flecks, silt, well graded, 3/4-2" angular.	
	TP-1(15)	<5	NS	Sandier, medium brown (7.5YR 4/3), along southern edge.	
				Test Pit Terminated on Concrete Pad at 3.0' BGS.	
	Sample ID	PID	Sheen		Test Pit Number: TP-2
					Date: February 19, 2013
5	TP-2(15-2)	<5	NS	GRAVEL (GW); gray, 95% coarse gravels, very little interstitial fines, collected around southern edge, (7.5YR 4/4), fines are sandy SILT (ML); moist, dark brown (7.5YR 3/3), paint chips wood fragments, finer gravels.	
	TP-2(35)	<5	NS	4-Inch corrugated plastic pipe.	
	TP-2(45-5)	<5	NS	Medium SAND; brown.	
				Bottom of Test Pit at 5.0' BGS.	
	Sample ID	PID	Sheen		Test Pit Number: TP-3
					Date: February 19, 2013
5	TP-3(15-2)	<5	NS	GRAVEL (GW) filter material, 2" minus, well graded, silt fines in top 3 " decreasing with depth (dark grayish).	
	TP-3(35)	<5	NS	SAND (SP); brown (7.5YR 5/4), slightly moist, loose, poorly graded, medium sand with (10%), few rounded gravels.	
				Pipe. Becomes sandier. SAND (SP); brown (7.5YR 5/4), slightly moist, loose, poorly graded, (95% sand, 5% silt).	
				Bottom of Test Pit at 3.5' BGS.	



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 – Portland Site
Portland, Oregon

Boring Number: **SS-9 - SS-14**

Project Number: 1975-00

Logged By: C. Luk

Date: February 21, 2013

Site Conditions: --

Drilling Contractor: --

Drilling Equipment: Hand Auger

Sampler Type: --

Depth to Water (ATD): --

Surface Elevation: --

Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Material Description	
SS-9	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. Sandy SILT (ML); dark brown (10 YR 4/3); organics, moist, loose, low plasticity, (60% silt, 30% fine to coarse sand, 10% clay, trace gravel). Bottom of Hand Auger SS-9 at 7" BGS.	5
SS-10	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. Silty SAND with clay and gravel (SM); dark brown (YR 3/3), high organics, moist, loose, poorly graded, (60% sand, 20% silt, 10% clay and 10% gravel). Bottom of Hand Auger SS-10 at 7" BGS.	5
SS-11	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. SAND with silt (SP); dark brown (10 YR 3/3) moist, loose, poorly graded, trace organics, (80% fine to coarse sand, 10% silt, 5% clay and 5% subangular gravel). Bottom of Hand Auger SS-11 at 7" BGS.	5
SS-12	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. Silty SAND with clay (SM); dark brown (10 YR 3/4), moist, loose, poorly graded, low plasticity, (70% fine to coarse sand, 20% silt, 10% clay and trace sanded gravel). Bottom of Hand Auger SS-12 at 7" BGS.	5
SS-13	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. Sandy SILT with gravel (ML), dark brown (10 YR 3/4), moist, loose, poorly graded, low plasticity, (40% silt, 30% fine to coarse sand, 20% subangular gravel, 10% clay). Bottom of Hand Auger SS-13 at 7" BGS.	5
SS-14	<input checked="" type="checkbox"/>	--	<5	NS	Cleared 1 inch topsoil. Gravely silty SAND (SM); dark brown (10 YR 3/4); moist, loose, poorly graded, (60% sand, 20% silt, 20% gravel). Bottom of Hand Auger SS-14 at 7" BGS.	5



Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

EE/CA Report
Pier 99 – Portland Site
Portland, Oregon

Boring Number: **SS-15 - SS-18**

Project Number: 1975-00

Logged By: C. Luk

Date: February 21, 2013

Site Conditions: --

Drilling Contractor: --

Drilling Equipment: --

Sampler Type: --

Depth to Water (ATD): --

Surface Elevation: --

Depth, feet

Core Interval/Recovery

Laboratory Sample ID

PID

Sheen

Material Description

SS-15



--

<5

NS

Cleared 2 Inches topsoil. SAND with silt and gravel (SP); dark brown (10 YR 3/4), moist, loose, poorly graded. (80% sand, 10% silt, 10% gravel)

Bottom of Boring SS-15 at 8" BGS.

5

SS-16



--

<5

NS

Cleared 1 inch topsoil and gravel. Gravelly silty SAND (SM); brown (10YR 4/3), slightly moist, loose, poorly graded, (60% medium sand, 20% silt, 20% graded fine to small gravel and cobbles).

Bottom of Boring SS-16 at 7" BGS.

5

SS-17



--

<5

NS

Cleared 1 inch topsoil. Silty SAND with gravel, (SM); brown (10YR 3/2), organics, moist, loose, poorly graded, (70% sand, 20% silt, 10% gravel).

Bottom of Hand Auger SS-17 at 7" BGS.

5

SS-18



--

<5

NS

Cleared 1 inch topsoil. Sandy SILT (ML); dark brown (10 YR 4/3), moist, soft, organics, medium plastic (80% silt, 20% fine grained sand)

Bottom of Hand Auger SS-18 at 7" BGS.

5

Appendix F

Laboratory Quality Assurance/Quality Control Review and Analytical Laboratory Reports

Appendix F – Laboratory Reports and Quality Assurance Review

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for samples collected during the January and February 2013 data gap investigation. The samples were submitted to Columbia Analytical Services in Kelso, Washington. Copies of the analytical laboratory reports are included in this appendix, including:

Report	Sample Date	Sampling Event
K1300741	January 25, 2013	Stormwater Sediment Sample
K1301490	February 19, 2013	Soil and Groundwater Samples
K1301527	February 20, 2013	Soil and Groundwater Samples
K1301603	February 21, 2013	Soil Samples
K1301620	February 22, 2013	Soil Samples

The QA review included examination and validation of the sediment and soil sampling laboratory reports, including:

- Chain of custody documentation;
- Holding times;
- Method detection limits;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Laboratory duplicate and field duplicate relative percent difference (RPD).

The QA review did not include a review of raw data.

1.0 Analytical Methods

Sediment Sample Analysis. The sediment sample was analyzed for TAL (23) metals using Method 6010C, and mercury using EPA Method 7471B, organotin compounds by the Krone Method, organochlorine

Appendix F – Laboratory Reports and Quality Assurance Review

pesticides by EPA Method 8081, PCBs by EPA Method 8082, and semi-volatile organic compounds (SVOCs) by EPA Method 8270.

Groundwater Sample Analysis. Groundwater samples were analyzed for volatile organic compounds (VOCs) using EPA 8260B, SVOCs using EPA Method 8270D, organochlorine pesticides using EPA Method 8081, PCBs using EPA Method 8082, dissolved TAL metals using 6010C, and mercury using EPA Method 7471B.

2.0 Quality Assurance Review

Chain of Custody. The samples were received at the laboratory in good condition and in coolers with ice. A chain of custody form accompanied the samples and all samples were confirmed to arrive at the laboratory.

Holding Times. Samples were analyzed within the holding times specified for each analysis method.

Method Detection Limits. Method detection limits (MDL) are set by the laboratory and are based on instrumentation abilities, sample matrix, and suggested detection limits by the EPA or the Oregon Department of Environmental Quality (DEQ). In some cases, the MDL may be raised due to high concentrations of analytes in the samples or matrix interferences. MDLs were generally consistent with industry standards and below promulgated regulatory standards when possible (if not raised, as previously discussed).

Method Blanks. A method—or laboratory—blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected contaminants may have been the result of contamination of the samples in the laboratory. No analytes were detected in the laboratory method blanks.

Surrogate Recovery. Surrogates are organic compounds that are similar in chemical composition to the analytes of interest and spiked into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference on a sample-specific basis. The laboratory reviewed the surrogate recoveries, noting exceedances in report K1300741, K1301490 and K1301620. While some surrogate recoveries were outside control criteria, the exceedances were based on diluted surrogates and therefore were not qualified further.

Laboratory Control Sample (LCS). LCSs were also analyzed by the laboratory to assess the accuracy of the analytical equipment. An LCS sample is prepared from an analyte-free matrix that is then spiked with known levels of the constituents of interest (i.e., a standard). The concentrations are measured and the results are compared to the known spiked levels. This comparison is expressed as percent recovery. The laboratory reviewed the LCS percent recoveries, noting exceedances in report K1301527 and K1301620.

Appendix F – Laboratory Reports and Quality Assurance Review

However, none of these data points were considered outliers; therefore no further corrective action was needed.

Laboratory Control Sample Duplicate (LCSD). In addition, a second laboratory control sample is prepared as above and analyzed. The percent recoveries for the LCSD were within control limits with the exception of report K1301490. Multiple other control criteria were within quality control limits for these samples so no further corrective action was required. The percent recoveries from the LCSD are compared to the initial LCS to assess the precision of the analytical method. This precision is expressed as a relative percent difference (RPD). The LCSD RPDs were within control limits with the exception of report K1301620 and K1301527. The laboratory reviewed the LCS/LCSD RPDs and were able to resolve each exceedance based on the overall batch QA.

Matrix Spike Analyses. MS analyses are performed on samples submitted to the laboratory that are of the same matrix as the actual sample. The MS sample is spiked with known levels of the constituents of interest. These analyses are used to assess the potential for matrix interference with recovery or detection of the constituents of interest and the accuracy of the determination. The spiked sample results are compared to the expected result (i.e., sample concentration plus spike amount) and reported as percent recovery. Some MS recoveries were outside control criteria, but were resolved using redundant criteria. Exceptions that could not be resolved by the laboratory and are considered estimated values are flagged as estimated value and discussed below.

- The laboratory qualified that antimony MS recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries. The matrix spike recovery of Antimony for sample MH-1 was below the CAS control criterion. Multiple antimony concentrations are N – flagged for this reason. The “N” flag denotes an estimated concentration in this situation.
- MS recoveries for chromium and copper were outside control limits and could not be resolved with other QA criteria. In Table 1, these concentrations of chromium and copper are assigned an “N” flag denoting an estimated concentration.

Data that were qualified on the table but not flagged as an estimate are discussed below:

- Multiple samples carry asterisk * qualifier to do MS recoveries or laboratory duplicates that are outside control limits. These data are qualified, but are not considered estimates because the remainder of the QA information was within limits.
- For sample MH-1, Matrix Spike interference was noted for 4,4'-DDT and dieldrin because the chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations, resulting in a high bias. The data are qualified with an “I” on Table 3, but were not flagged. Based on the on the magnitude of background contribution, laboratory concluded the interference appeared to be minimal.

Appendix F – Laboratory Reports and Quality Assurance Review

Matrix Spike Duplicate. In addition, a second matrix control sample (i.e., MSD) is prepared as above and analyzed. The percent recoveries for the MSD were within control limits with the exception of samples in report K1301490, K1301527, and K1301620. Multiple other control criteria were within quality control limits for these samples so no further corrective action was required. This is then compared to the initial MS sample to assess the precision of the analytical method (i.e., RPD). The RPD between the MS and MSD samples were outside control criteria for samples in reports K1301527 and K1301620. The laboratory reviewed these exceedances and were able to resolve each exceedance based on the overall batch QA.

Laboratory Duplicate. A laboratory duplicate is a second analysis extracted from a field sample to check on laboratory quality as well as potential variability of the sample matrix. The laboratory duplicate is analyzed and compared to the primary sample to assess the precision of the analytical method. This comparison can be expressed by the RPD between the original and duplicate samples. Laboratory duplicates were analyzed for this project.

- Multiple samples carry asterisk * qualifier to do MS recoveries or laboratory duplicates that are outside control limits. RPDs for the replicate analysis of several metals, and SVOCs in MH-1 were outside the normal CAS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample. These data are qualified, but are not considered estimates because the remainder of the QA information was within limits.

Field Duplicate. A field duplicate is a second field sample collected from a selected monitoring well. Field duplicate samples serve as a check on laboratory quality as well as potential variability of the sample matrix. The field duplicate is analyzed and compared with the first sample to assess the precision of the analytical method. Field duplicates were collected from groundwater sample B-4 and soil sample B-6 (3.5-5.0). The RPD between the primary and duplicate field sample from B-4 was exceeded for cobalt, nickel, and vanadium. The RPD between the primary and duplicate sample in B-4 were outside the control criteria of 30%. The data are flagged with a "J" qualifier. The soil duplicate RPD were within acceptable range. Table F-1 summarizes the field QA/QC results.

Field Blank. A field blank is a sample of analyte-free water poured into a clean sample container in the field, preserved, and shipped to the laboratory with field samples. Field blanks assess the potential for contamination from field conditions during sampling. There was no field blank analyzed.

Equipment Blank. An equipment blank is a sample of analyte-free water poured over or through decontaminated field sampling equipment during a sampling event. Equipment blanks assess contamination from the total sampling, sample preparation, and measurement process when decontaminated sampling equipment is used to collect samples. There was no equipment blank analyzed.

Trip Blank. A trip blank is a clean sample of a matrix that is included in the sample cooler with the sample containers provided by the laboratory and is transported to the sampling site and back to the laboratory with

Appendix F – Laboratory Reports and Quality Assurance Review

the field samples but without having been exposed to sampling procedures. Trip blanks assess contamination introduced during shipping and field-handling activities. There was no trip blank analyzed.

Other. Some analysis, including EPA Method 8081, EPA Method 8082, EPA Method 8270, and EPA Method 8260 require a sample to be run on two gas chromatography (GC) or high performance liquid chromatography (HPLC) columns. The results from the two columns are compared and reports as an RPD. The PRD between the primary and duplicate column were outside control criteria for some samples using Method 8082 and Method 8081. These data are flagged with a "P" qualifier and are considered estimated values.

The method reporting limits are elevated on some analytes due to matrix interference during analysis. These data are flagged with an "i" qualifier.

In sample MH-1, 7. benzo(b)fluoranthene and benzo(k)fluoranthene could not be adequately resolved due to matrix interference. The analytes were integrated together and reported as benzo(b)fluoranthene. The data are flagged with an "X" qualifier.

In sample B-2 (7.0-8.0) 7, the chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard. The data is flagged with an "O" qualifier.

Conclusion. In conclusion, the QA objectives have been met, and the data are of sufficient quality for use in this project. No data was rejected. Data that is flagged as estimated was still used to evaluate contaminant concentrations in soil. Due to the multiple groups of contaminants that were analyzed, samples with estimated values had redundant data to base conclusions for the removal evaluation, and did not contribute disproportionate uncertainty to the removal evaluation.

Table F-1
Summary of Precision Data
Pier 99 - Portland Site

Field Duplicates

Sample Location	Collection Date	Compound	Units	Reporting Limit	Primary Sample	Duplicate Sample	RPD
B-4	2/30/13	Barium	µg/L	2.0	62.9	65.9	5
		Calcium	µg/L	50.0	68,900	68,500	1
		Cobalt	µg/L	1.0	4.4	1.7	89
		Copper	µg/L	1.0	2.6	2.7	4
		Magnesium	µg/L	1.0	35,700	34,600	3
		Manganese	µg/L	1.0	1,940	1,950	1
		Nickel	µg/L	1.0	42.9	28.8	39
		Potassium	µg/L	1.0	804	751	7
		Sodium	µg/L	1.0	23,500	23,000	2
		Vanadium	µg/L	1.0	9.9	13.9	34
		Zinc	µg/L	1.0	25.6	22.0	15
B-6 (3.5-3.0)	2/21/2013	Copper	µg/kg	0.5	6.8	7.1	4
		Lead	µg/kg	1.5	3.2	3.1	3
		Zinc	µg/kg	0.77	32.6	34.5	6

Notes:

1. µg/L (ppb) = Micrograms per liter (parts per billion).
2. RPD = Relative percent difference.

$$RPD\% = \frac{[2(S_1 - S_2)]}{[S_1 + S_2]} \times 100$$

3. Only compounds detected in both primary and duplicate samples are shown.



March 4, 2013

Analytical Report for Service Request No: K1300741
Revised Service Request No: K1300741.01

Ashleigh Fines
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201-4707

RE: Pier 99/320001975-00

Dear Ashleigh:

Enclosed is the revised report for the sample submitted to our laboratory on January 28, 2013. For your reference, these analyses have been assigned our service request number K1300741.

Report revised due to not reporting the entire TAL Metals list.

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

We apologize for any inconvenience this may have created.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/lb

Page 1 of 42



ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Ash Creek Associates, Inc.
Project: Pier 99
Sample Matrix: Sediment

Service Request No.: K1300741
Date Received: 1/28/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

One sediment sample was received for analysis at ALS Environmental on 1/28/13. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

The control criteria for matrix spike recovery of Aluminum, Cadmium, Copper, Iron, Lead, Magnesium, Manganese, Nickel and Zinc for sample MH-1 were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries, the method is still generally prescribed because of its versatility for general metals analysis. Antimony results (in conjunction with the matrix spike recovery) from this procedure should only be used as indicators to estimate concentrations. The matrix spike recovery of Antimony for sample MH-1 was below the CAS control criterion. Since low recoveries resulted from a method defect and were possibly magnified by certain matrix components, no corrective action was appropriate. Alternative procedures that specifically target Antimony are available but were not specified for this project. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control.

The matrix spike recovery of Barium and Selenium for sample MH-1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

The Relative Percent Difference (RPD) for the replicate analysis of Cadmium, Copper, Lead, Manganese, Nickel and Zinc in sample MH-1 was outside the normal CAS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Organotin Compounds

Second Source Exceptions:

The analysis of Butyltins by Krone requires the use of dual column confirmation. When the Initial Calibration Verification (ICV) criteria are met for both columns, the lower of the two sample results is generally reported. The criteria were not met for Di-n-butyltin in CAL 12167. The data quality was not affected. No further corrective action was necessary.

Surrogate Exceptions:

The control criteria for Tri-n-propyltin in sample MH-1 were not applicable. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the reporting limit. No further corrective action was appropriate.

Calibration Verification Exceptions:

The analysis of Butyltins by Krone requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tri-n-propyltin. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Tri-n-butyltin in the replicate matrix spike analyses of Batch QC was outside control criteria. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Elevated Detection Limits:

Sample MH-1 required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081

Matrix Spike Recovery Exceptions:

The control criteria for the matrix spike recovery of a few analytes for sample the associated Matrix Spike was not applicable. The chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations. Thus, the reported recoveries contained a high bias. Based on the magnitude of background contribution, the interference appeared to be minimal.

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for gamma-Chlordane were exceeded in the sample and associated matrix/duplicate matrix spike. The lower of the two values was reported when there was an apparent interference on the alternate column that produced the higher value.

Elevated Detection Limits:

The detection limit was elevated for several analytes in the sample. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Approved by



Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for 4,4'-DDT in the replicate matrix spike analyses of the associated Matrix Spike was outside control criteria. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

PCB by EPA Method 8082**Elevated Detection Limits:**

The detection limit was elevated for all analytes in this field sample and associated Matrix Spikes. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extract was highly colored and viscous, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. The results were flagged to indicate the matrix interference.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270**Calibration Verification Exceptions:**

The following analyte was flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) MS06\0207F003.D: Hexachlorocyclopentadiene. In accordance with CAS standard operating procedures, an MRL check standard containing the analyte of concern was analyzed. The MRL check standard verifies instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Because the sensitivity was shown to be adequate to detect the analyte in question, the data quality has not been significantly affected. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The matrix spike recovery of Phenol for sample MH-1MS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

The matrix spike recovery of 4-Nitrophenol for samples MH-1MS and MH-1DMS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

The control criteria for matrix spike recovery of Pyrene and Benzo(a)pyrene for sample MH-1DMS were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) criterion for the replicate analysis of Benzoic Acid in replicate Laboratory Control Samples (LCS/DLCS) KWG1301019-3 and KWG1301019-4 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

The Relative Percent Difference (RPD) for the replicate analysis of Phenol, Pentachlorophenol, Pyrene, and Benzo(a)pyrene in samples MH-1MS and MH-1DMS was outside the normal CAS control limits. The variability in the results was attributed to the heterogeneous character of the sample. The sample contained relatively large amounts of small rocks and multi-colored debris, which complicated the homogenization process. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Approved by



Elevated Detection Limits:

Samples MH-1, MH-1MS, and MH-1DMS were initially extracted with the standard amount of sample; however, the extracts wouldn't pass through the filter step required before loading the extracts onto the GPC. The samples were re-extracted using a smaller amount of sample and were able to continue through the entire extraction process, but could not be concentrated to the final volume necessary to achieve target detection limits. As a result, the detection limits for samples MH-1, MH-1MS and MH-1DMS were elevated. The detection limits were further elevated because, due to the dark color, the extracts required dilutions prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions. The results were flagged to indicate the matrix interference.

Sample Notes and Discussion:

Benzo(b)fluoranthene and Benzo(k)fluoranthene could not be adequately resolved in sample MH-1 due to matrix interference. The analytes were integrated together and reported as Benzo(b)fluoranthene. The analytes in question were flagged with an "X" to indicate the issue.

No other anomalies associated with the analysis of these samples were observed.

Approved by

A handwritten signature in blue ink, appearing to read "David J. Jennings", is written over a horizontal line.

41300741


$$\begin{array}{r} 503.924.4704 \\ \hline 503.943.6357 \end{array}$$

Analytical Lab: Columbia Analyticals Services

Report To: afines@ashcreekassociates.com

Page: 1 of 1

Sampler Name: Ian Maquire

9

PC Lisa

Cooler Receipt and Preservation Form

Client / Project: Ash Creek Service Request K13 00741
 Received: 1/28/13 Opened: 1/28/13 By: [Signature] Unloaded: 1/28/13 By: [Signature]

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

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	Filed
<u>5.7</u>	<u>5.5</u>	<u>8.0</u>	<u>7.8</u>	<u>0.2</u>	<u>322</u>	<u>NA</u>	<u>NA</u>	

7. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
 10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
 12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? Indicate in the table below NA Y N
 14. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741**Total Solids**

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
MH-1	K1300741-001	01/25/2013	01/28/2013	02/01/2013	67.8	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013
Date Analyzed: 02/01/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
MH-1	K1300741-001	67.8	68.1	68.0	<1	

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1300741

Project No.: 320001975-00

Date Collected: 01/25/13

Project Name: Pier 99

Date Received: 01/28/13

Matrix: SEDIMENT

Units: mg/Kg

Basis: DRY

Sample Name: MH-1

Lab Code: K1300741-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	36.3	10.0	01/29/13	02/05/13	8170		
Antimony	6010C	1.5	2.0	01/29/13	02/05/13	12.5		N
Arsenic	6010C	7.3	10.0	01/29/13	02/05/13	30.4		
Barium	6010C	1.8	10.0	01/29/13	02/05/13	265		N
Beryllium	6010C	0.36	10.0	01/29/13	02/05/13	0.36	U	
Cadmium	6010C	0.36	10.0	01/29/13	02/05/13	72.4		*
Calcium	6010C	36.3	10.0	01/29/13	02/05/13	6550		
Chromium	6010C	1.8	10.0	01/29/13	02/05/13	540		
Cobalt	6010C	1.82	10.0	01/29/13	02/05/13	35.7		
Copper	6010C	2.2	10.0	01/29/13	02/05/13	4360		*
Iron	6010C	7.3	10.0	01/29/13	02/05/13	202000		
Lead	6010C	7.3	10.0	01/29/13	02/05/13	3910		*
Magnesium	6010C	14.5	10.0	01/29/13	02/05/13	10400		
Manganese	6010C	0.73	10.0	01/29/13	02/05/13	1150		*
Mercury	7471B	0.02	1.0	01/29/13	01/30/13	0.80		
Nickel	6010C	1.5	10.0	01/29/13	02/05/13	362		*
Potassium	6010C	218	10.0	01/29/13	02/05/13	476		
Selenium	6010C	14.5	10.0	01/29/13	02/05/13	14.5	U	N
Silver	6010C	0.4	2.0	01/29/13	02/05/13	0.5		
Sodium	6010C	29.1	2.0	01/29/13	02/05/13	236		
Thallium	6010C	7.3	10.0	01/29/13	02/05/13	7.3	U	
Vanadium	6010C	3.6	10.0	01/29/13	02/05/13	35.0		
Zinc	6010C	3.6	10.0	01/29/13	02/05/13	2740		*

% Solids: 67.8

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1300741

Project No.: 320001975-00

Date Collected:

Project Name: Pier 99

Date Received:

Matrix: SEDIMENT

Units: mg/Kg

Basis: DRY

Sample Name: Method Blank

Lab Code: K1300741-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.0	2.0	01/29/13	02/05/13	10.0	U	
Antimony	6010C	2.0	2.0	01/29/13	02/05/13	2.0	U	N
Arsenic	6010C	2.0	2.0	01/29/13	02/05/13	2.0	U	
Barium	6010C	0.5	2.0	01/29/13	02/05/13	0.5	U	N
Beryllium	6010C	0.10	2.0	01/29/13	02/05/13	0.10	U	
Cadmium	6010C	0.10	2.0	01/29/13	02/05/13	0.10	U	*
Calcium	6010C	10.0	2.0	01/29/13	02/05/13	10.0	U	
Chromium	6010C	0.5	2.0	01/29/13	02/05/13	0.5	U	
Cobalt	6010C	0.50	2.0	01/29/13	02/05/13	0.50	U	
Copper	6010C	0.60	2.0	01/29/13	02/05/13	0.60	U	*
Iron	6010C	2.0	2.0	01/29/13	02/05/13	2.0	U	
Lead	6010C	2.0	2.0	01/29/13	02/05/13	2.0	U	*
Magnesium	6010C	4.0	2.0	01/29/13	02/05/13	4.0	U	
Manganese	6010C	0.20	2.0	01/29/13	02/05/13	0.20	U	*
Mercury	7471B	0.02	1.0	01/29/13	01/30/13	0.02	U	
Nickel	6010C	0.40	2.0	01/29/13	02/05/13	0.40	U	*
Potassium	6010C	60.0	2.0	01/29/13	02/05/13	60.0	U	
Selenium	6010C	4.0	2.0	01/29/13	02/05/13	4.0	U	N
Silver	6010C	0.5	2.0	01/29/13	02/05/13	0.5	U	
Sodium	6010C	40.0	2.0	01/29/13	02/05/13	40.0	U	
Thallium	6010C	2.0	2.0	01/29/13	02/05/13	2.0	U	
Vanadium	6010C	1.0	2.0	01/29/13	02/05/13	1.0	U	
Zinc	6010C	1.0	2.0	01/29/13	02/05/13	1.0	U	*

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1300741
Project No.: 320001975-00 **Units:** MG/KG
Project Name: Pier 99 **Basis:** DRY
Matrix: SEDIMENT **% Solids:** 67.8

Sample Name: MH-1S

Lab Code: K1300741-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		9280		8170		293.52	378.2		6010C
Antimony	75 - 125	51.3		12.5		73.38	52.9	N	6010C
Arsenic	75 - 125	104		30		73.38	100.8		6010C
Barium	79 - 114	719		265		293.52	154.7	N	6010C
Beryllium	78 - 115	7.89		0.36	U	7.34	107.5		6010C
Cadmium		14.5		72.4		7.34	-788.8		6010C
Calcium		9530		6550		733.79	406.1		6010C
Chromium		530		540		29.35	-34.1		6010C
Cobalt	75 - 125	109		35.7		73.38	99.9		6010C
Copper		4430		4360		36.69	190.8		6010C
Iron		207000		202000		146.76	3406.9		6010C
Lead		5960		3910		73.38	2793.7		6010C
Magnesium		11300		10400		733.79	122.7		6010C
Manganese		1450		1150		73.38	408.8		6010C
Nickel		297		362		73.38	-88.6		6010C
Potassium	75 - 125	1330		476		733.79	116.4		6010C
Selenium	75 - 125	45.6		14.5	U	73.38	62.1	N	6010C
Silver	75 - 125	7.9		0.5		7.34	100.8		6010C
Sodium	75 - 125	1090		236		733.79	116.4		6010C
Thallium	75 - 125	64.0		7.3	U	73.38	87.2		6010C
Vanadium	75 - 125	106		35.0		73.38	96.8		6010C
Zinc		2730		2740		73.38	-13.6		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1300741**Project No.:** 320001975-00**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SEDIMENT**% Solids:** 67.8**Sample Name:** MH-1D**Lab Code:** K1300741-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	8170		9460		14.6		6010C
Antimony	20	12.5		10.8		14.6		6010C
Arsenic		30.4		40.0		27.3		6010C
Barium	20	265		302		13.1		6010C
Beryllium		0.36	U	0.37	U			6010C
Cadmium	20	72.4		8.7		157.1	*	6010C
Calcium	20	6550		7430		12.6		6010C
Chromium	20	540		530		1.9		6010C
Cobalt	20	35.7		42.6		17.6		6010C
Copper	20	4360		14200		106.0	*	6010C
Iron	20	202000		246000		19.6		6010C
Lead	20	3910		5980		41.9	*	6010C
Magnesium	20	10400		11300		8.3		6010C
Manganese	20	1150		1510		27.1	*	6010C
Nickel	20	362		251		36.2	*	6010C
Potassium		476		433		9.5		6010C
Selenium		14.5	U	14.7	U			6010C
Silver		0.5		0.9		57.1		6010C
Sodium	20	236		278		16.3		6010C
Thallium		7.3	U	7.3	U			6010C
Vanadium	20	35.0		34.8		0.6		6010C
Zinc	20	2740		4030		38.1	*	6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1300741

Project No.: 320001975-00

Project Name: Pier 99

Aqueous LCS Source: CAS MIXED

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	7070		47	152	84.2
Antimony				93.3	63.6		25	199	68.2
Arsenic				94.5	94		82	117	99.5
Barium				167	154		84	116	92.2
Beryllium				57.6	56.2		83	117	97.6
Cadmium				60.5	56.3		83	117	93.1
Calcium				6140	5810		83	117	94.6
Chromium				70.4	64.7		82	118	91.9
Cobalt				102	94.1		83	117	92.3
Copper				79.6	82.5		84	116	103.6
Iron				12500	10000		51	150	80.0
Lead				91.8	81.3		82	118	88.6
Magnesium				2580	2440		76	124	94.6
Manganese				283	254		82	117	89.8
Mercury	5	4.97	99.4						
Nickel				57.6	53.1		83	117	92.2
Potassium				2490	2290		70	130	92.0
Selenium				86.4	76.3		80	120	88.3
Silver				34.4	34.2		66	134	99.4
Sodium				215	202		67	133	94.0
Thallium				120	104		78	121	86.7
Vanadium				57	51.8		74	126	90.9
Zinc				140	123		82	118	87.9

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Butyltins (as cation)

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	74	50	02/07/13	02/15/13	KWG1301378	
Tri-n-butyltin Cation	10000	D	74	50	02/07/13	02/15/13	KWG1301378	
Di-n-butyltin Cation	4400	D	74	50	02/07/13	02/15/13	KWG1301378	
n-Butyltin Cation	4700	D	74	50	02/07/13	02/15/13	KWG1301378	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	233	10-120	02/15/13	Outside Control Limits

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1301378-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	1	02/07/13	02/15/13	KWG1301378	
Tri-n-butyltin Cation	ND	U	0.99	1	02/07/13	02/15/13	KWG1301378	
Di-n-butyltin Cation	ND	U	0.99	1	02/07/13	02/15/13	KWG1301378	
n-Butyltin Cation	ND	U	0.99	1	02/07/13	02/15/13	KWG1301378	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	40	10-120	02/15/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
MH-1	K1300741-001	233 D #
Batch QC	K1300834-004	72
Method Blank	KWG1301378-4	40
Batch QCMS	KWG1301378-1	82
Batch QCDMS	KWG1301378-2	60
Lab Control Sample	KWG1301378-3	47

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/07/2013
Date Analyzed: 02/18/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1300834-004
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301378

Analyte Name	Sample Result	Batch QCMS KWG1301378-1 Matrix Spike			Batch QCDMS KWG1301378-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	59.5	67.8	88	45.6	69.0	66	16-126	26	40
Tri-n-butyltin Cation	15	75.1	60.2	99	48.8	61.3	54	10-115	42 *	40
Di-n-butyltin Cation	45	95.0	52.0	96	72.5	53.0	52	10-133	27	40
n-Butyltin Cation	8.6	41.3	42.3	77	27.9	43.1	45	10-124	39	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/07/2013
Date Analyzed: 02/15/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301378

Lab Control Sample
KWG1301378-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	12.2	25.0	49	19-130
Tri-n-butyltin Cation	10.1	22.2	46	10-122
Di-n-butyltin Cation	10.0	19.2	52	12-136
n-Butyltin Cation	9.55	15.6	61	10-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Organochlorine Pesticides

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
beta-BHC	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
gamma-BHC (Lindane)	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
delta-BHC	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Heptachlor	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Aldrin	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Heptachlor Epoxide	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
gamma-Chlordane†	9.3	P	3.7	1	02/02/13	02/11/13	KWG1301106	
Endosulfan I	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
alpha-Chlordane	3.8		3.7	1	02/02/13	02/11/13	KWG1301106	
Dieldrin	ND	Ui	27	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDE	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Endrin	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Endosulfan II	ND	Ui	13	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDD	37		3.7	1	02/02/13	02/11/13	KWG1301106	
Endrin Aldehyde	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Endosulfan Sulfate	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDT	ND	Ui	31	1	02/02/13	02/11/13	KWG1301106	
Endrin Ketone	ND	U	3.7	1	02/02/13	02/11/13	KWG1301106	
Methoxychlor	ND	Ui	5.9	1	02/02/13	02/11/13	KWG1301106	
Toxaphene	ND	Ui	410	1	02/02/13	02/11/13	KWG1301106	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	91	20-116	02/11/13	Acceptable
Decachlorobiphenyl	83	22-130	02/11/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1301106-4
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
beta-BHC	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
gamma-BHC (Lindane)	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
delta-BHC	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Heptachlor	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Aldrin	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Heptachlor Epoxide	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
gamma-Chlordane†	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endosulfan I	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
alpha-Chlordane	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Dieldrin	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDE	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endrin	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endosulfan II	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDD	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endrin Aldehyde	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endosulfan Sulfate	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
4,4'-DDT	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Endrin Ketone	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Methoxychlor	ND	U	0.50	1	02/02/13	02/11/13	KWG1301106	
Toxaphene	ND	U	25	1	02/02/13	02/11/13	KWG1301106	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	72	20-116	02/11/13	Acceptable
Decachlorobiphenyl	76	22-130	02/11/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741**Surrogate Recovery Summary
Organochlorine Pesticides**

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
MH-1	K1300741-001	91	83
Method Blank	KWG1301106-4	72	76
MH-1MS	KWG1301106-1	90	85
MH-1DMS	KWG1301106-2	86	85
Lab Control Sample	KWG1301106-3	63	67

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-116
Sur2 =	Decachlorobiphenyl	22-130

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/02/2013
Date Analyzed: 02/11/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301106

Analyte Name	Sample Result	MH-1MS KWG1301106-1 Matrix Spike			MH-1DMS KWG1301106-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	5.98	14.7	41	7.03	14.7	48	23-133	16	40
beta-BHC	ND	6.57	14.7	45	6.96	14.7	48	22-142	6	40
gamma-BHC (Lindane)	ND	7.10	14.7	48	7.10	14.7	48	26-135	0	40
delta-BHC	ND	7.00	14.7	47	6.91	14.7	47	25-148	1	40
Heptachlor	ND	6.55	14.7	44	7.43	14.7	51	21-136	13	40
Aldrin	ND	4.74	14.7	32	6.02	14.7	41	22-135	24	40
Heptachlor Epoxide	ND	7.83	14.7	53	7.80	14.7	53	25-129	0	40
gamma-Chlordane	9.3	16.3	14.7	47	15.9	14.7	45	24-133	2	40
Endosulfan I	ND	6.66	14.7	45	6.52	14.7	44	15-119	2	40
alpha-Chlordane	3.8	8.99	14.7	35	9.05	14.7	36	24-132	1	40
Dieldrin	ND	10.1	14.7	68 #	10.1	14.7	69 #	26-133	0	40
4,4'-DDE	ND	7.86	14.7	53	7.70	14.7	53	22-142	2	40
Endrin	ND	6.91	14.7	47	7.52	14.7	51	22-145	9	40
Endosulfan II	ND	5.12	14.7	35 #	6.31	14.7	43 #	13-129	21	40
4,4'-DDD	37	43.7	14.7	44	42.4	14.7	35	19-143	3	40
Endrin Aldehyde	ND	6.59	14.7	45	5.42	14.7	37	10-129	19	40
Endosulfan Sulfate	ND	10.6	14.7	72	10.2	14.7	69	20-134	4	40
4,4'-DDT	ND	37.0	14.7	251 #	11.1	14.7	76 #	19-154	108 *	40
Endrin Ketone	ND	5.76	14.7	39	5.04	14.7	34	19-139	13	40
Methoxychlor	ND	6.91	14.7	47 #	7.29	14.7	50 #	24-151	5	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/02/2013
Date Analyzed: 02/11/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301106

Lab Control Sample
KWG1301106-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	13.7	20.0	68	36-139
beta-BHC	11.9	20.0	59	38-142
gamma-BHC (Lindane)	13.3	20.0	66	40-142
delta-BHC	13.9	20.0	69	48-145
Heptachlor	13.0	20.0	65	39-135
Aldrin	12.4	20.0	62	37-134
Heptachlor Epoxide	12.8	20.0	64	45-118
gamma-Chlordane	12.8	20.0	64	41-135
Endosulfan I	12.3	20.0	62	35-121
alpha-Chlordane	12.6	20.0	63	41-134
Dieldrin	13.2	20.0	66	46-136
4,4'-DDE	13.1	20.0	65	46-141
Endrin	11.6	20.0	58	40-152
Endosulfan II	13.3	20.0	67	39-128
4,4'-DDD	13.6	20.0	68	46-146
Endrin Aldehyde	12.4	20.0	62	32-132
Endosulfan Sulfate	13.9	20.0	69	43-138
4,4'-DDT	13.8	20.0	69	46-151
Endrin Ketone	13.6	20.0	68	47-135
Methoxychlor	14.2	20.0	71	42-147

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1221	ND	U	74	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1232	ND	U	37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1242	ND	U	37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1248	ND	U	37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1254	580		37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1260	320		37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1262	ND	U	37	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1268	ND	U	37	1	02/02/13	02/06/13	KWG1301108	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	89	35-133	02/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1301108-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1221	ND	U	10	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1232	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1242	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1248	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1254	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1260	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1262	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	
Aroclor 1268	ND	U	5.0	1	02/02/13	02/06/13	KWG1301108	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	87	35-133	02/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
MH-1	K1300741-001	89
Method Blank	KWG1301108-4	87
MH-1MS	KWG1301108-1	75
MH-1DMS	KWG1301108-2	84
Lab Control Sample	KWG1301108-3	85

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 35-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/02/2013
Date Analyzed: 02/06/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301108

Analyte Name	Sample Result	MH-1MS KWG1301108-1 Matrix Spike			MH-1DMS KWG1301108-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	160	147	109	160	147	109	27-128	0	40
Aroclor 1260	320	431	147	72	464	147	95	29-131	7	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/02/2013
Date Analyzed: 02/06/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301108

Lab Control Sample
KWG1301108-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	163	200	81	37-121
Aroclor 1260	152	200	76	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Phenol	ND	U	880	10	02/04/13	02/07/13	KWG1301019	
2-Chlorophenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
1,3-Dichlorobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
1,4-Dichlorobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
1,2-Dichlorobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Benzyl Alcohol	730	D	590	10	02/04/13	02/07/13	KWG1301019	
Bis(2-chloroisopropyl) Ether	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2-Methylphenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Hexachloroethane	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
N-Nitrosodi-n-propylamine	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Methylphenol†	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Nitrobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Isophorone	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2-Nitrophenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2,4-Dimethylphenol	ND	U	1500	10	02/04/13	02/07/13	KWG1301019	
Bis(2-chloroethoxy)methane	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2,4-Dichlorophenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Benzoic Acid	ND	U	5900	10	02/04/13	02/07/13	KWG1301019	
1,2,4-Trichlorobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Naphthalene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Chloroaniline	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Hexachlorobutadiene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Chloro-3-methylphenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2-Methylnaphthalene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Hexachlorocyclopentadiene	ND	U	1500	10	02/04/13	02/07/13	KWG1301019	*
2,4,6-Trichlorophenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2,4,5-Trichlorophenol	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2-Chloronaphthalene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
2-Nitroaniline	ND	U	590	10	02/04/13	02/07/13	KWG1301019	
Acenaphthylene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Dimethyl Phthalate	2300	D	300	10	02/04/13	02/07/13	KWG1301019	
2,6-Dinitrotoluene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Acenaphthene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	590	10	02/04/13	02/07/13	KWG1301019	
2,4-Dinitrophenol	ND	U	5900	10	02/04/13	02/07/13	KWG1301019	
Dibenzofuran	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Nitrophenol	ND	U	3000	10	02/04/13	02/07/13	KWG1301019	
2,4-Dinitrotoluene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Fluorene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Chlorophenyl Phenyl Ether	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Diethyl Phthalate	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Nitroaniline	ND	U	590	10	02/04/13	02/07/13	KWG1301019	
2-Methyl-4,6-dinitrophenol	ND	U	3000	10	02/04/13	02/07/13	KWG1301019	
N-Nitrosodiphenylamine	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
4-Bromophenyl Phenyl Ether	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Hexachlorobenzene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Pentachlorophenol	ND	U	3000	10	02/04/13	02/07/13	KWG1301019	
Phenanthrene	800	D	300	10	02/04/13	02/07/13	KWG1301019	
Anthracene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Di-n-butyl Phthalate	1200	D	590	10	02/04/13	02/07/13	KWG1301019	
Fluoranthene	1100	D	300	10	02/04/13	02/07/13	KWG1301019	
Pyrene	1100	D	300	10	02/04/13	02/07/13	KWG1301019	
Butyl Benzyl Phthalate	580	D	300	10	02/04/13	02/07/13	KWG1301019	
3,3'-Dichlorobenzidine	ND	U	3000	10	02/04/13	02/07/13	KWG1301019	
Benz(a)anthracene	330	D	300	10	02/04/13	02/07/13	KWG1301019	
Chrysene	790	D	300	10	02/04/13	02/07/13	KWG1301019	
Bis(2-ethylhexyl) Phthalate	18000	D	3000	10	02/04/13	02/07/13	KWG1301019	
Di-n-octyl Phthalate	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Benzo(b)fluoranthene	900	DX	300	10	02/04/13	02/07/13	KWG1301019	
Benzo(k)fluoranthene	ND	UX	300	10	02/04/13	02/07/13	KWG1301019	
Benzo(a)pyrene	440	D	300	10	02/04/13	02/07/13	KWG1301019	
Indeno(1,2,3-cd)pyrene	430	D	300	10	02/04/13	02/07/13	KWG1301019	
Dibenz(a,h)anthracene	ND	U	300	10	02/04/13	02/07/13	KWG1301019	
Benzo(g,h,i)perylene	390	D	300	10	02/04/13	02/07/13	KWG1301019	

* See Case Narrative

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: 01/25/2013
Date Received: 01/28/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: MH-1
Lab Code: K1300741-001

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	62	11-80	02/07/13	Acceptable
Phenol-d6	69	20-86	02/07/13	Acceptable
Nitrobenzene-d5	77	27-91	02/07/13	Acceptable
2-Fluorobiphenyl	77	25-97	02/07/13	Acceptable
2,4,6-Tribromophenol	89	10-119	02/07/13	Acceptable
Terphenyl-d14	77	33-129	02/07/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301019-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Phenol	ND	U	30	1	02/04/13	02/07/13	KWG1301019	
2-Chlorophenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
1,3-Dichlorobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
1,4-Dichlorobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
1,2-Dichlorobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzyl Alcohol	ND	U	20	1	02/04/13	02/07/13	KWG1301019	
Bis(2-chloroisopropyl) Ether	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2-Methylphenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Hexachloroethane	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
N-Nitrosodi-n-propylamine	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Methylphenol†	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Nitrobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Isophorone	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2-Nitrophenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2,4-Dimethylphenol	ND	U	50	1	02/04/13	02/07/13	KWG1301019	
Bis(2-chloroethoxy)methane	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2,4-Dichlorophenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzoic Acid	ND	U	200	1	02/04/13	02/07/13	KWG1301019	
1,2,4-Trichlorobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Naphthalene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Chloroaniline	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Hexachlorobutadiene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Chloro-3-methylphenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2-Methylnaphthalene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Hexachlorocyclopentadiene	ND	U	50	1	02/04/13	02/07/13	KWG1301019	*
2,4,6-Trichlorophenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2,4,5-Trichlorophenol	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2-Chloronaphthalene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2-Nitroaniline	ND	U	20	1	02/04/13	02/07/13	KWG1301019	
Acenaphthylene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Dimethyl Phthalate	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
2,6-Dinitrotoluene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Acenaphthene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301019-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
3-Nitroaniline	ND	U	20	1	02/04/13	02/07/13	KWG1301019	
2,4-Dinitrophenol	ND	U	200	1	02/04/13	02/07/13	KWG1301019	
Dibenzofuran	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Nitrophenol	ND	U	100	1	02/04/13	02/07/13	KWG1301019	
2,4-Dinitrotoluene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Fluorene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Chlorophenyl Phenyl Ether	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Diethyl Phthalate	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Nitroaniline	ND	U	20	1	02/04/13	02/07/13	KWG1301019	
2-Methyl-4,6-dinitrophenol	ND	U	100	1	02/04/13	02/07/13	KWG1301019	
N-Nitrosodiphenylamine	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
4-Bromophenyl Phenyl Ether	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Hexachlorobenzene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Pentachlorophenol	ND	U	100	1	02/04/13	02/07/13	KWG1301019	
Phenanthrene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Anthracene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Di-n-butyl Phthalate	ND	U	20	1	02/04/13	02/07/13	KWG1301019	
Fluoranthene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Pyrene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Butyl Benzyl Phthalate	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
3,3'-Dichlorobenzidine	ND	U	100	1	02/04/13	02/07/13	KWG1301019	
Benz(a)anthracene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Chrysene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Bis(2-ethylhexyl) Phthalate	ND	U	100	1	02/04/13	02/07/13	KWG1301019	
Di-n-octyl Phthalate	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzo(b)fluoranthene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzo(k)fluoranthene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzo(a)pyrene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Indeno(1,2,3-cd)pyrene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Dibenz(a,h)anthracene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	
Benzo(g,h,i)perylene	ND	U	10	1	02/04/13	02/07/13	KWG1301019	

* See Case Narrative

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301019-5

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	49	11-80	02/07/13	Acceptable
Phenol-d6	52	20-86	02/07/13	Acceptable
Nitrobenzene-d5	53	27-91	02/07/13	Acceptable
2-Fluorobiphenyl	54	25-97	02/07/13	Acceptable
2,4,6-Tribromophenol	64	10-119	02/07/13	Acceptable
Terphenyl-d14	65	33-129	02/07/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
MH-1	K1300741-001	62 D	69 D	77 D	77 D	89 D	77 D
Method Blank	KWG1301019-5	49	52	53	54	64	65
MH-1MS	KWG1301019-1	53 D	68 D	75 D	72 D	70 D	72 D
MH-1DMS	KWG1301019-2	54 D	58 D	73 D	65 D	72 D	61 D
Lab Control Sample	KWG1301019-3	43	46	46	45	59	51
Duplicate Lab Control Sample	KWG1301019-4	41	44	45	44	58	50

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	11-80	Sur5 = 2,4,6-Tribromophenol	10-119
Sur2 = Phenol-d6	20-86	Sur6 = Terphenyl-d14	33-129
Sur3 = Nitrobenzene-d5	27-91		
Sur4 = 2-Fluorobiphenyl	25-97		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/04/2013
Date Analyzed: 02/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Sample Name: MH-1
Lab Code: K1300741-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301019

Analyte Name	Sample Result	MH-1MS KWG1301019-1 Matrix Spike			MH-1DMS KWG1301019-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Phenol	ND	558	486	115 *	370	487	76	15-98	41 *	40
2-Chlorophenol	ND	352	486	72	311	487	64	19-92	12	40
1,4-Dichlorobenzene	ND	332	486	68	308	487	63	19-93	8	40
Hexachloroethane	ND	339	486	70	335	487	69	10-96	1	40
N-Nitrosodi-n-propylamine	ND	455	486	94	450	487	92	14-104	1	40
1,2,4-Trichlorobenzene	ND	361	486	74	324	487	66	23-99	11	40
4-Chloro-3-methylphenol	ND	470	486	97	439	487	90	12-106	7	40
2-Chloronaphthalene	ND	365	486	75	329	487	67	24-97	10	40
Acenaphthene	ND	430	486	89	442	487	91	10-132	3	40
4-Nitrophenol	ND	ND	486	0 *	ND	487	0 *	11-131		40
2,4-Dinitrotoluene	ND	507	486	104	379	487	78	25-114	29	40
Diethyl Phthalate	ND	547	486	113	461	487	95	10-135	17	40
4-Bromophenyl Phenyl Ether	ND	441	486	91	509	487	104	30-108	14	40
Pentachlorophenol	ND	466	486	96	235	487	48	10-123	66 *	40
Pyrene	1100	1270	486	35	2240	487	234 *	17-129	55 *	40
Benzo(a)pyrene	440	712	486	56	1140	487	143 *	13-126	46 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/04/2013
Date Analyzed: 02/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301019

Analyte Name	Lab Control Sample KWG1301019-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301019-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	116	250	46	114	250	45	29-93	2	40
Phenol	128	250	51	128	250	51	27-97	0	40
2-Chlorophenol	121	250	48	120	250	48	28-95	1	40
1,3-Dichlorobenzene	115	250	46	113	250	45	27-88	2	40
1,4-Dichlorobenzene	115	250	46	113	250	45	28-89	2	40
1,2-Dichlorobenzene	118	250	47	112	250	45	27-91	5	40
Benzyl Alcohol	118	250	47	117	250	47	25-103	1	40
Bis(2-chloroisopropyl) Ether	124	250	50	124	250	50	22-95	0	40
2-Methylphenol	122	250	49	114	250	45	18-95	7	40
Hexachloroethane	113	250	45	111	250	44	26-90	2	40
N-Nitrosodi-n-propylamine	125	250	50	131	250	52	25-103	5	40
4-Methylphenol	126	250	51	124	250	50	17-99	2	40
Nitrobenzene	121	250	48	121	250	48	26-100	0	40
Isophorone	118	250	47	117	250	47	31-95	1	40
2-Nitrophenol	123	250	49	122	250	49	29-96	1	40
2,4-Dimethylphenol	444	750	59	437	750	58	10-93	2	40
Bis(2-chloroethoxy)methane	120	250	48	121	250	48	30-95	1	40
2,4-Dichlorophenol	118	250	47	116	250	46	31-96	2	40
Benzoic Acid	119	750	16	224	750	30	10-96	61 *	40
1,2,4-Trichlorobenzene	112	250	45	109	250	44	27-94	2	40
Naphthalene	120	250	48	117	250	47	27-93	2	40
4-Chloroaniline	116	250	47	117	250	47	30-86	0	40
Hexachlorobutadiene	120	250	48	114	250	46	25-96	5	40
4-Chloro-3-methylphenol	121	250	49	120	250	48	28-101	1	40
2-Methylnaphthalene	120	250	48	118	250	47	27-96	2	40
Hexachlorocyclopentadiene	69.5	250	28	71.2	250	28	18-71	3	40
2,4,6-Trichlorophenol	120	250	48	124	250	50	31-97	4	40
2,4,5-Trichlorophenol	123	250	49	127	250	51	33-97	3	40
2-Chloronaphthalene	118	250	47	117	250	47	31-95	1	40
2-Nitroaniline	132	250	53	143	250	57	34-104	8	40
Acenaphthylene	124	250	50	126	250	50	33-99	1	40
Dimethyl Phthalate	136	250	54	139	250	56	39-100	2	40
2,6-Dinitrotoluene	137	250	55	139	250	55	38-102	1	40
Acenaphthene	122	250	49	122	250	49	32-91	0	40
3-Nitroaniline	144	250	58	151	250	60	38-97	5	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00
Sample Matrix: Sediment

Service Request: K1300741
Date Extracted: 02/04/2013
Date Analyzed: 02/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301019

Analyte Name	Lab Control Sample KWG1301019-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301019-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
2,4-Dinitrophenol	120	250	48	131	250	52	10-91	9	40
Dibenzofuran	122	250	49	124	250	50	34-92	1	40
4-Nitrophenol	126	250	51	126	250	50	34-103	0	40
2,4-Dinitrotoluene	147	250	59	149	250	60	41-104	2	40
Fluorene	124	250	49	130	250	52	32-96	5	40
4-Chlorophenyl Phenyl Ether	124	250	50	131	250	52	33-95	5	40
Diethyl Phthalate	151	250	61	153	250	61	41-100	1	40
4-Nitroaniline	157	250	63	158	250	63	37-104	0	40
2-Methyl-4,6-dinitrophenol	133	250	53	140	250	56	23-99	5	40
N-Nitrosodiphenylamine	145	250	58	150	250	60	36-96	3	40
4-Bromophenyl Phenyl Ether	140	250	56	143	250	57	35-101	2	40
Hexachlorobenzene	140	250	56	142	250	57	40-99	1	40
Pentachlorophenol	119	250	48	129	250	51	21-97	8	40
Phenanthrene	140	250	56	144	250	57	39-98	3	40
Anthracene	143	250	57	147	250	59	40-98	2	40
Di-n-butyl Phthalate	173	250	69	173	250	69	42-109	0	40
Fluoranthene	167	250	67	166	250	66	42-104	1	40
Pyrene	151	250	60	150	250	60	45-106	1	40
Butyl Benzyl Phthalate	169	250	67	172	250	69	45-111	2	40
3,3'-Dichlorobenzidine	142	250	57	143	250	57	37-99	1	40
Benz(a)anthracene	165	250	66	166	250	66	44-108	1	40
Chrysene	164	250	66	166	250	66	46-108	1	40
Bis(2-ethylhexyl) Phthalate	167	250	67	168	250	67	47-110	0	40
Di-n-octyl Phthalate	186	250	74	186	250	74	45-109	0	40
Benzo(b)fluoranthene	164	250	66	163	250	65	46-106	1	40
Benzo(k)fluoranthene	163	250	65	165	250	66	47-107	1	40
Benzo(a)pyrene	169	250	67	171	250	69	42-110	2	40
Indeno(1,2,3-cd)pyrene	165	250	66	166	250	66	47-109	0	40
Dibenz(a,h)anthracene	172	250	69	163	250	65	47-106	6	40
Benzo(g,h,i)perylene	162	250	65	162	250	65	44-108	0	40

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

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



March 14, 2013

Analytical Report for Service Request No: K1301490

Ashleigh Fines
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201-4707

RE: Pier 99/320001975-00.001

Dear Ashleigh:

Enclosed are the results of the samples submitted to our laboratory on February 20, 2013. For your reference, these analyses have been assigned our service request number K1301490.

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

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/ln

Page 1 of 79



ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068

Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil, Water

Service Request No.: K1301490
Date Received: 2/20/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Fifteen soil samples and a water sample were received for analysis at ALS Environmental on 2/20/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at upon receipt at the laboratory.

Total Metals

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Aluminum, Calcium, Copper, Iron, Lead, Magnesium and Zinc for sample TP2 (1.5-2.0) were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries, the method is still generally prescribed because of its versatility for general metals analysis. Antimony results (in conjunction with the matrix spike recovery) from this procedure should only be used as indicators to estimate concentrations. The matrix spike recovery of Antimony for sample TP2 (1.5-2.0) was below the control criterion. Since low recoveries resulted from a method defect and were possibly magnified by certain matrix components, no corrective action was appropriate. Alternative procedures that specifically target Antimony are available but were not specified for this project. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control.

The matrix spike recovery of Chromium for sample TP2 (1.5-2.0) was outside the control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

The matrix spike recovery of Silver and Sodium for sample TP2 (1.5-2.0) was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of Antimony, Barium, Chromium, Lead and Nickel in sample TP2 (1.5-2.0) was outside the control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Approved by



Organotin Compounds

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Tri-n-butyltin in the replicate matrix spike analyses of BPRC 44 was outside control criteria. In general, the RPD was relatively high for all spiked compounds, which indicates a high bias in the Matrix Spike (MS)/Matrix Spike Duplicate (MSD). All spike recoveries in the associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Matrix Spike Exceptions:

The matrix spike recovery of Tri-n-butyltin and Di-n-butyltin for sample BPRC 44 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Calibration Verification Exceptions:

The analysis of Butyltins by Krone method requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Tri-n-butyltin and Tetra-n-butyltin. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Surrogate Exceptions:

The control criteria for Tri-n-propyltin in samples TP2- (1.5-2.0) and TP2 (4.5-5.0) were not applicable. The analysis of the sample required a dilution, which resulted in a surrogate concentration below the reporting limit. No further corrective action was appropriate.

Elevated Detection Limits:

Samples TP2- (1.5-2.0) and TP2 (4.5-5.0) required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

Diesel Range Organics and Residual Range Organics by NWTPH Dx

No anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081

Calibration Verification Exceptions:

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Decachlorobiphenyl in an associated CCV. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Matrix Spike Recovery Exceptions:

The control criteria for the matrix spike recovery of several analytes for the associated Matrix Spikes was not applicable. The chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations. Thus, the reported recoveries contained a high bias. Based on the magnitude of background contribution, the interference appeared to be minimal.

Approved by



Elevated Detection Limits:

The reporting limit is elevated for all analytes in sample TP2 (1.5-2.0). The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components which prevented adequate resolution of the internal standard. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result is flagged to indicate the matrix interference.

The detection limit was elevated, or further elevated, for several analytes in both field samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for one analyte was exceeded in both field samples. The lower of the two values was reported when no evidence of a matrix interference was observed.

Sample Notes and Discussion:

Organochlorine Pesticides (O-C Pesticides) determined by EPA Method 8081B or equivalent gas chromatography-electron capture detector (GC/ECD) procedures are subject to interference from polychlorinated biphenyls (PCBs). The interference stems from the inability of the GC/ECD to differentiate selected PCB congeners from certain O-C Pesticides. This method limitation can result in false positive detections and/or high bias to pesticide values.

The magnitude of the interference is directly proportional to the concentration of PCBs in the sample. In addition, the affect on selected O-C Pesticides is complicated by the type PCB Aroclor(s) present in the sample. The presence of multiple Aroclors can result in contribution to the apparent concentration of O-C Pesticides by PCB congeners common to two or more Aroclors.

The samples in this delivery group contained PCB Aroclors at concentrations high enough to impact the O-C Pesticide results. Note that the results for the O-C Pesticides were reported as per the protocol defined in SW-846 regarding dual column confirmation. In some instances, certain PCB congeners were suspected of being detected on both columns simultaneously within the retention time window of the target pesticide. When the resulting chromatographic peaks met the criteria of a detection as defined in the method, the values were reported.

Results for 4,4-DDT have contribution from confirmed PCB interferences on both columns within the established retention time window, resulting in reported values with a significant high bias.


No other anomalies associated with the analysis of these samples were observed.

PCB Aroclors by EPA Method 8082**Sample Notes and Discussion:**

Two Aroclors were identified in samples TP2 (1.5-2.0) and TP2 (4.5-5.0): Aroclor 1254 and Aroclor 1260. When mixtures of PCB Aroclors are present in a sample, correct identification and quantitative analysis of the individual Aroclors can be subjective. Care is taken to minimize the possibility of double-counting PCBs. Analytical peaks are selected based on the best resolution possible for that particular sample. However, when a mixture of Aroclors 1254 and 1260 is present in a sample, the potential exists for a high bias from contribution of one Aroclor to another due to common peaks or peaks that cannot be completely resolved.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____



Volatile Organic Compounds by EPA Method 8260: Water

Calibration Verification Exceptions:

The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) J:\MS18\0225F016.D: Acetone and Naphthalene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The matrix spike recovery and duplicate matrix spike recoveries of Vinyl Chloride and Trichloroethene (TCE) for sample Batch QCMS KWG1301715-1 Batch QCDMS KWG1301715-2 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270

Matrix Spike Recovery Exceptions:

The matrix spike recovery of 4-Nitrophenol and Pentachlorophenol for sample TP2 (4.5-5.0) was outside control criteria because of suspected matrix interference. A matrix spike duplicate was also analyzed, but produced similar results. The results of the original analysis were reported. No further corrective action was appropriate.

The matrix spike recovery of Phenol for sample TP2 (4.5-5.0)DMS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential bias in this matrix. No further corrective action was appropriate.

Lab Control Sample Exceptions:

The advisory criterion was exceeded for Benzoic Acid in Duplicate Laboratory Control Sample (DLCS) KWG1301621-4. As per the ALS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate matrix spike analysis of Phenol in sample TP2 (4.5-5.0) was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Elevated Detection Limits:

The detection limits were elevated in sample TP2 (1.5-2.0). The sample extract was diluted prior to instrumental analysis due to high levels of target analytes and non-target background components. The extract was highly colored, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution.

The detection limits were elevated in sample TP2 (4.5-5.0). The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extract was highly colored, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Matrix Spike Recovery Exceptions:


The matrix spike recovery of numerous analytes for sample TP2 (4.5-5.0)DMS was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. Since the unspiked samples contained high analyte concentrations relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside normal CAS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for numerous analytes in the replicate Matrix Spike (MS/MSD) analyses of sample TP2 (4.5-5.0) was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. The sample contained relatively large amounts of rocks, which complicated the homogenization process. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Approved by





Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301490

Project Name: Pler 99

Analytical Lab: CAS/ALS

Report To: ashleighfines@gmail.com

Page: 1 of 2

Sampler Name: Ian Maguire/Chris Luk

Hold AKG



Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

Analytical Lab: CAS/ALS

Report To: ashleighfines@gmail.com

Page: 2 of 2

Sampler Name: Ian Maguire/Chris Luk

- Hold key
- Hold key

Special Instructions:

Run SVOCs, TAL 23 Metals, Organochlorine pesticides, and PCBs for highest TPH concentrations detected

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

11

PC Lisa

Cooler Receipt and Preservation Form

Client / Project: Ash Creek Service Request K13 31490
Received: 2/20/13 Opened: 2/20/13 By: SMW Unloaded: 2/20/13 By: SMW

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

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
5.7	5.7	—	—	0	294	NA		NA	

7. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions:

For "B-3 (2.5-5.0)" and "B-3 (7.0-10.0)" rec'd only 2 jars, not 3.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
TP2 (1.5-2.0)	K1301490-003	02/19/2013	02/20/2013	02/22/2013	82.6	
TP2 (3.5)	K1301490-004	02/19/2013	02/20/2013	02/22/2013	87.0	
TP2 (4.5-5.0)	K1301490-005	02/19/2013	02/20/2013	02/22/2013	83.0	
TP3 (1.5-2.0)	K1301490-006	02/19/2013	02/20/2013	02/22/2013	83.0	
TP3 (3.5)	K1301490-007	02/19/2013	02/20/2013	02/22/2013	91.7	
B-3 (7.0-10.0)	K1301490-009	02/19/2013	02/20/2013	02/22/2013	80.0	
B-3 (12.5-15.0)	K1301490-010	02/19/2013	02/20/2013	02/22/2013	75.1	
B-3 (18.0-20.0)	K1301490-012	02/19/2013	02/20/2013	02/22/2013	71.9	
B-3 (22.5-25.0)	K1301490-013	02/19/2013	02/20/2013	02/22/2013	75.8	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013
Date Analyzed: 02/22/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
TP2 (3.5)	K1301490-004	87.0	85.3	86.2	2	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301490

Sample Name:

TP2 (1.5-2.0)

TP2 (1.5-2.0)D

TP2 (1.5-2.0)S

TP2 (3.5)

TP2 (4.5-5.0)

TP2 (4.5-5.0)D

TP2 (4.5-5.0)S

TP3 (1.5-2.0)

TP3 (3.5)

Method Blank

Lab Code:

K1301490-003

K1301490-003D

K1301490-003S

K1301490-004

K1301490-005

K1301490-005D

K1301490-005S

K1301490-006

K1301490-007

K1301490-MB

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301490
Project No.: 320001975-00.001	Date Collected: 02/19/13
Project Name: Pier 99	Date Received: 02/20/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: TP2 (1.5-2.0)	Lab Code: K1301490-003
-----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	9.5	2.0	02/21/13	02/26/13	7420		
Antimony	6010C	1.9	2.0	02/21/13	02/26/13	21.9		N*
Arsenic	6010C	1.9	2.0	02/21/13	02/26/13	12		
Barium	6010C	0.5	2.0	02/21/13	02/26/13	297		*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.2		
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	1.8		
Calcium	6010C	9.5	2.0	02/21/13	02/26/13	5700		
Chromium	6010C	0.5	2.0	02/21/13	02/26/13	85.2		N*
Cobalt	6010C	0.5	2.0	02/21/13	02/26/13	19.4		
Copper	6010C	2.9	10.0	02/21/13	02/26/13	45100		
Iron	6010C	1.9	2.0	02/21/13	02/26/13	15100		
Lead	6010C	9.5	10.0	02/21/13	02/26/13	4210		*
Magnesium	6010C	3.8	2.0	02/21/13	02/26/13	4590		
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	229		
Mercury	7471B	0.02	1.0	02/25/13	02/26/13	1.06		*
Nickel	6010C	0.4	2.0	02/21/13	02/26/13	85.0		*
Potassium	6010C	57.2	2.0	02/21/13	02/26/13	297		
Selenium	6010C	3.8	2.0	02/21/13	02/26/13	3.8	U	
Silver	6010C	0.5	2.0	02/21/13	02/26/13	2.3		N
Sodium	6010C	38.1	2.0	02/21/13	02/26/13	656		N
Thallium	6010C	1.9	2.0	02/21/13	02/26/13	1.9	U	
Vanadium	6010C	1.0	2.0	02/21/13	02/26/13	28.3		
Zinc	6010C	0.95	2.0	02/21/13	02/26/13	1660		

% Solids: 82.6

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301490

Project No.: 320001975-00.001

Date Collected: 02/19/13

Project Name: Pier 99

Date Received: 02/20/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: TP2 (3.5)

Lab Code: K1301490-004

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	8.7	2.0	02/21/13	02/26/13	8980		
Antimony	6010C	1.7	2.0	02/21/13	02/26/13	1.7	U	N*
Arsenic	6010C	1.7	2.0	02/21/13	02/26/13	8.0		
Barium	6010C	0.4	2.0	02/21/13	02/26/13	936		*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.3		
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	0.6		
Calcium	6010C	8.7	2.0	02/21/13	02/26/13	4490		
Chromium	6010C	0.4	2.0	02/21/13	02/26/13	55.8		N*
Cobalt	6010C	0.4	2.0	02/21/13	02/26/13	9.7		
Copper	6010C	0.5	2.0	02/21/13	02/26/13	1750		
Iron	6010C	1.7	2.0	02/21/13	02/26/13	21400		
Lead	6010C	1.7	2.0	02/21/13	02/26/13	126		*
Magnesium	6010C	3.5	2.0	02/21/13	02/26/13	5000		
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	354		
Nickel	6010C	0.3	2.0	02/21/13	02/26/13	24.7		*
Potassium	6010C	52.2	2.0	02/21/13	02/26/13	1070		
Selenium	6010C	3.5	2.0	02/21/13	02/26/13	3.5	U	
Silver	6010C	0.4	2.0	02/21/13	02/26/13	0.4	U	N
Sodium	6010C	34.8	2.0	02/21/13	02/26/13	225		N
Thallium	6010C	1.7	2.0	02/21/13	02/26/13	1.7	U	
Vanadium	6010C	0.9	2.0	02/21/13	02/26/13	54.5		
Zinc	6010C	0.87	2.0	02/21/13	02/26/13	259		

% Solids: 87.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301490
Project No.: 320001975-00.001	Date Collected: 02/19/13
Project Name: Pier 99	Date Received: 02/20/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: TP2 (4.5-5.0)	Lab Code: K1301490-005
-----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	9.1	2.0	02/21/13	02/26/13	7050		
Antimony	6010C	1.8	2.0	02/21/13	02/26/13	1.8	U	N*
Arsenic	6010C	1.8	2.0	02/21/13	02/26/13	5.1		
Barium	6010C	0.5	2.0	02/21/13	02/26/13	113		*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.3		
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	0.1	U	
Calcium	6010C	9.1	2.0	02/21/13	02/26/13	3480		
Chromium	6010C	0.5	2.0	02/21/13	02/26/13	31.3		N*
Cobalt	6010C	0.5	2.0	02/21/13	02/26/13	7.9		
Copper	6010C	0.5	2.0	02/21/13	02/26/13	1630		
Iron	6010C	1.8	2.0	02/21/13	02/26/13	18400		
Lead	6010C	1.8	2.0	02/21/13	02/26/13	122		*
Magnesium	6010C	3.7	2.0	02/21/13	02/26/13	3600		
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	295		
Mercury	7471B	0.02	1.0	02/25/13	02/26/13	0.38		*
Nickel	6010C	0.4	2.0	02/21/13	02/26/13	16.7		*
Potassium	6010C	54.8	2.0	02/21/13	02/26/13	732		
Selenium	6010C	3.7	2.0	02/21/13	02/26/13	3.7	U	
Silver	6010C	0.5	2.0	02/21/13	02/26/13	0.5	U	N
Sodium	6010C	36.5	2.0	02/21/13	02/26/13	240		N
Thallium	6010C	1.8	2.0	02/21/13	02/26/13	1.8	U	
Vanadium	6010C	0.9	2.0	02/21/13	02/26/13	45.0		
Zinc	6010C	0.91	2.0	02/21/13	02/26/13	151		

% Solids: 83.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301490
Project No.: 320001975-00.001	Date Collected: 02/19/13
Project Name: Pier 99	Date Received: 02/20/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: TP3 (1.5-2.0)	Lab Code: K1301490-006
-----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	9.0	2.0	02/21/13	02/26/13	7840		
Antimony	6010C	1.8	2.0	02/21/13	02/26/13	3.1		N*
Arsenic	6010C	1.8	2.0	02/21/13	02/26/13	5.1		
Barium	6010C	0.5	2.0	02/21/13	02/26/13	126		*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.3		
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	1.3		
Calcium	6010C	9.0	2.0	02/21/13	02/26/13	3650		
Chromium	6010C	0.5	2.0	02/21/13	02/26/13	127		N*
Cobalt	6010C	0.5	2.0	02/21/13	02/26/13	10.8		
Copper	6010C	0.5	2.0	02/21/13	02/26/13	11800		
Iron	6010C	1.8	2.0	02/21/13	02/26/13	26700		
Lead	6010C	1.8	2.0	02/21/13	02/26/13	539		*
Magnesium	6010C	3.6	2.0	02/21/13	02/26/13	6610		
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	398		
Nickel	6010C	0.4	2.0	02/21/13	02/26/13	46.4		*
Potassium	6010C	53.9	2.0	02/21/13	02/26/13	716		
Selenium	6010C	3.6	2.0	02/21/13	02/26/13	3.6	U	
Silver	6010C	0.5	2.0	02/21/13	02/26/13	0.5		N
Sodium	6010C	36.0	2.0	02/21/13	02/26/13	298		N
Thallium	6010C	1.8	2.0	02/21/13	02/26/13	1.8	U	
Vanadium	6010C	0.9	2.0	02/21/13	02/26/13	40.5		
Zinc	6010C	0.90	2.0	02/21/13	02/26/13	744		

% Solids: 83.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301490

Project No.: 320001975-00.001

Date Collected: 02/19/13

Project Name: Pier 99

Date Received: 02/20/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: TP3 (3.5)

Lab Code: K1301490-007

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	8.2	2.0	02/21/13	02/26/13	5920		
Antimony	6010C	1.6	2.0	02/21/13	02/26/13	1.6	U	N*
Arsenic	6010C	1.6	2.0	02/21/13	02/26/13	2.3		
Barium	6010C	0.4	2.0	02/21/13	02/26/13	80.9		*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.2		
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	0.1	U	
Calcium	6010C	8.2	2.0	02/21/13	02/26/13	2650		
Chromium	6010C	0.4	2.0	02/21/13	02/26/13	13.6		N*
Cobalt	6010C	0.4	2.0	02/21/13	02/26/13	5.4		
Copper	6010C	0.5	2.0	02/21/13	02/26/13	200		
Iron	6010C	1.6	2.0	02/21/13	02/26/13	12200		
Lead	6010C	1.6	2.0	02/21/13	02/26/13	13.2		*
Magnesium	6010C	3.3	2.0	02/21/13	02/26/13	2920		
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	162		
Nickel	6010C	0.3	2.0	02/21/13	02/26/13	11.1		*
Potassium	6010C	49.2	2.0	02/21/13	02/26/13	726		
Selenium	6010C	3.3	2.0	02/21/13	02/26/13	3.3	U	
Silver	6010C	0.4	2.0	02/21/13	02/26/13	0.4	U	N
Sodium	6010C	32.8	2.0	02/21/13	02/26/13	245		N
Thallium	6010C	1.6	2.0	02/21/13	02/26/13	1.6	U	
Vanadium	6010C	0.8	2.0	02/21/13	02/26/13	30.9		
Zinc	6010C	0.82	2.0	02/21/13	02/26/13	61.6		

% Solids: 91.7

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301490
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301490-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.0	2.0	02/21/13	02/26/13	10.0	U	
Antimony	6010C	2.0	2.0	02/21/13	02/26/13	2.0	U	N*
Arsenic	6010C	2.0	2.0	02/21/13	02/26/13	2.0	U	
Barium	6010C	0.5	2.0	02/21/13	02/26/13	0.5	U	*
Beryllium	6010C	0.1	2.0	02/21/13	02/26/13	0.1	U	
Cadmium	6010C	0.1	2.0	02/21/13	02/26/13	0.1	U	
Calcium	6010C	10.0	2.0	02/21/13	02/26/13	10.0	U	
Chromium	6010C	0.5	2.0	02/21/13	02/26/13	0.5	U	N*
Cobalt	6010C	0.5	2.0	02/21/13	02/26/13	0.5	U	
Copper	6010C	0.6	2.0	02/21/13	02/26/13	0.6	U	
Iron	6010C	2.0	2.0	02/21/13	02/26/13	2.0	U	
Lead	6010C	2.0	2.0	02/21/13	02/26/13	2.0	U	*
Magnesium	6010C	4.0	2.0	02/21/13	02/26/13	4.0	U	
Manganese	6010C	0.2	2.0	02/21/13	02/26/13	0.2	U	
Mercury	7471B	0.02	1.0	02/25/13	02/26/13	0.02	U	*
Nickel	6010C	0.4	2.0	02/21/13	02/26/13	0.4	U	*
Potassium	6010C	60.0	2.0	02/21/13	02/26/13	60.0	U	
Selenium	6010C	4.0	2.0	02/21/13	02/26/13	4.0	U	
Silver	6010C	0.5	2.0	02/21/13	02/26/13	0.5	U	N
Sodium	6010C	40.0	2.0	02/21/13	02/26/13	40.0	U	N
Thallium	6010C	2.0	2.0	02/21/13	02/26/13	2.0	U	
Vanadium	6010C	1.0	2.0	02/21/13	02/26/13	1.0	U	
Zinc	6010C	1.0	2.0	02/21/13	02/26/13	1.0	U	

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301490
Project No.: 320001975-00.001 **Units:** MG/KG
Project Name: Pier 99 **Basis:** DRY
Matrix: SOIL **% Solids:** 82.6

Sample Name: TP2 (1.5-2.0)S

Lab Code: K1301490-003S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		9040		7420		366.86	441.6		6010C
Antimony	75 - 125	47.9		21.9		91.72	28.3	N	6010C
Arsenic	75 - 125	90		12		91.72	85.0		6010C
Barium	79 - 114	634		297		366.86	91.9		6010C
Beryllium	78 - 115	9.1		0.2		9.17	97.1		6010C
Cadmium	75 - 125	11.3		1.8		9.17	103.6		6010C
Calcium		7580		5700		917.16	205.0		6010C
Chromium	75 - 125	104		85.2		36.69	51.2	N	6010C
Cobalt	75 - 125	120		19.4		91.72	109.7		6010C
Copper		49900		45100		45.86	10466.6		6010C
Iron		15800		15100		183.43	381.6		6010C
Lead		2100		4210		91.72	-2300.5		6010C
Magnesium		6050		4590		917.16	159.2		6010C
Manganese	75 - 125	303		229		91.72	80.7		6010C
Nickel	75 - 125	163		85.0		91.72	85.0		6010C
Potassium	75 - 125	1180		297		917.16	96.3		6010C
Selenium	75 - 125	74.5		3.8	U	91.72	81.2		6010C
Silver	75 - 125	21.7		2.3		9.17	211.6	N	6010C
Sodium	75 - 125	1810		656		917.16	125.8	N	6010C
Thallium	75 - 125	88.5		1.9	U	91.72	96.5		6010C
Vanadium	75 - 125	113		28.3		91.72	92.3		6010C
Zinc		1550		1660		91.72	-119.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301490
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 83.0

Sample Name: TP2 (4.5-5.0)S Lab Code: K1301490-005S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.94		0.38		0.60	93.3		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301490**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 82.6**Sample Name:** TP2 (1.5-2.0)D**Lab Code:** K1301490-003D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	7420		7370		0.7		6010C
Antimony	20	21.9		10.1		73.8	*	6010C
Arsenic		12		9.5		23.3		6010C
Barium	20	297		230		25.4	*	6010C
Beryllium		0.21		0.21		0.0		6010C
Cadmium	20	1.8		1.8		0.0		6010C
Calcium	20	5700		6200		8.4		6010C
Chromium	20	85.2		60.9		33.3	*	6010C
Cobalt	20	19.4		17.5		10.3		6010C
Copper	20	45100		46500		3.1		6010C
Iron	20	15100		16000		5.8		6010C
Lead	20	4210		1730		83.5	*	6010C
Magnesium	20	4590		4330		5.8		6010C
Manganese	20	229		214		6.8		6010C
Nickel	20	85.0		58.3		37.3	*	6010C
Potassium	20	297		297		0.0		6010C
Selenium		3.8	U	3.8	U			6010C
Silver		2.3		2.3		0.0		6010C
Sodium	20	656		718		9.0		6010C
Thallium		1.9	U	1.9	U			6010C
Vanadium	20	28.3		29.4		3.8		6010C
Zinc	20	1660		1880		12.4		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301490
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 83.0

Sample Name: TP2 (4.5-5.0)D Lab Code: K1301490-005D

Analyte	Control Limit	Sample (S)C	Duplicate (D)C	RPD	Q	Method
Mercury	20	0.38	0.47	21.2	*	7471B

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301490

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6920		47 152	82.4	
Antimony				93.3	57.3		25 199	61.4	
Arsenic				94.5	94		82 117	99.5	
Barium				167	161		84 116	96.4	
Beryllium				57.6	57.0		83 117	99.0	
Cadmium				60.5	55.2		83 117	91.2	
Calcium				6140	5870		83 117	95.6	
Chromium				70.4	65.0		82 118	92.3	
Cobalt				102	95.1		83 117	93.2	
Copper				79.6	80.1		84 116	100.6	
Iron				12500	10600		51 150	84.8	
Lead				91.8	82.1		82 118	89.4	
Magnesium				2580	2370		76 124	91.9	
Manganese				283	252		82 117	89.0	
Mercury				3.73	3.58		72 128	96.0	
Nickel				57.6	52.4		83 117	91.0	
Potassium				2490	2230		70 130	89.6	
Selenium				86.4	79.5		80 120	92.0	
Silver				34.4	33.8		66 134	98.3	
Sodium				215	199		67 133	92.6	
Thallium				120	110		78 121	91.7	
Vanadium				57	52.6		74 126	92.3	
Zinc				140	123		82 118	87.9	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Butyltins (as cation)

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1300	1000	02/26/13	03/12/13	KWG1301857	
Tri-n-butyltin Cation	29000	D	1300	1000	02/26/13	03/12/13	KWG1301857	
Di-n-butyltin Cation	29000	D	1300	1000	02/26/13	03/11/13	KWG1301857	
n-Butyltin Cation	6900	D	1300	1000	02/26/13	03/11/13	KWG1301857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	5146	10-120	03/11/13	Outside Control Limits

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Butyltins (as cation)

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	3100	2500	02/26/13	03/12/13	KWG1301857	
Tri-n-butyltin Cation	64000	D	3100	2500	02/26/13	03/12/13	KWG1301857	
Di-n-butyltin Cation	9600	D	610	500	02/26/13	03/11/13	KWG1301857	
n-Butyltin Cation	3000	D	610	500	02/26/13	03/11/13	KWG1301857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	0	10-120	03/11/13	Outside Control Limits

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1301857-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	1	02/26/13	03/11/13	KWG1301857	
Tri-n-butyltin Cation	ND	U	0.98	1	02/26/13	03/11/13	KWG1301857	
Di-n-butyltin Cation	ND	U	0.98	1	02/26/13	03/11/13	KWG1301857	
n-Butyltin Cation	ND	U	0.98	1	02/26/13	03/11/13	KWG1301857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	59	10-120	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
TP2 (1.5-2.0)	K1301490-003	5146 D *
TP2 (4.5-5.0)	K1301490-005	0 D *
Batch QC	K1301590-001	58
Method Blank	KWG1301857-4	59
Batch QCMS	KWG1301857-1	48
Batch QCDMS	KWG1301857-2	60
Lab Control Sample	KWG1301857-3	51

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/26/2013
Date Analyzed: 03/11/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1301590-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301857

Analyte Name	Sample Result	Batch QCMS KWG1301857-1 Matrix Spike			Batch QCDMS KWG1301857-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	15.2	24.6	62	18.1	25.0	72	16-126	17	40
Tri-n-butyltin Cation	7.7	12.5	21.9	22	80.3	22.2	327 *	10-115	146 *	40
Di-n-butyltin Cation	39	74.7	18.9	188 *	68.6	19.2	154 *	10-133	9	40
n-Butyltin Cation	4.2	9.27	15.4	33	11.7	15.6	48	10-124	23	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/26/2013
Date Analyzed: 03/11/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301857

Lab Control Sample
KWG1301857-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	16.1	25.0	65	19-130
Tri-n-butyltin Cation	18.5	22.2	83	10-122
Di-n-butyltin Cation	16.9	19.2	88	12-136
n-Butyltin Cation	10.1	15.6	65	10-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Diesel and Residual Range Organics

Sample Name: B-3 (7.0-10.0)
Lab Code: K1301490-009
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	31	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	130	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	100	50-150	02/26/13	Acceptable
n-Triacontane	105	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Diesel and Residual Range Organics

Sample Name: B-3 (12.5-15.0)
Lab Code: K1301490-010
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	33	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	140	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	98	50-150	02/26/13	Acceptable
n-Triacontane	101	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Diesel and Residual Range Organics

Sample Name: B-3 (18.0-20.0)
Lab Code: K1301490-012
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	35	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	140	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	97	50-150	02/26/13	Acceptable
n-Triacontane	100	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Diesel and Residual Range Organics

Sample Name: B-3 (22.5-25.0)
Lab Code: K1301490-013
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	33	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	140	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	88	50-150	02/26/13	Acceptable
n-Triacontane	90	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Diesel and Residual Range Organics

Sample Name: Method Blank
Lab Code: KWG1301673-3
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	25	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	99	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	102	50-150	02/26/13	Acceptable
n-Triacontane	106	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
B-3 (7.0-10.0)	K1301490-009	100	105
B-3 (12.5-15.0)	K1301490-010	98	101
B-3 (18.0-20.0)	K1301490-012	97	100
B-3 (22.5-25.0)	K1301490-013	88	90
Batch QC	K1301527-024	76	77
Batch QCDUP	KWG1301673-1	87	87
Method Blank	KWG1301673-3	102	106
Lab Control Sample	KWG1301673-2	108	105

Surrogate Recovery Control Limits (%)

Sur1 = o-Terphenyl	50-150
Sur2 = n-Triacontane	50-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/23/2013
Date Analyzed: 02/26/2013

Duplicate Sample Summary
Diesel and Residual Range Organics

Sample Name: Batch QC
Lab Code: K1301527-024
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301673

Analyte Name	MRL	Sample Result	Batch QCDUP KWG1301673-1 Duplicate Sample		Relative Percent Difference	RPD Limit
			Result	Average		
Diesel Range Organics (DRO)	36	ND	ND	ND	-	40
Residual Range Organics (RRO)	150	ND	ND	ND	-	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/23/2013
Date Analyzed: 02/26/2013

Lab Control Spike Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301673

Lab Control Sample
KWG1301673-2
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Diesel Range Organics (DRO)	284	267	106	42-134
Residual Range Organics (RRO)	133	133	100	48-141

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Organochlorine Pesticides

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	Ui	2.5	2	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	Ui	38	2	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	Ui	3.3	2	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	Ui	7.3	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	ND	Ui	2.8	2	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	Ui	8.1	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	51	PD	2.0	2	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	U	2.0	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	Ui	14	2	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	Ui	2.1	2	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	Ui	2.6	2	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	Ui	390	2	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	36	20-116	03/07/13	Acceptable
Decachlorobiphenyl	63	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Organochlorine Pesticides

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
beta-BHC	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
delta-BHC	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Heptachlor	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Aldrin	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Heptachlor Epoxide	ND	Ui	2.0	1	02/27/13	03/06/13	KWG1302031	
gamma-Chlordane†	1.5	P	0.99	1	02/27/13	03/06/13	KWG1302031	
Endosulfan I	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
alpha-Chlordane	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Dieldrin	ND	Ui	2.0	1	02/27/13	03/06/13	KWG1302031	
4,4'-DDE	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Endrin	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Endosulfan II	ND	Ui	2.3	1	02/27/13	03/06/13	KWG1302031	
4,4'-DDD	6.3		0.99	1	02/27/13	03/06/13	KWG1302031	
Endrin Aldehyde	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Endosulfan Sulfate	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
4,4'-DDT	ND	Ui	6.5	1	02/27/13	03/06/13	KWG1302031	
Endrin Ketone	ND	U	0.99	1	02/27/13	03/06/13	KWG1302031	
Methoxychlor	ND	Ui	1.6	1	02/27/13	03/06/13	KWG1302031	
Toxaphene	ND	Ui	110	1	02/27/13	03/06/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	57	20-116	03/06/13	Acceptable
Decachlorobiphenyl	63	22-130	03/06/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302031-7
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	U	33	1	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	62	20-116	03/07/13	Acceptable
Decachlorobiphenyl	62	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
TP2 (1.5-2.0)	K1301490-003	36 D	63 D
TP2 (4.5-5.0)	K1301490-005	57	63
Method Blank	KWG1302031-7	62	62
TP2 (4.5-5.0)MS	KWG1302031-1	60	64
TP2 (4.5-5.0)DMS	KWG1302031-2	61	69
TP2 (4.5-5.0)MS	KWG1302031-4	60	64
TP2 (4.5-5.0)DMS	KWG1302031-5	44	56
Lab Control Sample	KWG1302031-3	62	64

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-116
Sur2 =	Decachlorobiphenyl	22-130

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/06/2013 -
 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	TP2 (4.5-5.0)MS KWG1302031-1 Matrix Spike			TP2 (4.5-5.0)DMS KWG1302031-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	11.2	19.6	57	9.97	19.7	51	23-133	11	40
beta-BHC	ND	10.0	19.6	51	8.88	19.7	45	22-142	12	40
gamma-BHC (Lindane)	ND	12.0	19.6	61	11.4	19.7	58	26-135	5	40
delta-BHC	ND	12.7	19.6	65	11.3	19.7	57	25-148	11	40
Heptachlor	ND	11.4	19.6	58	9.97	19.7	51	21-136	14	40
Aldrin	ND	10.4	19.6	53	9.33	19.7	47	22-135	11	40
Heptachlor Epoxide	ND	12.1	19.6	62 #	11.8	19.7	60 #	25-129	2	40
gamma-Chlordane	1.5	11.9	19.6	53	11.1	19.7	49	24-133	7	40
Endosulfan I	ND	10.8	19.6	55	9.50	19.7	48	15-119	13	40
alpha-Chlordane	ND	10.8	19.6	55	9.43	19.7	48	24-132	14	40
Dieldrin	ND	11.8	19.6	60 #	9.96	19.7	50 #	26-133	17	40
4,4'-DDE	ND	13.1	19.6	67	13.3	19.7	67	22-142	1	40
Endrin	ND	10.4	19.6	53	9.45	19.7	48	22-145	10	40
Endosulfan II	ND	12.1	19.6	62 #	9.66	19.7	49 #	13-129	23	40
4,4'-DDD	6.3	16.2	19.6	51	17.8	19.7	58	19-143	9	40
Endrin Aldehyde	ND	10.6	19.6	54	9.68	19.7	49	10-129	9	40
Endosulfan Sulfate	ND	12.1	19.6	62	11.7	19.7	59	20-134	3	40
4,4'-DDT	ND	12.9	19.6	66 #	13.3	19.7	67 #	19-154	2	40
Endrin Ketone	ND	11.2	19.6	57	9.90	19.7	50	19-139	12	40
Methoxychlor	ND	12.7	19.6	65 #	10.7	19.7	54 #	24-151	17	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	TP2 (4.5-5.0)MS KWG1302031-4 Matrix Spike			TP2 (4.5-5.0)DMS KWG1302031-5 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Toxaphene	ND	64.1	99.2	65 #	123	98.4	125 #	20-155	63 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Lab Control Sample
KWG1302031-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	14.1	20.0	71	36-139
beta-BHC	12.4	20.0	62	38-142
gamma-BHC (Lindane)	13.9	20.0	70	40-142
delta-BHC	14.3	20.0	72	48-145
Heptachlor	13.3	20.0	67	39-135
Aldrin	12.5	20.0	63	37-134
Heptachlor Epoxide	13.3	20.0	66	45-118
gamma-Chlordane	13.0	20.0	65	41-135
Endosulfan I	13.4	20.0	67	35-121
alpha-Chlordane	13.2	20.0	66	41-134
Dieldrin	13.8	20.0	69	46-136
4,4'-DDE	13.3	20.0	66	46-141
Endrin	11.8	20.0	59	40-152
Endosulfan II	13.7	20.0	68	39-128
4,4'-DDD	13.5	20.0	68	46-146
Endrin Aldehyde	12.3	20.0	61	32-132
Endosulfan Sulfate	13.4	20.0	67	43-138
4,4'-DDT	13.5	20.0	67	46-151
Endrin Ketone	12.8	20.0	64	47-135
Methoxychlor	13.7	20.0	69	42-147
Toxaphene	88.2	100	88	53-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1221	ND	U	20	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1232	ND	U	10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1242	ND	U	10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1248	ND	U	10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1254	400		10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1260	130		10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1262	ND	U	10	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1268	ND	U	10	1	02/27/13	03/07/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	75	35-133	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1221	ND	U	20	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1232	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1242	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1248	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1254	160		9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1260	70		9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1262	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1268	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	96	35-133	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302032-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1221	ND	U	13	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1232	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1242	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1248	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1254	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1260	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1262	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1268	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	108	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
TP2 (1.5-2.0)	K1301490-003	75
TP2 (4.5-5.0)	K1301490-005	96
Method Blank	KWG1302032-4	108
TP2 (4.5-5.0)MS	KWG1302032-1	93
TP2 (4.5-5.0)DMS	KWG1302032-2	91
Lab Control Sample	KWG1302032-3	92

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 35-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Analyte Name	Sample Result	TP2 (4.5-5.0)MS KWG1302032-1 Matrix Spike			TP2 (4.5-5.0)DMS KWG1302032-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	214	197	109	226	199	113	27-128	5	40
Aroclor 1260	70	247	197	90	236	199	83	29-131	5	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Lab Control Sample
KWG1302032-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	183	200	92	37-121
Aroclor 1260	181	200	91	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Volatile Organic Compounds

Sample Name: B-3 (26-30)
Lab Code: K1301490-016
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Vinyl Chloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichlorofluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Acetone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	*
Carbon Disulfide	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Methylene Chloride	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Butanone (MEK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Bromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Carbon Tetrachloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Benzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichloroethene (TCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromodichloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Toluene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,2-Trichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Hexanone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Volatile Organic Compounds

Sample Name: B-3 (26-30)
Lab Code: K1301490-016
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Chlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Ethylbenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
m,p-Xylenes	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
o-Xylene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Styrene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromoform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Isopropylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
n-Propylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,3-Trichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3,5-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
tert-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
sec-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Isopropyltoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,4-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
n-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Hexachlorobutadiene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Naphthalene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	*
1,2,3-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Volatile Organic Compounds

Sample Name: B-3 (26-30)
Lab Code: K1301490-016

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	73-122	02/25/13	Acceptable
Toluene-d8	93	65-144	02/25/13	Acceptable
4-Bromofluorobenzene	86	68-117	02/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Vinyl Chloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichlorofluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Acetone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	*
Carbon Disulfide	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Methylene Chloride	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Butanone (MEK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Bromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Carbon Tetrachloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Benzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichloroethene (TCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromodichloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Toluene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,2-Trichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Hexanone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Chlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Ethylbenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
m,p-Xylenes	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
o-Xylene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Styrene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromoform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Isopropylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
n-Propylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,3-Trichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3,5-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
tert-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
sec-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Isopropyltoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,4-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
n-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Hexachlorobutadiene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Naphthalene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	*
1,2,3-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	103	73-122	02/25/13	Acceptable
Toluene-d8	89	65-144	02/25/13	Acceptable
4-Bromofluorobenzene	86	68-117	02/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301401-012	109	94	85
B-3 (26-30)	K1301490-016	107	93	86
Method Blank	KWG1301715-4	103	89	86
Batch QCMS	KWG1301715-1	96	101	104
Batch QCDMS	KWG1301715-2	96	100	105
Lab Control Sample	KWG1301715-3	98	102	104

Surrogate Recovery Control Limits (%)

Sur1 =	Dibromofluoromethane	73-122
Sur2 =	Toluene-d8	65-144
Sur3 =	4-Bromofluorobenzene	68-117

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name: Batch QC
Lab Code: K1301401-012
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Analyte Name	Sample Result	Batch QCMS KWG1301715-1 Matrix Spike			Batch QCDMS KWG1301715-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Vinyl Chloride	ND	4.80	10.0	48 *	4.80	10.0	48 *	49-136	0	30
1,1-Dichloroethene	ND	7.96	10.0	80	7.61	10.0	76	59-171	4	30
Chloroform	ND	8.27	10.0	83	8.22	10.0	82	64-133	1	30
Carbon Tetrachloride	ND	5.91	10.0	59	5.85	10.0	59	53-161	1	30
Benzene	ND	7.50	10.0	75	7.28	10.0	73	63-144	3	30
Trichloroethene (TCE)	11	15.8	10.0	49 *	15.6	10.0	46 *	53-139	2	30
Bromodichloromethane	ND	8.56	10.0	86	8.61	10.0	86	61-134	1	30
Toluene	ND	7.84	10.0	78	7.77	10.0	78	71-136	1	30
1,1,2-Trichloroethane	ND	9.41	10.0	94	10.3	10.0	103	74-124	9	30
2-Hexanone	ND	44.9	50.0	90	49.3	50.0	99	53-132	9	30
Chlorobenzene	ND	8.67	10.0	87	8.80	10.0	88	69-126	1	30
Ethylbenzene	ND	8.07	10.0	81	8.07	10.0	81	66-136	0	30
1,2,3-Trichloropropane	ND	9.06	10.0	91	9.52	10.0	95	71-127	5	30
2-Chlorotoluene	ND	8.60	10.0	86	8.72	10.0	87	55-139	1	30
1,2-Dichlorobenzene	ND	9.32	10.0	93	9.60	10.0	96	72-119	3	30
Naphthalene	ND	7.17	10.0	72	8.35	10.0	84	52-147	15	30

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Lab Control Sample
 KWG1301715-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	6.44	10.0	64	32-124
Chloromethane	10.0	10.0	100	34-130
Vinyl Chloride	7.91	10.0	79	55-123
Bromomethane	9.84	10.0	98	35-113
Chloroethane	9.43	10.0	94	58-134
Trichlorofluoromethane	8.48	10.0	85	52-141
1,1-Dichloroethene	11.7	10.0	117	66-129
Acetone	52.5	50.0	105	68-135
Carbon Disulfide	22.4	20.0	112	46-144
Methylene Chloride	9.88	10.0	99	71-122
trans-1,2-Dichloroethene	10.7	10.0	107	67-125
1,1-Dichloroethane	9.69	10.0	97	68-132
2,2-Dichloropropane	10.1	10.0	101	37-145
cis-1,2-Dichloroethene	9.96	10.0	100	71-118
2-Butanone (MEK)	45.4	50.0	91	71-149
Bromochloromethane	10.5	10.0	105	75-131
Chloroform	10.4	10.0	104	70-129
1,1,1-Trichloroethane (TCA)	9.97	10.0	100	59-136
Carbon Tetrachloride	9.75	10.0	98	55-140
1,1-Dichloropropene	10.8	10.0	108	59-134
Benzene	9.57	10.0	96	69-124
1,2-Dichloroethane (EDC)	9.70	10.0	97	56-142
Trichloroethene (TCE)	9.95	10.0	100	67-128
1,2-Dichloropropane	9.29	10.0	93	67-126
Dibromomethane	9.55	10.0	96	69-128
Bromodichloromethane	10.0	10.0	100	63-129
cis-1,3-Dichloropropene	7.82	10.0	78	62-132
4-Methyl-2-pentanone (MIBK)	39.4	50.0	79	64-134
Toluene	10.1	10.0	101	69-124
trans-1,3-Dichloropropene	9.46	10.0	95	59-125
1,1,2-Trichloroethane	9.73	10.0	97	74-118
Tetrachloroethene (PCE)	10.3	10.0	103	62-126
2-Hexanone	41.8	50.0	84	59-131
1,3-Dichloropropane	9.53	10.0	95	75-116
Dibromochloromethane	8.85	10.0	89	67-126

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301490
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Lab Control Sample
 KWG1301715-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	9.64	10.0	96	74-118
Chlorobenzene	10.3	10.0	103	72-116
Ethylbenzene	10.8	10.0	108	67-121
1,1,1,2-Tetrachloroethane	10.1	10.0	101	66-124
m,p-Xylenes	22.2	20.0	111	69-121
o-Xylene	10.7	10.0	107	71-119
Styrene	10.9	10.0	109	74-121
Bromoform	8.61	10.0	86	52-144
Isopropylbenzene	9.86	10.0	99	67-129
1,1,2,2-Tetrachloroethane	9.29	10.0	93	70-127
Bromobenzene	9.72	10.0	97	72-116
n-Propylbenzene	10.5	10.0	105	61-124
1,2,3-Trichloropropane	9.07	10.0	91	69-123
2-Chlorotoluene	10.8	10.0	108	55-131
1,3,5-Trimethylbenzene	10.9	10.0	109	62-126
4-Chlorotoluene	11.0	10.0	110	66-121
tert-Butylbenzene	10.6	10.0	106	61-127
1,2,4-Trimethylbenzene	10.9	10.0	109	63-122
sec-Butylbenzene	10.6	10.0	106	59-128
4-Isopropyltoluene	11.1	10.0	111	61-128
1,3-Dichlorobenzene	10.6	10.0	106	70-116
1,4-Dichlorobenzene	10.3	10.0	103	73-115
n-Butylbenzene	11.1	10.0	111	55-130
1,2-Dichlorobenzene	10.2	10.0	102	72-115
1,2-Dibromo-3-chloropropane	8.71	10.0	87	55-132
1,2,4-Trichlorobenzene	9.79	10.0	98	58-126
Hexachlorobutadiene	10.8	10.0	108	57-119
Naphthalene	7.42	10.0	74	64-126
1,2,3-Trichlorobenzene	10.1	10.0	101	68-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
Phenol	ND	U	370	20	02/22/13	03/04/13	KWG1301621	
2-Chlorophenol	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
1,3-Dichlorobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
1,4-Dichlorobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
1,2-Dichlorobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Benzyl Alcohol	37000	D	1300	100	02/22/13	03/05/13	KWG1301621	
Bis(2-chloroisopropyl) Ether	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
2-Methylphenol	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
Hexachloroethane	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
N-Nitrosodi-n-propylamine	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
4-Methylphenol†	1000	D	150	20	02/22/13	03/04/13	KWG1301621	
Nitrobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Isophorone	180	D	130	20	02/22/13	03/04/13	KWG1301621	
2-Nitrophenol	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
2,4-Dimethylphenol	ND	U	610	20	02/22/13	03/04/13	KWG1301621	
Bis(2-chloroethoxy)methane	ND	U	150	20	02/22/13	03/04/13	KWG1301621	
2,4-Dichlorophenol	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Benzoic Acid	ND	U	4000	20	02/22/13	03/04/13	KWG1301621	
1,2,4-Trichlorobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
4-Chloroaniline	ND	U	200	20	02/22/13	03/04/13	KWG1301621	
Hexachlorobutadiene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
4-Chloro-3-methylphenol	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Hexachlorocyclopentadiene	ND	U	1000	20	02/22/13	03/04/13	KWG1301621	
2,4,6-Trichlorophenol	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
2,4,5-Trichlorophenol	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
2-Chloronaphthalene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
2-Nitroaniline	ND	U	250	20	02/22/13	03/04/13	KWG1301621	
Dimethyl Phthalate	57000	D	610	100	02/22/13	03/05/13	KWG1301621	
2,6-Dinitrotoluene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
3-Nitroaniline	ND	U	250	20	02/22/13	03/04/13	KWG1301621	
2,4-Dinitrophenol	ND	U	4000	20	02/22/13	03/04/13	KWG1301621	
4-Nitrophenol	ND	U	1300	20	02/22/13	03/04/13	KWG1301621	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
2,4-Dinitrotoluene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
4-Chlorophenyl Phenyl Ether	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Diethyl Phthalate	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
4-Nitroaniline	ND	U	250	20	02/22/13	03/04/13	KWG1301621	
2-Methyl-4,6-dinitrophenol	ND	U	1300	20	02/22/13	03/04/13	KWG1301621	
N-Nitrosodiphenylamine	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
4-Bromophenyl Phenyl Ether	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Hexachlorobenzene	ND	U	130	20	02/22/13	03/04/13	KWG1301621	
Pentachlorophenol	ND	U	1300	20	02/22/13	03/04/13	KWG1301621	
Di-n-butyl Phthalate	18000	D	1300	100	02/22/13	03/05/13	KWG1301621	
Butyl Benzyl Phthalate	1400	D	130	20	02/22/13	03/04/13	KWG1301621	
3,3'-Dichlorobenzidine	ND	U	1300	20	02/22/13	03/04/13	KWG1301621	
Bis(2-ethylhexyl) Phthalate	7600	D	1300	20	02/22/13	03/04/13	KWG1301621	
Di-n-octyl Phthalate	ND	U	130	20	02/22/13	03/04/13	KWG1301621	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	55	11-80	03/04/13	Acceptable
Phenol-d6	75	20-86	03/04/13	Acceptable
Nitrobenzene-d5	75	27-91	03/04/13	Acceptable
2-Fluorobiphenyl	73	25-97	03/04/13	Acceptable
2,4,6-Tribromophenol	87	10-119	03/04/13	Acceptable
Terphenyl-d14	70	33-129	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
Phenol	ND	U	190	10	02/22/13	03/04/13	KWG1301621	
2-Chlorophenol	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
1,3-Dichlorobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
1,4-Dichlorobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
1,2-Dichlorobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Benzyl Alcohol	1500	D	130	10	02/22/13	03/04/13	KWG1301621	
Bis(2-chloroisopropyl) Ether	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
2-Methylphenol	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
Hexachloroethane	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
N-Nitrosodi-n-propylamine	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
4-Methylphenol†	77	D	75	10	02/22/13	03/04/13	KWG1301621	
Nitrobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Isophorone	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
2-Nitrophenol	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
2,4-Dimethylphenol	ND	U	310	10	02/22/13	03/04/13	KWG1301621	
Bis(2-chloroethoxy)methane	ND	U	75	10	02/22/13	03/04/13	KWG1301621	
2,4-Dichlorophenol	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Benzoic Acid	ND	U	2000	10	02/22/13	03/04/13	KWG1301621	
1,2,4-Trichlorobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
4-Chloroaniline	ND	U	100	10	02/22/13	03/04/13	KWG1301621	
Hexachlorobutadiene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
4-Chloro-3-methylphenol	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Hexachlorocyclopentadiene	ND	U	500	10	02/22/13	03/04/13	KWG1301621	
2,4,6-Trichlorophenol	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
2,4,5-Trichlorophenol	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
2-Chloronaphthalene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
2-Nitroaniline	ND	U	130	10	02/22/13	03/04/13	KWG1301621	
Dimethyl Phthalate	3100	D	61	10	02/22/13	03/04/13	KWG1301621	
2,6-Dinitrotoluene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
3-Nitroaniline	ND	U	130	10	02/22/13	03/04/13	KWG1301621	
2,4-Dinitrophenol	ND	U	2000	10	02/22/13	03/04/13	KWG1301621	
4-Nitrophenol	ND	U	610	10	02/22/13	03/04/13	KWG1301621	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
2,4-Dinitrotoluene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
4-Chlorophenyl Phenyl Ether	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Diethyl Phthalate	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
4-Nitroaniline	ND	U	130	10	02/22/13	03/04/13	KWG1301621	
2-Methyl-4,6-dinitrophenol	ND	U	610	10	02/22/13	03/04/13	KWG1301621	
N-Nitrosodiphenylamine	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
4-Bromophenyl Phenyl Ether	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Hexachlorobenzene	ND	U	61	10	02/22/13	03/04/13	KWG1301621	
Pentachlorophenol	ND	U	610	10	02/22/13	03/04/13	KWG1301621	
Di-n-butyl Phthalate	490	D	130	10	02/22/13	03/04/13	KWG1301621	
Butyl Benzyl Phthalate	91	D	61	10	02/22/13	03/04/13	KWG1301621	
3,3'-Dichlorobenzidine	ND	U	610	10	02/22/13	03/04/13	KWG1301621	
Bis(2-ethylhexyl) Phthalate	1800	D	610	10	02/22/13	03/04/13	KWG1301621	
Di-n-octyl Phthalate	ND	U	61	10	02/22/13	03/04/13	KWG1301621	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	60	11-80	03/04/13	Acceptable
Phenol-d6	65	20-86	03/04/13	Acceptable
Nitrobenzene-d5	69	27-91	03/04/13	Acceptable
2-Fluorobiphenyl	77	25-97	03/04/13	Acceptable
2,4,6-Tribromophenol	82	10-119	03/04/13	Acceptable
Terphenyl-d14	67	33-129	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301621-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
Phenol	ND	U	15	1	02/22/13	03/04/13	KWG1301621	
2-Chlorophenol	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
1,3-Dichlorobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
1,4-Dichlorobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
1,2-Dichlorobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Benzyl Alcohol	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
Bis(2-chloroisopropyl) Ether	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
2-Methylphenol	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
Hexachloroethane	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
N-Nitrosodi-n-propylamine	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
4-Methylphenol†	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
Nitrobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Isophorone	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
2-Nitrophenol	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
2,4-Dimethylphenol	ND	U	25	1	02/22/13	03/04/13	KWG1301621	
Bis(2-chloroethoxy)methane	ND	U	7.5	1	02/22/13	03/04/13	KWG1301621	
2,4-Dichlorophenol	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Benzoic Acid	ND	U	200	1	02/22/13	03/04/13	KWG1301621	
1,2,4-Trichlorobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
4-Chloroaniline	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
Hexachlorobutadiene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
4-Chloro-3-methylphenol	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Hexachlorocyclopentadiene	ND	U	50	1	02/22/13	03/04/13	KWG1301621	
2,4,6-Trichlorophenol	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
2,4,5-Trichlorophenol	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
2-Chloronaphthalene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
2-Nitroaniline	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
Dimethyl Phthalate	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
2,6-Dinitrotoluene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
3-Nitroaniline	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
2,4-Dinitrophenol	ND	U	200	1	02/22/13	03/04/13	KWG1301621	
4-Nitrophenol	ND	U	50	1	02/22/13	03/04/13	KWG1301621	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301621-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
2,4-Dinitrotoluene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
4-Chlorophenyl Phenyl Ether	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Diethyl Phthalate	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
4-Nitroaniline	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
2-Methyl-4,6-dinitrophenol	ND	U	50	1	02/22/13	03/04/13	KWG1301621	
N-Nitrosodiphenylamine	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
4-Bromophenyl Phenyl Ether	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Hexachlorobenzene	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
Pentachlorophenol	ND	U	50	1	02/22/13	03/04/13	KWG1301621	
Di-n-butyl Phthalate	ND	U	10	1	02/22/13	03/04/13	KWG1301621	
Butyl Benzyl Phthalate	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	
3,3'-Dichlorobenzidine	ND	U	50	1	02/22/13	03/04/13	KWG1301621	
Bis(2-ethylhexyl) Phthalate	ND	U	50	1	02/22/13	03/04/13	KWG1301621	
Di-n-octyl Phthalate	ND	U	5.0	1	02/22/13	03/04/13	KWG1301621	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	47	11-80	03/04/13	Acceptable
Phenol-d6	54	20-86	03/04/13	Acceptable
Nitrobenzene-d5	50	27-91	03/04/13	Acceptable
2-Fluorobiphenyl	57	25-97	03/04/13	Acceptable
2,4,6-Tribromophenol	64	10-119	03/04/13	Acceptable
Terphenyl-d14	64	33-129	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
TP2 (1.5-2.0)	K1301490-003	55 D	75 D	75 D	73 D	87 D	70 D
TP2 (4.5-5.0)	K1301490-005	60 D	65 D	69 D	77 D	82 D	67 D
Method Blank	KWG1301621-5	47	54	50	57	64	64
TP2 (4.5-5.0)MS	KWG1301621-1	58 D	66 D	60 D	74 D	80 D	67 D
TP2 (4.5-5.0)DMS	KWG1301621-2	50 D	58 D	56 D	66 D	83 D	62 D
Lab Control Sample	KWG1301621-3	43	53	56	58	75	64
Duplicate Lab Control Sample	KWG1301621-4	58	69	64	55	73	58

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	11-80	Sur5 = 2,4,6-Tribromophenol	10-119
Sur2 = Phenol-d6	20-86	Sur6 = Terphenyl-d14	33-129
Sur3 = Nitrobenzene-d5	27-91		
Sur4 = 2-Fluorobiphenyl	25-97		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/22/2013
Date Analyzed: 03/04/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301621

Analyte Name	Sample Result	TP2 (4.5-5.0)MS KWG1301621-1 Matrix Spike			TP2 (4.5-5.0)DMS KWG1301621-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Phenol	ND	134	151	89	697	151	463 *	15-98	135 *	40
2-Chlorophenol	ND	93.6	151	62	79.7	151	53	19-92	16	40
1,4-Dichlorobenzene	ND	75.9	151	50	77.0	151	51	19-93	1	40
Hexachloroethane	ND	86.7	151	58	80.2	151	53	10-96	8	40
N-Nitrosodi-n-propylamine	ND	97.5	151	65	86.9	151	58	14-104	11	40
1,2,4-Trichlorobenzene	ND	84.0	151	56	86.6	151	58	23-99	3	40
4-Chloro-3-methylphenol	ND	106	151	70	103	151	69	12-106	3	40
2-Chloronaphthalene	ND	110	151	73	94.2	151	63	24-97	15	40
4-Nitrophenol	ND	ND	151	0 *	ND	151	0 *	11-131	NC	40
2,4-Dinitrotoluene	ND	114	151	76	105	151	70	25-114	8	40
Diethyl Phthalate	ND	121	151	80	121	151	80	10-135	0	40
4-Bromophenyl Phenyl Ether	ND	126	151	84	119	151	79	30-108	6	40
Pentachlorophenol	ND	274	151	182 *	279	151	185 *	10-123	2	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/22/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301621

Analyte Name	Lab Control Sample KWG1301621-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301621-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	140	250	56	163	250	65	29-93	15	40
Phenol	141	250	56	172	250	69	27-97	20	40
2-Chlorophenol	136	250	54	162	250	65	28-95	17	40
1,3-Dichlorobenzene	132	250	53	137	250	55	27-88	4	40
1,4-Dichlorobenzene	128	250	51	127	250	51	28-89	0	40
1,2-Dichlorobenzene	135	250	54	136	250	54	27-91	1	40
Benzyl Alcohol	138	250	55	161	250	64	25-103	15	40
Bis(2-chloroisopropyl) Ether	146	250	58	150	250	60	22-95	3	40
2-Methylphenol	152	250	61	177	250	71	18-95	16	40
Hexachloroethane	132	250	53	134	250	54	26-90	1	40
N-Nitrosodi-n-propylamine	155	250	62	169	250	67	25-103	8	40
4-Methylphenol	154	250	62	179	250	72	17-99	15	40
Nitrobenzene	142	250	57	155	250	62	26-100	9	40
Isophorone	151	250	60	161	250	65	31-95	7	40
2-Nitrophenol	151	250	61	158	250	63	29-96	4	40
2,4-Dimethylphenol	566	750	75	697	750	93	10-93	21	40
Bis(2-chloroethoxy)methane	155	250	62	171	250	68	30-95	10	40
2,4-Dichlorophenol	142	250	57	160	250	64	31-96	12	40
Benzoic Acid	101	750	13	ND	750	0 *	10-96	NC	40
1,2,4-Trichlorobenzene	138	250	55	133	250	53	27-94	4	40
4-Chloroaniline	154	250	62	168	250	67	30-86	9	40
Hexachlorobutadiene	128	250	51	123	250	49	25-96	4	40
4-Chloro-3-methylphenol	156	250	62	173	250	69	28-101	10	40
Hexachlorocyclopentadiene	115	250	46	114	250	45	18-71	1	40
2,4,6-Trichlorophenol	154	250	62	161	250	64	31-97	4	40
2,4,5-Trichlorophenol	160	250	64	169	250	68	33-97	5	40
2-Chloronaphthalene	155	250	62	139	250	56	31-95	11	40
2-Nitroaniline	178	250	71	180	250	72	34-104	1	40
Dimethyl Phthalate	181	250	73	174	250	69	39-100	4	40
2,6-Dinitrotoluene	190	250	76	186	250	74	38-102	2	40
3-Nitroaniline	194	250	78	177	250	71	38-97	9	40
2,4-Dinitrophenol	171	250	68	101	250	40	10-91	51 *	40
4-Nitrophenol	174	250	70	119	250	47	34-103	38	40
2,4-Dinitrotoluene	200	250	80	183	250	73	41-104	9	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/22/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301621

Analyte Name	Lab Control Sample KWG1301621-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301621-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
4-Chlorophenyl Phenyl Ether	162	250	65	144	250	57	33-95	12	40
Diethyl Phthalate	188	250	75	169	250	68	41-100	10	40
4-Nitroaniline	195	250	78	185	250	74	37-104	5	40
2-Methyl-4,6-dinitrophenol	181	250	72	90.8	250	36	23-99	66 *	40
N-Nitrosodiphenylamine	191	250	76	174	250	70	36-96	9	40
4-Bromophenyl Phenyl Ether	178	250	71	148	250	59	35-101	18	40
Hexachlorobenzene	183	250	73	151	250	60	40-99	19	40
Pentachlorophenol	188	250	75	128	250	51	21-97	38	40
Di-n-butyl Phthalate	215	250	86	181	250	72	42-109	17	40
Butyl Benzyl Phthalate	223	250	89	187	250	75	45-111	18	40
3,3'-Dichlorobenzidine	189	250	76	166	250	66	37-99	13	40
Bis(2-ethylhexyl) Phthalate	209	250	84	188	250	75	47-110	11	40
Di-n-octyl Phthalate	222	250	89	190	250	76	45-109	15	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: TP2 (1.5-2.0)
Lab Code: K1301490-003
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	460		4.9	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	69		4.9	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	37		4.9	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	54		4.9	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	24		4.9	1	02/27/13	03/01/13	KWG1301787	
Fluorene	37		4.9	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	450		4.9	1	02/27/13	03/01/13	KWG1301787	
Anthracene	82		4.9	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	1000		4.9	1	02/27/13	03/01/13	KWG1301787	
Pyrene	1100		4.9	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	490		4.9	1	02/27/13	03/01/13	KWG1301787	
Chrysene	680		4.9	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	840		4.9	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	320		4.9	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	620		4.9	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	680		4.9	1	02/27/13	03/01/13	KWG1301787	
Dibenz(a,h)anthracene	110		4.9	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	570		4.9	1	02/27/13	03/01/13	KWG1301787	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	73	17-104	03/01/13	Acceptable
Fluoranthene-d10	83	27-106	03/01/13	Acceptable
Terphenyl-d14	71	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: 02/19/2013
Date Received: 02/20/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	18		5.0	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	9.4		5.0	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	5.0	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	7.2		5.0	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	6.5		5.0	1	02/27/13	03/01/13	KWG1301787	
Fluorene	8.2		5.0	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	73		5.0	1	02/27/13	03/01/13	KWG1301787	
Anthracene	9.0		5.0	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	220		5.0	1	02/27/13	03/01/13	KWG1301787	
Pyrene	200		5.0	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	100		5.0	1	02/27/13	03/01/13	KWG1301787	
Chrysene	150		5.0	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	170		5.0	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	72		5.0	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	98		5.0	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	98		5.0	1	02/27/13	03/01/13	KWG1301787	
Dibenz(a,h)anthracene	18		5.0	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	84		5.0	1	02/27/13	03/01/13	KWG1301787	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	63	17-104	03/01/13	Acceptable
Fluoranthene-d10	70	27-106	03/01/13	Acceptable
Terphenyl-d14	60	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301787-5
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluorene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Chrysene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenz(a,h)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	17-104	03/01/13	Acceptable
Fluoranthene-d10	72	27-106	03/01/13	Acceptable
Terphenyl-d14	66	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
TP2 (1.5-2.0)	K1301490-003	73	83	71
TP2 (4.5-5.0)	K1301490-005	63	70	60
Method Blank	KWG1301787-5	74	72	66
TP2 (4.5-5.0)MS	KWG1301787-1	69	79	67
TP2 (4.5-5.0)DMS	KWG1301787-2	68	76	65
Lab Control Sample	KWG1301787-3	69	70	62
Duplicate Lab Control Sample	KWG1301787-4	64	65	58

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	17-104
Sur2 = Fluoranthene-d10	27-106
Sur3 = Terphenyl-d14	35-109

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: TP2 (4.5-5.0)
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Sample Result	TP2 (4.5-5.0)MS KWG1301787-1 Matrix Spike			TP2 (4.5-5.0)DMS KWG1301787-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	18	362	496	69	366	496	70	23-114	1	40
2-Methylnaphthalene	9.4	374	496	73	375	496	74	24-115	0	40
Acenaphthylene	ND	398	496	80	379	496	76	32-117	5	40
Acenaphthene	7.2	388	496	77	414	496	82	33-118	6	40
Dibenzofuran	6.5	397	496	79	521	496	104	34-131	27	40
Fluorene	8.2	421	496	83	457	496	90	33-125	8	40
Phenanthrene	73	514	496	89	1290	496	244 *	29-125	86 *	40
Anthracene	9.0	447	496	88	550	496	109	30-127	21	40
Fluoranthene	220	703	496	98	2280E	496	416 *	35-139	106 *	40
Pyrene	200	717	496	103	2000E	496	361 *	27-134	94 *	40
Benz(a)anthracene	100	590	496	99	1430	496	268 *	35-122	83 *	40
Chrysene	150	615	496	95	1520	496	277 *	36-126	85 *	40
Benzo(b)fluoranthene	170	643	496	95	1610	496	290 *	35-124	86 *	40
Benzo(k)fluoranthene	72	531	496	92	876	496	162 *	38-124	49 *	40
Benzo(a)pyrene	98	606	496	102	1410	496	263 *	37-123	79 *	40
Indeno(1,2,3-cd)pyrene	98	627	496	106	1170	496	216 *	28-133	60 *	40
Dibenz(a,h)anthracene	18	460	496	89	561	496	109	32-125	20	40
Benzo(g,h,i)perylene	84	558	496	95	938	496	172 *	33-128	51 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301490
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Lab Control Sample KWG1301787-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301787-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	385	500	77	354	500	71	32-124	8	40
2-Methylnaphthalene	381	500	76	349	500	70	27-126	9	40
Acenaphthylene	408	500	82	377	500	75	38-126	8	40
Acenaphthene	402	500	80	368	500	74	39-124	9	40
Dibenzofuran	406	500	81	369	500	74	41-130	10	40
Fluorene	414	500	83	375	500	75	39-129	10	40
Phenanthrene	390	500	78	351	500	70	39-123	11	40
Anthracene	416	500	83	379	500	76	38-130	9	40
Fluoranthene	426	500	85	381	500	76	39-135	11	40
Pyrene	445	500	89	410	500	82	39-134	8	40
Benz(a)anthracene	424	500	85	378	500	76	46-120	11	40
Chrysene	440	500	88	401	500	80	49-120	9	40
Benzo(b)fluoranthene	434	500	87	396	500	79	51-121	9	40
Benzo(k)fluoranthene	470	500	94	427	500	85	55-120	10	40
Benzo(a)pyrene	472	500	94	428	500	86	49-122	10	40
Indeno(1,2,3-cd)pyrene	455	500	91	404	500	81	40-128	12	40
Dibenz(a,h)anthracene	391	500	78	335	500	67	43-125	15	40
Benzo(g,h,i)perylene	439	500	88	396	500	79	49-122	10	40

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

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



March 29, 2013

Analytical Report for Service Request No: K1301527

Ashleigh Fines
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201-4707

RE: Pier 99/320001975-00.001

Dear Ashleigh:


Enclosed are the results of the samples submitted to our laboratory on February 21, 2013. For your reference, these analyses have been assigned our service request number K1301527.

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

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental


Lisa Domenighini
Project Manager

LD/mj

Page 1 of 144



ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental 

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Ash Creek Associates, Inc.
Project: Pier 99/ 320001975-00.001
Sample Matrix: Soil and Water

Service Request No.: K1301527
Date Received: 02/21/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Thirty-one soil and four water samples were received for analysis at ALS Environmental on 02/21/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total and Dissolved Metals

Water Samples:

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Calcium for sample B-4 were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Soil Samples:

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Aluminum, Calcium, Iron and Magnesium for sample B-2 (7.0-8.0) were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries, the method is still generally prescribed because of its versatility for general metals analysis. Antimony results (in conjunction with the matrix spike recovery) from this procedure should only be used as indicators to estimate concentrations. The matrix spike recovery of Antimony for samples B-2 (7.0-8.0) and B-5 (3.5-4.5) were below the control criterion. Since low recoveries resulted from a method defect and were possibly magnified by certain matrix components, no corrective action was appropriate. Alternative procedures that specifically target Antimony are available but were not specified for this project. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control.

The matrix spike recovery of Lead for sample B-2 (7.0-8.0) was outside the control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Approved by _____



The control criteria for matrix spike recovery of Aluminum, Calcium, Iron, Magnesium and Manganese for sample B-5 (3.5-4.5) were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

The matrix spike recovery of Copper for sample B-5 (3.5-4.5) was outside the control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

The matrix spike recovery of Zinc for sample B-5 (3.5-4.5) was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of Copper and Lead in sample B-2 (7.0-8.0) was outside the control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

The Relative Percent Difference (RPD) for the replicate analysis of Calcium and Copper in sample B-5 (3.5-4.5) was outside the control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Diesel Range Organics by Method NWTPH-Dx

No anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081

Water Samples:

Elevated Detection Limits:

The detection limit was elevated for Endosulfan II in the sample B-4. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Matrix Spike Recovery Exceptions:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Soil Samples:

Matrix Spike Recovery Exceptions:

The control criteria for the matrix spike recovery of Methoxychlor for the associated Matrix Spike was not applicable. The chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations. Thus, the reported recoveries contained a high bias. Based on the magnitude of background contribution, the interference appeared to be minimal.

Elevated Detection Limits:

The detection limit was elevated for Methoxychlor and Toxaphene in sample B-2 (7.0-8.0). The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Approved by



Sample Notes and Discussion:

Organochlorine Pesticides (O-C Pesticides) determined by EPA Method 8081B or equivalent gas chromatography-electron capture detector (GC/ECD) procedures are subject to interference from polychlorinated biphenyls (PCBs). The interference stems from the inability of the GC/ECD to differentiate selected PCB congeners from certain O-C Pesticides. This method limitation can result in false positive detections and/or high bias to pesticide values.

The magnitude of the interference is directly proportional to the concentration of PCBs in the sample. In addition, the affect on selected O-C Pesticides is complicated by the type PCB Aroclor(s) present in the sample. The presence of multiple Aroclors can result in contribution to the apparent concentration of O-C Pesticides by PCB congeners common to two or more Aroclors.

The samples in this delivery group contained PCB Aroclors at concentrations high enough to impact the O-C Pesticide results. Note that the results for the O-C Pesticides were reported as per the protocol defined in SW-846 regarding dual column confirmation. In some instances, certain PCB congeners were suspected of being detected on both columns simultaneously within the retention time window of the target pesticide. When the resulting chromatographic peaks met the criteria of a detection as defined in the method, the values were reported.

Results for 4,4-DDT in the soil field sample have contribution from confirmed PCB interferences on both columns within the established retention time window, resulting in reported values with a significant high bias.

No other anomalies associated with the analysis of these samples were observed.

PCB Aroclors by EPA Method 8082**Sample Confirmation Notes:**

The confirmation comparison criterion of 40% difference was exceeded for Aroclor 1260 in sample B-2 (7.0-8.0). The lower of the two values was reported when there was an apparent interference on the alternate column that produced the higher value.

Sample Notes and Discussion:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD) for extraction lot KWG1301884. A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

The soil samples in this data set appear to have been subjected to environmental stresses such as weathering, causing pattern degradation and changing the peak ratios. When pattern degradation occurs, correct identification and quantitative analysis of the individual Aroclors can be subjective. Care was taken to report the Aroclor(s) with the best pattern match.

Three Aroclors were identified in sample B-4 (3.5-5.0): Aroclor 1242, Aroclor 1254, and Aroclor 1260. When mixtures of PCB Aroclors are present in a sample, correct identification and quantitative analysis of the individual Aroclors can be subjective. In particular, when mixtures are present, differentiating Aroclor 1242 from Aroclor 1248 can be difficult.

A review of the sample chromatograms indicated the presence of PCB patterns that spanned the entire elution range from Aroclor 1242 through the end of Aroclor 1260. Based on individual PCB peaks in the early portion of the chromatogram, Aroclor 1242 was identified and quantitated. Aroclor 1260 was identified based on the presence of late eluting PCB peaks in the chromatogram. The remainder of the PCB pattern was identified as Aroclor 1254 because PCB peak height in the middle of the chromatogram was larger than could be attributed to Aroclor 1242, Aroclor 1248, or Aroclor 1260.

Approved by



When Aroclor mixtures are present in a sample, care is taken to minimize the possibility of double-counting PCBs. Analytical peaks are selected based on the best resolution possible for that particular sample. However, when a mixture of Aroclors 1242, 1254, and 1260 is present in a sample, the potential exists for a high bias from contribution of one Aroclor to another due to common peaks or peaks that cannot be completely resolved.

No other anomalies associated with the analysis of these samples were observed.

Organotin Compounds

Lab Control Sample Exceptions:

The upper control criterion was exceeded for Tri-n-butyltin Cation and Di-n-butyltin Cation in Laboratory Control Sample (LCS) KWG1302190-3. Since the problem may indicate a potential bias in the analytical batch, all associated field samples were re-extracted and re-analyzed past the recommended hold time. The LCS met control criteria for the reanalysis. Both sets of results were reported. An "RE" suffix was appended to the sample name to designate the results from the re-analysis. The data was flagged to indicate the problem.

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of several analytes for sample B-4 (3.5-5.0) were not applicable. The analysis of this sample required a dilution such that the added spike concentration was diluted below the reporting limit. No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260

Calibration Verification Exceptions:

The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) J:\MS18\0225F016.D: Acetone and Naphthalene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The matrix spike recovery and duplicate matrix spike recoveries of Vinyl Chloride and Trichloroethene (TCE) for sample Batch QCMS KWG1301715-1 Batch QCDMS KWG1301715-2 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270

Calibration Verification Exceptions:

The following analytes were flagged as outside the upper control criterion for Continuing Calibration Verification (CCV) MS06\0304F004.D: 2,4-Dimethylphenol. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. The data quality was not affected. No further corrective action was required.

The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) MS06\0305F005.D: Benzoic Acid. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. No further corrective action was required.

Approved by



The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) MS06\0307F009.D: Phenol, Bis(2-chloroethyl) Ether. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. No further corrective action was required.

Lab Control Sample Exceptions:

The recovery of Benzoic Acid in Laboratory Control Sample (LCS) KWG1301896-3 was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Benzoic Acid in the replicate Laboratory Control Sample (LCS) analyses (KWG1301698-1 and KWG1301698-2) was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the LCS/DLCS, indicating the analytical batch was in control. No further corrective action was appropriate.

Elevated Detection Limits:

The detection limits were elevated in samples B-4 (3.5-5.0) and B-2 (7.0-8.0). The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extracts were highly colored, which indicated the need to perform a dilution prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions.

No other anomalies associated with the analysis of these samples were observed.

Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Matrix Spike Recovery Exceptions:

The control criteria for replicate Matrix Spike recoveries of Pyrene for sample Batch QC were not applicable. The chromatogram of the parent sample indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. No further corrective action was possible.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for several analytes in the replicate matrix spike analyses of sample Batch QC KWG1301798-1 and KWG1301798-2 were outside control criteria. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Project Manager: Ashleigh Fines

Project Name: Pier 99

Project Number: 320001975-00.001

Sampler Name: Ian Maguire/Chris Luk

Analytical Lab: CAS/ALS

Report To: ashleighfines@gmail.com

Page: 1 of 5

[illegible]

Special Instructions:

H= Hold pending result of Cu, Pb, Zn analyses.

Laboratory Comments:

Temperature Upon Receipt:

VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Ashleigh Fines/Ash Creek Assoc.	2/21/2013	1116	Buyt	2/21/13	1119
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
			SW / ALS	2/21/13	1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301927

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 2 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix					Analyze For:																						
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082 Dioxin and Orange per NWT PH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report							
B-1 (4.0-5.0) 9	2/20/13	1110	2	X									X						X		HOLD																				
B-1 (8.0-10.0) 10	2/20/13	1100	2	X									X						X		H	H	H	H	H	X	H							X							
B-1 (13.0-15.0) 11	2/20/13	1105	2	X									X						X		HOLD																				
B-1 (17.0-18.5) 12	2/20/13	1125	3	X									X						X		HOLD																				
B-1 (18.5-20.0) 13	2/20/13	1130	2	X									X						X		H	H	H	H	H	X	H							X							
B-1 (24.0-25.0) 14	2/20/13	1115	3	X									X						X		HOLD																				
B-1 (26-27.5) 15	2/20/13	1120	3	X									X						X		HOLD																				
B-1 (27.5-30.0) 16	2/20/13	1125	3	X									X						X		HOLD																				
B-1 (33.0-35.0) 17	2/20/13	1135	3	X									X						X		HOLD																				

Special Instructions:

H= pending results of TPH analyses.

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines/Ash Creek Assoc.</i>	Date 2/21/2013	Time 1116	Received by: Name/Company <i>ALS</i>	Date 2/21/13	Time 1119
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>ALS</i>	Date 2/21/13	Time 1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301627

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 3 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix						Analyze For:																					
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass(Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCS per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082 Dioxin and Orange per NWTPH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report								
B-2 (4.0-5.0) 18	2/20/13	1245	3	X									X						X		HOLD																					
B-2 (7.0-8.0) 19	2/20/13	1300	3	X									X						X		H	H	H	H	H	X	H							X								
B-2 (8.0-10.0) 20	2/20/13	1301	3	X									X						X		HOLD																					
B-2 (11-12) 21	2/20/13	1340	3	X									X						X		HOLD																					
B-2 (12-14) 22	2/20/13	1345	3	X									X						X		HOLD																					
B-2 (17.0-19.0) 23	2/20/13	1350	3	X									X						X		HOLD																					
B-2 (19.0-20.0) 24	2/20/13	1355	3										X						X		H	H	H	H	H	X	H							X								
B-2 (22.0-25.0) 25	2/20/13	1410	3										X						X		HOLD																					

Special Instructions:

H= pending results of TPH analyses.

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines</i>	Date 2/21/2013	Time 1116	Received by: Name/Company <i>Dee</i>	Date 2/21/13	Time 11:19
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>SMO/ALS</i>	Date 2/21/13	Time 1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301927

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 4 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix					Analyze For:																								
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 22 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Diesel and Oil Range per NWTPH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report									
B-5 (3.5-4.5) 26	2/20/13	1525	3	X									X								X																							
B-5 (8.5-10) 27	2/20/13	1540	3	X									X								X																							
B-5 (14-15) 28	2/20/13	1550	3	X									X								X		HOLD																					
B-5 (18.5-20) 29	2/20/13	1600	3	X									X								X		HOLD																					
B-5 (23.5-25) 30	2/20/13	1610	3	X									X								X		HOLD																					
B-5 (28.5-30) 31	2/20/13	1620	3	X									X								X		HOLD																					

Special Instructions:

H = Pending results of Cu, Pb, ZN analyses.

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines</i> Ashleigh Fines/Ash Creek Assoc.	Date 2/21/2013	Time 1116	Received by: Name/Company <i>Delight</i>	Date 2/21/13	Time 11:19
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>SM/ALS</i>	Date 2/21/13	Time 1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301527

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 5 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix				Analyze For:															
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Diesel and Off-range per NWT PH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results
B-3 (26-30) GW 32	2/20/13	1620	4	X									X		X									X	X	X					X			
B-4 33	2/20/13	1140	9	X				X					X		X									X	X	X					X			
B-4 DUP 34	2/20/13	1140	1	X									X		X																X			

Special Instructions: **Lab filter 1L Amber for dissolved metal analyses for samples B-3 (26-30), B-4, and B-4 DUP.**

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines</i>	Date 2/21/2013	Time 1116	Received by: Name/Company <i>Chris Luk</i>	Date 2/21/13	Time 1119
Relinquished by: Name/Company Ashleigh Fines/Ash Creek Assoc.	Date	Time	Received by: Name/Company <i>Chris Luk</i>	Date 2/21/13	Time 1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

PC hisa

Cooler Receipt and Preservation Form

Client / Project: Ash Creek Service Request K13 01527
 Received: 2/21/13 Opened: 2/21/13 By: [signature] Unloaded: 2/21/13 By: [signature]

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

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
5.3	5.5	—	—	+0.2	300	NA		NA	
8.2	8.3	—	—	+0.1	299				
7.7	7.6	—	—	+0.1	287				

7. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
 10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
 12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? Indicate in the table below NA Y N
 14. Were VOA vials received without headspace? Indicate in the table below. NA Y N
 15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
B-4 (3.5-5.0)	K1301527-001	02/20/2013	02/21/2013	02/27/2013	81.8	
B-1 (8.0-10.0)	K1301527-010	02/20/2013	02/21/2013	02/27/2013	83.8	
B-1 (18.5-20.0)	K1301527-013	02/20/2013	02/21/2013	02/27/2013	71.3	
B-2 (7.0-8.0)	K1301527-019	02/20/2013	02/21/2013	02/27/2013	78.9	
B-2 (19.0-20.0)	K1301527-024	02/20/2013	02/21/2013	02/27/2013	71.0	
B-5 (3.5-4.5)	K1301527-026	02/20/2013	02/21/2013	02/27/2013	88.3	
B-5 (8.5-10)	K1301527-027	02/20/2013	02/21/2013	02/27/2013	85.1	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013
Date Analyzed: 02/27/2013

Duplicate Sample Summary

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
B-4 (3.5-5.0)	K1301527-001	81.8	82.8	82.3	1	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301527

Sample Name:

B-4 (3.5-5.0)

B-5 (3.5-4.5)

B-5 (3.5-4.5)D

B-5 (3.5-4.5)S

B-5 (8.5-10)

Method Blank

Lab Code:

K1301527-001

K1301527-026

K1301527-026D

K1301527-026S

K1301527-027

K1301527-MB

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-4 (3.5-5.0) **Lab Code:** K1301527-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/25/13	02/25/13	105		N*
Lead	6010C	1.6	2.0	02/25/13	02/25/13	94.0		
Zinc	6010C	0.78	2.0	02/25/13	02/25/13	183		N

% Solids: 81.8

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-5 (3.5-4.5) **Lab Code:** K1301527-026

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.4	2.0	02/25/13	02/25/13	69.6		N*
Lead	6010C	1.4	2.0	02/25/13	02/25/13	29.7		
Zinc	6010C	0.70	2.0	02/25/13	02/25/13	86.1		N

% Solids: 88.3

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-5 (8.5-10) **Lab Code:** K1301527-027

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/25/13	02/25/13	18.7		N*
Lead	6010C	1.6	2.0	02/25/13	02/25/13	16.3		
Zinc	6010C	0.80	2.0	02/25/13	02/25/13	101		N

% Solids: 85.1

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301527-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.6	2.0	02/25/13	02/25/13	0.6	U	N*
Lead	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	
Zinc	6010C	1.0	2.0	02/25/13	02/25/13	1.0	U	N

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 88.3

Sample Name: B-5 (3.5-4.5)S Lab Code: K1301527-026S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Copper	75 - 125	139		69.6		32.92	210.8	N	6010C
Lead	75 - 125	85.9		29.7		65.84	85.4		6010C
Zinc	75 - 125	129		86.1		65.84	65.2	N	6010C

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 88.3

Sample Name: B-5 (3.5-4.5)D Lab Code: K1301527-026D

Analyte	Control Limit	Sample (S) C		Duplicate (D) C		RPD	Q	Method
Copper	20	69.6		91.4		27.1	*	6010C
Lead	20	29.7		31.2		4.9		6010C
Zinc	20	86.1		75.7		12.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals
- 7 -
LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001
Project Name: Pier 99

Aqueous LCS Source: Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Copper				79.6	82.7		84	116	103.9
Lead				91.8	84.4		82	118	91.9
Zinc				140	124		82	118	88.6

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

- Cover Page -**INORGANIC ANALYSIS DATA PACKAGE**

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301527**Sample Name:****B-4 (3.5-5.0)****B-4 (3.5-5.0)D****B-4 (3.5-5.0)S****B-2 (7.0-8.0)****B-2 (7.0-8.0)D****B-2 (7.0-8.0)S****B-5 (3.5-4.5)****B-5 (3.5-4.5)D****B-5 (3.5-4.5)S****B-5 (8.5-10)****Method Blank****Method Blank****Lab Code:****K1301527-001****K1301527-001D****K1301527-001S****K1301527-019****K1301527-019D****K1301527-019S****K1301527-026****K1301527-026D****K1301527-026S****K1301527-027****K1301527-MB****K1301527-MB2****Comments:**

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-4 (3.5-5.0) **Lab Code:** K1301527-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	7.8	2.0	02/25/13	02/25/13	7570		
Antimony	6010C	1.6	2.0	02/25/13	02/25/13	1.6	U	N
Arsenic	6010C	1.6	2.0	02/25/13	02/25/13	5.1		
Barium	6010C	0.4	2.0	02/25/13	02/25/13	126		
Beryllium	6010C	0.1	2.0	02/25/13	02/25/13	0.3		
Cadmium	6010C	0.1	2.0	02/25/13	02/25/13	0.3		
Calcium	6010C	7.8	2.0	02/25/13	02/25/13	3310		*
Chromium	6010C	0.4	2.0	02/25/13	02/25/13	13.2		
Cobalt	6010C	0.4	2.0	02/25/13	02/25/13	7.4		
Copper	6010C	0.5	2.0	02/25/13	02/25/13	105		N*
Iron	6010C	1.6	2.0	02/25/13	02/25/13	16200		
Lead	6010C	1.6	2.0	02/25/13	02/25/13	94.0		
Magnesium	6010C	3.1	2.0	02/25/13	02/25/13	2860		
Manganese	6010C	0.16	2.0	02/25/13	02/25/13	224		
Mercury	7471B	0.10	5.0	03/04/13	03/04/13	0.87		
Nickel	6010C	0.3	2.0	02/25/13	02/25/13	11.9		
Potassium	6010C	46.7	2.0	02/25/13	02/25/13	835		
Selenium	6010C	3.1	2.0	02/25/13	02/25/13	3.1	U	
Silver	6010C	0.4	2.0	02/25/13	02/25/13	0.4	U	
Sodium	6010C	31.1	2.0	02/25/13	02/25/13	270		
Thallium	6010C	1.6	2.0	02/25/13	02/25/13	1.6	U	
Vanadium	6010C	0.8	2.0	02/25/13	02/25/13	38.6		
Zinc	6010C	0.78	2.0	02/25/13	02/25/13	183		N

% Solids: 81.8

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301527

Project No.: 320001975-00.001

Date Collected: 02/20/13

Project Name: Pier 99

Date Received: 02/21/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: B-2 (7.0-8.0)

Lab Code: K1301527-019

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	9.9	2.0	03/04/13	03/05/13	11200		
Antimony	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	N
Arsenic	6010C	2.0	2.0	03/04/13	03/05/13	9.8		
Barium	6010C	0.5	2.0	03/04/13	03/05/13	151		
Beryllium	6010C	0.1	2.0	03/04/13	03/05/13	0.1	U	
Cadmium	6010C	0.1	2.0	03/04/13	03/05/13	2.7		
Calcium	6010C	9.9	2.0	03/04/13	03/05/13	4870		
Chromium	6010C	0.5	2.0	03/04/13	03/05/13	16.5		
Cobalt	6010C	0.5	2.0	03/04/13	03/05/13	7.8		
Copper	6010C	0.6	2.0	03/04/13	03/05/13	72.7		*
Iron	6010C	2.0	2.0	03/04/13	03/05/13	19900		
Lead	6010C	2.0	2.0	03/04/13	03/05/13	139		N*
Magnesium	6010C	4.0	2.0	03/04/13	03/05/13	4200		
Manganese	6010C	0.2	2.0	03/04/13	03/05/13	293		
Mercury	7471B	0.02	1.0	03/04/13	03/04/13	0.63		
Nickel	6010C	0.4	2.0	03/04/13	03/05/13	13.6		
Potassium	6010C	59.4	2.0	03/04/13	03/05/13	1020		
Selenium	6010C	4.0	2.0	03/04/13	03/05/13	4.0	U	
Silver	6010C	0.5	2.0	03/04/13	03/05/13	0.5	U	
Sodium	6010C	39.6	2.0	03/04/13	03/05/13	376		
Thallium	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	
Vanadium	6010C	1.0	2.0	03/04/13	03/05/13	47.4		
Zinc	6010C	0.99	2.0	03/04/13	03/05/13	341		

% Solids: 78.9

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-5 (3.5-4.5) **Lab Code:** K1301527-026

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.4	2.0	02/25/13	02/25/13	69.6		N*
Lead	6010C	1.4	2.0	02/25/13	02/25/13	29.7		
Zinc	6010C	0.70	2.0	02/25/13	02/25/13	86.1		N

% Solids: 88.3

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:** 02/20/13
Project Name: Pier 99 **Date Received:** 02/21/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-5 (8.5-10) **Lab Code:** K1301527-027

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/25/13	02/25/13	18.7		N*
Lead	6010C	1.6	2.0	02/25/13	02/25/13	16.3		
Zinc	6010C	0.80	2.0	02/25/13	02/25/13	101		N

% Solids: 85.1

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301527-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.0	2.0	02/25/13	02/25/13	10.0	U	
Antimony	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	N
Arsenic	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	
Barium	6010C	0.5	2.0	02/25/13	02/25/13	0.5	U	
Beryllium	6010C	0.1	2.0	02/25/13	02/25/13	0.1	U	
Cadmium	6010C	0.1	2.0	02/25/13	02/25/13	0.1	U	
Calcium	6010C	10.0	2.0	02/25/13	02/25/13	10.0	U	*
Chromium	6010C	0.5	2.0	02/25/13	02/25/13	0.5	U	
Cobalt	6010C	0.5	2.0	02/25/13	02/25/13	0.5	U	
Copper	6010C	0.6	2.0	02/25/13	02/25/13	0.6	U	N*
Iron	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	
Lead	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	
Magnesium	6010C	4.0	2.0	02/25/13	02/25/13	4.0	U	
Manganese	6010C	0.20	2.0	02/25/13	02/25/13	0.20	U	
Mercury	7471B	0.02	1.0	03/04/13	03/04/13	0.02	U	
Nickel	6010C	0.4	2.0	02/25/13	02/25/13	0.4	U	
Potassium	6010C	60.0	2.0	02/25/13	02/25/13	60.0	U	
Selenium	6010C	4.0	2.0	02/25/13	02/25/13	4.0	U	
Silver	6010C	0.5	2.0	02/25/13	02/25/13	0.5	U	
Sodium	6010C	40.0	2.0	02/25/13	02/25/13	40.0	U	
Thallium	6010C	2.0	2.0	02/25/13	02/25/13	2.0	U	
Vanadium	6010C	1.0	2.0	02/25/13	02/25/13	1.0	U	
Zinc	6010C	1.0	2.0	02/25/13	02/25/13	1.0	U	N

% Solids: 100.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301527-MB2

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.0	2.0	03/04/13	03/05/13	10.0	U	
Antimony	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	N
Arsenic	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	
Barium	6010C	0.5	2.0	03/04/13	03/05/13	0.5	U	
Beryllium	6010C	0.1	2.0	03/04/13	03/05/13	0.1	U	
Cadmium	6010C	0.1	2.0	03/04/13	03/05/13	0.1	U	
Calcium	6010C	10.0	2.0	03/04/13	03/05/13	10.0	U	
Chromium	6010C	0.5	2.0	03/04/13	03/05/13	0.5	U	
Cobalt	6010C	0.5	2.0	03/04/13	03/05/13	0.5	U	
Copper	6010C	0.6	2.0	03/04/13	03/05/13	0.6	U	*
Iron	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	
Lead	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	N*
Magnesium	6010C	4.0	2.0	03/04/13	03/05/13	4.0	U	
Manganese	6010C	0.2	2.0	03/04/13	03/05/13	0.2	U	
Nickel	6010C	0.4	2.0	03/04/13	03/05/13	0.4	U	
Potassium	6010C	60.0	2.0	03/04/13	03/05/13	60.0	U	
Selenium	6010C	4.0	2.0	03/04/13	03/05/13	4.0	U	
Silver	6010C	0.5	2.0	03/04/13	03/05/13	0.5	U	
Sodium	6010C	40.0	2.0	03/04/13	03/05/13	40.0	U	
Thallium	6010C	2.0	2.0	03/04/13	03/05/13	2.0	U	
Vanadium	6010C	1.0	2.0	03/04/13	03/05/13	1.0	U	
Zinc	6010C	1.0	2.0	03/04/13	03/05/13	1.0	U	

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Units:** MG/KG
Project Name: Pier 99 **Basis:** DRY
Matrix: SOIL **% Solids:** 78.9

Sample Name: B-2 (7.0-8.0)S

Lab Code: K1301527-019S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		12500		11200		396.07	328.2		6010C
Antimony	75 - 125	33.2		2.0	U	99.02	33.5	N	6010C
Arsenic	75 - 125	110		9.8		99.02	101.2		6010C
Barium	79 - 114	543		151		396.07	99.0		6010C
Beryllium	78 - 115	9.7		0.1	U	9.90	98.0		6010C
Cadmium	75 - 125	11.5		2.7		9.90	88.9		6010C
Calcium		6240		4870		990.18	138.4		6010C
Chromium	75 - 125	56.6		16.5		39.61	101.2		6010C
Cobalt	75 - 125	98.1		7.8		99.02	91.2		6010C
Copper	75 - 125	129		72.7		49.51	113.7		6010C
Iron		25700		19900		198.04	2928.7		6010C
Lead	75 - 125	547		139		99.02	412.0	N	6010C
Magnesium		6840		4200		990.18	266.6		6010C
Manganese	75 - 125	377		293		99.02	84.8		6010C
Nickel	75 - 125	102		13.6		99.02	89.3		6010C
Potassium	75 - 125	2050		1020		990.18	104.0		6010C
Selenium	75 - 125	91.7		4.0	U	99.02	92.6		6010C
Silver	75 - 125	11.3		0.5	U	9.90	114.1		6010C
Sodium	75 - 125	1440		376		990.18	107.5		6010C
Thallium	75 - 125	85.8		2.0	U	99.02	86.6		6010C
Vanadium	75 - 125	146		47.4		99.02	99.6		6010C
Zinc	75 - 125	459		341		99.02	119.2		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Units:** MG/KG
Project Name: Pier 99 **Basis:** DRY
Matrix: SOIL **% Solids:** 88.3

Sample Name: B-5 (3.5-4.5)S

Lab Code: K1301527-026S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		10600		8910		263.37	641.7		6010C
Antimony	75 - 125	21.4		1.4	U	65.84	32.5	N	6010C
Arsenic	75 - 125	70.1		4.2		65.84	100.1		6010C
Barium	79 - 114	331		87.6		263.37	92.4		6010C
Beryllium	78 - 115	6.9		0.4		6.58	98.8		6010C
Cadmium	75 - 125	5.6		0.1	U	6.58	85.1		6010C
Calcium		7830		6180		658.43	250.6		6010C
Chromium	75 - 125	35.6		11.8		26.34	90.4		6010C
Cobalt	75 - 125	64.2		7.5		65.84	86.1		6010C
Copper	75 - 125	139		69.6		32.92	210.8	N	6010C
Iron		18700		17700		131.69	759.4		6010C
Lead	75 - 125	85.9		29.7		65.84	85.4		6010C
Magnesium		4180		3190		658.43	150.4		6010C
Manganese		370		286		65.84	127.6		6010C
Nickel	75 - 125	66.3		10.2		65.84	85.2		6010C
Potassium	75 - 125	1690		942		658.43	113.6		6010C
Selenium	75 - 125	56		2.8	U	65.84	85.1		6010C
Silver	75 - 125	6.8		0.4	U	6.58	103.3		6010C
Sodium	75 - 125	872		184		658.43	104.5		6010C
Thallium	75 - 125	54.6		1.4	U	65.84	82.9		6010C
Vanadium	75 - 125	105		43.3		65.84	93.7		6010C
Zinc	75 - 125	129		86.1		65.84	65.2	N	6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: As Rec
Matrix: SOIL % Solids: 81.8

Sample Name: B-4 (3.5-5.0)S Lab Code: K1301527-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	1.41		0.87		0.49	110.2		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301527**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 78.9**Sample Name:** B-2 (7.0-8.0)D**Lab Code:** K1301527-019D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	11200		11800		5.2		6010C
Antimony		2.0	U	2.0	U			6010C
Arsenic		9.8		8.7		11.9		6010C
Barium	20	151		155		2.6		6010C
Beryllium		0.1	U	0.1	U			6010C
Cadmium	20	2.7		3.0		10.5		6010C
Calcium	20	4870		5770		16.9		6010C
Chromium	20	16.5		19.0		14.1		6010C
Cobalt	20	7.8		8.7		10.9		6010C
Copper	20	72.7		90.8		22.1	*	6010C
Iron	20	19900		20400		2.5		6010C
Lead	20	139		218		44.3	*	6010C
Magnesium	20	4200		4490		6.7		6010C
Manganese	20	293		330		11.9		6010C
Nickel	20	13.6		15.0		9.8		6010C
Potassium	20	1020		1160		12.8		6010C
Selenium		4.0	U	3.9	U			6010C
Silver		0.5	U	0.5	U			6010C
Sodium	20	376		420		11.1		6010C
Thallium		2.0	U	2.0	U			6010C
Vanadium	20	47.4		52.0		9.3		6010C
Zinc	20	341		377		10.0		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301527**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 88.3**Sample Name:** B-5 (3.5-4.5)D**Lab Code:** K1301527-026D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	8910		9290		4.2		6010C
Antimony		1.4	U	1.3	U			6010C
Arsenic		4.2		4.5		6.9		6010C
Barium	20	87.6		100		13.2		6010C
Beryllium		0.4		0.4		0.0		6010C
Cadmium		0.1	U	0.1	U			6010C
Calcium	20	6180		9590		43.2	*	6010C
Chromium	20	11.8		12.2		3.3		6010C
Cobalt	20	7.5		7.6		1.3		6010C
Copper	20	69.6		91.4		27.1	*	6010C
Iron	20	17700		17500		1.1		6010C
Lead	20	29.7		31.2		4.9		6010C
Magnesium	20	3190		3370		5.5		6010C
Manganese	20	286		297		3.8		6010C
Nickel	20	10.2		11.2		9.3		6010C
Potassium	20	942		941		0.1		6010C
Selenium		2.8	U	2.7	U			6010C
Silver		0.4	U	0.3	U			6010C
Sodium	20	184		181		1.6		6010C
Thallium		1.4	U	1.3	U			6010C
Vanadium	20	43.3		45.3		4.5		6010C
Zinc	20	86.1		75.7		12.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: As Rec
Matrix: SOIL % Solids: 81.8

Sample Name: B-4 (3.5-5.0)D Lab Code: K1301527-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury	20	0.87		0.75		14.8		7471B

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301527

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6330		47	152	75.4
Antimony				93.3	60.9		25	199	65.3
Arsenic				94.5	98.4		82	117	104.1
Barium				167	154		84	116	92.2
Beryllium				57.6	58.9		83	117	102.3
Cadmium				60.5	57.9		83	117	95.7
Calcium				6140	5830		83	117	95.0
Chromium				70.4	64.4		82	118	91.5
Cobalt				102	97.3		83	117	95.4
Copper				79.6	82.7		84	116	103.9
Iron				12500	9310		51	150	74.5
Lead				91.8	84.4		82	118	91.9
Magnesium				2580	2270		76	124	88.0
Manganese				283	251		82	117	88.7
Mercury				3.73	3.61		72	128	96.8
Nickel				57.6	54.7		83	117	95.0
Potassium				2490	2220		70	130	89.2
Selenium				86.4	81		80	120	93.8
Silver				34.4	34.4		66	134	100.0
Sodium				215	209		67	133	97.2
Thallium				120	112		78	121	93.3
Vanadium				57	50.3		74	126	88.2
Zinc				140	124		82	118	88.6

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301527

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6950		47	152	82.7
Antimony				93.3	56.0		25	199	60.0
Arsenic				94.5	97.4		82	117	103.1
Barium				167	159		84	116	95.2
Beryllium				57.6	57.0		83	117	99.0
Cadmium				60.5	55.2		83	117	91.2
Calcium				6140	5970		83	117	97.2
Chromium				70.4	63.7		82	118	90.5
Cobalt				102	95.8		83	117	93.9
Copper				79.6	79.1		84	116	99.4
Iron				12500	10100		51	150	80.8
Lead				91.8	83.4		82	118	90.8
Magnesium				2580	2410		76	124	93.4
Manganese				283	268		82	117	94.7
Nickel				57.6	50.5		83	117	87.7
Potassium				2490	2190		70	130	88.0
Selenium				86.4	86.0		80	120	99.5
Silver				34.4	34.0		66	134	98.8
Sodium				215	204		67	133	94.9
Thallium				120	111		78	121	92.5
Vanadium				57	53.3		74	126	93.5
Zinc				140	128		82	118	91.4

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301527

Sample Name:

B-3 (26-30) GW

B-4

B-4D

B-4S

B-4 DUP

Method Blank

Batch QC1D

Batch QC1S

Lab Code:

K1301527-032DISS

K1301527-033DISS

K1301527-033DISSD

K1301527-033DISSS

K1301527-034DISS

K1301527-MB

K1301603-028DISSD

K1301603-028DISSS

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Date Collected: 02/20/13
Project Name: Pier 99 Date Received: 02/21/13
Matrix: WATER Units: ug/L
Basis: NA

Sample Name: B-3 (26-30) GW Lab Code: K1301527-032DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	1.0	03/06/13	03/07/13	114		
Beryllium	6010C	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	50.0	1.0	03/06/13	03/07/13	67100		
Chromium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	03/06/13	03/07/13	5.3		
Copper	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Iron	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	20.0	1.0	03/06/13	03/07/13	32700		
Manganese	6010C	0.6	1.0	03/06/13	03/07/13	2780		
Mercury	7470A	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	1.0	03/06/13	03/07/13	27.4		
Potassium	6010C	100	1.0	03/06/13	03/07/13	2760		
Selenium	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	1.0	03/06/13	03/07/13	19300		
Thallium	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	1.0	03/06/13	03/07/13	5.6		
Zinc	6010C	2.0	1.0	03/06/13	03/07/13	111		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Date Collected: 02/20/13
Project Name: Pier 99 Date Received: 02/21/13
Matrix: WATER Units: ug/L
Basis: NA

Sample Name: B-4 Lab Code: K1301527-033DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	1.0	03/06/13	03/07/13	62.9		
Beryllium	6010C	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	50.0	1.0	03/06/13	03/07/13	68900		
Chromium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	03/06/13	03/07/13	4.4		
Copper	6010C	2.0	1.0	03/06/13	03/07/13	2.6		
Iron	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	20.0	1.0	03/06/13	03/07/13	35700		
Manganese	6010C	0.6	1.0	03/06/13	03/07/13	1940		
Mercury	7470A	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	1.0	03/06/13	03/07/13	42.9		
Potassium	6010C	100	1.0	03/06/13	03/07/13	804		
Selenium	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	1.0	03/06/13	03/07/13	23500		
Thallium	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	1.0	03/06/13	03/07/13	9.9		
Zinc	6010C	2.0	1.0	03/06/13	03/07/13	25.6		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Date Collected: 02/20/13
Project Name: Pier 99 Date Received: 02/21/13
Matrix: WATER Units: ug/L
Basis: NA

Sample Name: B-4 DUP Lab Code: K1301527-034DISS

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	1.0	03/06/13	03/07/13	65.9		
Beryllium	6010C	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	50.0	1.0	03/06/13	03/07/13	68500		
Chromium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	03/06/13	03/07/13	1.7		
Copper	6010C	2.0	1.0	03/06/13	03/07/13	2.7		
Iron	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	20.0	1.0	03/06/13	03/07/13	34600		
Manganese	6010C	0.6	1.0	03/06/13	03/07/13	1950		
Mercury	7470A	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	1.0	03/06/13	03/07/13	28.8		
Potassium	6010C	100	1.0	03/06/13	03/07/13	751		
Selenium	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	1.0	03/06/13	03/07/13	23000		
Thallium	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	1.0	03/06/13	03/07/13	13.9		
Zinc	6010C	2.0	1.0	03/06/13	03/07/13	22.0		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Date Collected:
Project Name: Pier 99 Date Received:
Matrix: WATER Units: ug/L
Basis: NA

Sample Name: Method Blank Lab Code: K1301527-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Beryllium	6010C	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	4.0	1.0	03/06/13	03/07/13	4.0	U	
Chromium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	03/06/13	03/07/13	1.0	U	
Copper	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Iron	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Manganese	6010C	0.6	1.0	03/06/13	03/07/13	0.6	U	
Mercury	7470A	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Potassium	6010C	100	1.0	03/06/13	03/07/13	100	U	
Selenium	6010C	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	1.0	03/06/13	03/07/13	200	U	
Thallium	6010C	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	
Zinc	6010C	2.0	1.0	03/06/13	03/07/13	2.0	U	

Comments:

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301527
Project No.: 320001975-00.001 **Units:** UG/L
Project Name: Pier 99 **Basis:** NA
Matrix: WATER

Sample Name: B-4S

Lab Code: K1301527-033DISSS

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum	75 - 125	1990		2.0	U	2000.00	99.5		6010C
Antimony	86 - 116	471		10.0	U	500.00	94.2		6010C
Arsenic	79 - 121	992		10.0	U	1000.00	99.2		6010C
Barium	80 - 124	2150		62.9		2000.00	104.4		6010C
Beryllium	87 - 114	48.9		0.40	U	50.00	97.8		6010C
Cadmium	75 - 125	50.5		0.5	U	50.00	101.0		6010C
Calcium		79300		68900		10000.00	104.0		6010C
Chromium	89 - 117	200		2.0	U	200.00	100.0		6010C
Cobalt	88 - 117	492		4.4		500.00	97.5		6010C
Copper	86 - 113	238		2.6		250.00	94.2		6010C
Iron	75 - 125	994		20.0	U	1000.00	99.4		6010C
Lead	75 - 125	483		10.0	U	500.00	96.6		6010C
Magnesium	75 - 125	44800		35700		10000.00	91.0		6010C
Manganese	84 - 121	2440		1940		500.00	100.0		6010C
Nickel	86 - 120	523		42.9		500.00	96.0		6010C
Potassium	75 - 125	11200		804		10000.00	104.0		6010C
Selenium	82 - 119	932		20.0	U	1000.00	93.2		6010C
Silver	79 - 120	48.1		2.0	U	50.00	96.2		6010C
Sodium	75 - 125	33300		23500		10000.00	98.0		6010C
Thallium	75 - 125	955		10.0	U	1000.00	95.5		6010C
Vanadium	89 - 115	526		9.9		500.00	103.2		6010C
Zinc	87 - 113	517		25.6		500.00	98.3		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: UG/L
Project Name: Pier 99 Basis: NA
Matrix: WATER

Sample Name: Batch QC1S Lab Code: K1301603-028DISSS

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	76 - 126	1.06		0.2	U	1.00	106.0		7470A

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301527**Project No.:** 320001975-00.001**Units:** UG/L**Project Name:** Pier 99**Basis:** NA**Matrix:** WATER**Sample Name:** B-4D**Lab Code:** K1301527-033DISSD

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum		2.00	U	2.00	U			6010C
Antimony		10.0	U	10.0	U			6010C
Arsenic		10.0	U	10.0	U			6010C
Barium	20	62.9		62.7		0.3		6010C
Beryllium		0.40	U	0.40	U			6010C
Cadmium		0.5	U	0.5	U			6010C
Calcium	20	68900		69300		0.6		6010C
Chromium		2.0	U	2.0	U			6010C
Cobalt		4.4		4.3		2.3		6010C
Copper		2.6		2.5		3.9		6010C
Iron		20.0	U	20.0	U			6010C
Lead		10.0	U	10.0	U			6010C
Magnesium	20	35700		35300		1.1		6010C
Manganese	20	1940		1940		0.0		6010C
Nickel	20	42.9		43.1		0.5		6010C
Potassium	20	804		774		3.8		6010C
Selenium		20.0	U	20.0	U			6010C
Silver		2.0	U	2.0	U			6010C
Sodium	20	23500		23300		0.9		6010C
Thallium		10.0	U	10.0	U			6010C
Vanadium		9.9		8.9		10.6		6010C
Zinc	20	25.6		25.5		0.4		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301527
Project No.: 320001975-00.001 Units: UG/L
Project Name: Pier 99 Basis: NA
Matrix: WATER

Sample Name: Batch QC1D Lab Code: K1301603-028DISSD

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.2	U	0.2	U			7470A

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301527

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source: CAS MIXED

Solid LCS Source:

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum	5000	5260	105.2						
Antimony	2500	2470	98.8						
Arsenic	2500	2560	102.4						
Barium	5000	5170	103.4						
Beryllium	125	128	102.4						
Cadmium	1250	1280	102.4						
Calcium	12500	12600	100.8						
Chromium	500	506	101.2						
Cobalt	1250	1270	101.6						
Copper	625	634	101.4						
Iron	2500	2510	100.4						
Lead	2500	2500	100.0						
Magnesium	12500	13000	104.0						
Manganese	1250	1250	100.0						
Mercury	5	5.33	106.6						
Nickel	1250	1240	99.2						
Potassium	12500	13000	104.0						
Selenium	2500	2440	97.6						
Silver	625	616	98.6						
Sodium	12500	13100	104.8						
Thallium	2500	2470	98.8						
Vanadium	1250	1300	104.0						
Zinc	1250	1270	101.6						

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Butyltins (as cation)

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	2.5	2	03/06/13	03/13/13	KWG1302190	
Tri-n-butyltin Cation	110	D	2.5	2	03/06/13	03/13/13	KWG1302190	
Di-n-butyltin Cation	140	D	2.5	2	03/06/13	03/13/13	KWG1302190	
n-Butyltin Cation	140	D	2.5	2	03/06/13	03/13/13	KWG1302190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	77	10-120	03/13/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Butyltins (as cation)

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001RE
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.3	1	03/19/13	03/25/13	KWG1302646	*
Tri-n-butyltin Cation	150	D	13	10	03/19/13	03/26/13	KWG1302646	*
Di-n-butyltin Cation	170	D	13	10	03/19/13	03/26/13	KWG1302646	*
n-Butyltin Cation	150	D	13	10	03/19/13	03/26/13	KWG1302646	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	101	10-120	03/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Butyltins (as cation)

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	1.3	1	03/06/13	03/12/13	KWG1302190	
Tri-n-butyltin Cation	1.5		1.3	1	03/06/13	03/12/13	KWG1302190	
Di-n-butyltin Cation	2.8		1.3	1	03/06/13	03/12/13	KWG1302190	
n-Butyltin Cation	2.4		1.3	1	03/06/13	03/12/13	KWG1302190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	60	10-120	03/12/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Butyltins (as cation)

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019RE
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	3.3		1.3	1	03/19/13	03/25/13	KWG1302646	*
Tri-n-butyltin Cation	760	D	13	10	03/19/13	03/26/13	KWG1302646	*
Di-n-butyltin Cation	78		1.3	1	03/19/13	03/25/13	KWG1302646	*
n-Butyltin Cation	20		1.3	1	03/19/13	03/25/13	KWG1302646	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	91	10-120	03/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1302190-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.99	1	03/06/13	03/13/13	KWG1302190	
Tri-n-butyltin Cation	1.2		0.99	1	03/06/13	03/13/13	KWG1302190	
Di-n-butyltin Cation	ND	U	0.99	1	03/06/13	03/13/13	KWG1302190	
n-Butyltin Cation	ND	U	0.99	1	03/06/13	03/13/13	KWG1302190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	67	10-120	03/13/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Sediment

Service Request: K1301527
Date Collected: NA
Date Received: NA

Butyltins (as cation)

Sample Name: Method Blank
Lab Code: KWG1302646-4
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Tetra-n-butyltin	ND	U	0.98	1	03/19/13	03/25/13	KWG1302646	
Tri-n-butyltin Cation	ND	U	0.98	1	03/19/13	03/25/13	KWG1302646	
Di-n-butyltin Cation	ND	U	0.98	1	03/19/13	03/25/13	KWG1302646	
n-Butyltin Cation	ND	U	0.98	1	03/19/13	03/25/13	KWG1302646	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tri-n-propyltin	103	10-120	03/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
B-4 (3.5-5.0)	K1301527-001	77 D
B-4 (3.5-5.0)	K1301527-001RE	101
B-2 (7.0-8.0)	K1301527-019	60
B-2 (7.0-8.0)	K1301527-019RE	91
Batch QC	K1302085-003	111
Method Blank	KWG1302190-4	67
Method Blank	KWG1302646-4	103
B-4 (3.5-5.0)MS	KWG1302190-1	67 D
B-4 (3.5-5.0)DMS	KWG1302190-2	76 D
Batch QCMS	KWG1302646-1	114
Batch QCDMS	KWG1302646-2	92
Lab Control Sample	KWG1302190-3	66
Lab Control Sample	KWG1302646-3	111

Surrogate Recovery Control Limits (%)

Sur1 = Tri-n-propyltin 10-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/06/2013
Date Analyzed: 03/13/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302190

Analyte Name	Sample Result	B-4 (3.5-5.0)MS KWG1302190-1 Matrix Spike			B-4 (3.5-5.0)DMS KWG1302190-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	21.7	30.0	72	21.9	30.0	73	16-126	1	40
Tri-n-butyltin Cation	110	155	26.7	181 #	80.7	26.6	-96 #	10-115	63 *	40
Di-n-butyltin Cation	140	156	23.1	79 #	130	23.0	-30 #	10-133	18	40
n-Butyltin Cation	140	148	18.7	24 #	164	18.7	108 #	10-124	10	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Sediment

Service Request: K1301527
Date Extracted: 03/19/2013
Date Analyzed: 03/25/2013

Matrix Spike/Duplicate Matrix Spike Summary
Butyltins (as cation)

Sample Name: Batch QC
Lab Code: K1302085-003
Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302646

Analyte Name	Sample Result	Batch QCMS KWG1302646-1 Matrix Spike			Batch QCDMS KWG1302646-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Tetra-n-butyltin	ND	30.5	32.8	93	25.6	33.1	77	16-126	18	40
Tri-n-butyltin Cation	ND	26.1	29.1	90	19.4	29.4	66	10-115	29	40
Di-n-butyltin Cation	ND	25.3	25.2	100	17.7	25.4	69	10-133	35	40
n-Butyltin Cation	ND	15.1	20.5	74	10.3	20.7	50	10-124	37	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/06/2013
Date Analyzed: 03/12/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302190

Lab Control Sample
KWG1302190-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	20.1	25.0	80	19-130
Tri-n-butyltin Cation	369E	22.2	1661 *	10-122
Di-n-butyltin Cation	37.8	19.2	197 *	12-136
n-Butyltin Cation	8.30	15.6	53	10-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Sediment

Service Request: K1301527
Date Extracted: 03/19/2013
Date Analyzed: 03/25/2013

Lab Control Spike Summary
Butyltins (as cation)

Extraction Method: Method
Analysis Method: Krone

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302646

Lab Control Sample
KWG1302646-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Tetra-n-butyltin	18.6	25.0	74	19-130
Tri-n-butyltin Cation	17.5	22.2	79	10-122
Di-n-butyltin Cation	17.5	19.2	91	12-136
n-Butyltin Cation	8.53	15.6	55	10-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Diesel and Residual Range Organics

Sample Name: B-1 (8.0-10.0)
Lab Code: K1301527-010
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	30	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	120	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	84	50-150	02/26/13	Acceptable
n-Triacontane	88	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Diesel and Residual Range Organics

Sample Name: B-1 (18.5-20.0)
Lab Code: K1301527-013
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	36	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	150	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	84	50-150	02/26/13	Acceptable
n-Triacontane	88	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Diesel and Residual Range Organics

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	32	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	140	O	130	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	85	50-150	02/26/13	Acceptable
n-Triacontane	88	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Diesel and Residual Range Organics

Sample Name: B-2 (19.0-20.0)
Lab Code: K1301527-024
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	35	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	140	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	76	50-150	02/26/13	Acceptable
n-Triacontane	77	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Diesel and Residual Range Organics

Sample Name: Method Blank
Lab Code: KWG1301673-3
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	25	1	02/23/13	02/26/13	KWG1301673	
Residual Range Organics (RRO)	ND	U	99	1	02/23/13	02/26/13	KWG1301673	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	102	50-150	02/26/13	Acceptable
n-Triacontane	106	50-150	02/26/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
B-1 (8.0-10.0)	K1301527-010	84	88
B-1 (18.5-20.0)	K1301527-013	84	88
B-2 (7.0-8.0)	K1301527-019	85	88
B-2 (19.0-20.0)	K1301527-024	76	77
B-2 (19.0-20.0)DUP	KWG1301673-1	87	87
Method Blank	KWG1301673-3	102	106
Lab Control Sample	KWG1301673-2	108	105

Surrogate Recovery Control Limits (%)

Sur1 = o-Terphenyl	50-150
Sur2 = n-Triacontane	50-150

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 02/23/2013
Date Analyzed: 02/26/2013

Duplicate Sample Summary
Diesel and Residual Range Organics

Sample Name: B-2 (19.0-20.0)
Lab Code: K1301527-024
Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301673

Analyte Name	MRL	Sample Result	B-2 (19.0-20.0)DUP KWG1301673-1 Duplicate Sample		Relative Percent Difference	RPD Limit
			Result	Average		
Diesel Range Organics (DRO)	36	ND	ND	ND	-	40
Residual Range Organics (RRO)	150	ND	ND	ND	-	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 02/23/2013
Date Analyzed: 02/26/2013

Lab Control Spike Summary
Diesel and Residual Range Organics

Extraction Method: EPA 3550B
Analysis Method: NWTPH-Dx

Units: mg/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301673

Lab Control Sample
KWG1301673-2
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Diesel Range Organics (DRO)	284	267	106	42-134
Residual Range Organics (RRO)	133	133	100	48-141

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Organochlorine Pesticides

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
beta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-BHC (Lindane)	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
delta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Aldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor Epoxide	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-Chlordane†	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan I	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
alpha-Chlordane	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Dieldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDE	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan II	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDD	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin Aldehyde	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan Sulfate	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDT	3.7		1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin Ketone	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Methoxychlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Toxaphene	ND	U	50	1	03/05/13	03/08/13	KWG1302118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	62	20-116	03/08/13	Acceptable
Decachlorobiphenyl	62	22-130	03/08/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Organochlorine Pesticides

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
beta-BHC	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
gamma-BHC (Lindane)	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
delta-BHC	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Heptachlor	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Aldrin	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Heptachlor Epoxide	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
gamma-Chlordane†	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Endosulfan I	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
alpha-Chlordane	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Dieldrin	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDE	1.2		0.99	1	03/01/13	03/07/13	KWG1302072	
Endrin	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Endosulfan II	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDD	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Endrin Aldehyde	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Endosulfan Sulfate	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDT	9.7		0.99	1	03/01/13	03/07/13	KWG1302072	
Endrin Ketone	ND	U	0.99	1	03/01/13	03/07/13	KWG1302072	
Methoxychlor	ND	Ui	1.6	1	03/01/13	03/07/13	KWG1302072	
Toxaphene	ND	Ui	200	1	03/01/13	03/07/13	KWG1302072	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	68	20-116	03/07/13	Acceptable
Decachlorobiphenyl	73	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302072-4
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
beta-BHC	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
gamma-BHC (Lindane)	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
delta-BHC	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Heptachlor	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Aldrin	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Heptachlor Epoxide	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
gamma-Chlordane†	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endosulfan I	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
alpha-Chlordane	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Dieldrin	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDE	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endrin	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endosulfan II	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDD	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endrin Aldehyde	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endosulfan Sulfate	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
4,4'-DDT	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Endrin Ketone	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Methoxychlor	ND	U	0.50	1	03/01/13	03/07/13	KWG1302072	
Toxaphene	ND	U	25	1	03/01/13	03/07/13	KWG1302072	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	63	20-116	03/07/13	Acceptable
Decachlorobiphenyl	65	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302118-7
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
beta-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
gamma-BHC (Lindane)	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
delta-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Heptachlor	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Aldrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Heptachlor Epoxide	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
gamma-Chlordane†	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan I	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
alpha-Chlordane	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Dieldrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDE	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan II	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDD	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin Aldehyde	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan Sulfate	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDT	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin Ketone	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Methoxychlor	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Toxaphene	ND	U	41	1	03/05/13	03/08/13	KWG1302118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	58	20-116	03/08/13	Acceptable
Decachlorobiphenyl	60	22-130	03/08/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
B-4 (3.5-5.0)	K1301527-001	62	62
B-2 (7.0-8.0)	K1301527-019	68	73
Batch QC	K1301603-009	59	64
Method Blank	KWG1302072-4	63	65
Method Blank	KWG1302118-7	58	60
B-2 (7.0-8.0)MS	KWG1302072-1	67	70
B-2 (7.0-8.0)DMS	KWG1302072-2	64	67
Batch QCMS	KWG1302118-1	62	66
Batch QCDMS	KWG1302118-2	54	57
B-4 (3.5-5.0)MS	KWG1302118-4	52	54
B-4 (3.5-5.0)DMS	KWG1302118-5	55	56
Lab Control Sample	KWG1302072-3	64	67
Lab Control Sample	KWG1302118-3	54	53

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-116
Sur2 =	Decachlorobiphenyl	22-130

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/01/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302072

Analyte Name	Sample Result	B-2 (7.0-8.0)MS KWG1302072-1 Matrix Spike			B-2 (7.0-8.0)DMS KWG1302072-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	15.1	19.7	77	13.9	20.0	70	23-133	8	40
beta-BHC	ND	13.4	19.7	68	12.5	20.0	63	22-142	7	40
gamma-BHC (Lindane)	ND	14.8	19.7	75	13.8	20.0	69	26-135	7	40
delta-BHC	ND	15.6	19.7	79	14.6	20.0	73	25-148	6	40
Heptachlor	ND	14.7	19.7	75	13.9	20.0	70	21-136	6	40
Aldrin	ND	13.9	19.7	71	13.4	20.0	67	22-135	4	40
Heptachlor Epoxide	ND	14.3	19.7	73	13.7	20.0	69	25-129	4	40
gamma-Chlordane	ND	14.5	19.7	74	14.0	20.0	70	24-133	4	40
Endosulfan I	ND	13.6	19.7	69	12.8	20.0	64	15-119	6	40
alpha-Chlordane	ND	14.2	19.7	72	13.5	20.0	68	24-132	5	40
Dieldrin	ND	15.1	19.7	77	14.6	20.0	73	26-133	3	40
4,4'-DDE	1.2	15.8	19.7	74	15.5	20.0	71	22-142	2	40
Endrin	ND	13.5	19.7	68	12.9	20.0	65	22-145	4	40
Endosulfan II	ND	14.5	19.7	73	13.4	20.0	67	13-129	8	40
4,4'-DDD	ND	14.9	19.7	76	14.1	20.0	71	19-143	6	40
Endrin Aldehyde	ND	13.3	19.7	68	13.0	20.0	65	10-129	2	40
Endosulfan Sulfate	ND	14.7	19.7	75	14.0	20.0	70	20-134	5	40
4,4'-DDT	9.7	27.7	19.7	91	29.8	20.0	101	19-154	7	40
Endrin Ketone	ND	14.5	19.7	74	14.1	20.0	71	19-139	3	40
Methoxychlor	ND	17.7	19.7	90 #	17.4	20.0	87 #	24-151	2	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Analyte Name	Sample Result	Batch QCMS KWG1302118-1 Matrix Spike			Batch QCDMS KWG1302118-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Toxaphene	ND	81.6	98.7	83	75.6	99.3	76	20-155	8	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Analyte Name	Sample Result	B-4 (3.5-5.0)MS KWG1302118-4 Matrix Spike			B-4 (3.5-5.0)DMS KWG1302118-5 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	11.3	19.7	57	12.6	20.0	63	23-133	10	40
beta-BHC	ND	10.7	19.7	54	11.4	20.0	57	22-142	7	40
gamma-BHC (Lindane)	ND	11.4	19.7	58	12.4	20.0	62	26-135	9	40
delta-BHC	ND	12.6	19.7	64	13.6	20.0	68	25-148	7	40
Heptachlor	ND	11.3	19.7	57	12.1	20.0	61	21-136	7	40
Aldrin	ND	10.9	19.7	55	11.9	20.0	60	22-135	9	40
Heptachlor Epoxide	ND	11.3	19.7	57	12.1	20.0	60	25-129	6	40
gamma-Chlordane	ND	11.6	19.7	59	12.4	20.0	62	24-133	7	40
Endosulfan I	ND	10.2	19.7	52	10.7	20.0	54	15-119	5	40
alpha-Chlordane	ND	11.5	19.7	58	11.9	20.0	60	24-132	4	40
Dieldrin	ND	12.5	19.7	63	13.9	20.0	69	26-133	10	40
4,4'-DDE	ND	12.2	19.7	62	13.3	20.0	67	22-142	9	40
Endrin	ND	10.9	19.7	55	11.4	20.0	57	22-145	4	40
Endosulfan II	ND	11.4	19.7	58	11.6	20.0	58	13-129	2	40
4,4'-DDD	ND	12.6	19.7	64	13.4	20.0	67	19-143	6	40
Endrin Aldehyde	ND	11.1	19.7	56	11.7	20.0	59	10-129	6	40
Endosulfan Sulfate	ND	12.2	19.7	62	12.5	20.0	63	20-134	2	40
4,4'-DDT	3.7	16.2	19.7	63	17.6	20.0	70	19-154	8	40
Endrin Ketone	ND	11.9	19.7	60	12.6	20.0	63	19-139	6	40
Methoxychlor	ND	12.6	19.7	64	13.2	20.0	66	24-151	4	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/01/2013
Date Analyzed: 03/07/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302072

Lab Control Sample
KWG1302072-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	14.4	20.0	72	36-139
beta-BHC	13.0	20.0	65	38-142
gamma-BHC (Lindane)	14.3	20.0	72	40-142
delta-BHC	15.1	20.0	75	48-145
Heptachlor	14.1	20.0	70	39-135
Aldrin	13.5	20.0	68	37-134
Heptachlor Epoxide	13.9	20.0	69	45-118
gamma-Chlordane	13.9	20.0	70	41-135
Endosulfan I	13.2	20.0	66	35-121
alpha-Chlordane	13.8	20.0	69	41-134
Dieldrin	14.4	20.0	72	46-136
4,4'-DDE	14.3	20.0	72	46-141
Endrin	13.1	20.0	65	40-152
Endosulfan II	14.7	20.0	74	39-128
4,4'-DDD	14.6	20.0	73	46-146
Endrin Aldehyde	13.8	20.0	69	32-132
Endosulfan Sulfate	14.7	20.0	73	43-138
4,4'-DDT	15.4	20.0	77	46-151
Endrin Ketone	14.7	20.0	74	47-135
Methoxychlor	15.4	20.0	77	42-147

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Lab Control Sample
KWG1302118-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	12.4	20.0	62	36-139
beta-BHC	11.1	20.0	55	38-142
gamma-BHC (Lindane)	12.2	20.0	61	40-142
delta-BHC	12.7	20.0	64	48-145
Heptachlor	12.0	20.0	60	39-135
Aldrin	11.5	20.0	58	37-134
Heptachlor Epoxide	11.9	20.0	60	45-118
gamma-Chlordane	11.9	20.0	60	41-135
Endosulfan I	10.6	20.0	53	35-121
alpha-Chlordane	11.9	20.0	59	41-134
Dieldrin	12.3	20.0	62	46-136
4,4'-DDE	12.1	20.0	60	46-141
Endrin	10.6	20.0	53	40-152
Endosulfan II	11.6	20.0	58	39-128
4,4'-DDD	12.0	20.0	60	46-146
Endrin Aldehyde	11.2	20.0	56	32-132
Endosulfan Sulfate	12.3	20.0	62	43-138
4,4'-DDT	12.3	20.0	62	46-151
Endrin Ketone	12.2	20.0	61	47-135
Methoxychlor	12.4	20.0	62	42-147
Toxaphene	72.7	100	73	53-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Organochlorine Pesticides

Sample Name: B-3 (26-30) GW
Lab Code: K1301527-032
Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
beta-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
gamma-BHC (Lindane)	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
delta-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Heptachlor	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Aldrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Heptachlor Epoxide	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
gamma-Chlordane†	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan I	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
alpha-Chlordane	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Dieldrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDE	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan II	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDD	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin Aldehyde	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan Sulfate	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDT	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin Ketone	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Methoxychlor	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Toxaphene	ND	U	53	1	02/26/13	03/01/13	KWG1301883	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	74	20-102	03/01/13	Acceptable
Decachlorobiphenyl	70	35-128	03/01/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Organochlorine Pesticides

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
beta-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
gamma-BHC (Lindane)	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
delta-BHC	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Heptachlor	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Aldrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Heptachlor Epoxide	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
gamma-Chlordane†	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan I	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
alpha-Chlordane	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Dieldrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDE	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan II	ND	U	2.3	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDD	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin Aldehyde	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endosulfan Sulfate	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDT	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Endrin Ketone	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Methoxychlor	ND	U	1.1	1	02/26/13	03/01/13	KWG1301883	
Toxaphene	ND	U	51	1	02/26/13	03/01/13	KWG1301883	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	75	20-102	03/01/13	Acceptable
Decachlorobiphenyl	78	35-128	03/01/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1301883-5
Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
beta-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
gamma-BHC (Lindane)	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
delta-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Heptachlor	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Aldrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Heptachlor Epoxide	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
gamma-Chlordane†	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan I	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
alpha-Chlordane	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Dieldrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDE	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan II	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDD	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin Aldehyde	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan Sulfate	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDT	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin Ketone	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Methoxychlor	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Toxaphene	ND	U	49	1	02/26/13	03/02/13	KWG1301883	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	75	20-102	03/02/13	Acceptable
Decachlorobiphenyl	79	35-128	03/02/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527**Surrogate Recovery Summary
Organochlorine Pesticides**

Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
B-3 (26-30) GW	K1301527-032	74	70
B-4	K1301527-033	75	78
Method Blank	KWG1301883-5	75	79
Lab Control Sample	KWG1301883-1	72	76
Duplicate Lab Control Sample	KWG1301883-2	71	78

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene	20-102
Sur2 = Decachlorobiphenyl	35-128

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/26/2013
Date Analyzed: 03/01/2013 -
03/02/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low
Extraction Lot: KWG1301883

Analyte Name	Lab Control Sample KWG1301883-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301883-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	7.98	10.0	80	7.32	10.0	73	36-122	9	30
beta-BHC	8.13	10.0	81	7.10	10.0	71	42-125	13	30
gamma-BHC (Lindane)	8.15	10.0	82	7.46	10.0	75	44-117	9	30
delta-BHC	8.46	10.0	85	7.68	10.0	77	48-123	10	30
Heptachlor	8.27	10.0	83	7.82	10.0	78	40-115	6	30
Aldrin	6.94	10.0	69	6.05	10.0	61	10-102	14	30
Heptachlor Epoxide	8.06	10.0	81	7.55	10.0	75	49-109	7	30
gamma-Chlordane	8.02	10.0	80	7.67	10.0	77	47-113	4	30
Endosulfan I	6.98	10.0	70	6.58	10.0	66	35-115	6	30
alpha-Chlordane	8.06	10.0	81	7.64	10.0	76	45-115	5	30
Dieldrin	8.30	10.0	83	7.57	10.0	76	50-115	9	30
4,4'-DDE	8.01	10.0	80	7.49	10.0	75	41-116	7	30
Endrin	7.97	10.0	80	7.08	10.0	71	48-126	12	30
Endosulfan II	8.18	10.0	82	7.84	10.0	78	28-128	4	30
4,4'-DDD	8.39	10.0	84	7.80	10.0	78	33-132	7	30
Endrin Aldehyde	9.18	10.0	92	8.45	10.0	85	27-104	8	30
Endosulfan Sulfate	8.57	10.0	86	7.95	10.0	80	38-118	7	30
4,4'-DDT	10.4	10.0	104	9.72	10.0	97	42-143	6	30
Endrin Ketone	8.29	10.0	83	7.90	10.0	79	30-124	5	30
Methoxychlor	11.4	10.0	114	10.5	10.0	105	43-143	8	30
Toxaphene	173	200	86	173	200	86	36-137	0	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B-3 (26-30) GW
Lab Code: K1301527-032
Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1221	ND	U	0.043	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1232	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1242	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1248	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1254	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1260	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1262	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1268	ND	U	0.022	1	02/26/13	03/02/13	KWG1301884	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	84	36-113	03/02/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1221	ND	U	0.041	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1232	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1242	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1248	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1254	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1260	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1262	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1268	ND	U	0.021	1	02/26/13	03/02/13	KWG1301884	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	100	36-113	03/02/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1301884-3
Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1221	ND	U	0.039	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1232	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1242	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1248	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1254	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1260	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1262	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1268	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	101	36-113	03/02/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1221	ND	U	20	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1232	ND	U	10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1242	31		10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1248	ND	U	10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1254	14		10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1260	11		10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1262	ND	U	10	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1268	ND	U	10	1	03/05/13	03/11/13	KWG1302119	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	83	35-133	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1221	ND	U	20	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1232	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1242	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1248	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1254	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1260	52	P	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1262	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1268	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	94	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302073-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1221	ND	U	9.9	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1232	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1242	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1248	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1254	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1260	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1262	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	
Aroclor 1268	ND	U	5.0	1	03/01/13	03/08/13	KWG1302073	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	93	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302119-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1221	ND	U	17	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1232	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1242	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1248	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1254	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1260	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1262	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1268	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	80	35-133	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
B-3 (26-30) GW	K1301527-032	84
B-4	K1301527-033	100
Method Blank	KWG1301884-3	101
Lab Control Sample	KWG1301884-1	98
Duplicate Lab Control Sample	KWG1301884-2	94

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 36-113

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
B-4 (3.5-5.0)	K1301527-001	83
B-2 (7.0-8.0)	K1301527-019	94
Batch QC	K1301603-023	83
Batch QC	K1301658-001	92
Method Blank	KWG1302073-4	93
Method Blank	KWG1302119-4	80
Batch QCMS	KWG1302073-1	92
Batch QCDMS	KWG1302073-2	92
Batch QCMS	KWG1302119-1	73
Batch QCDMS	KWG1302119-2	69
Lab Control Sample	KWG1302073-3	91
Lab Control Sample	KWG1302119-3	74

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 35-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Sediment

Service Request: K1301527
Date Extracted: 03/01/2013
Date Analyzed: 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Batch QC
Lab Code: K1301658-001
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302073

Analyte Name	Sample Result	Batch QCMS KWG1302073-1 Matrix Spike			Batch QCDMS KWG1302073-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	117	128	92	112	126	89	27-128	4	40
Aroclor 1260	ND	113	128	89	109	126	86	29-131	4	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/05/2013
Date Analyzed: 03/12/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Batch QC
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302119

Analyte Name	Sample Result	Batch QCMS KWG1302119-1 Matrix Spike			Batch QCDMS KWG1302119-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	168	198	85	159	199	80	27-128	5	40
Aroclor 1260	12	164	198	77	151	199	70	29-131	8	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/26/2013
Date Analyzed: 03/02/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301884

Analyte Name	Lab Control Sample KWG1301884-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301884-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	0.157	0.200	79	0.153	0.200	77	50-103	3	30
Aroclor 1260	0.168	0.200	84	0.158	0.200	79	56-100	6	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/01/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302073

Lab Control Sample
KWG1302073-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	176	200	88	37-121
Aroclor 1260	175	200	87	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/05/2013
Date Analyzed: 03/11/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302119

Lab Control Sample
KWG1302119-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	150	200	75	37-121
Aroclor 1260	148	200	74	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Volatile Organic Compounds

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Vinyl Chloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichlorofluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Acetone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	*
Carbon Disulfide	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Methylene Chloride	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Butanone (MEK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Bromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Carbon Tetrachloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Benzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichloroethene (TCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromodichloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Toluene	4.1		0.50	1	02/25/13	02/25/13	KWG1301715	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,2-Trichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Hexanone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Volatile Organic Compounds

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Chlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Ethylbenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
m,p-Xylenes	1.2		0.50	1	02/25/13	02/25/13	KWG1301715	
o-Xylene	0.55		0.50	1	02/25/13	02/25/13	KWG1301715	
Styrene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromoform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Isopropylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
n-Propylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,3-Trichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3,5-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
tert-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
sec-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Isopropyltoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,4-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
n-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Hexachlorobutadiene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Naphthalene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	*
1,2,3-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Volatile Organic Compounds

Sample Name: B-4
Lab Code: K1301527-033

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	109	73-122	02/25/13	Acceptable
Toluene-d8	93	65-144	02/25/13	Acceptable
4-Bromofluorobenzene	89	68-117	02/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Vinyl Chloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichlorofluoromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Acetone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	*
Carbon Disulfide	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Methylene Chloride	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
trans-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,2-Dichloroethene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Butanone (MEK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Bromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Chloroform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Carbon Tetrachloride	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Benzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Trichloroethene (TCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromomethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromodichloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
cis-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	02/25/13	02/25/13	KWG1301715	
Toluene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
trans-1,3-Dichloropropene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,2-Trichloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Tetrachloroethene (PCE)	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Hexanone	ND	U	20	1	02/25/13	02/25/13	KWG1301715	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Dibromochloromethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Chlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Ethylbenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
m,p-Xylenes	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
o-Xylene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Styrene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromoform	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Isopropylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
Bromobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
n-Propylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,3-Trichloropropane	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
2-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3,5-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Chlorotoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
tert-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trimethylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
sec-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
4-Isopropyltoluene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,3-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,4-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
n-Butylbenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2-Dichlorobenzene	ND	U	0.50	1	02/25/13	02/25/13	KWG1301715	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
1,2,4-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Hexachlorobutadiene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	
Naphthalene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	*
1,2,3-Trichlorobenzene	ND	U	2.0	1	02/25/13	02/25/13	KWG1301715	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301715-4

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	103	73-122	02/25/13	Acceptable
Toluene-d8	89	65-144	02/25/13	Acceptable
4-Bromofluorobenzene	86	68-117	02/25/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301401-012	109	94	85
B-4	K1301527-033	109	93	89
Method Blank	KWG1301715-4	103	89	86
Batch QCMS	KWG1301715-1	96	101	104
Batch QCDMS	KWG1301715-2	96	100	105
Lab Control Sample	KWG1301715-3	98	102	104

Surrogate Recovery Control Limits (%)

Sur1 =	Dibromofluoromethane	73-122
Sur2 =	Toluene-d8	65-144
Sur3 =	4-Bromofluorobenzene	68-117

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name: Batch QC
Lab Code: K1301401-012
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Analyte Name	Sample Result	Batch QCMS KWG1301715-1 Matrix Spike			Batch QCDMS KWG1301715-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Vinyl Chloride	ND	4.80	10.0	48 *	4.80	10.0	48 *	49-136	0	30
1,1-Dichloroethene	ND	7.96	10.0	80	7.61	10.0	76	59-171	4	30
Chloroform	ND	8.27	10.0	83	8.22	10.0	82	64-133	1	30
Carbon Tetrachloride	ND	5.91	10.0	59	5.85	10.0	59	53-161	1	30
Benzene	ND	7.50	10.0	75	7.28	10.0	73	63-144	3	30
Trichloroethene (TCE)	11	15.8	10.0	49 *	15.6	10.0	46 *	53-139	2	30
Bromodichloromethane	ND	8.56	10.0	86	8.61	10.0	86	61-134	1	30
Toluene	ND	7.84	10.0	78	7.77	10.0	78	71-136	1	30
1,1,2-Trichloroethane	ND	9.41	10.0	94	10.3	10.0	103	74-124	9	30
2-Hexanone	ND	44.9	50.0	90	49.3	50.0	99	53-132	9	30
Chlorobenzene	ND	8.67	10.0	87	8.80	10.0	88	69-126	1	30
Ethylbenzene	ND	8.07	10.0	81	8.07	10.0	81	66-136	0	30
1,2,3-Trichloropropane	ND	9.06	10.0	91	9.52	10.0	95	71-127	5	30
2-Chlorotoluene	ND	8.60	10.0	86	8.72	10.0	87	55-139	1	30
1,2-Dichlorobenzene	ND	9.32	10.0	93	9.60	10.0	96	72-119	3	30
Naphthalene	ND	7.17	10.0	72	8.35	10.0	84	52-147	15	30

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Lab Control Sample
 KWG1301715-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	6.44	10.0	64	32-124
Chloromethane	10.0	10.0	100	34-130
Vinyl Chloride	7.91	10.0	79	55-123
Bromomethane	9.84	10.0	98	35-113
Chloroethane	9.43	10.0	94	58-134
Trichlorofluoromethane	8.48	10.0	85	52-141
1,1-Dichloroethene	11.7	10.0	117	66-129
Acetone	52.5	50.0	105	68-135
Carbon Disulfide	22.4	20.0	112	46-144
Methylene Chloride	9.88	10.0	99	71-122
trans-1,2-Dichloroethene	10.7	10.0	107	67-125
1,1-Dichloroethane	9.69	10.0	97	68-132
2,2-Dichloropropane	10.1	10.0	101	37-145
cis-1,2-Dichloroethene	9.96	10.0	100	71-118
2-Butanone (MEK)	45.4	50.0	91	71-149
Bromochloromethane	10.5	10.0	105	75-131
Chloroform	10.4	10.0	104	70-129
1,1,1-Trichloroethane (TCA)	9.97	10.0	100	59-136
Carbon Tetrachloride	9.75	10.0	98	55-140
1,1-Dichloropropene	10.8	10.0	108	59-134
Benzene	9.57	10.0	96	69-124
1,2-Dichloroethane (EDC)	9.70	10.0	97	56-142
Trichloroethene (TCE)	9.95	10.0	100	67-128
1,2-Dichloropropane	9.29	10.0	93	67-126
Dibromomethane	9.55	10.0	96	69-128
Bromodichloromethane	10.0	10.0	100	63-129
cis-1,3-Dichloropropene	7.82	10.0	78	62-132
4-Methyl-2-pentanone (MIBK)	39.4	50.0	79	64-134
Toluene	10.1	10.0	101	69-124
trans-1,3-Dichloropropene	9.46	10.0	95	59-125
1,1,2-Trichloroethane	9.73	10.0	97	74-118
Tetrachloroethene (PCE)	10.3	10.0	103	62-126
2-Hexanone	41.8	50.0	84	59-131
1,3-Dichloropropane	9.53	10.0	95	75-116
Dibromochloromethane	8.85	10.0	89	67-126

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/25/2013
Date Analyzed: 02/25/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301715

Lab Control Sample
 KWG1301715-3
 Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	9.64	10.0	96	74-118
Chlorobenzene	10.3	10.0	103	72-116
Ethylbenzene	10.8	10.0	108	67-121
1,1,1,2-Tetrachloroethane	10.1	10.0	101	66-124
m,p-Xylenes	22.2	20.0	111	69-121
o-Xylene	10.7	10.0	107	71-119
Styrene	10.9	10.0	109	74-121
Bromoform	8.61	10.0	86	52-144
Isopropylbenzene	9.86	10.0	99	67-129
1,1,2,2-Tetrachloroethane	9.29	10.0	93	70-127
Bromobenzene	9.72	10.0	97	72-116
n-Propylbenzene	10.5	10.0	105	61-124
1,2,3-Trichloropropane	9.07	10.0	91	69-123
2-Chlorotoluene	10.8	10.0	108	55-131
1,3,5-Trimethylbenzene	10.9	10.0	109	62-126
4-Chlorotoluene	11.0	10.0	110	66-121
tert-Butylbenzene	10.6	10.0	106	61-127
1,2,4-Trimethylbenzene	10.9	10.0	109	63-122
sec-Butylbenzene	10.6	10.0	106	59-128
4-Isopropyltoluene	11.1	10.0	111	61-128
1,3-Dichlorobenzene	10.6	10.0	106	70-116
1,4-Dichlorobenzene	10.3	10.0	103	73-115
n-Butylbenzene	11.1	10.0	111	55-130
1,2-Dichlorobenzene	10.2	10.0	102	72-115
1,2-Dibromo-3-chloropropane	8.71	10.0	87	55-132
1,2,4-Trichlorobenzene	9.79	10.0	98	58-126
Hexachlorobutadiene	10.8	10.0	108	57-119
Naphthalene	7.42	10.0	74	64-126
1,2,3-Trichlorobenzene	10.1	10.0	101	68-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-3 (26-30) GW
Lab Code: K1301527-032
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Phenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
2-Chlorophenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
1,3-Dichlorobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
1,4-Dichlorobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
1,2-Dichlorobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Benzyl Alcohol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
Bis(2-chloroisopropyl) Ether	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
2-Methylphenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
Hexachloroethane	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
N-Nitrosodi-n-propylamine	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Methylphenol†	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
Nitrobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Isophorone	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
2-Nitrophenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
2,4-Dimethylphenol	ND	U	4.3	1	02/25/13	03/05/13	KWG1301698	
Bis(2-chloroethoxy)methane	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
2,4-Dichlorophenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
Benzoic Acid	ND	U	5.3	1	02/25/13	03/05/13	KWG1301698	*
1,2,4-Trichlorobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Naphthalene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Chloroaniline	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Hexachlorobutadiene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Chloro-3-methylphenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
2-Methylnaphthalene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Hexachlorocyclopentadiene	ND	U	1.1	1	02/25/13	03/05/13	KWG1301698	
2,4,6-Trichlorophenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
2,4,5-Trichlorophenol	ND	U	0.53	1	02/25/13	03/05/13	KWG1301698	
2-Chloronaphthalene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
2-Nitroaniline	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Acenaphthylene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Dimethyl Phthalate	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
2,6-Dinitrotoluene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-3 (26-30) GW
Lab Code: K1301527-032
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
3-Nitroaniline	ND	U	1.1	1	02/25/13	03/05/13	KWG1301698	
2,4-Dinitrophenol	ND	U	4.3	1	02/25/13	03/05/13	KWG1301698	
Dibenzofuran	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Nitrophenol	ND	U	2.2	1	02/25/13	03/05/13	KWG1301698	
2,4-Dinitrotoluene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Fluorene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Chlorophenyl Phenyl Ether	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Diethyl Phthalate	0.39		0.22	1	02/25/13	03/05/13	KWG1301698	
4-Nitroaniline	ND	U	1.1	1	02/25/13	03/05/13	KWG1301698	
2-Methyl-4,6-dinitrophenol	ND	U	2.2	1	02/25/13	03/05/13	KWG1301698	
N-Nitrosodiphenylamine	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
4-Bromophenyl Phenyl Ether	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Hexachlorobenzene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Pentachlorophenol	ND	U	1.1	1	02/25/13	03/05/13	KWG1301698	
Phenanthrene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Anthracene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Di-n-butyl Phthalate	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Fluoranthene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Pyrene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Butyl Benzyl Phthalate	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
3,3'-Dichlorobenzidine	ND	U	2.2	1	02/25/13	03/05/13	KWG1301698	
Benz(a)anthracene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Chrysene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Bis(2-ethylhexyl) Phthalate	ND	U	1.1	1	02/25/13	03/05/13	KWG1301698	
Di-n-octyl Phthalate	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Benzo(b)fluoranthene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Benzo(k)fluoranthene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Benzo(a)pyrene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Indeno(1,2,3-cd)pyrene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Dibenz(a,h)anthracene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	
Benzo(g,h,i)perylene	ND	U	0.22	1	02/25/13	03/05/13	KWG1301698	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-3 (26-30) GW
Lab Code: K1301527-032

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	76	12-109	03/05/13	Acceptable
Phenol-d6	89	23-106	03/05/13	Acceptable
Nitrobenzene-d5	97	26-110	03/05/13	Acceptable
2-Fluorobiphenyl	87	31-94	03/05/13	Acceptable
2,4,6-Tribromophenol	108	23-127	03/05/13	Acceptable
Terphenyl-d14	42	40-127	03/05/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Phenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
2-Chlorophenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
1,3-Dichlorobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
1,4-Dichlorobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
1,2-Dichlorobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Benzyl Alcohol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
Bis(2-chloroisopropyl) Ether	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
2-Methylphenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
Hexachloroethane	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
N-Nitrosodi-n-propylamine	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Methylphenol†	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
Nitrobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Isophorone	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
2-Nitrophenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
2,4-Dimethylphenol	ND	U	3.9	1	02/25/13	03/05/13	KWG1301698	
Bis(2-chloroethoxy)methane	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
2,4-Dichlorophenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
Benzoic Acid	ND	U	4.8	1	02/25/13	03/05/13	KWG1301698	*
1,2,4-Trichlorobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Naphthalene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Chloroaniline	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Hexachlorobutadiene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Chloro-3-methylphenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
2-Methylnaphthalene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Hexachlorocyclopentadiene	ND	U	0.96	1	02/25/13	03/05/13	KWG1301698	
2,4,6-Trichlorophenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
2,4,5-Trichlorophenol	ND	U	0.48	1	02/25/13	03/05/13	KWG1301698	
2-Chloronaphthalene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
2-Nitroaniline	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Acenaphthylene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Dimethyl Phthalate	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
2,6-Dinitrotoluene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
3-Nitroaniline	ND	U	0.96	1	02/25/13	03/05/13	KWG1301698	
2,4-Dinitrophenol	ND	U	3.9	1	02/25/13	03/05/13	KWG1301698	
Dibenzofuran	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Nitrophenol	ND	U	2.0	1	02/25/13	03/05/13	KWG1301698	
2,4-Dinitrotoluene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Fluorene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Chlorophenyl Phenyl Ether	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Diethyl Phthalate	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Nitroaniline	ND	U	0.96	1	02/25/13	03/05/13	KWG1301698	
2-Methyl-4,6-dinitrophenol	ND	U	2.0	1	02/25/13	03/05/13	KWG1301698	
N-Nitrosodiphenylamine	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
4-Bromophenyl Phenyl Ether	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Hexachlorobenzene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Pentachlorophenol	ND	U	0.96	1	02/25/13	03/05/13	KWG1301698	
Phenanthrene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Anthracene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Di-n-butyl Phthalate	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Fluoranthene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Pyrene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Butyl Benzyl Phthalate	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
3,3'-Dichlorobenzidine	ND	U	2.0	1	02/25/13	03/05/13	KWG1301698	
Benz(a)anthracene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Chrysene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Bis(2-ethylhexyl) Phthalate	ND	U	0.96	1	02/25/13	03/05/13	KWG1301698	
Di-n-octyl Phthalate	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Benzo(b)fluoranthene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Benzo(k)fluoranthene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Benzo(a)pyrene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Indeno(1,2,3-cd)pyrene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Dibenz(a,h)anthracene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	
Benzo(g,h,i)perylene	ND	U	0.20	1	02/25/13	03/05/13	KWG1301698	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4
Lab Code: K1301527-033

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	81	12-109	03/05/13	Acceptable
Phenol-d6	91	23-106	03/05/13	Acceptable
Nitrobenzene-d5	93	26-110	03/05/13	Acceptable
2-Fluorobiphenyl	79	31-94	03/05/13	Acceptable
2,4,6-Tribromophenol	101	23-127	03/05/13	Acceptable
Terphenyl-d14	45	40-127	03/05/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301698-3
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Phenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2-Chlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
1,3-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
1,4-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
1,2-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzyl Alcohol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroisopropyl) Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Methylphenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Hexachloroethane	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodi-n-propylamine	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Methylphenol†	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Nitrobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Isophorone	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Nitrophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2,4-Dimethylphenol	ND	U	3.8	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroethoxy)methane	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2,4-Dichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Benzoic Acid	ND	U	4.8	1	02/25/13	03/04/13	KWG1301698	
1,2,4-Trichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Naphthalene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Chloroaniline	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobutadiene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Chloro-3-methylphenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2-Methylnaphthalene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Hexachlorocyclopentadiene	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2,4,6-Trichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2,4,5-Trichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2-Chloronaphthalene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Nitroaniline	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Acenaphthylene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Dimethyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2,6-Dinitrotoluene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301698-3
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
3-Nitroaniline	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrophenol	ND	U	3.8	1	02/25/13	03/04/13	KWG1301698	
Dibenzofuran	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Nitrophenol	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrotoluene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Fluorene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Chlorophenyl Phenyl Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Diethyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Nitroaniline	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2-Methyl-4,6-dinitrophenol	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodiphenylamine	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Bromophenyl Phenyl Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Pentachlorophenol	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
Phenanthrene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Anthracene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Di-n-butyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Fluoranthene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Pyrene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Butyl Benzyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
3,3'-Dichlorobenzidine	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
Benz(a)anthracene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Chrysene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Bis(2-ethylhexyl) Phthalate	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
Di-n-octyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzo(b)fluoranthene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzo(k)fluoranthene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzo(a)pyrene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Indeno(1,2,3-cd)pyrene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Dibenz(a,h)anthracene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzo(g,h,i)perylene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301698-3

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	75	12-109	03/04/13	Acceptable
Phenol-d6	83	23-106	03/04/13	Acceptable
Nitrobenzene-d5	83	26-110	03/04/13	Acceptable
2-Fluorobiphenyl	77	31-94	03/04/13	Acceptable
2,4,6-Tribromophenol	81	23-127	03/04/13	Acceptable
Terphenyl-d14	73	40-127	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Phenol	ND	U	300	10	03/04/13	03/08/13	KWG1301896	*
2-Chlorophenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Benzyl Alcohol	ND	U	200	10	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	100	10	03/04/13	03/08/13	KWG1301896	*
2-Methylphenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Hexachloroethane	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Methylphenol†	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Nitrobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Isophorone	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2-Nitrophenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2,4-Dimethylphenol	ND	U	500	10	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2,4-Dichlorophenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Benzoic Acid	ND	U	2000	10	03/04/13	03/08/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Naphthalene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Chloroaniline	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Hexachlorobutadiene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2-Methylnaphthalene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	500	10	03/04/13	03/08/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2-Chloronaphthalene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
2-Nitroaniline	ND	U	200	10	03/04/13	03/08/13	KWG1301896	
Acenaphthylene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Dimethyl Phthalate	100	D	100	10	03/04/13	03/08/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
3-Nitroaniline	ND	U	200	10	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrophenol	ND	U	2000	10	03/04/13	03/08/13	KWG1301896	
Dibenzofuran	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Nitrophenol	ND	U	1000	10	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Fluorene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Chlorophenyl Phenyl Ether	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Diethyl Phthalate	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Nitroaniline	ND	U	200	10	03/04/13	03/08/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	1000	10	03/04/13	03/08/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Hexachlorobenzene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Pentachlorophenol	ND	U	1000	10	03/04/13	03/08/13	KWG1301896	
Phenanthrene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Anthracene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	200	10	03/04/13	03/08/13	KWG1301896	
Fluoranthene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Pyrene	110	D	100	10	03/04/13	03/08/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	1000	10	03/04/13	03/08/13	KWG1301896	
Benz(a)anthracene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Chrysene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	1000	10	03/04/13	03/08/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Benzo(b)fluoranthene	140	D	100	10	03/04/13	03/08/13	KWG1301896	
Benzo(k)fluoranthene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Benzo(a)pyrene	120	D	100	10	03/04/13	03/08/13	KWG1301896	
Indeno(1,2,3-cd)pyrene	170	D	100	10	03/04/13	03/08/13	KWG1301896	
Dibenz(a,h)anthracene	ND	U	100	10	03/04/13	03/08/13	KWG1301896	
Benzo(g,h,i)perylene	190	D	100	10	03/04/13	03/08/13	KWG1301896	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	46	11-80	03/08/13	Acceptable
Phenol-d6	39	20-86	03/08/13	Acceptable
Nitrobenzene-d5	44	27-91	03/08/13	Acceptable
2-Fluorobiphenyl	68	25-97	03/08/13	Acceptable
2,4,6-Tribromophenol	74	10-119	03/08/13	Acceptable
Terphenyl-d14	65	33-129	03/08/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Phenol	ND	U	150	5	03/04/13	03/08/13	KWG1301896	*
2-Chlorophenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Benzyl Alcohol	ND	U	98	5	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	49	5	03/04/13	03/08/13	KWG1301896	*
2-Methylphenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Hexachloroethane	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Methylphenol†	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Nitrobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Isophorone	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2-Nitrophenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2,4-Dimethylphenol	ND	U	250	5	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2,4-Dichlorophenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Benzoic Acid	ND	U	1000	5	03/04/13	03/08/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Naphthalene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Chloroaniline	ND	U	50	5	03/04/13	03/08/13	KWG1301896	
Hexachlorobutadiene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2-Methylnaphthalene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	250	5	03/04/13	03/08/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2-Chloronaphthalene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2-Nitroaniline	ND	U	98	5	03/04/13	03/08/13	KWG1301896	
Acenaphthylene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Dimethyl Phthalate	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
3-Nitroaniline	ND	U	98	5	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrophenol	ND	U	1000	5	03/04/13	03/08/13	KWG1301896	
Dibenzofuran	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Nitrophenol	ND	U	490	5	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Fluorene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Chlorophenyl Phenyl Ether	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Diethyl Phthalate	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Nitroaniline	ND	U	98	5	03/04/13	03/08/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	490	5	03/04/13	03/08/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Hexachlorobenzene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Pentachlorophenol	ND	U	490	5	03/04/13	03/08/13	KWG1301896	
Phenanthrene	130	D	49	5	03/04/13	03/08/13	KWG1301896	
Anthracene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	98	5	03/04/13	03/08/13	KWG1301896	
Fluoranthene	210	D	49	5	03/04/13	03/08/13	KWG1301896	
Pyrene	200	D	49	5	03/04/13	03/08/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	490	5	03/04/13	03/08/13	KWG1301896	
Benz(a)anthracene	96	D	49	5	03/04/13	03/08/13	KWG1301896	
Chrysene	110	D	49	5	03/04/13	03/08/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	490	5	03/04/13	03/08/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Benzo(b)fluoranthene	120	D	49	5	03/04/13	03/08/13	KWG1301896	
Benzo(k)fluoranthene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Benzo(a)pyrene	120	D	49	5	03/04/13	03/08/13	KWG1301896	
Indeno(1,2,3-cd)pyrene	110	D	49	5	03/04/13	03/08/13	KWG1301896	
Dibenz(a,h)anthracene	ND	U	49	5	03/04/13	03/08/13	KWG1301896	
Benzo(g,h,i)perylene	96	D	49	5	03/04/13	03/08/13	KWG1301896	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	45	11-80	03/08/13	Acceptable
Phenol-d6	41	20-86	03/08/13	Acceptable
Nitrobenzene-d5	46	27-91	03/08/13	Acceptable
2-Fluorobiphenyl	67	25-97	03/08/13	Acceptable
2,4,6-Tribromophenol	83	10-119	03/08/13	Acceptable
Terphenyl-d14	67	33-129	03/08/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301896-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Phenol	ND	U	24	1	03/04/13	03/07/13	KWG1301896	*
2-Chlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzyl Alcohol	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	*
2-Methylphenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachloroethane	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Methylphenol†	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Nitrobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Isophorone	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Nitrophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4-Dimethylphenol	ND	U	39	1	03/04/13	03/07/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4-Dichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzoic Acid	ND	U	200	1	03/04/13	03/07/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Naphthalene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Chloroaniline	ND	U	10	1	03/04/13	03/07/13	KWG1301896	
Hexachlorobutadiene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Methylnaphthalene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	50	1	03/04/13	03/07/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Chloronaphthalene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Acenaphthylene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Dimethyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301896-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
3-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
2,4-Dinitrophenol	ND	U	200	1	03/04/13	03/07/13	KWG1301896	
Dibenzofuran	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Nitrophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Fluorene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Chlorophenyl Phenyl Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Diethyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Pentachlorophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Phenanthrene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Anthracene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Fluoranthene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Pyrene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Benz(a)anthracene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Chrysene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzo(b)fluoranthene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzo(k)fluoranthene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzo(a)pyrene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Indeno(1,2,3-cd)pyrene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Dibenz(a,h)anthracene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzo(g,h,i)perylene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301896-5

Units: ug/Kg
Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	39	11-80	03/07/13	Acceptable
Phenol-d6	48	20-86	03/07/13	Acceptable
Nitrobenzene-d5	53	27-91	03/07/13	Acceptable
2-Fluorobiphenyl	61	25-97	03/07/13	Acceptable
2,4,6-Tribromophenol	72	10-119	03/07/13	Acceptable
Terphenyl-d14	64	33-129	03/07/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
B-3 (26-30) GW	K1301527-032	76	89	97	87	108	42
B-4	K1301527-033	81	91	93	79	101	45
Method Blank	KWG1301698-3	75	83	83	77	81	73
Lab Control Sample	KWG1301698-1	79	88	90	85	100	75
Duplicate Lab Control Sample	KWG1301698-2	71	75	75	72	89	68

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	12-109	Sur5 = 2,4,6-Tribromophenol	23-127
Sur2 = Phenol-d6	23-106	Sur6 = Terphenyl-d14	40-127
Sur3 = Nitrobenzene-d5	26-110		
Sur4 = 2-Fluorobiphenyl	31-94		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
B-4 (3.5-5.0)	K1301527-001	46 D	39 D	44 D	68 D	74 D	65 D
B-2 (7.0-8.0)	K1301527-019	45 D	41 D	46 D	67 D	83 D	67 D
Method Blank	KWG1301896-5	39	48	53	61	72	64
B-2 (7.0-8.0)MS	KWG1301896-1	38 D	41 D	42 D	56 D	76 D	58 D
B-2 (7.0-8.0)DMS	KWG1301896-2	41 D	39 D	38 D	53 D	71 D	54 D
Lab Control Sample	KWG1301896-3	48	49	53	60	80	62
Duplicate Lab Control Sample	KWG1301896-4	37	46	52	59	74	60

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	11-80	Sur5 = 2,4,6-Tribromophenol	10-119
Sur2 = Phenol-d6	20-86	Sur6 = Terphenyl-d14	33-129
Sur3 = Nitrobenzene-d5	27-91		
Sur4 = 2-Fluorobiphenyl	25-97		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013 -
 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301896

Analyte Name	Sample Result	B-2 (7.0-8.0)MS KWG1301896-1 Matrix Spike			B-2 (7.0-8.0)DMS KWG1301896-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Phenol	ND	109	245	44	95.9	245	39	15-98	13	40
2-Chlorophenol	ND	131	245	53	118	245	48	19-92	10	40
1,4-Dichlorobenzene	ND	121	245	49	117	245	48	19-93	3	40
Hexachloroethane	ND	122	245	50	106	245	43	10-96	14	40
N-Nitrosodi-n-propylamine	ND	110	245	45	88.7	245	36	14-104	21	40
1,2,4-Trichlorobenzene	ND	156	245	64	133	245	55	23-99	16	40
4-Chloro-3-methylphenol	ND	188	245	77	165	245	68	12-106	13	40
2-Chloronaphthalene	ND	145	245	59	129	245	53	24-97	12	40
Acenaphthene	ND	162	245	66	147	245	60	10-132	10	40
4-Nitrophenol	ND	156	245	64	157	245	64	11-131	1	40
2,4-Dinitrotoluene	ND	178	245	72	142	245	58	25-114	22	40
Diethyl Phthalate	ND	182	245	74	171	245	70	10-135	6	40
4-Bromophenyl Phenyl Ether	ND	202	245	82	176	245	72	30-108	14	40
Pentachlorophenol	ND	163	245	66	131	245	53	10-123	22	40
Pyrene	200	450	245	101	310	245	44	17-129	37	40
Benzo(a)pyrene	120	348	245	93	277	245	64	13-126	23	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301527
Date Extracted: 02/25/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301698

Analyte Name	Lab Control Sample KWG1301698-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301698-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	4.58	5.00	92	3.91	5.00	78	52-107	16	30
Phenol	4.54	5.00	91	3.67	5.00	73	50-112	21	30
2-Chlorophenol	4.58	5.00	92	3.75	5.00	75	53-110	20	30
1,3-Dichlorobenzene	2.49	5.00	50	2.06	5.00	41	21-84	19	30
1,4-Dichlorobenzene	2.53	5.00	51	2.10	5.00	42	23-84	19	30
1,2-Dichlorobenzene	2.81	5.00	56	2.28	5.00	46	27-87	21	30
Benzyl Alcohol	4.26	5.00	85	3.35	5.00	67	46-118	24	30
Bis(2-chloroisopropyl) Ether	4.56	5.00	91	3.70	5.00	74	43-111	21	30
2-Methylphenol	4.90	5.00	98	3.76	5.00	75	20-118	26	30
Hexachloroethane	1.94	5.00	39	1.59	5.00	32	11-82	20	30
N-Nitrosodi-n-propylamine	4.72	5.00	94	3.61	5.00	72	50-113	27	30
4-Methylphenol	4.77	5.00	95	3.84	5.00	77	19-121	22	30
Nitrobenzene	4.46	5.00	89	3.51	5.00	70	52-112	24	30
Isophorone	4.54	5.00	91	3.82	5.00	76	51-109	17	30
2-Nitrophenol	4.93	5.00	99	4.12	5.00	82	53-111	18	30
2,4-Dimethylphenol	16.5	15.0	110	15.2	15.0	102	10-128	8	30
Bis(2-chloroethoxy)methane	4.82	5.00	96	3.99	5.00	80	52-111	19	30
2,4-Dichlorophenol	4.61	5.00	92	3.85	5.00	77	52-112	18	30
Benzoic Acid	9.27	15.0	62	5.95	15.0	40	10-87	44 *	30
1,2,4-Trichlorobenzene	2.75	5.00	55	2.26	5.00	45	26-90	20	30
Naphthalene	3.84	5.00	77	3.20	5.00	64	43-98	18	30
4-Chloroaniline	4.79	5.00	96	3.92	5.00	78	10-124	20	30
Hexachlorobutadiene	1.75	5.00	35	1.50	5.00	30	10-85	16	30
4-Chloro-3-methylphenol	4.72	5.00	94	4.03	5.00	81	44-115	16	30
2-Methylnaphthalene	3.63	5.00	73	3.11	5.00	62	38-102	15	30
Hexachlorocyclopentadiene	1.17	5.00	23	1.02	5.00	20	10-47	14	30
2,4,6-Trichlorophenol	4.67	5.00	93	3.79	5.00	76	52-110	21	30
2,4,5-Trichlorophenol	4.75	5.00	95	3.89	5.00	78	56-108	20	30
2-Chloronaphthalene	3.99	5.00	80	3.21	5.00	64	47-101	22	30
2-Nitroaniline	4.82	5.00	96	4.15	5.00	83	53-113	15	30
Acenaphthylene	4.44	5.00	89	3.70	5.00	74	52-108	18	30
Dimethyl Phthalate	4.84	5.00	97	4.12	5.00	82	58-110	16	30
2,6-Dinitrotoluene	5.07	5.00	101	4.25	5.00	85	60-109	17	30
Acenaphthene	4.26	5.00	85	3.62	5.00	72	48-102	16	30
3-Nitroaniline	4.94	5.00	99	4.24	5.00	85	32-116	15	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301527
Date Extracted: 02/25/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301698

Analyte Name	Lab Control Sample KWG1301698-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301698-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
2,4-Dinitrophenol	4.50	5.00	90	3.78	5.00	76	10-107	17	30
Dibenzofuran	4.41	5.00	88	3.61	5.00	72	50-104	20	30
4-Nitrophenol	4.44	5.00	89	3.59	5.00	72	49-113	21	30
2,4-Dinitrotoluene	5.17	5.00	103	4.36	5.00	87	59-111	17	30
Fluorene	4.44	5.00	89	3.63	5.00	73	51-106	20	30
4-Chlorophenyl Phenyl Ether	4.38	5.00	88	3.48	5.00	70	48-106	23	30
Diethyl Phthalate	4.84	5.00	97	4.11	5.00	82	56-112	16	30
4-Nitroaniline	5.07	5.00	101	4.20	5.00	84	43-113	19	30
2-Methyl-4,6-dinitrophenol	4.53	5.00	91	3.85	5.00	77	38-109	16	30
N-Nitrosodiphenylamine	5.05	5.00	101	4.20	5.00	84	44-111	18	30
4-Bromophenyl Phenyl Ether	4.50	5.00	90	3.74	5.00	75	55-105	18	30
Hexachlorobenzene	4.44	5.00	89	3.62	5.00	72	55-105	20	30
Pentachlorophenol	4.56	5.00	91	3.96	5.00	79	33-106	14	30
Phenanthrene	4.57	5.00	91	3.76	5.00	75	56-103	20	30
Anthracene	4.63	5.00	93	3.77	5.00	75	55-103	20	30
Di-n-butyl Phthalate	4.96	5.00	99	4.22	5.00	84	58-113	16	30
Fluoranthene	4.66	5.00	93	4.01	5.00	80	56-110	15	30
Pyrene	4.61	5.00	92	3.94	5.00	79	59-109	16	30
Butyl Benzyl Phthalate	4.93	5.00	99	4.31	5.00	86	62-112	13	30
3,3'-Dichlorobenzidine	4.48	5.00	90	3.43	5.00	69	10-113	27	30
Benz(a)anthracene	4.63	5.00	93	3.84	5.00	77	61-104	19	30
Chrysene	4.52	5.00	90	3.80	5.00	76	61-107	17	30
Bis(2-ethylhexyl) Phthalate	4.64	5.00	93	3.92	5.00	78	61-118	17	30
Di-n-octyl Phthalate	4.97	5.00	99	4.17	5.00	83	60-110	18	30
Benzo(b)fluoranthene	4.66	5.00	93	3.94	5.00	79	62-107	17	30
Benzo(k)fluoranthene	4.85	5.00	97	3.97	5.00	79	63-108	20	30
Benzo(a)pyrene	4.81	5.00	96	4.02	5.00	80	56-105	18	30
Indeno(1,2,3-cd)pyrene	4.84	5.00	97	4.15	5.00	83	63-108	15	30
Dibenz(a,h)anthracene	4.60	5.00	92	3.91	5.00	78	62-108	16	30
Benzo(g,h,i)perylene	4.78	5.00	96	3.99	5.00	80	62-108	18	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301896

Analyte Name	Lab Control Sample KWG1301896-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301896-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	124	250	50	117	250	47	29-93	6	40
Phenol	119	250	48	111	250	44	27-97	7	40
2-Chlorophenol	130	250	52	124	250	50	28-95	5	40
1,3-Dichlorobenzene	133	250	53	128	250	51	27-88	4	40
1,4-Dichlorobenzene	131	250	52	121	250	48	28-89	8	40
1,2-Dichlorobenzene	134	250	54	132	250	53	27-91	1	40
Benzyl Alcohol	119	250	48	114	250	46	25-103	4	40
Bis(2-chloroisopropyl) Ether	109	250	44	112	250	45	22-95	3	40
2-Methylphenol	128	250	51	129	250	51	18-95	1	40
Hexachloroethane	120	250	48	127	250	51	26-90	6	40
N-Nitrosodi-n-propylamine	118	250	47	127	250	51	25-103	8	40
4-Methylphenol	129	250	52	125	250	50	17-99	3	40
Nitrobenzene	122	250	49	126	250	51	26-100	3	40
Isophorone	137	250	55	122	250	49	31-95	12	40
2-Nitrophenol	154	250	62	148	250	59	29-96	4	40
2,4-Dimethylphenol	531	750	71	455	750	61	10-93	15	40
Bis(2-chloroethoxy)methane	139	250	55	125	250	50	30-95	10	40
2,4-Dichlorophenol	159	250	64	140	250	56	31-96	13	40
Benzoic Acid	ND	750	0 *	147	750	20	10-96	NC	40
1,2,4-Trichlorobenzene	153	250	61	146	250	58	27-94	5	40
Naphthalene	139	250	56	132	250	53	27-93	5	40
4-Chloroaniline	145	250	58	126	250	50	30-86	15	40
Hexachlorobutadiene	154	250	62	142	250	57	25-96	8	40
4-Chloro-3-methylphenol	157	250	63	124	250	49	28-101	24	40
2-Methylnaphthalene	141	250	56	121	250	49	27-96	15	40
Hexachlorocyclopentadiene	113	250	45	110	250	44	18-71	2	40
2,4,6-Trichlorophenol	150	250	60	158	250	63	31-97	5	40
2,4,5-Trichlorophenol	158	250	63	161	250	64	33-97	2	40
2-Chloronaphthalene	144	250	58	143	250	57	31-95	1	40
2-Nitroaniline	148	250	59	145	250	58	34-104	2	40
Acenaphthylene	145	250	58	142	250	57	33-99	2	40
Dimethyl Phthalate	166	250	66	163	250	65	39-100	2	40
2,6-Dinitrotoluene	170	250	68	166	250	66	38-102	3	40
Acenaphthene	144	250	58	141	250	57	32-91	2	40
3-Nitroaniline	163	250	65	158	250	63	38-97	3	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301896

Analyte Name	Lab Control Sample KWG1301896-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301896-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
2,4-Dinitrophenol	133	250	53	183	250	73	10-91	32	40
Dibenzofuran	150	250	60	145	250	58	34-92	3	40
4-Nitrophenol	167	250	67	177	250	71	34-103	6	40
2,4-Dinitrotoluene	183	250	73	186	250	75	41-104	2	40
Fluorene	154	250	62	152	250	61	32-96	1	40
4-Chlorophenyl Phenyl Ether	163	250	65	155	250	62	33-95	5	40
Diethyl Phthalate	174	250	69	172	250	69	41-100	1	40
4-Nitroaniline	174	250	70	170	250	68	37-104	3	40
2-Methyl-4,6-dinitrophenol	148	250	59	192	250	77	23-99	26	40
N-Nitrosodiphenylamine	178	250	71	171	250	68	36-96	4	40
4-Bromophenyl Phenyl Ether	168	250	67	166	250	66	35-101	1	40
Hexachlorobenzene	171	250	69	172	250	69	40-99	1	40
Pentachlorophenol	160	250	64	166	250	66	21-97	3	40
Phenanthrene	160	250	64	164	250	66	39-98	3	40
Anthracene	167	250	67	172	250	69	40-98	3	40
Di-n-butyl Phthalate	187	250	75	203	250	81	42-109	8	40
Fluoranthene	188	250	75	195	250	78	42-104	4	40
Pyrene	178	250	71	177	250	71	45-106	1	40
Butyl Benzyl Phthalate	185	250	74	186	250	74	45-111	0	40
3,3'-Dichlorobenzidine	176	250	71	178	250	71	37-99	1	40
Benz(a)anthracene	191	250	76	191	250	76	44-108	0	40
Chrysene	187	250	75	187	250	75	46-108	0	40
Bis(2-ethylhexyl) Phthalate	185	250	74	187	250	75	47-110	1	40
Di-n-octyl Phthalate	194	250	78	193	250	77	45-109	0	40
Benzo(b)fluoranthene	194	250	77	187	250	75	46-106	4	40
Benzo(k)fluoranthene	188	250	75	191	250	76	47-107	1	40
Benzo(a)pyrene	201	250	81	200	250	80	42-110	0	40
Indeno(1,2,3-cd)pyrene	199	250	80	203	250	81	47-109	2	40
Dibenz(a,h)anthracene	191	250	76	195	250	78	47-106	2	40
Benzo(g,h,i)perylene	187	250	75	189	250	76	44-108	1	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: B-4
Lab Code: K1301527-033
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	0.029		0.019	1	02/27/13	03/01/13	KWG1301798	
2-Methylnaphthalene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenzofuran	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluorene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Phenanthrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benz(a)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Chrysene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(b)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(k)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(a)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Indeno(1,2,3-cd)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenz(a,h)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(g,h,i)perylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	76	46-114	03/01/13	Acceptable
Fluoranthene-d10	81	51-121	03/01/13	Acceptable
Terphenyl-d14	79	58-140	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301798-5
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
2-Methylnaphthalene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenzofuran	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluorene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Phenanthrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benz(a)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Chrysene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(b)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(k)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(a)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Indeno(1,2,3-cd)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenz(a,h)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(g,h,i)perylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	82	46-114	03/01/13	Acceptable
Fluoranthene-d10	84	51-121	03/01/13	Acceptable
Terphenyl-d14	77	58-140	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: B-4 (3.5-5.0)
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	5.9		5.0	1	03/04/13	03/06/13	KWG1301897	
2-Methylnaphthalene	5.7		5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthylene	7.3		5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenzofuran	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Fluorene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Phenanthrene	18		5.0	1	03/04/13	03/06/13	KWG1301897	
Anthracene	7.4		5.0	1	03/04/13	03/06/13	KWG1301897	
Fluoranthene	43		5.0	1	03/04/13	03/06/13	KWG1301897	
Pyrene	56		5.0	1	03/04/13	03/06/13	KWG1301897	
Benz(a)anthracene	36		5.0	1	03/04/13	03/06/13	KWG1301897	
Chrysene	55		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(b)fluoranthene	98		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(k)fluoranthene	38		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(a)pyrene	98		5.0	1	03/04/13	03/06/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	130		5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenz(a,h)anthracene	30		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(g,h,i)perylene	140		5.0	1	03/04/13	03/06/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	58	17-104	03/06/13	Acceptable
Fluoranthene-d10	61	27-106	03/06/13	Acceptable
Terphenyl-d14	54	35-109	03/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: 02/20/2013
Date Received: 02/21/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: B-2 (7.0-8.0)
Lab Code: K1301527-019
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	6.6		5.0	1	03/04/13	03/06/13	KWG1301897	
2-Methylnaphthalene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthylene	13		5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenzofuran	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Fluorene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Phenanthrene	36		5.0	1	03/04/13	03/06/13	KWG1301897	
Anthracene	17		5.0	1	03/04/13	03/06/13	KWG1301897	
Fluoranthene	110		5.0	1	03/04/13	03/06/13	KWG1301897	
Pyrene	150		5.0	1	03/04/13	03/06/13	KWG1301897	
Benz(a)anthracene	62		5.0	1	03/04/13	03/06/13	KWG1301897	
Chrysene	75		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(b)fluoranthene	78		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(k)fluoranthene	33		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(a)pyrene	88		5.0	1	03/04/13	03/06/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	83		5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenz(a,h)anthracene	16		5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(g,h,i)perylene	81		5.0	1	03/04/13	03/06/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	65	17-104	03/06/13	Acceptable
Fluoranthene-d10	65	27-106	03/06/13	Acceptable
Terphenyl-d14	60	35-109	03/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301897-5
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
2-Methylnaphthalene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Acenaphthylene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Acenaphthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Dibenzofuran	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Fluorene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Phenanthrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benz(a)anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Chrysene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(b)fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(k)fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(a)pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Dibenz(a,h)anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(g,h,i)perylene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	64	17-104	03/07/13	Acceptable
Fluoranthene-d10	65	27-106	03/07/13	Acceptable
Terphenyl-d14	57	35-109	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301401-021	83	79	58
B-4	K1301527-033	76	81	79
Method Blank	KWG1301798-5	82	84	77
Batch QCMS	KWG1301798-1	80	79	63
Batch QCDMS	KWG1301798-2	81	80	69
Lab Control Sample	KWG1301798-3	81	83	70
Duplicate Lab Control Sample	KWG1301798-4	82	83	73

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	46-114
Sur2 = Fluoranthene-d10	51-121
Sur3 = Terphenyl-d14	58-140

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
B-4 (3.5-5.0)	K1301527-001	58	61	54
B-2 (7.0-8.0)	K1301527-019	65	65	60
Batch QC	K1301835-005	66	69	60
Method Blank	KWG1301897-5	64	65	57
Batch QCMS	KWG1301897-1	63	66	55
Batch QCDMS	KWG1301897-2	61	64	54
Lab Control Sample	KWG1301897-3	72	73	63
Duplicate Lab Control Sample	KWG1301897-4	69	71	61

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	17-104
Sur2 = Fluoranthene-d10	27-106
Sur3 = Terphenyl-d14	35-109

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: Batch QC
Lab Code: K1301401-021
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301798

Analyte Name	Sample Result	Batch QCMS KWG1301798-1 Matrix Spike			Batch QCDMS KWG1301798-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	0.036	1.98	2.38	82	1.95	2.38	80	37-118	2	30
2-Methylnaphthalene	0.020	1.86	2.38	78	1.86	2.38	78	37-117	0	30
Acenaphthylene	0.020	2.19	2.38	92	2.16	2.38	91	43-114	1	30
Acenaphthene	ND	2.08	2.38	88	2.09	2.38	88	45-114	0	30
Dibenzofuran	ND	2.13	2.38	90	2.11	2.38	88	44-122	1	30
Fluorene	ND	2.22	2.38	93	2.18	2.38	92	45-123	2	30
Phenanthrene	ND	2.06	2.38	87	2.07	2.38	87	42-127	0	30
Anthracene	0.029	1.86	2.38	77	1.93	2.38	80	32-125	4	30
Fluoranthene	ND	1.86	2.38	78	1.98	2.38	83	48-134	7	30
Pyrene	ND	2.18	2.38	92 #	2.33	2.38	98 #	44-130	7	30
Benz(a)anthracene	ND	1.48	2.38	62	1.96	2.38	82	41-128	28	30
Chrysene	ND	1.39	2.38	59	1.75	2.38	74	48-128	23	30
Benzo(b)fluoranthene	ND	1.31	2.38	55	1.76	2.38	74	40-139	29	30
Benzo(k)fluoranthene	ND	1.32	2.38	55	1.75	2.38	74	48-134	28	30
Benzo(a)pyrene	ND	1.44	2.38	60	1.96	2.38	82	35-132	31 *	30
Indeno(1,2,3-cd)pyrene	ND	1.52	2.38	64	2.17	2.38	91	40-135	35 *	30
Dibenz(a,h)anthracene	ND	1.43	2.38	60	1.99	2.38	84	43-135	33 *	30
Benzo(g,h,i)perylene	ND	1.27	2.38	53	1.78	2.38	75	44-128	33 *	30

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: Batch QC
Lab Code: K1301835-005
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301897

Analyte Name	Sample Result	Batch QCMS KWG1301897-1 Matrix Spike			Batch QCDMS KWG1301897-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	ND	205	333	61	225	333	68	23-114	10	40
2-Methylnaphthalene	ND	224	333	67	241	333	72	24-115	7	40
Acenaphthylene	ND	226	333	68	244	333	73	32-117	8	40
Acenaphthene	ND	215	333	64	232	333	70	33-118	8	40
Dibenzofuran	ND	217	333	65	236	333	71	34-131	8	40
Fluorene	ND	221	333	66	246	333	74	33-125	11	40
Phenanthrene	ND	202	333	61	232	333	70	29-125	14	40
Anthracene	ND	223	333	67	248	333	75	30-127	11	40
Fluoranthene	4.4	229	333	67	258	333	76	35-139	12	40
Pyrene	5.8	232	333	68	258	333	76	27-134	10	40
Benz(a)anthracene	ND	240	333	72	280	333	84	35-122	15	40
Chrysene	ND	235	333	71	263	333	79	36-126	11	40
Benzo(b)fluoranthene	3.9	236	333	70	266	333	79	35-124	12	40
Benzo(k)fluoranthene	ND	229	333	69	268	333	81	38-124	16	40
Benzo(a)pyrene	3.6	263	333	78	297	333	88	37-123	12	40
Indeno(1,2,3-cd)pyrene	3.5	289	333	86	326	333	97	28-133	12	40
Dibenz(a,h)anthracene	ND	253	333	76	285	333	86	32-125	12	40
Benzo(g,h,i)perylene	5.7	242	333	71	267	333	79	33-128	10	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301527
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301798

Analyte Name	Lab Control Sample KWG1301798-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301798-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	2.06	2.50	82	2.11	2.50	84	39-110	2	30
2-Methylnaphthalene	2.07	2.50	83	2.07	2.50	83	39-115	0	30
Acenaphthylene	2.26	2.50	90	2.33	2.50	93	44-115	3	30
Acenaphthene	2.21	2.50	88	2.27	2.50	91	44-113	3	30
Dibenzofuran	2.23	2.50	89	2.29	2.50	92	46-116	3	30
Fluorene	2.26	2.50	90	2.31	2.50	93	48-118	2	30
Phenanthrene	2.13	2.50	85	2.20	2.50	88	47-120	3	30
Anthracene	2.23	2.50	89	2.23	2.50	89	44-117	0	30
Fluoranthene	2.31	2.50	92	2.34	2.50	94	48-128	2	30
Pyrene	2.38	2.50	95	2.42	2.50	97	42-133	2	30
Benz(a)anthracene	2.23	2.50	89	2.30	2.50	92	48-125	3	30
Chrysene	2.29	2.50	92	2.38	2.50	95	50-128	4	30
Benzo(b)fluoranthene	2.24	2.50	90	2.33	2.50	93	49-131	4	30
Benzo(k)fluoranthene	2.46	2.50	98	2.55	2.50	102	54-131	4	30
Benzo(a)pyrene	2.52	2.50	101	2.61	2.50	104	43-134	3	30
Indeno(1,2,3-cd)pyrene	2.78	2.50	111	2.77	2.50	111	45-133	1	30
Dibenz(a,h)anthracene	2.57	2.50	103	2.57	2.50	103	49-133	0	30
Benzo(g,h,i)perylene	2.41	2.50	96	2.40	2.50	96	51-124	0	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301527
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301897

Analyte Name	Lab Control Sample KWG1301897-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301897-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	355	500	71	326	500	65	32-124	8	40
2-Methylnaphthalene	391	500	78	359	500	72	27-126	9	40
Acenaphthylene	399	500	80	367	500	73	38-126	9	40
Acenaphthene	378	500	76	348	500	70	39-124	8	40
Dibenzofuran	384	500	77	354	500	71	41-130	8	40
Fluorene	391	500	78	359	500	72	39-129	8	40
Phenanthrene	355	500	71	323	500	65	39-123	10	40
Anthracene	372	500	74	357	500	71	38-130	4	40
Fluoranthene	385	500	77	359	500	72	39-135	7	40
Pyrene	392	500	78	362	500	72	39-134	8	40
Benz(a)anthracene	413	500	83	386	500	77	46-120	7	40
Chrysene	402	500	80	373	500	75	49-120	8	40
Benzo(b)fluoranthene	409	500	82	378	500	76	51-121	8	40
Benzo(k)fluoranthene	420	500	84	395	500	79	55-120	6	40
Benzo(a)pyrene	458	500	92	425	500	85	49-122	8	40
Indeno(1,2,3-cd)pyrene	519	500	104	479	500	96	40-128	8	40
Dibenz(a,h)anthracene	472	500	94	439	500	88	43-125	7	40
Benzo(g,h,i)perylene	446	500	89	413	500	83	49-122	8	40

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

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



March 20, 2013

Analytical Report for Service Request No: K1301603

Ashleigh Fines
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201-4707

RE: Pier 99/320001975-00.001

Dear Ashleigh:

Enclosed are the results of the samples submitted to our laboratory on February 22, 2013. For your reference, these analyses have been assigned our service request number K1301603.

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

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/ln

Page 1 of 148



ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068

Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Ash Creek Associates, Inc.
Project: Pier 99/ 320001975-00.001
Sample Matrix: Soil and Water

Service Request No.: K1301603
Date Received: 02/22/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Twenty-seven soil and two water samples were received for analysis at ALS Environmental on 02/22/13. The samples were received in good condition and consistent with the accompanying chain of custody form, except where noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Metals

Total Metals – Soil

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Aluminum and Iron for sample B6 (3.5-5.0) were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

The control criteria for matrix spike recovery of Aluminum, Calcium, and Iron for sample B6 (8.5-10.0) were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries, the method is still generally prescribed because of its versatility for general metals analysis. Antimony results (in conjunction with the matrix spike recovery) from this procedure should only be used as indicators to estimate concentrations. The matrix spike recoveries of Antimony for samples B6 (3.5-5.0) and B6 (8.5-10.0) were below the ALS control criterion. Since low recoveries resulted from a method defect and were possibly magnified by certain matrix components, no corrective action was appropriate. Alternative procedures that specifically target Antimony are available but were not specified for this project. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control.

The matrix spike recovery of Silver for sample B6 (3.5-5.0) was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Approved by



Metals

Dissolved Metals – Water

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Calcium for the Batch QC sample were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081

Calibration Verification Exceptions:

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Decachlorobiphenyl in an associated CCV. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Matrix Spike Recovery Exceptions:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for the water sample.

The control criteria for the matrix spike recovery of several analytes in the associated Matrix Spikes was not applicable. The chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations. Thus, the reported recoveries contained a high bias. Based on the magnitude of background contribution, the interference appeared to be minimal.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Toxaphene in the replicate matrix spike analyses of Batch QC was outside control criteria. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Sample Confirmation Notes:


The confirmation comparison criteria of 40% difference for Heptachlor and Dieldrin was exceeded in sample SS-10. The lower of the two values was reported when no evidence of a matrix interference was observed.

Elevated Detection Limits:

The reporting limit is elevated for all analytes in sample SS-9. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components which prevented adequate resolution of the internal standard. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result is flagged to indicate the matrix interference.

The detection limit was elevated, or further elevated, for at least one analyte in most soil field samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Sample SS-9 required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

Approved by 

Organochlorine Pesticides by EPA Method 8081 (cont.)

Sample Notes and Discussion:

Organochlorine Pesticides (O-C Pesticides) determined by EPA Method 8081B or equivalent gas chromatography-electron capture detector (GC/ECD) procedures are subject to interference from polychlorinated biphenyls (PCBs). The interference stems from the inability of the GC/ECD to differentiate selected PCB congeners from certain O-C Pesticides. This method limitation can result in false positive detections and/or high bias to pesticide values.

The magnitude of the interference is directly proportional to the concentration of PCBs in the sample. In addition, the affect on selected O-C Pesticides is complicated by the type PCB Aroclor(s) present in the sample. The presence of multiple Aroclors can result in contribution to the apparent concentration of O-C Pesticides by PCB congeners common to two or more Aroclors.

Most soil field samples in this delivery group contained PCB Aroclors at concentrations high enough to impact the O-C Pesticide results. Note that the results for the O-C Pesticides were reported as per the protocol defined in SW-846 regarding dual column confirmation. In some instances, certain PCB congeners were suspected of being detected on both columns simultaneously within the retention time window of the target pesticide. When the resulting chromatographic peaks met the criteria of a detection as defined in the method, the values were reported.

Results for 4,4-DDT have contribution from confirmed PCB interferences on both columns within the established retention time window, resulting in reported values with a significant high bias.

No other anomalies associated with the analysis of these samples were observed.

PCB Aroclors by EPA Method 8082

Surrogate Exceptions:

The control criteria were exceeded for Decachlorobiphenyl in sample SS-9 due to matrix interference. The presence of non-target background components prevented adequate resolution of the surrogate. Accurate quantitation was not possible. Recovery of the alternate surrogate, Tetrachloro-m-xylene, was within control criteria. No further corrective action was appropriate.

Sample Confirmation Notes:

The confirmation comparison criterion of 40% difference was exceeded for Aroclor 1254 in sample SS-14. The lower of the two values was reported when there was an apparent interference on the alternate column that produced the higher value.

Sample Notes and Discussion:

Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD) for extraction lot KWG1301884. A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

Two Aroclors were identified in samples SS-9, SS-10, and SS-14: Aroclor 1254 and Aroclor 1260. When mixtures of PCB Aroclors are present in a sample, correct identification and quantitative analysis of the individual Aroclors can be subjective. Care is taken to minimize the possibility of double-counting PCBs. Analytical peaks are selected based on the best resolution possible for that particular sample. However, when a mixture of Aroclors 1254 and 1260 is present in a sample, the potential exists for a high bias from contribution of one Aroclor to another due to common peaks or peaks that cannot be completely resolved.

No other anomalies associated with the analysis of these samples were observed.

Approved by



Volatile Organic Compounds by EPA Method 8260

Calibration Verification Exceptions:

The following analytes were flagged as outside the upper control criterion for Continuing Calibration Verification (CCV) J:\MS13\0301F003.D: Vinyl Chloride, Bromomethane, m,p-Xylenes, o-Xylene, and n-Butylbenzene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Lab Control Sample Exceptions:

The advisory criterion was exceeded for Bromomethane in Laboratory Control Sample (LCS) KWG1301866-3. As per the ALS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270

Calibration Verification Exceptions:

The following analytes were flagged as outside the lower control criterion for Continuing Calibration Verification (CCV) MS06\0307F009.D: Phenol, Bis(2-chloroisopropyl) Ether. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The matrix spike recovery of 4-Chloro3-methylphenol for sample SS10MS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

The matrix spike recovery of 4-Nitrophenol for sample SS10DMS was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

The matrix spike recovery of Pentachlorophenol for sample SS10 was outside control criteria because of suspected matrix interference. A matrix spike duplicate was also analyzed, but produced similar results. The result(s) of the original analysis were reported. No further corrective action was appropriate.

Lab Control Sample Exceptions:

The advisory criterion was exceeded for Benzoic Acid in Laboratory Control Sample (LCS) KWG1301896-3. As per the ALS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

The advisory criterion was exceeded for Benzoic Acid in Laboratory Control Sample (LCS) KWG1301990-3. As per the ALS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analytes used to control the analysis. The recovery information reported for these analytes is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Approved by _____



Semivolatile Organic Compounds by EPA Method 8270 (cont.)

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of 4-Chloro-3-methylphenol in sample SS-10 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. The sample contained relatively large amounts of roots and twigs, which complicated the homogenization process. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

The Relative Percent Difference (RPD) for Benzoic Acid in the replicate Laboratory Control Sample (LCS) analyses (KWG1301698-1 and KWG1301698-2) was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the LCS/DLCS, indicating the analytical batch was in control. No further corrective action was appropriate.

Elevated Detection Limits:

The detection limit was elevated in samples SS-9, SS10, and SS-24. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. The extracts were highly colored, which indicated the need to perform dilutions prior to injection into the instrument. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions.

No other anomalies associated with the analysis of these samples were observed.

Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Calibration Verification Exceptions:

The following analytes were flagged as outside the upper control criterion for Continuing Calibration Verification (CCV) MS11\0301F002.D: Indeno(1,2,3-cd)pyrene. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. The data quality was not affected. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Pyrene for sample Batch QC (KWG1301798) were not applicable. The chromatogram of the parent sample indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged in the parent sample to indicate the matrix interference.

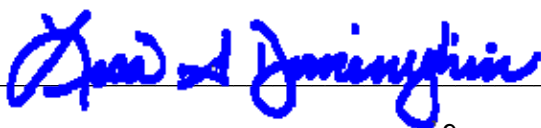
The matrix spike recovery of numerous analytes for sample Batch QC (KWG1301787) was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. Since the unspiked samples contained high analyte concentrations relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for numerous analytes in the replicate Matrix Spike (MS/MSD) analyses of sample Batch QC (KWG1301787) was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. The sample contained relatively large amounts of rocks, which complicated the homogenization process. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Approved by





Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301603

Sampler Name: Ian Maquire/Chris Luk

Report To: ashleighfines@gmail.com

Page: 1 of 5

Special Instructions:						Laboratory Comments:	
H= Hold pending result of Cu, Pb, Zn analyses.							
Method of Shipment:							
Relinquished by: Name/Company Ashleigh Fines/Ash Creek Assoc.	Date 2/22/2013	Time 953	Received by: Name/Company Kathelle V	Date 2/22/13	Time 953	Temperature Upon Receipt: VOCs Free of Headspace?	Y N
Relinquished by: Name/Company Kathelle V	Date 2/22/13	Time 1104	Received by: Name/Company S. Davis	Date 2/22/13	Time 1108		
Relinquished by: Name/Company	Date	Time	Received by: Name/Company AS-KEISO	Date 2/22/13	Time 1415		
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time		

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301603

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 2 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix						Analyze For:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCS per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Diesel and Oil-range per NWTTH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
B8 (3.0-4.0)	2/21/13	1010	3	X									X						X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

Special Instructions:

H= Hold pending result of Cu, Pb, Zn analyses.

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines</i> Ashleigh Fines/Ash Creek Assoc.	Date 2/22/2013	Time 953	Received by: Name/Company <i>Rachelle V</i>	Date 2/22/13	Time 953
Relinquished by: Name/Company <i>Rachelle V</i>	Date 2/22/13	Time 1108	Received by: Name/Company <i>Deputy</i>	Date 2/22/13	Time 11:08
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>Stawin ALS Kelso</i>	Date 2/22/13	Time 1415
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

19301603

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 3 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix					Analyze For:																	
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Diesel and Oil-range per NWTPH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report	
B9 (12.5-15.0)	2/21/13	900	3	X									X							X																
B9 (18.0-20.0)	2/21/13	910	3	X									X							X																
B9 (23.5-25.0)	2/21/13	925	3	X									X							X																
B9 (25.7-30.0)	2/21/13	935	3	X									X							X																

Special Instructions:

H= Hold pending result of Cu, Pb, Zn analyses.

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines</i> Ashleigh Fines/Ash Creek Assoc.	Date 2/22/2013	Time 953	Received by: Name/Company <i>Rachelle Van</i>	Date 2/22/13	Time 953
Relinquished by: Name/Company <i>Rachelle Van</i>	Date 2/22/13	Time 1108	Received by: Name/Company <i>Duff</i>	Date 2/22/13	Time 11:08
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>David Alskelso</i>	Date 2/22/13	Time 1415
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1 381603

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

Page: 4 of 5

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix					Analyze For:															
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass*(Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 22 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCS per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Dioxin and Furans per EPA Method 8210	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results
SS-9	2/21/13	1730	3	X									X						X	X	X	X	X		H					X		X		
SS-10	2/21/13	1615	3	X									X						X	X	X	X	X		H					X		X		
SS-14	2/21/13	1535	3	X									X						H	H	H	H	H		H					X		X		
SS-15	2/21/13	1550	3	X									X						H	H	H	H	H		H					X		X		
SS-16	2/21/13	1500	3	X									X						H	H	H	H	H		H					X		X		
SS-17	2/21/13	1520	3	X									X						H	H	H	H	H		H					X		X		
SS-18	2/21/13	1620	3	X									X																					

Special Instructions:

H = Pending results of Cu, Pb, ZN analyses.

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines/Ash Creek Assoc.</i>	Date 2/22/2013	Time 953	Received by: Name/Company <i>Rachelle V</i>	Date 2/22/13	Time 953
Relinquished by: Name/Company <i>Rachelle V</i>	Date 2/22/13	Time 1108	Received by: Name/Company <i>Duffy</i>	Date 2/22/13	Time 11:08
Relinquished by: Name/Company	Date	Time	Received by: Name/Company <i>8 Davis ASK 16150</i>	Date 2/22/13	Time 1415
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

10/30/03

Project Manager: Ashleigh Fines

Project Name: Pier 99

Project Number: 320001975-00.001

Sampler Name: Ian Maguire/Chris Luk

Analytical Lab: CAS/ALS

Report To: ashleighfines@gmail.com

Page: 5 of 5

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative							Matrix				Analyze For:																		
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass (Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 23 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Dioxin and Furans per NWT PH-Dx	Butyltins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report	
B-9 (26-20) GW	2/21/13	1055	10	X					X			X		X		X								X	X	X			X	X	X			X		

Special Instructions:

Lab filter 1L Amber for dissolved metal analyses for samples B-9.

Laboratory Comments:

Temperature Upon Receipt:
VOCs Free of Headspace?

Y N

Method of Shipment:

Relinquished by: Name/Company <i>Ashleigh Fines/Ash Creek Assoc.</i>	Date 2/22/2013	Time 952	Received by: Name/Company <i>Rachelle Va</i>	Date 953K	Time 2/22/13
Relinquished by: Name/Company <i>Rachelle Va</i>	Date 2/22/13	Time 1108	Received by: Name/Company <i>Stacy ALS-Kelso</i>	Date 2/22/13	Time 1415
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

PC LD

Cooler Receipt and Preservation Form

Client / Project: Ash Creek Service Request K13 01603
 Received 2/22/13 Opened: 2/22/13 By: SD Unloaded: 2/22/13 By: SD

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

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	Filed
27	28	-	-	10.1	299	<u>NA</u>	<u>NA</u>	
52	54	-	-	10.2	298			

7. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
 8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA (Y) N
 10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA (Y) N
 12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
 13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? Indicate in the table below (NA) Y N
 14. Were VOA vials received without headspace? Indicate in the table below. NA (Y) N
 15. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:
B-9 (26-30) GW	B-9 (26-30) GW	process of elimination
B-9 (27.5-30.0)	B-9 (25.7-30.0)	collect Jemo / Transposed

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

Notes, Discrepancies, & Resolutions: B-9 (26-30) GW sample for metals was
Rec'd in 1 L Amber

Rec'd 1x 40ml trip blank not listed on coc

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
B6 (3.5-5.0)	K1301603-001	02/21/2013	02/22/2013	02/27/2013	93.4	
B6 (3.5-5.0) DUP	K1301603-002	02/21/2013	02/22/2013	02/27/2013	93.7	
B-7 (3.5-5.0)	K1301603-006	02/21/2013	02/22/2013	02/27/2013	91.6	
B8 (3.0-4.0)	K1301603-009	02/21/2013	02/22/2013	02/27/2013	93.5	
B9 (12.5-15.0)	K1301603-017	02/21/2013	02/22/2013	02/27/2013	79.3	
SS-9	K1301603-021	02/21/2013	02/22/2013	02/27/2013	70.9	
SS-10	K1301603-022	02/21/2013	02/22/2013	02/27/2013	67.8	
SS-14	K1301603-023	02/21/2013	02/22/2013	02/27/2013	90.0	
SS-15	K1301603-024	02/21/2013	02/22/2013	02/27/2013	88.6	
SS-16	K1301603-025	02/21/2013	02/22/2013	02/27/2013	89.9	
SS-17	K1301603-026	02/21/2013	02/22/2013	02/27/2013	87.3	
SS-18	K1301603-027	02/21/2013	02/22/2013	02/27/2013	67.8	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013
Date Analyzed: 02/27/2013

Duplicate Sample Summary

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
B6 (3.5-5.0)	K1301603-001	93.4	93.5	93.5	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013
Date Analyzed: 02/27/2013

Duplicate Sample Summary

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
B9 (12.5-15.0)	K1301603-017	79.3	79.0	79.2	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603**Total Solids**

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
B6 (8.5-10.0)	K1301603-003	02/21/2013	02/22/2013	03/13/2013	93.2	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013
Date Analyzed: 03/13/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
B6 (8.5-10.0)	K1301603-003	93.2	93.1	93.2	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603**Total Solids**

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
B7 (9.0-10.0)	K1301603-007	02/21/2013	02/22/2013	03/18/2013	84.1	
B8 (9.0-10.0)	K1301603-010	02/21/2013	02/22/2013	03/18/2013	80.4	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013
Date Analyzed: 03/18/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
B7 (9.0-10.0)	K1301603-007	84.1	84.0	84.1	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

- Cover Page -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301603

Sample Name:

Batch QC1D

Batch QC1S

B-9 (26-20) GW

B-9 (26-20) GWD

B-9 (26-20) GWS

Method Blank

Lab Code:

K1301527-033DISSD

K1301527-033DISSS

K1301603-028DISS

K1301603-028DISSD

K1301603-028DISSS

K1301603-MB

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client:	Ash Creek Associates, Inc.	Service Request:	K1301603
Project No.:	320001975-00.001	Date Collected:	02/21/13
Project Name:	Pier 99	Date Received:	02/22/13
Matrix:	WATER	Units:	ug/L
		Basis:	NA

Sample Name:	B-9 (26-20) GW	Lab Code:	K1301603-028DISS
---------------------	----------------	------------------	------------------

Analyte	Analysis Method	MRL	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	57.5		
Beryllium	6010C	0.40	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	50.0	50.0	1.0	03/06/13	03/07/13	64700		
Chromium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	1.0	03/06/13	03/07/13	1.5		
Copper	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.4		
Iron	6010C	20.0	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	20.0	20.0	1.0	03/06/13	03/07/13	38100		
Manganese	6010C	0.6	0.6	1.0	03/06/13	03/07/13	1110		
Mercury	7470A	0.2	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	2.0	1.0	03/06/13	03/07/13	38.8		
Potassium	6010C	100	100	1.0	03/06/13	03/07/13	683		
Selenium	6010C	20.0	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	200	1.0	03/06/13	03/07/13	22100		
Thallium	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	10.7		
Zinc	6010C	2.0	2.0	1.0	03/06/13	03/07/13	16.6		

Comments:

Metals

- 1 -

INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Date Collected:

Project Name: Pier 99

Date Received:

Matrix: WATER

Units: ug/L

Basis: NA

Sample Name: Method Blank

Lab Code: K1301603-MB

Analyte	Analysis Method	MRL	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	2.00	2.00	1.0	03/06/13	03/07/13	2.00	U	
Antimony	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Arsenic	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Barium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Beryllium	6010C	0.40	0.40	1.0	03/06/13	03/07/13	0.40	U	
Cadmium	6010C	0.5	0.5	1.0	03/06/13	03/07/13	0.5	U	
Calcium	6010C	4.0	4.0	1.0	03/06/13	03/07/13	4.0	U	
Chromium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Cobalt	6010C	1.0	1.0	1.0	03/06/13	03/07/13	1.0	U	
Copper	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Iron	6010C	20.0	20.0	1.0	03/06/13	03/07/13	20.0	U	
Lead	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Magnesium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Manganese	6010C	0.6	0.6	1.0	03/06/13	03/07/13	0.6	U	
Mercury	7470A	0.2	0.2	1.0	02/26/13	02/26/13	0.2	U	
Nickel	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Potassium	6010C	100	100	1.0	03/06/13	03/07/13	100	U	
Selenium	6010C	20.0	20.0	1.0	03/06/13	03/07/13	20.0	U	
Silver	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Sodium	6010C	200	200	1.0	03/06/13	03/07/13	200	U	
Thallium	6010C	10.0	10.0	1.0	03/06/13	03/07/13	10.0	U	
Vanadium	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	
Zinc	6010C	2.0	2.0	1.0	03/06/13	03/07/13	2.0	U	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301603

Project No.: 320001975-00.001 **Units:** UG/L

Project Name: Pier 99 **Basis:** NA

Matrix: WATER

Sample Name: Batch QC1S**Lab Code:** K1301527-033DISSS

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum	75 - 125	1990		2.0	U	2000.00	99.5		6010C
Antimony	86 - 116	471		10.0	U	500.00	94.2		6010C
Arsenic	79 - 121	992		10.0	U	1000.00	99.2		6010C
Barium	80 - 124	2150		62.9		2000.00	104.4		6010C
Beryllium	87 - 114	48.9		0.40	U	50.00	97.8		6010C
Cadmium	75 - 125	50.5		0.5	U	50.00	101.0		6010C
Calcium		79300		68900		10000.00	104.0		6010C
Chromium	89 - 117	200		2.0	U	200.00	100.0		6010C
Cobalt	88 - 117	492		4.4		500.00	97.5		6010C
Copper	86 - 113	238		2.6		250.00	94.2		6010C
Iron	75 - 125	994		20.0	U	1000.00	99.4		6010C
Lead	75 - 125	483		10.0	U	500.00	96.6		6010C
Magnesium	75 - 125	44800		35700		10000.00	91.0		6010C
Manganese	84 - 121	2440		1940		500.00	100.0		6010C
Nickel	86 - 120	523		42.9		500.00	96.0		6010C
Potassium	75 - 125	11200		804		10000.00	104.0		6010C
Selenium	82 - 119	932		20.0	U	1000.00	93.2		6010C
Silver	79 - 120	48.1		2.0	U	50.00	96.2		6010C
Sodium	75 - 125	33300		23500		10000.00	98.0		6010C
Thallium	75 - 125	955		10.0	U	1000.00	95.5		6010C
Vanadium	89 - 115	526		9.9		500.00	103.2		6010C
Zinc	87 - 113	517		25.6		500.00	98.3		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals
- 5A -
SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: UG/L
Project Name: Pier 99 Basis: NA
Matrix: WATER

Sample Name: B-9 (26-20) GWS Lab Code: K1301603-028DISSS

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	76 - 126	1.06		0.2	U	1.00	106.0		7470A

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301603**Project No.:** 320001975-00.001**Units:** UG/L**Project Name:** Pier 99**Basis:** NA**Matrix:** WATER**Sample Name:** Batch QC1D**Lab Code:** K1301527-033DISSD

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum		2.00	U	2.00	U			6010C
Antimony		10.0	U	10.0	U			6010C
Arsenic		10.0	U	10.0	U			6010C
Barium	20	62.9		62.7		0.3		6010C
Beryllium		0.40	U	0.40	U			6010C
Cadmium		0.5	U	0.5	U			6010C
Calcium	20	68900		69300		0.6		6010C
Chromium		2.0	U	2.0	U			6010C
Cobalt		4.4		4.3		2.3		6010C
Copper		2.6		2.5		3.9		6010C
Iron		20.0	U	20.0	U			6010C
Lead		10.0	U	10.0	U			6010C
Magnesium	20	35700		35300		1.1		6010C
Manganese	20	1940		1940		0.0		6010C
Nickel	20	42.9		43.1		0.5		6010C
Potassium	20	804		774		3.8		6010C
Selenium		20.0	U	20.0	U			6010C
Silver		2.0	U	2.0	U			6010C
Sodium	20	23500		23300		0.9		6010C
Thallium		10.0	U	10.0	U			6010C
Vanadium		9.9		8.9		10.6		6010C
Zinc	20	25.6		25.5		0.4		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: UG/L
Project Name: Pier 99 Basis: NA
Matrix: WATER

Sample Name: B-9 (26-20) GWD Lab Code: K1301603-028DISSD

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.2	U	0.2	U			7470A

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source: CAS MIXED

Solid LCS Source:

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum	5000	5260	105.2						
Antimony	2500	2470	98.8						
Arsenic	2500	2560	102.4						
Barium	5000	5170	103.4						
Beryllium	125	128	102.4						
Cadmium	1250	1280	102.4						
Calcium	12500	12600	100.8						
Chromium	500	506	101.2						
Cobalt	1250	1270	101.6						
Copper	625	634	101.4						
Iron	2500	2510	100.4						
Lead	2500	2500	100.0						
Magnesium	12500	13000	104.0						
Manganese	1250	1250	100.0						
Mercury	5	5.33	106.6						
Nickel	1250	1240	99.2						
Potassium	12500	13000	104.0						
Selenium	2500	2440	97.6						
Silver	625	616	98.6						
Sodium	12500	13100	104.8						
Thallium	2500	2470	98.8						
Vanadium	1250	1300	104.0						
Zinc	1250	1270	101.6						

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

- Cover Page -**INORGANIC ANALYSIS DATA PACKAGE**

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301603**Sample Name:****Batch QC1S****Batch QC1SD****B6 (3.5-5.0)****B6 (3.5-5.0)D****B6 (3.5-5.0)S****B6 (3.5-5.0) DUP****B6 (8.5-10.0)****B6 (8.5-10.0)D****B6 (8.5-10.0)S****B-7 (3.5-5.0)****B7 (9.0-10.0)****B8 (3.0-4.0)****B8 (9.0-10.0)****B9 (12.5-15.0)****SS-9****SS-10****SS-14****SS-15****SS-16****SS-17****SS-18****Method Blank****Method Blank****Batch QC2D****Batch QC2S****Lab Code:****K1301590-001S****K1301590-001SD****K1301603-001****K1301603-001D****K1301603-001S****K1301603-002****K1301603-003****K1301603-003D****K1301603-003S****K1301603-006****K1301603-007****K1301603-009****K1301603-010****K1301603-017****K1301603-021****K1301603-022****K1301603-023****K1301603-024****K1301603-025****K1301603-026****K1301603-027****K1301603-MB****K1301603-MB2****K1301827-001D****K1301827-001S****Comments:**

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B6 (3.5-5.0) **Lab Code:** K1301603-001

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/26/13	02/28/13	6.8		
Lead	6010C	1.5	2.0	02/26/13	02/28/13	3.2		
Zinc	6010C	0.77	2.0	02/26/13	02/28/13	32.6		

% Solids: 93.4

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B6 (3.5-5.0) DUP **Lab Code:** K1301603-002

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/26/13	02/28/13	7.1		
Lead	6010C	1.7	2.0	02/26/13	02/28/13	3.1		
Zinc	6010C	0.83	2.0	02/26/13	02/28/13	34.5		

% Solids: 93.7

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301603
Project No.: 320001975-00.001	Date Collected: 02/21/13
Project Name: Pier 99	Date Received: 02/22/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: B6 (8.5-10.0)	Lab Code: K1301603-003
-----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.4	2.0	03/07/13	03/12/13	5810		
Antimony	6010C	2.1	2.0	03/07/13	03/12/13	2.1	U	N
Arsenic	6010C	2.1	2.0	03/07/13	03/12/13	2.1	U	
Barium	6010C	0.5	2.0	03/07/13	03/12/13	71.4		
Beryllium	6010C	0.1	2.0	03/07/13	03/12/13	0.2		
Cadmium	6010C	0.1	2.0	03/07/13	03/12/13	0.2		
Calcium	6010C	10.4	2.0	03/07/13	03/12/13	10800		
Chromium	6010C	0.5	2.0	03/07/13	03/12/13	10.2		
Cobalt	6010C	0.5	2.0	03/07/13	03/12/13	4.98		
Copper	6010C	0.6	2.0	03/07/13	03/12/13	8.2		
Iron	6010C	2.1	2.0	03/07/13	03/12/13	11700		
Lead	6010C	2.1	2.0	03/07/13	03/12/13	3.0		
Magnesium	6010C	4.2	2.0	03/07/13	03/12/13	2980		
Manganese	6010C	0.2	2.0	03/07/13	03/12/13	164		
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.07		
Nickel	6010C	0.4	2.0	03/07/13	03/12/13	9.5		
Potassium	6010C	62.5	2.0	03/07/13	03/12/13	763		
Selenium	6010C	4.2	2.0	03/07/13	03/12/13	4.2	U	
Silver	6010C	0.5	2.0	03/07/13	03/12/13	0.5	U	
Sodium	6010C	41.7	2.0	03/07/13	03/12/13	519		
Thallium	6010C	2.1	2.0	03/07/13	03/12/13	2.1	U	
Vanadium	6010C	1.0	2.0	03/07/13	03/12/13	31.5		
Zinc	6010C	1.0	2.0	03/07/13	03/12/13	36.5		

% Solids: 93.2

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B-7 (3.5-5.0) **Lab Code:** K1301603-006

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.4	2.0	02/26/13	02/28/13	10.1		
Lead	6010C	1.5	2.0	02/26/13	02/28/13	3.7		
Zinc	6010C	0.74	2.0	02/26/13	02/28/13	37.7		

% Solids: 91.6

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301603
Project No.: 320001975-00.001	Date Collected: 02/21/13
Project Name: Pier 99	Date Received: 02/22/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: B7 (9.0-10.0)	Lab Code: K1301603-007
-----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	11.4	2.0	03/07/13	03/12/13	7850		
Antimony	6010C	2.3	2.0	03/07/13	03/12/13	2.3	U	N
Arsenic	6010C	2.3	2.0	03/07/13	03/12/13	2.3		
Barium	6010C	0.6	2.0	03/07/13	03/12/13	112		
Beryllium	6010C	0.1	2.0	03/07/13	03/12/13	0.3		
Cadmium	6010C	0.1	2.0	03/07/13	03/12/13	0.3		
Calcium	6010C	11.4	2.0	03/07/13	03/12/13	4890		
Chromium	6010C	0.6	2.0	03/07/13	03/12/13	12.9		
Cobalt	6010C	0.6	2.0	03/07/13	03/12/13	6.68		
Copper	6010C	0.7	2.0	03/07/13	03/12/13	13.1		
Iron	6010C	2.3	2.0	03/07/13	03/12/13	15000		
Lead	6010C	2.3	2.0	03/07/13	03/12/13	4.6		
Magnesium	6010C	4.6	2.0	03/07/13	03/12/13	3590		
Manganese	6010C	0.2	2.0	03/07/13	03/12/13	231		
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.04		
Nickel	6010C	0.5	2.0	03/07/13	03/12/13	12.1		
Potassium	6010C	68.6	2.0	03/07/13	03/12/13	1010		
Selenium	6010C	4.6	2.0	03/07/13	03/12/13	4.6	U	
Silver	6010C	0.6	2.0	03/07/13	03/12/13	0.6	U	
Sodium	6010C	45.7	2.0	03/07/13	03/12/13	342		
Thallium	6010C	2.3	2.0	03/07/13	03/12/13	2.3	U	
Vanadium	6010C	1.1	2.0	03/07/13	03/12/13	37.5		
Zinc	6010C	1.1	2.0	03/07/13	03/12/13	44.0		

% Solids: 84.1

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301603
Project No.: 320001975-00.001	Date Collected: 02/21/13
Project Name: Pier 99	Date Received: 02/22/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: B8 (3.0-4.0)	Lab Code: K1301603-009
----------------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	7.7	2.0	02/26/13	02/28/13	4890		
Antimony	6010C	1.5	2.0	02/26/13	02/28/13	1.5	U	N
Arsenic	6010C	1.5	2.0	02/26/13	02/28/13	1.7		
Barium	6010C	0.4	2.0	02/26/13	02/28/13	56.5		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	0.4		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	7.7	2.0	02/26/13	02/28/13	2360		
Chromium	6010C	0.4	2.0	02/26/13	02/28/13	7.8		
Cobalt	6010C	0.4	2.0	02/26/13	02/28/13	4.69		
Copper	6010C	0.5	2.0	02/26/13	02/28/13	7.0		
Iron	6010C	1.5	2.0	02/26/13	02/28/13	10100		
Lead	6010C	1.5	2.0	02/26/13	02/28/13	3.3		
Magnesium	6010C	3.1	2.0	02/26/13	02/28/13	2190		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	146		
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.02	U	
Nickel	6010C	0.3	2.0	02/26/13	02/28/13	8.2		
Potassium	6010C	46.2	2.0	02/26/13	02/28/13	622		
Selenium	6010C	3.1	2.0	02/26/13	02/28/13	3.1	U	
Silver	6010C	0.4	2.0	02/26/13	02/28/13	0.4	U	N
Sodium	6010C	30.8	2.0	02/26/13	02/28/13	244		
Thallium	6010C	1.5	2.0	02/26/13	02/28/13	1.5	U	
Vanadium	6010C	0.8	2.0	02/26/13	02/28/13	26.0		
Zinc	6010C	0.77	2.0	02/26/13	02/28/13	33.7		

% Solids: 93.5

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B8 (9.0-10.0) **Lab Code:** K1301603-010

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	11.7	2.0	03/07/13	03/12/13	12800		
Antimony	6010C	2.4	2.0	03/07/13	03/12/13	2.4	U	N
Arsenic	6010C	2.4	2.0	03/07/13	03/12/13	4.2		
Barium	6010C	0.6	2.0	03/07/13	03/12/13	151		
Beryllium	6010C	0.1	2.0	03/07/13	03/12/13	0.5		
Cadmium	6010C	0.1	2.0	03/07/13	03/12/13	0.5		
Calcium	6010C	11.7	2.0	03/07/13	03/12/13	4580		
Chromium	6010C	0.6	2.0	03/07/13	03/12/13	19.3		
Cobalt	6010C	0.6	2.0	03/07/13	03/12/13	9.06		
Copper	6010C	0.7	2.0	03/07/13	03/12/13	24.7		
Iron	6010C	2.4	2.0	03/07/13	03/12/13	24900		
Lead	6010C	2.4	2.0	03/07/13	03/12/13	8.1		
Magnesium	6010C	4.7	2.0	03/07/13	03/12/13	5410		
Manganese	6010C	0.2	2.0	03/07/13	03/12/13	378		
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.03		
Nickel	6010C	0.5	2.0	03/07/13	03/12/13	16.9		
Potassium	6010C	70.4	2.0	03/07/13	03/12/13	1410		
Selenium	6010C	4.7	2.0	03/07/13	03/12/13	4.7	U	
Silver	6010C	0.6	2.0	03/07/13	03/12/13	0.6	U	
Sodium	6010C	46.9	2.0	03/07/13	03/12/13	360		
Thallium	6010C	2.4	2.0	03/07/13	03/12/13	2.4	U	
Vanadium	6010C	1.2	2.0	03/07/13	03/12/13	51.8		
Zinc	6010C	1.2	2.0	03/07/13	03/12/13	58.5		

% Solids: 80.4

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: B9 (12.5-15.0) **Lab Code:** K1301603-017

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.6	2.0	02/26/13	02/28/13	24.4		
Lead	6010C	2.0	2.0	02/26/13	02/28/13	7.4		
Zinc	6010C	1.0	2.0	02/26/13	02/28/13	56.4		

% Solids: 79.3

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Date Collected: 02/21/13

Project Name: Pier 99

Date Received: 02/22/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: SS-9

Lab Code: K1301603-021

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.4	2.0	02/26/13	02/28/13	12700		
Antimony	6010C	2.1	2.0	02/26/13	02/28/13	37.0		N
Arsenic	6010C	2.1	2.0	02/26/13	02/28/13	13		
Barium	6010C	0.5	2.0	02/26/13	02/28/13	298		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	1.0		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	3.1		
Calcium	6010C	10.4	2.0	02/26/13	02/28/13	9660		
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	102		
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	13.4		
Copper	6010C	0.6	2.0	02/26/13	02/28/13	4130		
Iron	6010C	2.1	2.0	02/26/13	02/28/13	28100		
Lead	6010C	2.1	2.0	02/26/13	02/28/13	638		
Magnesium	6010C	4.2	2.0	02/26/13	02/28/13	4840		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	476		
Mercury	7471B	0.14	5.0	02/27/13	02/28/13	2.98		
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	33.4		
Potassium	6010C	62.2	2.0	02/26/13	02/28/13	2950		
Selenium	6010C	4.2	2.0	02/26/13	02/28/13	4.2	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.9		N
Sodium	6010C	41.5	2.0	02/26/13	02/28/13	384		
Thallium	6010C	2.1	2.0	02/26/13	02/28/13	2.1	U	
Vanadium	6010C	1.0	2.0	02/26/13	02/28/13	49.9		
Zinc	6010C	1.0	2.0	02/26/13	02/28/13	1070		

% Solids: 70.9

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Date Collected: 02/21/13

Project Name: Pier 99

Date Received: 02/22/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: SS-10

Lab Code: K1301603-022

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.8	2.0	02/26/13	02/28/13	13600		
Antimony	6010C	2.2	2.0	02/26/13	02/28/13	2.2	U	N
Arsenic	6010C	2.2	2.0	02/26/13	02/28/13	5.4		
Barium	6010C	0.5	2.0	02/26/13	02/28/13	150		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	1.1		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	10.8	2.0	02/26/13	02/28/13	3590		
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	69.2		
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	9.54		
Copper	6010C	0.6	2.0	02/26/13	02/28/13	433		
Iron	6010C	2.2	2.0	02/26/13	02/28/13	28100		
Lead	6010C	2.2	2.0	02/26/13	02/28/13	128		
Magnesium	6010C	4.3	2.0	02/26/13	02/28/13	4820		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	291		
Mercury	7471B	0.03	1.0	02/27/13	02/28/13	0.39		
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	32.4		
Potassium	6010C	64.6	2.0	02/26/13	02/28/13	1340		
Selenium	6010C	4.3	2.0	02/26/13	02/28/13	4.3	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	N
Sodium	6010C	43.1	2.0	02/26/13	02/28/13	291		
Thallium	6010C	2.2	2.0	02/26/13	02/28/13	2.2	U	
Vanadium	6010C	1.1	2.0	02/26/13	02/28/13	50.8		
Zinc	6010C	1.1	2.0	02/26/13	02/28/13	213		

% Solids: 67.8

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Date Collected: 02/21/13

Project Name: Pier 99

Date Received: 02/22/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: SS-14

Lab Code: K1301603-023

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	8.0	2.0	02/26/13	02/28/13	8460		
Antimony	6010C	1.6	2.0	02/26/13	02/28/13	1.6	U	N
Arsenic	6010C	1.6	2.0	02/26/13	02/28/13	4.3		
Barium	6010C	0.4	2.0	02/26/13	02/28/13	109		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	0.8		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	8.0	2.0	02/26/13	02/28/13	16300		
Chromium	6010C	0.4	2.0	02/26/13	02/28/13	68.4		
Cobalt	6010C	0.4	2.0	02/26/13	02/28/13	8.09		
Copper	6010C	0.5	2.0	02/26/13	02/28/13	101		
Iron	6010C	1.6	2.0	02/26/13	02/28/13	19100		
Lead	6010C	1.6	2.0	02/26/13	02/28/13	45.2		
Magnesium	6010C	3.2	2.0	02/26/13	02/28/13	4950		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	287		
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.04		
Nickel	6010C	0.3	2.0	02/26/13	02/28/13	28.2		
Potassium	6010C	48.0	2.0	02/26/13	02/28/13	827		
Selenium	6010C	3.2	2.0	02/26/13	02/28/13	3.2	U	
Silver	6010C	0.4	2.0	02/26/13	02/28/13	0.4	U	N
Sodium	6010C	32.0	2.0	02/26/13	02/28/13	285		
Thallium	6010C	1.6	2.0	02/26/13	02/28/13	1.6	U	
Vanadium	6010C	0.8	2.0	02/26/13	02/28/13	52.1		
Zinc	6010C	0.80	2.0	02/26/13	02/28/13	66.3		

% Solids: 90.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: SS-15 **Lab Code:** K1301603-024

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/26/13	02/28/13	48.6		
Lead	6010C	1.6	2.0	02/26/13	02/28/13	24.5		
Zinc	6010C	0.80	2.0	02/26/13	02/28/13	76.6		

% Solids: 88.6

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: SS-16 **Lab Code:** K1301603-025

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/26/13	02/28/13	34.6		
Lead	6010C	1.7	2.0	02/26/13	02/28/13	31.3		
Zinc	6010C	0.84	2.0	02/26/13	02/28/13	63.5		

% Solids: 89.9

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: SS-17 **Lab Code:** K1301603-026

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.5	2.0	02/26/13	02/28/13	65.2		
Lead	6010C	1.7	2.0	02/26/13	02/28/13	37.2		
Zinc	6010C	0.82	2.0	02/26/13	02/28/13	151		

% Solids: 87.3

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:** 02/21/13
Project Name: Pier 99 **Date Received:** 02/22/13
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: SS-18 **Lab Code:** K1301603-027

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Copper	6010C	0.6	2.0	02/26/13	02/28/13	43.5		
Lead	6010C	2.1	2.0	02/26/13	02/28/13	12.5		
Zinc	6010C	1.1	2.0	02/26/13	02/28/13	94.0		

% Solids: 67.8

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Date Collected:

Project Name: Pier 99

Date Received:

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: Method Blank

Lab Code: K1301603-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	1.0	2.0	02/26/13	02/28/13	1.0	U	
Antimony	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	N
Arsenic	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Barium	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	2.0	2.0	02/26/13	02/28/13	2.4		
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Copper	6010C	0.6	2.0	02/26/13	02/28/13	0.6	U	
Iron	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Lead	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Magnesium	6010C	0.5	2.0	02/26/13	02/28/13	0.6		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	0.2	U	
Mercury	7471B	0.02	1.0	02/27/13	02/28/13	0.02	U	
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	0.4	U	
Potassium	6010C	60.0	2.0	02/26/13	02/28/13	60.0	U	
Selenium	6010C	4.0	2.0	02/26/13	02/28/13	4.0	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	N
Sodium	6010C	40.0	2.0	02/26/13	02/28/13	40.0	U	
Thallium	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Vanadium	6010C	1.0	2.0	02/26/13	02/28/13	1.0	U	
Zinc	6010C	1.0	2.0	02/26/13	02/28/13	1.0	U	

% Solids: 100.0

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301603-MB2

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	1.0	2.0	03/07/13	03/12/13	1.0	U	
Antimony	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	N
Arsenic	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	
Barium	6010C	0.5	2.0	03/07/13	03/12/13	0.5	U	
Beryllium	6010C	0.1	2.0	03/07/13	03/12/13	0.1	U	
Cadmium	6010C	0.1	2.0	03/07/13	03/12/13	0.1	U	
Calcium	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	
Chromium	6010C	0.5	2.0	03/07/13	03/12/13	0.5	U	
Cobalt	6010C	0.5	2.0	03/07/13	03/12/13	0.5	U	
Copper	6010C	0.6	2.0	03/07/13	03/12/13	0.6	U	
Iron	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	
Lead	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	
Magnesium	6010C	0.5	2.0	03/07/13	03/12/13	0.5		
Manganese	6010C	0.2	2.0	03/07/13	03/12/13	0.2	U	
Mercury	7471B	0.02	1.0	03/06/13	03/06/13	0.02	U	
Nickel	6010C	0.4	2.0	03/07/13	03/12/13	0.4	U	
Potassium	6010C	60.0	2.0	03/07/13	03/12/13	60.0	U	
Selenium	6010C	4.0	2.0	03/07/13	03/12/13	4.0	U	
Silver	6010C	0.5	2.0	03/07/13	03/12/13	0.5	U	
Sodium	6010C	40.0	2.0	03/07/13	03/12/13	40.0	U	
Thallium	6010C	2.0	2.0	03/07/13	03/12/13	2.0	U	
Vanadium	6010C	1.0	2.0	03/07/13	03/12/13	1.0	U	
Zinc	6010C	1.0	2.0	03/07/13	03/12/13	1.0	U	

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 93.4

Sample Name: B6 (3.5-5.0)S

Lab Code: K1301603-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		5520		4910		310.34	196.6		6010C
Antimony	75 - 125	36.9		1.5	U	77.58	47.6	N	6010C
Arsenic	75 - 125	79		1.5	U	77.58	101.8		6010C
Barium	79 - 114	364		67.6		310.34	95.5		6010C
Beryllium	78 - 115	7.7		0.4		7.76	94.1		6010C
Cadmium	75 - 125	6.6		0.1	U	7.76	85.1		6010C
Calcium	75 - 125	3290		2650		775.84	82.5		6010C
Chromium	75 - 125	35.5		8.3		31.03	87.7		6010C
Cobalt	75 - 125	80.1		4.93		77.58	96.9		6010C
Copper	75 - 125	44.5		6.8		38.79	97.2		6010C
Iron		10700		10600		155.17	64.4		6010C
Lead	75 - 125	75.7		3.2		77.58	93.5		6010C
Magnesium	75 - 125	3240		2480		775.84	98.0		6010C
Manganese	75 - 125	212		146		77.58	85.1		6010C
Nickel	75 - 125	80.7		8.8		77.58	92.7		6010C
Potassium	75 - 125	1450		630		775.84	105.7		6010C
Selenium	75 - 125	69.7		3.1	U	77.58	89.8		6010C
Silver	75 - 125	9.8		0.4	U	7.76	126.3	N	6010C
Sodium	75 - 125	1170		361		775.84	104.3		6010C
Thallium	75 - 125	73.7		1.5	U	77.58	95.0		6010C
Vanadium	75 - 125	99.5		27.6		77.58	92.7		6010C
Zinc	75 - 125	107		32.6		77.58	95.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. **Service Request:** K1301603
Project No.: 320001975-00.001 **Units:** MG/KG
Project Name: Pier 99 **Basis:** DRY
Matrix: SOIL **% Solids:** 93.2

Sample Name: B6 (8.5-10.0)S

Lab Code: K1301603-003S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		6150		5810		420.77	80.8		6010C
Antimony	75 - 125	62.3		2.1	U	105.19	59.2	N	6010C
Arsenic	75 - 125	105		2.1	U	105.19	99.8		6010C
Barium	79 - 114	472		71.4		420.77	95.2		6010C
Beryllium	78 - 115	9.9		0.2		10.52	92.2		6010C
Cadmium	75 - 125	9.8		0.2		10.52	91.3		6010C
Calcium		13600		10800		1051.92	266.2		6010C
Chromium	75 - 125	51.8		10.2		42.08	98.9		6010C
Cobalt	75 - 125	101		4.98		105.19	91.3		6010C
Copper	75 - 125	57.7		8.2		52.60	94.1		6010C
Iron		11900		11700		210.38	95.1		6010C
Lead	75 - 125	98.4		3.0		105.19	90.7		6010C
Magnesium	75 - 125	4030		2980		1051.92	99.8		6010C
Manganese	75 - 125	259		164		105.19	90.3		6010C
Nickel	75 - 125	106		9.5		105.19	91.7		6010C
Potassium	75 - 125	1740		763		1051.92	92.9		6010C
Selenium	75 - 125	90.0		4.2	U	105.19	85.6		6010C
Silver	75 - 125	10.0		0.5	U	10.52	95.1		6010C
Sodium	75 - 125	1600		519		1051.92	102.8		6010C
Thallium	75 - 125	92.5		2.1	U	105.19	87.9		6010C
Vanadium	75 - 125	131		31.5		105.19	94.6		6010C
Zinc	75 - 125	130		36.5		105.19	88.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 99.9

Sample Name: Batch QC1S Lab Code: K1301590-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.48		0.02	U	0.49	98.0		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 99.9

Sample Name: Batch QC1SD Lab Code: K1301590-001SD

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.48		0.02	U	0.49	98.0		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 100.0

Sample Name: Batch QC2S Lab Code: K1301827-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	0.49		0.02	U	0.48	102.1		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301603**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 93.4**Sample Name:** B6 (3.5-5.0)D**Lab Code:** K1301603-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	4910		4840		1.4		6010C
Antimony		1.5	U	1.6	U			6010C
Arsenic		1.5	U	1.8		200.0		6010C
Barium	20	67.6		61.0		10.3		6010C
Beryllium		0.4		0.4		0.0		6010C
Cadmium		0.1	U	0.1	U			6010C
Calcium	20	2650		2420		9.1		6010C
Chromium	20	8.3		8.3		0.0		6010C
Cobalt	20	4.9		4.9		0.0		6010C
Copper	20	6.8		6.8		0.0		6010C
Iron	20	10600		10400		1.9		6010C
Lead		3.2		3.1		3.2		6010C
Magnesium	20	2480		2390		3.7		6010C
Manganese	20	146		145		0.7		6010C
Nickel	20	8.8		8.6		2.3		6010C
Potassium	20	630		614		2.6		6010C
Selenium		3.1	U	3.2	U			6010C
Silver		0.4	U	0.4	U			6010C
Sodium	20	361		352		2.5		6010C
Thallium		1.5	U	1.6	U			6010C
Vanadium	20	27.6		27.4		0.7		6010C
Zinc	20	32.6		31.9		2.2		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301603**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 93.2**Sample Name:** B6 (8.5-10.0)D**Lab Code:** K1301603-003D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	5810		6000		3.2		6010C
Antimony		2.1	U	2.1	U			6010C
Arsenic		2.1	U	2.1	U			6010C
Barium	20	71.4		75.3		5.3		6010C
Beryllium		0.15		0.15		0.0		6010C
Cadmium		0.17		0.19		11.1		6010C
Calcium	20	10800		12100		11.4		6010C
Chromium	20	10.2		10.8		5.7		6010C
Cobalt	20	4.98		5.10		2.4		6010C
Copper	20	8.2		8.6		4.8		6010C
Iron	20	11700		12300		5.0		6010C
Lead		3.0		2.7		10.5		6010C
Magnesium	20	2980		3220		7.7		6010C
Manganese	20	164		165		0.6		6010C
Nickel	20	9.5		10.0		5.1		6010C
Potassium	20	763		738		3.3		6010C
Selenium		4.2	U	4.2	U			6010C
Silver		0.5	U	0.5	U			6010C
Sodium	20	519		554		6.5		6010C
Thallium		2.1	U	2.1	U			6010C
Vanadium	20	31.5		32.3		2.5		6010C
Zinc	20	36.5		37.3		2.2		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 99.9

Sample Name: Batch QC1SD Lab Code: K1301590-001SD

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury	20	0.48		0.48		0.0		7471B

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301603
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 100.0

Sample Name: Batch QC2D Lab Code: K1301827-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury		0.02	U	0.02	U			7471B

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6530		47	152	77.7
Antimony				93.3	54.9		25	199	58.8
Arsenic				94.5	94		82	117	99.5
Barium				167	152		84	116	91.0
Beryllium				57.6	54.8		83	117	95.1
Cadmium				60.5	52.2		83	117	86.3
Calcium				6140	5720		83	117	93.2
Chromium				70.4	61.0		82	118	86.6
Cobalt				102	95.4		83	117	93.5
Copper				79.6	75.3		84	116	94.6
Iron				12500	10500		51	150	84.0
Lead				91.8	82.3		82	118	89.7
Magnesium				2580	2360		76	124	91.5
Manganese				283	251		82	117	88.7
Mercury				3.73	3.71		72	128	99.5
Nickel				57.6	50.6		83	117	87.8
Potassium				2490	2170		70	130	87.1
Selenium				86.4	79.5		80	120	92.0
Silver				34.4	33.2		66	134	96.5
Sodium				215	191		67	133	88.8
Thallium				120	112		78	121	93.3
Vanadium				57	52.2		74	126	91.6
Zinc				140	124		82	118	88.6

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301603

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6700		47	152	79.8
Antimony				93.3	70.2		25	199	75.2
Arsenic				94.5	98		82	117	103.7
Barium				167	162		84	116	97.0
Beryllium				57.6	58.5		83	117	101.6
Cadmium				60.5	59.3		83	117	98.0
Calcium				6140	5800		83	117	94.5
Chromium				70.4	69.8		82	118	99.1
Cobalt				102	99.4		83	117	97.5
Copper				79.6	82.6		84	116	103.8
Iron				12500	10900		51	150	87.2
Lead				91.8	86.7		82	118	94.4
Magnesium				2580	2350		76	124	91.1
Manganese				283	264		82	117	93.3
Mercury				3.73	3.61		72	128	96.8
Nickel				57.6	56.6		83	117	98.3
Potassium				2490	2310		70	130	92.8
Selenium				86.4	81.0		80	120	93.8
Silver				34.4	33.8		66	134	98.3
Sodium				215	191		67	133	88.8
Thallium				120	113		78	121	94.2
Vanadium				57	54.2		74	126	95.1
Zinc				140	133		82	118	95.0

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Organochlorine Pesticides

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
beta-BHC	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
gamma-BHC (Lindane)	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
delta-BHC	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Heptachlor	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Aldrin	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Heptachlor Epoxide	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
gamma-Chlordane†	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endosulfan I	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
alpha-Chlordane	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Dieldrin	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDE	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endrin	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endosulfan II	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDD	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endrin Aldehyde	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endosulfan Sulfate	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
4,4'-DDT	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Endrin Ketone	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Methoxychlor	ND	U	1.2	1	02/26/13	03/01/13	KWG1301883	
Toxaphene	ND	U	56	1	02/26/13	03/01/13	KWG1301883	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	73	20-102	03/01/13	Acceptable
Decachlorobiphenyl	72	35-128	03/01/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1301883-5
Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
beta-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
gamma-BHC (Lindane)	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
delta-BHC	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Heptachlor	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Aldrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Heptachlor Epoxide	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
gamma-Chlordane†	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan I	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
alpha-Chlordane	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Dieldrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDE	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan II	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDD	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin Aldehyde	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endosulfan Sulfate	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
4,4'-DDT	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Endrin Ketone	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Methoxychlor	ND	U	0.98	1	02/26/13	03/02/13	KWG1301883	
Toxaphene	ND	U	49	1	02/26/13	03/02/13	KWG1301883	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	75	20-102	03/02/13	Acceptable
Decachlorobiphenyl	79	35-128	03/02/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Organochlorine Pesticides

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
beta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-BHC (Lindane)	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
delta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Aldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor Epoxide	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-Chlordane†	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan I	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
alpha-Chlordane	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Dieldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDE	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan II	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDD	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin Aldehyde	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan Sulfate	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDT	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin Ketone	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Methoxychlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Toxaphene	ND	U	50	1	03/05/13	03/08/13	KWG1302118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	59	20-116	03/08/13	Acceptable
Decachlorobiphenyl	64	22-130	03/08/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Organochlorine Pesticides

Sample Name: SS-9
Lab Code: K1301603-021
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	Ui	21	2	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	Ui	6.8	2	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	Ui	10	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	44	D	1.9	2	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	Ui	8.8	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	390	D	19	20	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	1.9	2	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	45	D	1.9	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	310	D	19	20	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	Ui	2.0	2	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	Ui	13	2	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	Ui	1200	20	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	66	20-116	03/07/13	Acceptable
Decachlorobiphenyl	128	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Organochlorine Pesticides

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Heptachlor	1.2	P	0.99	1	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	Ui	2.5	1	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Dieldrin	2.2	P	0.99	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	Ui	1.1	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	2.4		0.99	1	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	Ui	9.3	1	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	U	0.99	1	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	Ui	59	1	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	57	20-116	03/07/13	Acceptable
Decachlorobiphenyl	62	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Organochlorine Pesticides

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
beta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-BHC (Lindane)	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
delta-BHC	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Aldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Heptachlor Epoxide	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
gamma-Chlordane†	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan I	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
alpha-Chlordane	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Dieldrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDE	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan II	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDD	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endrin Aldehyde	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Endosulfan Sulfate	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDT	ND	Ui	1.6	1	03/05/13	03/08/13	KWG1302118	
Endrin Ketone	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Methoxychlor	ND	U	1.0	1	03/05/13	03/08/13	KWG1302118	
Toxaphene	ND	U	50	1	03/05/13	03/08/13	KWG1302118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	66	20-116	03/08/13	Acceptable
Decachlorobiphenyl	55	22-130	03/08/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302031-7
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	U	33	1	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	62	20-116	03/07/13	Acceptable
Decachlorobiphenyl	62	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302118-7
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
beta-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
gamma-BHC (Lindane)	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
delta-BHC	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Heptachlor	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Aldrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Heptachlor Epoxide	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
gamma-Chlordane†	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan I	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
alpha-Chlordane	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Dieldrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDE	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan II	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDD	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin Aldehyde	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endosulfan Sulfate	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
4,4'-DDT	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Endrin Ketone	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Methoxychlor	ND	U	0.81	1	03/05/13	03/08/13	KWG1302118	
Toxaphene	ND	U	41	1	03/05/13	03/08/13	KWG1302118	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	58	20-116	03/08/13	Acceptable
Decachlorobiphenyl	60	22-130	03/08/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603**Surrogate Recovery Summary
Organochlorine Pesticides**

Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
B-9 (26-20) GW	K1301603-028	73	72
Method Blank	KWG1301883-5	75	79
Lab Control Sample	KWG1301883-1	72	76
Duplicate Lab Control Sample	KWG1301883-2	71	78

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene	20-102
Sur2 = Decachlorobiphenyl	35-128

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
Batch QC	K1301490-005	57	63
Batch QC	K1301527-001	62	62
B8 (3.0-4.0)	K1301603-009	59	64
SS-9	K1301603-021	66 D	128 D
SS-10	K1301603-022	57	62
SS-14	K1301603-023	66	55
Method Blank	KWG1302031-7	62	62
Method Blank	KWG1302118-7	58	60
Batch QCMS	KWG1302031-1	60	64
Batch QCDMS	KWG1302031-2	61	69
Batch QCMS	KWG1302031-4	60	64
Batch QCDMS	KWG1302031-5	44	56
B8 (3.0-4.0)MS	KWG1302118-1	62	66
B8 (3.0-4.0)DMS	KWG1302118-2	54	57
Batch QCMS	KWG1302118-4	52	54
Batch QCDMS	KWG1302118-5	55	56
Lab Control Sample	KWG1302031-3	62	64
Lab Control Sample	KWG1302118-3	54	53

Surrogate Recovery Control Limits (%)

Sur1 = Tetrachloro-m-xylene	20-116
Sur2 = Decachlorobiphenyl	22-130

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/06/2013 -
03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	Batch QCMS KWG1302031-1 Matrix Spike			Batch QCDS KWG1302031-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	11.2	19.6	57	9.97	19.7	51	23-133	11	40
beta-BHC	ND	10.0	19.6	51	8.88	19.7	45	22-142	12	40
gamma-BHC (Lindane)	ND	12.0	19.6	61	11.4	19.7	58	26-135	5	40
delta-BHC	ND	12.7	19.6	65	11.3	19.7	57	25-148	11	40
Heptachlor	ND	11.4	19.6	58	9.97	19.7	51	21-136	14	40
Aldrin	ND	10.4	19.6	53	9.33	19.7	47	22-135	11	40
Heptachlor Epoxide	ND	12.1	19.6	62 #	11.8	19.7	60 #	25-129	2	40
gamma-Chlordane	1.5	11.9	19.6	53	11.1	19.7	49	24-133	7	40
Endosulfan I	ND	10.8	19.6	55	9.50	19.7	48	15-119	13	40
alpha-Chlordane	ND	10.8	19.6	55	9.43	19.7	48	24-132	14	40
Dieldrin	ND	11.8	19.6	60 #	9.96	19.7	50 #	26-133	17	40
4,4'-DDE	ND	13.1	19.6	67	13.3	19.7	67	22-142	1	40
Endrin	ND	10.4	19.6	53	9.45	19.7	48	22-145	10	40
Endosulfan II	ND	12.1	19.6	62 #	9.66	19.7	49 #	13-129	23	40
4,4'-DDD	6.3	16.2	19.6	51	17.8	19.7	58	19-143	9	40
Endrin Aldehyde	ND	10.6	19.6	54	9.68	19.7	49	10-129	9	40
Endosulfan Sulfate	ND	12.1	19.6	62	11.7	19.7	59	20-134	3	40
4,4'-DDT	ND	12.9	19.6	66 #	13.3	19.7	67 #	19-154	2	40
Endrin Ketone	ND	11.2	19.6	57	9.90	19.7	50	19-139	12	40
Methoxychlor	ND	12.7	19.6	65 #	10.7	19.7	54 #	24-151	17	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	Batch QCMS KWG1302031-4 Matrix Spike			Batch QCDMS KWG1302031-5 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Toxaphene	ND	64.1	99.2	65 #	123	98.4	125 #	20-155	63 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Analyte Name	Sample Result	B8 (3.0-4.0)MS KWG1302118-1 Matrix Spike			B8 (3.0-4.0)DMS KWG1302118-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Toxaphene	ND	81.6	98.7	83	75.6	99.3	76	20-155	8	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301527-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Analyte Name	Sample Result	Batch QCMS KWG1302118-4 Matrix Spike			Batch QCDMS KWG1302118-5 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	11.3	19.7	57	12.6	20.0	63	23-133	10	40
beta-BHC	ND	10.7	19.7	54	11.4	20.0	57	22-142	7	40
gamma-BHC (Lindane)	ND	11.4	19.7	58	12.4	20.0	62	26-135	9	40
delta-BHC	ND	12.6	19.7	64	13.6	20.0	68	25-148	7	40
Heptachlor	ND	11.3	19.7	57	12.1	20.0	61	21-136	7	40
Aldrin	ND	10.9	19.7	55	11.9	20.0	60	22-135	9	40
Heptachlor Epoxide	ND	11.3	19.7	57	12.1	20.0	60	25-129	6	40
gamma-Chlordane	ND	11.6	19.7	59	12.4	20.0	62	24-133	7	40
Endosulfan I	ND	10.2	19.7	52	10.7	20.0	54	15-119	5	40
alpha-Chlordane	ND	11.5	19.7	58	11.9	20.0	60	24-132	4	40
Dieldrin	ND	12.5	19.7	63	13.9	20.0	69	26-133	10	40
4,4'-DDE	ND	12.2	19.7	62	13.3	20.0	67	22-142	9	40
Endrin	ND	10.9	19.7	55	11.4	20.0	57	22-145	4	40
Endosulfan II	ND	11.4	19.7	58	11.6	20.0	58	13-129	2	40
4,4'-DDD	ND	12.6	19.7	64	13.4	20.0	67	19-143	6	40
Endrin Aldehyde	ND	11.1	19.7	56	11.7	20.0	59	10-129	6	40
Endosulfan Sulfate	ND	12.2	19.7	62	12.5	20.0	63	20-134	2	40
4,4'-DDT	3.7	16.2	19.7	63	17.6	20.0	70	19-154	8	40
Endrin Ketone	ND	11.9	19.7	60	12.6	20.0	63	19-139	6	40
Methoxychlor	ND	12.6	19.7	64	13.2	20.0	66	24-151	4	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 02/26/2013
Date Analyzed: 03/01/2013 -
 03/02/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3535A
Analysis Method: 8081B

Units: ng/L
Basis: NA
Level: Low
Extraction Lot: KWG1301883

Analyte Name	Lab Control Sample KWG1301883-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301883-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	7.98	10.0	80	7.32	10.0	73	36-122	9	30
beta-BHC	8.13	10.0	81	7.10	10.0	71	42-125	13	30
gamma-BHC (Lindane)	8.15	10.0	82	7.46	10.0	75	44-117	9	30
delta-BHC	8.46	10.0	85	7.68	10.0	77	48-123	10	30
Heptachlor	8.27	10.0	83	7.82	10.0	78	40-115	6	30
Aldrin	6.94	10.0	69	6.05	10.0	61	10-102	14	30
Heptachlor Epoxide	8.06	10.0	81	7.55	10.0	75	49-109	7	30
gamma-Chlordane	8.02	10.0	80	7.67	10.0	77	47-113	4	30
Endosulfan I	6.98	10.0	70	6.58	10.0	66	35-115	6	30
alpha-Chlordane	8.06	10.0	81	7.64	10.0	76	45-115	5	30
Dieldrin	8.30	10.0	83	7.57	10.0	76	50-115	9	30
4,4'-DDE	8.01	10.0	80	7.49	10.0	75	41-116	7	30
Endrin	7.97	10.0	80	7.08	10.0	71	48-126	12	30
Endosulfan II	8.18	10.0	82	7.84	10.0	78	28-128	4	30
4,4'-DDD	8.39	10.0	84	7.80	10.0	78	33-132	7	30
Endrin Aldehyde	9.18	10.0	92	8.45	10.0	85	27-104	8	30
Endosulfan Sulfate	8.57	10.0	86	7.95	10.0	80	38-118	7	30
4,4'-DDT	10.4	10.0	104	9.72	10.0	97	42-143	6	30
Endrin Ketone	8.29	10.0	83	7.90	10.0	79	30-124	5	30
Methoxychlor	11.4	10.0	114	10.5	10.0	105	43-143	8	30
Toxaphene	173	200	86	173	200	86	36-137	0	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Lab Control Sample
KWG1302031-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	14.1	20.0	71	36-139
beta-BHC	12.4	20.0	62	38-142
gamma-BHC (Lindane)	13.9	20.0	70	40-142
delta-BHC	14.3	20.0	72	48-145
Heptachlor	13.3	20.0	67	39-135
Aldrin	12.5	20.0	63	37-134
Heptachlor Epoxide	13.3	20.0	66	45-118
gamma-Chlordane	13.0	20.0	65	41-135
Endosulfan I	13.4	20.0	67	35-121
alpha-Chlordane	13.2	20.0	66	41-134
Dieldrin	13.8	20.0	69	46-136
4,4'-DDE	13.3	20.0	66	46-141
Endrin	11.8	20.0	59	40-152
Endosulfan II	13.7	20.0	68	39-128
4,4'-DDD	13.5	20.0	68	46-146
Endrin Aldehyde	12.3	20.0	61	32-132
Endosulfan Sulfate	13.4	20.0	67	43-138
4,4'-DDT	13.5	20.0	67	46-151
Endrin Ketone	12.8	20.0	64	47-135
Methoxychlor	13.7	20.0	69	42-147
Toxaphene	88.2	100	88	53-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302118

Lab Control Sample
KWG1302118-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	12.4	20.0	62	36-139
beta-BHC	11.1	20.0	55	38-142
gamma-BHC (Lindane)	12.2	20.0	61	40-142
delta-BHC	12.7	20.0	64	48-145
Heptachlor	12.0	20.0	60	39-135
Aldrin	11.5	20.0	58	37-134
Heptachlor Epoxide	11.9	20.0	60	45-118
gamma-Chlordane	11.9	20.0	60	41-135
Endosulfan I	10.6	20.0	53	35-121
alpha-Chlordane	11.9	20.0	59	41-134
Dieldrin	12.3	20.0	62	46-136
4,4'-DDE	12.1	20.0	60	46-141
Endrin	10.6	20.0	53	40-152
Endosulfan II	11.6	20.0	58	39-128
4,4'-DDD	12.0	20.0	60	46-146
Endrin Aldehyde	11.2	20.0	56	32-132
Endosulfan Sulfate	12.3	20.0	62	43-138
4,4'-DDT	12.3	20.0	62	46-151
Endrin Ketone	12.2	20.0	61	47-135
Methoxychlor	12.4	20.0	62	42-147
Toxaphene	72.7	100	73	53-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1221	ND	U	0.045	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1232	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1242	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1248	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1254	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1260	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1262	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1268	ND	U	0.023	1	02/26/13	03/02/13	KWG1301884	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	94	36-113	03/02/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1301884-3
Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1221	ND	U	0.039	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1232	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1242	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1248	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1254	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1260	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1262	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	
Aroclor 1268	ND	U	0.020	1	02/26/13	03/02/13	KWG1301884	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	101	36-113	03/02/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B6 (8.5-10.0)
Lab Code: K1301603-003
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1221	ND	U	17	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1232	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1242	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1248	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1254	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1260	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1262	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1268	ND	U	8.5	1	03/07/13	03/11/13	KWG1302170	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	90	35-133	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1221	ND	U	20	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1232	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1242	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1248	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1254	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1260	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1262	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1268	ND	U	10	1	03/05/13	03/12/13	KWG1302119	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	86	35-133	03/12/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-9
Lab Code: K1301603-021
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1221	ND	U	19	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1232	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1242	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1248	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1254	610		9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1260	420		9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1262	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1268	ND	U	9.4	1	02/27/13	03/07/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	142	35-133	03/07/13	Outside Control Limits

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1221	ND	U	20	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1232	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1242	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1248	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1254	27		9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1260	38		9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1262	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1268	ND	U	9.9	1	02/27/13	03/07/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	88	35-133	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1221	ND	U	20	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1232	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1242	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1248	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1254	11	P	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1260	12		10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1262	ND	U	10	1	03/05/13	03/12/13	KWG1302119	
Aroclor 1268	ND	U	10	1	03/05/13	03/12/13	KWG1302119	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	83	35-133	03/12/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302032-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1221	ND	U	13	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1232	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1242	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1248	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1254	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1260	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1262	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1268	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	108	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302119-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1221	ND	U	17	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1232	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1242	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1248	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1254	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1260	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1262	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	
Aroclor 1268	ND	U	8.1	1	03/05/13	03/11/13	KWG1302119	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	80	35-133	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302170-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1221	ND	U	16	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1232	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1242	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1248	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1254	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1260	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1262	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	
Aroclor 1268	ND	U	7.9	1	03/07/13	03/11/13	KWG1302170	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	87	35-133	03/11/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
B-9 (26-20) GW	K1301603-028	94
Method Blank	KWG1301884-3	101
Lab Control Sample	KWG1301884-1	98
Duplicate Lab Control Sample	KWG1301884-2	94

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 36-113

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
Batch QC	K1301490-005	96
B6 (8.5-10.0)	K1301603-003	90
B8 (3.0-4.0)	K1301603-009	86
SS-9	K1301603-021	142 *
SS-10	K1301603-022	88
SS-14	K1301603-023	83
Method Blank	KWG1302032-4	108
Method Blank	KWG1302119-4	80
Method Blank	KWG1302170-4	87
Batch QCMS	KWG1302032-1	93
Batch QCDMS	KWG1302032-2	91
SS-14MS	KWG1302119-1	73
SS-14DMS	KWG1302119-2	69
B6 (8.5-10.0)MS	KWG1302170-1	91
B6 (8.5-10.0)DMS	KWG1302170-2	93
Lab Control Sample	KWG1302032-3	92
Lab Control Sample	KWG1302119-3	74
Lab Control Sample	KWG1302170-3	95

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 35-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Analyte Name	Sample Result	Batch QCMS KWG1302032-1 Matrix Spike			Batch QCDMS KWG1302032-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	214	197	109	226	199	113	27-128	5	40
Aroclor 1260	70	247	197	90	236	199	83	29-131	5	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/12/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302119

Analyte Name	Sample Result	SS-14MS KWG1302119-1 Matrix Spike			SS-14DMS KWG1302119-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	168	198	85	159	199	80	27-128	5	40
Aroclor 1260	12	164	198	77	151	199	70	29-131	8	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/07/2013
Date Analyzed: 03/11/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: B6 (8.5-10.0)
Lab Code: K1301603-003
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302170

Analyte Name	Sample Result	B6 (8.5-10.0)MS KWG1302170-1 Matrix Spike			B6 (8.5-10.0)DMS KWG1302170-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	160	169	95	167	170	98	27-128	4	40
Aroclor 1260	ND	155	169	92	159	170	94	29-131	2	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 02/26/2013
Date Analyzed: 03/02/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3535A
Analysis Method: 8082A

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301884

Analyte Name	Lab Control Sample KWG1301884-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301884-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	0.157	0.200	79	0.153	0.200	77	50-103	3	30
Aroclor 1260	0.168	0.200	84	0.158	0.200	79	56-100	6	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Lab Control Sample
KWG1302032-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	183	200	92	37-121
Aroclor 1260	181	200	91	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/11/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302119

Lab Control Sample
KWG1302119-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	150	200	75	37-121
Aroclor 1260	148	200	74	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/07/2013
Date Analyzed: 03/11/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302170

Lab Control Sample
KWG1302170-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	189	200	94	37-121
Aroclor 1260	189	200	94	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Vinyl Chloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	*
Chloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichlorofluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Acetone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Carbon Disulfide	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Methylene Chloride	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
trans-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Butanone (MEK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Bromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloroform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Carbon Tetrachloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Benzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichloroethene (TCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromodichloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Toluene	0.70		0.50	1	03/01/13	03/01/13	KWG1301866	
trans-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,2-Trichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Tetrachloroethene (PCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Hexanone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Chlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Ethylbenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
m,p-Xylenes	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
o-Xylene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Styrene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromoform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Isopropylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
n-Propylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3,5-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
tert-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
sec-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Isopropyltoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,4-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
n-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Hexachlorobutadiene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Naphthalene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	90	73-122	03/01/13	Acceptable
Toluene-d8	95	65-144	03/01/13	Acceptable
4-Bromofluorobenzene	86	68-117	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: Trip Blank
Lab Code: K1301603-029
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Vinyl Chloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	*
Chloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichlorofluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Acetone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Carbon Disulfide	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Methylene Chloride	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
trans-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Butanone (MEK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Bromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloroform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Carbon Tetrachloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Benzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichloroethene (TCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromodichloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Toluene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
trans-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,2-Trichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Tetrachloroethene (PCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Hexanone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: Trip Blank
Lab Code: K1301603-029
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Chlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Ethylbenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
m,p-Xylenes	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
o-Xylene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Styrene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromoform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Isopropylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
n-Propylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3,5-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
tert-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
sec-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Isopropyltoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,4-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
n-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Hexachlorobutadiene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Naphthalene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Volatile Organic Compounds

Sample Name: Trip Blank
Lab Code: K1301603-029

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	91	73-122	03/01/13	Acceptable
Toluene-d8	93	65-144	03/01/13	Acceptable
4-Bromofluorobenzene	88	68-117	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301866-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Vinyl Chloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	*
Chloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichlorofluoromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Acetone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Carbon Disulfide	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Methylene Chloride	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
trans-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,2-Dichloroethene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Butanone (MEK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Bromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Chloroform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Carbon Tetrachloride	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Benzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Trichloroethene (TCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromomethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromodichloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
cis-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	03/01/13	03/01/13	KWG1301866	
Toluene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
trans-1,3-Dichloropropene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,2-Trichloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Tetrachloroethene (PCE)	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Hexanone	ND	U	20	1	03/01/13	03/01/13	KWG1301866	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301866-4
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Dibromochloromethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Chlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Ethylbenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
m,p-Xylenes	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
o-Xylene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Styrene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromoform	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Isopropylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
Bromobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
n-Propylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichloropropane	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
2-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3,5-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Chlorotoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
tert-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trimethylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
sec-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
4-Isopropyltoluene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,3-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,4-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
n-Butylbenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2-Dichlorobenzene	ND	U	0.50	1	03/01/13	03/01/13	KWG1301866	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,4-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Hexachlorobutadiene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
Naphthalene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	
1,2,3-Trichlorobenzene	ND	U	2.0	1	03/01/13	03/01/13	KWG1301866	

* See Case Narrative

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1301866-4

Units: ug/L
Basis: NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	90	73-122	03/01/13	Acceptable
Toluene-d8	93	65-144	03/01/13	Acceptable
4-Bromofluorobenzene	89	68-117	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
B-9 (26-20) GW	K1301603-028	90	95	86
Trip Blank	K1301603-029	91	93	88
Batch QC	K1301747-001	93	96	87
Method Blank	KWG1301866-4	90	93	89
Batch QCMS	KWG1301866-1	95	96	90
Batch QCDMS	KWG1301866-2	96	98	92
Lab Control Sample	KWG1301866-3	93	95	94

Surrogate Recovery Control Limits (%)

Sur1 =	Dibromofluoromethane	73-122
Sur2 =	Toluene-d8	65-144
Sur3 =	4-Bromofluorobenzene	68-117

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 03/01/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name: Batch QC
Lab Code: K1301747-001
Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301866

Analyte Name	Sample Result	Batch QCMS KWG1301866-1 Matrix Spike			Batch QCDMS KWG1301866-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Vinyl Chloride	ND	10.3	10.0	103	9.78	10.0	98	49-136	5	30
1,1-Dichloroethene	ND	12.7	10.0	127	12.2	10.0	122	59-171	4	30
Chloroform	ND	10.3	10.0	103	10.1	10.0	101	64-133	1	30
Carbon Tetrachloride	ND	10.1	10.0	101	9.74	10.0	97	53-161	3	30
Benzene	ND	9.87	10.0	99	9.51	10.0	95	63-144	4	30
Trichloroethene (TCE)	ND	11.0	10.0	110	10.4	10.0	104	53-139	6	30
Bromodichloromethane	ND	10.1	10.0	101	9.91	10.0	99	61-134	2	30
Toluene	ND	10.5	10.0	105	10.1	10.0	101	71-136	3	30
1,1,2-Trichloroethane	ND	10.8	10.0	108	11.0	10.0	110	74-124	2	30
2-Hexanone	ND	47.9	50.0	96	47.8	50.0	96	53-132	0	30
Chlorobenzene	ND	11.0	10.0	110	10.8	10.0	108	69-126	3	30
Ethylbenzene	ND	11.5	10.0	115	10.9	10.0	109	66-136	5	30
1,2,3-Trichloropropane	ND	10.6	10.0	106	11.1	10.0	111	71-127	5	30
2-Chlorotoluene	ND	11.4	10.0	114	11.3	10.0	113	55-139	0	30
1,2-Dichlorobenzene	ND	10.7	10.0	107	11.0	10.0	110	72-119	3	30
Naphthalene	ND	9.64	10.0	96	10.1	10.0	101	52-147	5	30

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 03/01/2013
Date Analyzed: 03/01/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301866

Lab Control Sample
 KWG1301866-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	8.57	10.0	86	32-124
Chloromethane	9.26	10.0	93	34-130
Vinyl Chloride	9.95	10.0	100	55-123
Bromomethane	12.5	10.0	125 *	35-113
Chloroethane	10.0	10.0	100	58-134
Trichlorofluoromethane	8.58	10.0	86	52-141
1,1-Dichloroethene	12.3	10.0	123	66-129
Acetone	55.0	50.0	110	68-135
Carbon Disulfide	19.6	20.0	98	46-144
Methylene Chloride	10.1	10.0	101	71-122
trans-1,2-Dichloroethene	10.9	10.0	109	67-125
1,1-Dichloroethane	9.79	10.0	98	68-132
2,2-Dichloropropane	9.89	10.0	99	37-145
cis-1,2-Dichloroethene	10.5	10.0	105	71-118
2-Butanone (MEK)	51.1	50.0	102	71-149
Bromochloromethane	9.96	10.0	100	75-131
Chloroform	9.84	10.0	98	70-129
1,1,1-Trichloroethane (TCA)	9.82	10.0	98	59-136
Carbon Tetrachloride	10.0	10.0	100	55-140
1,1-Dichloropropene	11.1	10.0	111	59-134
Benzene	9.31	10.0	93	69-124
1,2-Dichloroethane (EDC)	9.88	10.0	99	56-142
Trichloroethene (TCE)	10.3	10.0	103	67-128
1,2-Dichloropropane	9.47	10.0	95	67-126
Dibromomethane	9.49	10.0	95	69-128
Bromodichloromethane	9.51	10.0	95	63-129
cis-1,3-Dichloropropene	8.28	10.0	83	62-132
4-Methyl-2-pentanone (MIBK)	42.5	50.0	85	64-134
Toluene	9.91	10.0	99	69-124
trans-1,3-Dichloropropene	10.2	10.0	102	59-125
1,1,2-Trichloroethane	10.8	10.0	108	74-118
Tetrachloroethene (PCE)	11.1	10.0	111	62-126
2-Hexanone	48.6	50.0	97	59-131
1,3-Dichloropropane	10.3	10.0	103	75-116
Dibromochloromethane	10.0	10.0	100	67-126

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 03/01/2013
Date Analyzed: 03/01/2013

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301866

Lab Control Sample
 KWG1301866-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	10.1	10.0	101	74-118
Chlorobenzene	11.0	10.0	110	72-116
Ethylbenzene	11.4	10.0	114	67-121
1,1,1,2-Tetrachloroethane	10.5	10.0	105	66-124
m,p-Xylenes	23.1	20.0	116	69-121
o-Xylene	11.6	10.0	116	71-119
Styrene	11.1	10.0	111	74-121
Bromoform	9.53	10.0	95	52-144
Isopropylbenzene	10.5	10.0	105	67-129
1,1,2,2-Tetrachloroethane	10.0	10.0	100	70-127
Bromobenzene	10.6	10.0	106	72-116
n-Propylbenzene	11.5	10.0	115	61-124
1,2,3-Trichloropropane	11.0	10.0	110	69-123
2-Chlorotoluene	11.1	10.0	111	55-131
1,3,5-Trimethylbenzene	11.1	10.0	111	62-126
4-Chlorotoluene	11.1	10.0	111	66-121
tert-Butylbenzene	10.9	10.0	109	61-127
1,2,4-Trimethylbenzene	11.1	10.0	111	63-122
sec-Butylbenzene	11.0	10.0	110	59-128
4-Isopropyltoluene	11.3	10.0	113	61-128
1,3-Dichlorobenzene	10.9	10.0	109	70-116
1,4-Dichlorobenzene	10.9	10.0	109	73-115
n-Butylbenzene	11.7	10.0	117	55-130
1,2-Dichlorobenzene	10.8	10.0	108	72-115
1,2-Dibromo-3-chloropropane	9.63	10.0	96	55-132
1,2,4-Trichlorobenzene	10.0	10.0	100	58-126
Hexachlorobutadiene	9.19	10.0	92	57-119
Naphthalene	9.29	10.0	93	64-126
1,2,3-Trichlorobenzene	9.90	10.0	99	68-120

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Phenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
2-Chlorophenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
1,3-Dichlorobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
1,4-Dichlorobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
1,2-Dichlorobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Benzyl Alcohol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroisopropyl) Ether	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
2-Methylphenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
Hexachloroethane	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodi-n-propylamine	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
4-Methylphenol†	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
Nitrobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Isophorone	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
2-Nitrophenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
2,4-Dimethylphenol	ND	U	4.5	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroethoxy)methane	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
2,4-Dichlorophenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
Benzoic Acid	ND	U	5.6	1	02/25/13	03/04/13	KWG1301698	
1,2,4-Trichlorobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
4-Chloroaniline	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobutadiene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
4-Chloro-3-methylphenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
Hexachlorocyclopentadiene	ND	U	1.2	1	02/25/13	03/04/13	KWG1301698	
2,4,6-Trichlorophenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
2,4,5-Trichlorophenol	ND	U	0.56	1	02/25/13	03/04/13	KWG1301698	
2-Chloronaphthalene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
2-Nitroaniline	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Dimethyl Phthalate	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
2,6-Dinitrotoluene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
3-Nitroaniline	ND	U	1.2	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrophenol	ND	U	4.5	1	02/25/13	03/04/13	KWG1301698	
4-Nitrophenol	ND	U	2.3	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrotoluene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Diethyl Phthalate	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
4-Nitroaniline	ND	U	1.2	1	02/25/13	03/04/13	KWG1301698	
2-Methyl-4,6-dinitrophenol	ND	U	2.3	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodiphenylamine	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
4-Bromophenyl Phenyl Ether	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobenzene	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Pentachlorophenol	ND	U	1.2	1	02/25/13	03/04/13	KWG1301698	
Di-n-butyl Phthalate	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
Butyl Benzyl Phthalate	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	
3,3'-Dichlorobenzidine	ND	U	2.3	1	02/25/13	03/04/13	KWG1301698	
Bis(2-ethylhexyl) Phthalate	ND	U	1.2	1	02/25/13	03/04/13	KWG1301698	
Di-n-octyl Phthalate	ND	U	0.23	1	02/25/13	03/04/13	KWG1301698	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	69	12-109	03/04/13	Acceptable
Phenol-d6	68	23-106	03/04/13	Acceptable
Nitrobenzene-d5	68	26-110	03/04/13	Acceptable
2-Fluorobiphenyl	74	31-94	03/04/13	Acceptable
2,4,6-Tribromophenol	83	23-127	03/04/13	Acceptable
Terphenyl-d14	47	40-127	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301698-3
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Phenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2-Chlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
1,3-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
1,4-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
1,2-Dichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Benzyl Alcohol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroisopropyl) Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Methylphenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Hexachloroethane	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodi-n-propylamine	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Methylphenol†	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Nitrobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Isophorone	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Nitrophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2,4-Dimethylphenol	ND	U	3.8	1	02/25/13	03/04/13	KWG1301698	
Bis(2-chloroethoxy)methane	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2,4-Dichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Benzoic Acid	ND	U	4.8	1	02/25/13	03/04/13	KWG1301698	
1,2,4-Trichlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Chloroaniline	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobutadiene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Chloro-3-methylphenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
Hexachlorocyclopentadiene	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2,4,6-Trichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2,4,5-Trichlorophenol	ND	U	0.48	1	02/25/13	03/04/13	KWG1301698	
2-Chloronaphthalene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2-Nitroaniline	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Dimethyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
2,6-Dinitrotoluene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
3-Nitroaniline	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrophenol	ND	U	3.8	1	02/25/13	03/04/13	KWG1301698	
4-Nitrophenol	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
2,4-Dinitrotoluene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301698-3
Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Diethyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Nitroaniline	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
2-Methyl-4,6-dinitrophenol	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
N-Nitrosodiphenylamine	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
4-Bromophenyl Phenyl Ether	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Hexachlorobenzene	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Pentachlorophenol	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
Di-n-butyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
Butyl Benzyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	
3,3'-Dichlorobenzidine	ND	U	1.9	1	02/25/13	03/04/13	KWG1301698	
Bis(2-ethylhexyl) Phthalate	ND	U	0.95	1	02/25/13	03/04/13	KWG1301698	
Di-n-octyl Phthalate	ND	U	0.19	1	02/25/13	03/04/13	KWG1301698	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	75	12-109	03/04/13	Acceptable
Phenol-d6	83	23-106	03/04/13	Acceptable
Nitrobenzene-d5	83	26-110	03/04/13	Acceptable
2-Fluorobiphenyl	77	31-94	03/04/13	Acceptable
2,4,6-Tribromophenol	81	23-127	03/04/13	Acceptable
Terphenyl-d14	73	40-127	03/04/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Phenol	ND	U	30	1	03/04/13	03/08/13	KWG1301896	*
2-Chlorophenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Benzyl Alcohol	ND	U	20	1	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	10	1	03/04/13	03/08/13	KWG1301896	*
2-Methylphenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Hexachloroethane	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
4-Methylphenol†	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Nitrobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Isophorone	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2-Nitrophenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2,4-Dimethylphenol	ND	U	50	1	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2,4-Dichlorophenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Benzoic Acid	ND	U	200	1	03/04/13	03/08/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
4-Chloroaniline	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Hexachlorobutadiene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	50	1	03/04/13	03/08/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2-Chloronaphthalene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2-Nitroaniline	ND	U	20	1	03/04/13	03/08/13	KWG1301896	
Dimethyl Phthalate	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
3-Nitroaniline	ND	U	20	1	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrophenol	ND	U	200	1	03/04/13	03/08/13	KWG1301896	
4-Nitrophenol	ND	U	100	1	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Diethyl Phthalate	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
4-Nitroaniline	ND	U	20	1	03/04/13	03/08/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	100	1	03/04/13	03/08/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Hexachlorobenzene	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
Pentachlorophenol	ND	U	100	1	03/04/13	03/08/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	20	1	03/04/13	03/08/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	10	1	03/04/13	03/08/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	100	1	03/04/13	03/08/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	100	1	03/04/13	03/08/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	10	1	03/04/13	03/08/13	KWG1301896	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	39	11-80	03/08/13	Acceptable
Phenol-d6	42	20-86	03/08/13	Acceptable
Nitrobenzene-d5	44	27-91	03/08/13	Acceptable
2-Fluorobiphenyl	57	25-97	03/08/13	Acceptable
2,4,6-Tribromophenol	75	10-119	03/08/13	Acceptable
Terphenyl-d14	63	33-129	03/08/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-9
Lab Code: K1301603-021
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Phenol	ND	U	150	5	03/05/13	03/15/13	KWG1301990	
2-Chlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,3-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,4-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,2-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Benzyl Alcohol	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Bis(2-chloroisopropyl) Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Methylphenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachloroethane	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
N-Nitrosodi-n-propylamine	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Methylphenol†	90	D	50	5	03/05/13	03/15/13	KWG1301990	
Nitrobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Isophorone	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Nitrophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4-Dimethylphenol	ND	U	250	5	03/05/13	03/15/13	KWG1301990	
Bis(2-chloroethoxy)methane	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4-Dichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Benzoic Acid	ND	U	1000	5	03/05/13	03/15/13	KWG1301990	
1,2,4-Trichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Chloroaniline	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorobutadiene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Chloro-3-methylphenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorocyclopentadiene	ND	U	250	5	03/05/13	03/15/13	KWG1301990	
2,4,6-Trichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4,5-Trichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Chloronaphthalene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Dimethyl Phthalate	690	D	50	5	03/05/13	03/15/13	KWG1301990	
2,6-Dinitrotoluene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
3-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
2,4-Dinitrophenol	ND	U	1000	5	03/05/13	03/15/13	KWG1301990	
4-Nitrophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
2,4-Dinitrotoluene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-9
Lab Code: K1301603-021
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Diethyl Phthalate	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
2-Methyl-4,6-dinitrophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
N-Nitrosodiphenylamine	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Bromophenyl Phenyl Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Pentachlorophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Di-n-butyl Phthalate	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Butyl Benzyl Phthalate	61	D	50	5	03/05/13	03/15/13	KWG1301990	
3,3'-Dichlorobenzidine	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Bis(2-ethylhexyl) Phthalate	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Di-n-octyl Phthalate	ND	U	50	5	03/05/13	03/15/13	KWG1301990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	26	11-80	03/15/13	Acceptable
Phenol-d6	31	20-86	03/15/13	Acceptable
Nitrobenzene-d5	29	27-91	03/15/13	Acceptable
2-Fluorobiphenyl	38	25-97	03/15/13	Acceptable
2,4,6-Tribromophenol	39	10-119	03/15/13	Acceptable
Terphenyl-d14	37	33-129	03/15/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Phenol	ND	U	150	5	03/05/13	03/15/13	KWG1301990	
2-Chlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,3-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,4-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
1,2-Dichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Benzyl Alcohol	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Bis(2-chloroisopropyl) Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Methylphenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachloroethane	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
N-Nitrosodi-n-propylamine	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Methylphenol†	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Nitrobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Isophorone	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Nitrophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4-Dimethylphenol	ND	U	250	5	03/05/13	03/15/13	KWG1301990	
Bis(2-chloroethoxy)methane	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4-Dichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Benzoic Acid	ND	U	1000	5	03/05/13	03/15/13	KWG1301990	
1,2,4-Trichlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Chloroaniline	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorobutadiene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Chloro-3-methylphenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorocyclopentadiene	ND	U	250	5	03/05/13	03/15/13	KWG1301990	
2,4,6-Trichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2,4,5-Trichlorophenol	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Chloronaphthalene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
2-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Dimethyl Phthalate	450	D	50	5	03/05/13	03/15/13	KWG1301990	
2,6-Dinitrotoluene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
3-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
2,4-Dinitrophenol	ND	U	1000	5	03/05/13	03/15/13	KWG1301990	
4-Nitrophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
2,4-Dinitrotoluene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Diethyl Phthalate	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Nitroaniline	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
2-Methyl-4,6-dinitrophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
N-Nitrosodiphenylamine	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
4-Bromophenyl Phenyl Ether	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Hexachlorobenzene	ND	U	50	5	03/05/13	03/15/13	KWG1301990	
Pentachlorophenol	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Di-n-butyl Phthalate	ND	U	100	5	03/05/13	03/15/13	KWG1301990	
Butyl Benzyl Phthalate	62	D	50	5	03/05/13	03/15/13	KWG1301990	
3,3'-Dichlorobenzidine	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Bis(2-ethylhexyl) Phthalate	ND	U	500	5	03/05/13	03/15/13	KWG1301990	
Di-n-octyl Phthalate	ND	U	50	5	03/05/13	03/15/13	KWG1301990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	37	11-80	03/15/13	Acceptable
Phenol-d6	50	20-86	03/15/13	Acceptable
Nitrobenzene-d5	49	27-91	03/15/13	Acceptable
2-Fluorobiphenyl	60	25-97	03/15/13	Acceptable
2,4,6-Tribromophenol	69	10-119	03/15/13	Acceptable
Terphenyl-d14	55	33-129	03/15/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Phenol	ND	U	1500	50	03/04/13	03/08/13	KWG1301896	*
2-Chlorophenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Benzyl Alcohol	ND	U	1000	50	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	500	50	03/04/13	03/08/13	KWG1301896	*
2-Methylphenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Hexachloroethane	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
4-Methylphenol†	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Nitrobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Isophorone	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2-Nitrophenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2,4-Dimethylphenol	ND	U	2500	50	03/04/13	03/08/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2,4-Dichlorophenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Benzoic Acid	ND	U	10000	50	03/04/13	03/08/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
4-Chloroaniline	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Hexachlorobutadiene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	2500	50	03/04/13	03/08/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2-Chloronaphthalene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2-Nitroaniline	ND	U	1000	50	03/04/13	03/08/13	KWG1301896	
Dimethyl Phthalate	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
3-Nitroaniline	ND	U	1000	50	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrophenol	ND	U	10000	50	03/04/13	03/08/13	KWG1301896	
4-Nitrophenol	ND	U	5000	50	03/04/13	03/08/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Diethyl Phthalate	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
4-Nitroaniline	ND	U	1000	50	03/04/13	03/08/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	5000	50	03/04/13	03/08/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Hexachlorobenzene	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
Pentachlorophenol	ND	U	5000	50	03/04/13	03/08/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	1000	50	03/04/13	03/08/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	500	50	03/04/13	03/08/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	5000	50	03/04/13	03/08/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	5000	50	03/04/13	03/08/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	500	50	03/04/13	03/08/13	KWG1301896	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	59	11-80	03/08/13	Acceptable
Phenol-d6	47	20-86	03/08/13	Acceptable
Nitrobenzene-d5	64	27-91	03/08/13	Acceptable
2-Fluorobiphenyl	80	25-97	03/08/13	Acceptable
2,4,6-Tribromophenol	84	10-119	03/08/13	Acceptable
Terphenyl-d14	77	33-129	03/08/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301896-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Phenol	ND	U	24	1	03/04/13	03/07/13	KWG1301896	*
2-Chlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,3-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,4-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
1,2-Dichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzyl Alcohol	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Bis(2-chloroisopropyl) Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	*
2-Methylphenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachloroethane	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
N-Nitrosodi-n-propylamine	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Methylphenol†	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Nitrobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Isophorone	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Nitrophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4-Dimethylphenol	ND	U	39	1	03/04/13	03/07/13	KWG1301896	
Bis(2-chloroethoxy)methane	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4-Dichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Benzoic Acid	ND	U	200	1	03/04/13	03/07/13	KWG1301896	*
1,2,4-Trichlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Chloroaniline	ND	U	10	1	03/04/13	03/07/13	KWG1301896	
Hexachlorobutadiene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Chloro-3-methylphenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachlorocyclopentadiene	ND	U	50	1	03/04/13	03/07/13	KWG1301896	
2,4,6-Trichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,4,5-Trichlorophenol	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Chloronaphthalene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Dimethyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
2,6-Dinitrotoluene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
3-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
2,4-Dinitrophenol	ND	U	200	1	03/04/13	03/07/13	KWG1301896	
4-Nitrophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
2,4-Dinitrotoluene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301896-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Diethyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Nitroaniline	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
2-Methyl-4,6-dinitrophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
N-Nitrosodiphenylamine	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
4-Bromophenyl Phenyl Ether	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Hexachlorobenzene	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
Pentachlorophenol	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Di-n-butyl Phthalate	ND	U	16	1	03/04/13	03/07/13	KWG1301896	
Butyl Benzyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	
3,3'-Dichlorobenzidine	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Bis(2-ethylhexyl) Phthalate	ND	U	78	1	03/04/13	03/07/13	KWG1301896	
Di-n-octyl Phthalate	ND	U	7.8	1	03/04/13	03/07/13	KWG1301896	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	39	11-80	03/07/13	Acceptable
Phenol-d6	48	20-86	03/07/13	Acceptable
Nitrobenzene-d5	53	27-91	03/07/13	Acceptable
2-Fluorobiphenyl	61	25-97	03/07/13	Acceptable
2,4,6-Tribromophenol	72	10-119	03/07/13	Acceptable
Terphenyl-d14	64	33-129	03/07/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301990-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
Phenol	ND	U	21	1	03/05/13	03/14/13	KWG1301990	
2-Chlorophenol	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
1,3-Dichlorobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
1,4-Dichlorobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
1,2-Dichlorobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Benzyl Alcohol	ND	U	14	1	03/05/13	03/14/13	KWG1301990	
Bis(2-chloroisopropyl) Ether	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
2-Methylphenol	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
Hexachloroethane	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
N-Nitrosodi-n-propylamine	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
4-Methylphenol†	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
Nitrobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Isophorone	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
2-Nitrophenol	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
2,4-Dimethylphenol	ND	U	34	1	03/05/13	03/14/13	KWG1301990	
Bis(2-chloroethoxy)methane	ND	U	7.5	1	03/05/13	03/14/13	KWG1301990	
2,4-Dichlorophenol	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Benzoic Acid	ND	U	200	1	03/05/13	03/14/13	KWG1301990	
1,2,4-Trichlorobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
4-Chloroaniline	ND	U	10	1	03/05/13	03/14/13	KWG1301990	
Hexachlorobutadiene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
4-Chloro-3-methylphenol	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Hexachlorocyclopentadiene	ND	U	50	1	03/05/13	03/14/13	KWG1301990	
2,4,6-Trichlorophenol	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
2,4,5-Trichlorophenol	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
2-Chloronaphthalene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
2-Nitroaniline	ND	U	14	1	03/05/13	03/14/13	KWG1301990	
Dimethyl Phthalate	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
2,6-Dinitrotoluene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
3-Nitroaniline	ND	U	14	1	03/05/13	03/14/13	KWG1301990	
2,4-Dinitrophenol	ND	U	200	1	03/05/13	03/14/13	KWG1301990	
4-Nitrophenol	ND	U	68	1	03/05/13	03/14/13	KWG1301990	
2,4-Dinitrotoluene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1301990-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Diethyl Phthalate	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
4-Nitroaniline	ND	U	14	1	03/05/13	03/14/13	KWG1301990	
2-Methyl-4,6-dinitrophenol	ND	U	68	1	03/05/13	03/14/13	KWG1301990	
N-Nitrosodiphenylamine	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
4-Bromophenyl Phenyl Ether	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Hexachlorobenzene	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
Pentachlorophenol	ND	U	68	1	03/05/13	03/14/13	KWG1301990	
Di-n-butyl Phthalate	ND	U	14	1	03/05/13	03/14/13	KWG1301990	
Butyl Benzyl Phthalate	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	
3,3'-Dichlorobenzidine	ND	U	68	1	03/05/13	03/14/13	KWG1301990	
Bis(2-ethylhexyl) Phthalate	ND	U	68	1	03/05/13	03/14/13	KWG1301990	
Di-n-octyl Phthalate	ND	U	6.8	1	03/05/13	03/14/13	KWG1301990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	45	11-80	03/14/13	Acceptable
Phenol-d6	52	20-86	03/14/13	Acceptable
Nitrobenzene-d5	56	27-91	03/14/13	Acceptable
2-Fluorobiphenyl	61	25-97	03/14/13	Acceptable
2,4,6-Tribromophenol	66	10-119	03/14/13	Acceptable
Terphenyl-d14	69	33-129	03/14/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
B-9 (26-20) GW	K1301603-028	69	68	68	74	83	47
Method Blank	KWG1301698-3	75	83	83	77	81	73
Lab Control Sample	KWG1301698-1	79	88	90	85	100	75
Duplicate Lab Control Sample	KWG1301698-2	71	75	75	72	89	68

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	12-109	Sur5 = 2,4,6-Tribromophenol	23-127
Sur2 = Phenol-d6	23-106	Sur6 = Terphenyl-d14	40-127
Sur3 = Nitrobenzene-d5	26-110		
Sur4 = 2-Fluorobiphenyl	31-94		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
B8 (3.0-4.0)	K1301603-009	39	42	44	57	75	63
SS-9	K1301603-021	26 D	31 D	29 D	38 D	39 D	37 D
SS-10	K1301603-022	37 D	50 D	49 D	60 D	69 D	55 D
SS-14	K1301603-023	59 D	47 D	64 D	80 D	84 D	77 D
Method Blank	KWG1301896-5	39	48	53	61	72	64
Method Blank	KWG1301990-5	45	52	56	61	66	69
SS-10MS	KWG1301990-1	28 D	66 D	60 D	45 D	71 D	56 D
SS-10DMS	KWG1301990-2	46 D	53 D	54 D	64 D	72 D	57 D
Lab Control Sample	KWG1301896-3	48	49	53	60	80	62
Duplicate Lab Control Sample	KWG1301896-4	37	46	52	59	74	60
Lab Control Sample	KWG1301990-3	44	48	53	53	68	60
Duplicate Lab Control Sample	KWG1301990-4	41	45	49	48	69	59

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	11-80	Sur5 = 2,4,6-Tribromophenol	10-119
Sur2 = Phenol-d6	20-86	Sur6 = Terphenyl-d14	33-129
Sur3 = Nitrobenzene-d5	27-91		
Sur4 = 2-Fluorobiphenyl	25-97		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/15/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301990

Analyte Name	Sample Result	SS-10MS KWG1301990-1 Matrix Spike			SS-10DMS KWG1301990-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Phenol	ND	209	249	84	165	250	66	15-98	23	40
2-Chlorophenol	ND	130	249	52	142	250	57	19-92	9	40
1,4-Dichlorobenzene	ND	101	249	40	124	250	50	19-93	21	40
Hexachloroethane	ND	125	249	50	128	250	51	10-96	2	40
N-Nitrosodi-n-propylamine	ND	183	249	74	149	250	60	14-104	20	40
1,2,4-Trichlorobenzene	ND	120	249	48	148	250	59	23-99	21	40
4-Chloro-3-methylphenol	ND	279	249	112 *	165	250	66	12-106	51 *	40
2-Chloronaphthalene	ND	121	249	49	164	250	66	24-97	30	40
4-Nitrophenol	ND	159	249	64	ND	250	0 *	11-131	NC	40
2,4-Dinitrotoluene	ND	171	249	68	147	250	59	25-114	15	40
Diethyl Phthalate	ND	184	249	74	172	250	69	10-135	7	40
4-Bromophenyl Phenyl Ether	ND	186	249	74	187	250	75	30-108	1	40
Pentachlorophenol	ND	421	249	169 *	313	250	125 *	10-123	29	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301603
Date Extracted: 02/25/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301698

Analyte Name	Lab Control Sample KWG1301698-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301698-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	4.58	5.00	92	3.91	5.00	78	52-107	16	30
Phenol	4.54	5.00	91	3.67	5.00	73	50-112	21	30
2-Chlorophenol	4.58	5.00	92	3.75	5.00	75	53-110	20	30
1,3-Dichlorobenzene	2.49	5.00	50	2.06	5.00	41	21-84	19	30
1,4-Dichlorobenzene	2.53	5.00	51	2.10	5.00	42	23-84	19	30
1,2-Dichlorobenzene	2.81	5.00	56	2.28	5.00	46	27-87	21	30
Benzyl Alcohol	4.26	5.00	85	3.35	5.00	67	46-118	24	30
Bis(2-chloroisopropyl) Ether	4.56	5.00	91	3.70	5.00	74	43-111	21	30
2-Methylphenol	4.90	5.00	98	3.76	5.00	75	20-118	26	30
Hexachloroethane	1.94	5.00	39	1.59	5.00	32	11-82	20	30
N-Nitrosodi-n-propylamine	4.72	5.00	94	3.61	5.00	72	50-113	27	30
4-Methylphenol	4.77	5.00	95	3.84	5.00	77	19-121	22	30
Nitrobenzene	4.46	5.00	89	3.51	5.00	70	52-112	24	30
Isophorone	4.54	5.00	91	3.82	5.00	76	51-109	17	30
2-Nitrophenol	4.93	5.00	99	4.12	5.00	82	53-111	18	30
2,4-Dimethylphenol	16.5	15.0	110	15.2	15.0	102	10-128	8	30
Bis(2-chloroethoxy)methane	4.82	5.00	96	3.99	5.00	80	52-111	19	30
2,4-Dichlorophenol	4.61	5.00	92	3.85	5.00	77	52-112	18	30
Benzoic Acid	9.27	15.0	62	5.95	15.0	40	10-87	44 *	30
1,2,4-Trichlorobenzene	2.75	5.00	55	2.26	5.00	45	26-90	20	30
4-Chloroaniline	4.79	5.00	96	3.92	5.00	78	10-124	20	30
Hexachlorobutadiene	1.75	5.00	35	1.50	5.00	30	10-85	16	30
4-Chloro-3-methylphenol	4.72	5.00	94	4.03	5.00	81	44-115	16	30
Hexachlorocyclopentadiene	1.17	5.00	23	1.02	5.00	20	10-47	14	30
2,4,6-Trichlorophenol	4.67	5.00	93	3.79	5.00	76	52-110	21	30
2,4,5-Trichlorophenol	4.75	5.00	95	3.89	5.00	78	56-108	20	30
2-Chloronaphthalene	3.99	5.00	80	3.21	5.00	64	47-101	22	30
2-Nitroaniline	4.82	5.00	96	4.15	5.00	83	53-113	15	30
Dimethyl Phthalate	4.84	5.00	97	4.12	5.00	82	58-110	16	30
2,6-Dinitrotoluene	5.07	5.00	101	4.25	5.00	85	60-109	17	30
3-Nitroaniline	4.94	5.00	99	4.24	5.00	85	32-116	15	30
2,4-Dinitrophenol	4.50	5.00	90	3.78	5.00	76	10-107	17	30
4-Nitrophenol	4.44	5.00	89	3.59	5.00	72	49-113	21	30
2,4-Dinitrotoluene	5.17	5.00	103	4.36	5.00	87	59-111	17	30
4-Chlorophenyl Phenyl Ether	4.38	5.00	88	3.48	5.00	70	48-106	23	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Storm water

Service Request: K1301603
Date Extracted: 02/25/2013
Date Analyzed: 03/04/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3520C
Analysis Method: 8270D

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301698

Analyte Name	Lab Control Sample KWG1301698-1 Lab Control Spike			Duplicate Lab Control Sample KWG1301698-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Diethyl Phthalate	4.84	5.00	97	4.11	5.00	82	56-112	16	30
4-Nitroaniline	5.07	5.00	101	4.20	5.00	84	43-113	19	30
2-Methyl-4,6-dinitrophenol	4.53	5.00	91	3.85	5.00	77	38-109	16	30
N-Nitrosodiphenylamine	5.05	5.00	101	4.20	5.00	84	44-111	18	30
4-Bromophenyl Phenyl Ether	4.50	5.00	90	3.74	5.00	75	55-105	18	30
Hexachlorobenzene	4.44	5.00	89	3.62	5.00	72	55-105	20	30
Pentachlorophenol	4.56	5.00	91	3.96	5.00	79	33-106	14	30
Di-n-butyl Phthalate	4.96	5.00	99	4.22	5.00	84	58-113	16	30
Butyl Benzyl Phthalate	4.93	5.00	99	4.31	5.00	86	62-112	13	30
3,3'-Dichlorobenzidine	4.48	5.00	90	3.43	5.00	69	10-113	27	30
Bis(2-ethylhexyl) Phthalate	4.64	5.00	93	3.92	5.00	78	61-118	17	30
Di-n-octyl Phthalate	4.97	5.00	99	4.17	5.00	83	60-110	18	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301896

Analyte Name	Lab Control Sample KWG1301896-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301896-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	124	250	50	117	250	47	29-93	6	40
Phenol	119	250	48	111	250	44	27-97	7	40
2-Chlorophenol	130	250	52	124	250	50	28-95	5	40
1,3-Dichlorobenzene	133	250	53	128	250	51	27-88	4	40
1,4-Dichlorobenzene	131	250	52	121	250	48	28-89	8	40
1,2-Dichlorobenzene	134	250	54	132	250	53	27-91	1	40
Benzyl Alcohol	119	250	48	114	250	46	25-103	4	40
Bis(2-chloroisopropyl) Ether	109	250	44	112	250	45	22-95	3	40
2-Methylphenol	128	250	51	129	250	51	18-95	1	40
Hexachloroethane	120	250	48	127	250	51	26-90	6	40
N-Nitrosodi-n-propylamine	118	250	47	127	250	51	25-103	8	40
4-Methylphenol	129	250	52	125	250	50	17-99	3	40
Nitrobenzene	122	250	49	126	250	51	26-100	3	40
Isophorone	137	250	55	122	250	49	31-95	12	40
2-Nitrophenol	154	250	62	148	250	59	29-96	4	40
2,4-Dimethylphenol	531	750	71	455	750	61	10-93	15	40
Bis(2-chloroethoxy)methane	139	250	55	125	250	50	30-95	10	40
2,4-Dichlorophenol	159	250	64	140	250	56	31-96	13	40
Benzoic Acid	ND	750	0 *	147	750	20	10-96	NC	40
1,2,4-Trichlorobenzene	153	250	61	146	250	58	27-94	5	40
4-Chloroaniline	145	250	58	126	250	50	30-86	15	40
Hexachlorobutadiene	154	250	62	142	250	57	25-96	8	40
4-Chloro-3-methylphenol	157	250	63	124	250	49	28-101	24	40
Hexachlorocyclopentadiene	113	250	45	110	250	44	18-71	2	40
2,4,6-Trichlorophenol	150	250	60	158	250	63	31-97	5	40
2,4,5-Trichlorophenol	158	250	63	161	250	64	33-97	2	40
2-Chloronaphthalene	144	250	58	143	250	57	31-95	1	40
2-Nitroaniline	148	250	59	145	250	58	34-104	2	40
Dimethyl Phthalate	166	250	66	163	250	65	39-100	2	40
2,6-Dinitrotoluene	170	250	68	166	250	66	38-102	3	40
3-Nitroaniline	163	250	65	158	250	63	38-97	3	40
2,4-Dinitrophenol	133	250	53	183	250	73	10-91	32	40
4-Nitrophenol	167	250	67	177	250	71	34-103	6	40
2,4-Dinitrotoluene	183	250	73	186	250	75	41-104	2	40
4-Chlorophenyl Phenyl Ether	163	250	65	155	250	62	33-95	5	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301896

Analyte Name	Lab Control Sample KWG1301896-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301896-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Diethyl Phthalate	174	250	69	172	250	69	41-100	1	40
4-Nitroaniline	174	250	70	170	250	68	37-104	3	40
2-Methyl-4,6-dinitrophenol	148	250	59	192	250	77	23-99	26	40
N-Nitrosodiphenylamine	178	250	71	171	250	68	36-96	4	40
4-Bromophenyl Phenyl Ether	168	250	67	166	250	66	35-101	1	40
Hexachlorobenzene	171	250	69	172	250	69	40-99	1	40
Pentachlorophenol	160	250	64	166	250	66	21-97	3	40
Di-n-butyl Phthalate	187	250	75	203	250	81	42-109	8	40
Butyl Benzyl Phthalate	185	250	74	186	250	74	45-111	0	40
3,3'-Dichlorobenzidine	176	250	71	178	250	71	37-99	1	40
Bis(2-ethylhexyl) Phthalate	185	250	74	187	250	75	47-110	1	40
Di-n-octyl Phthalate	194	250	78	193	250	77	45-109	0	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/14/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301990

Analyte Name	Lab Control Sample KWG1301990-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301990-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	127	250	51	118	250	47	29-93	8	40
Phenol	124	250	50	114	250	45	27-97	9	40
2-Chlorophenol	121	250	49	116	250	46	28-95	5	40
1,3-Dichlorobenzene	121	250	48	116	250	46	27-88	4	40
1,4-Dichlorobenzene	123	250	49	113	250	45	28-89	8	40
1,2-Dichlorobenzene	123	250	49	115	250	46	27-91	6	40
Benzyl Alcohol	105	250	42	113	250	45	25-103	7	40
Bis(2-chloroisopropyl) Ether	128	250	51	114	250	46	22-95	12	40
2-Methylphenol	120	250	48	106	250	42	18-95	12	40
Hexachloroethane	116	250	46	116	250	46	26-90	0	40
N-Nitrosodi-n-propylamine	125	250	50	122	250	49	25-103	3	40
4-Methylphenol	128	250	51	119	250	48	17-99	8	40
Nitrobenzene	129	250	51	117	250	47	26-100	9	40
Isophorone	131	250	52	130	250	52	31-95	1	40
2-Nitrophenol	132	250	53	128	250	51	29-96	3	40
2,4-Dimethylphenol	434	750	58	422	750	56	10-93	3	40
Bis(2-chloroethoxy)methane	132	250	53	125	250	50	30-95	5	40
2,4-Dichlorophenol	127	250	51	130	250	52	31-96	2	40
Benzoic Acid	ND	750	0 *	153	750	20	10-96	NC	40
1,2,4-Trichlorobenzene	131	250	52	129	250	51	27-94	2	40
4-Chloroaniline	128	250	51	136	250	54	30-86	6	40
Hexachlorobutadiene	128	250	51	128	250	51	25-96	0	40
4-Chloro-3-methylphenol	143	250	57	154	250	62	28-101	7	40
Hexachlorocyclopentadiene	94.8	250	38	87.3	250	35	18-71	8	40
2,4,6-Trichlorophenol	129	250	52	126	250	50	31-97	3	40
2,4,5-Trichlorophenol	132	250	53	127	250	51	33-97	4	40
2-Chloronaphthalene	131	250	52	121	250	48	31-95	8	40
2-Nitroaniline	153	250	61	142	250	57	34-104	8	40
Dimethyl Phthalate	162	250	65	159	250	64	39-100	2	40
2,6-Dinitrotoluene	155	250	62	150	250	60	38-102	3	40
3-Nitroaniline	165	250	66	165	250	66	38-97	0	40
2,4-Dinitrophenol	127	250	51	144	250	58	10-91	13	40
4-Nitrophenol	138	250	55	144	250	58	34-103	4	40
2,4-Dinitrotoluene	172	250	69	172	250	69	41-104	0	40
4-Chlorophenyl Phenyl Ether	151	250	60	144	250	58	33-95	5	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/05/2013
Date Analyzed: 03/14/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301990

Analyte Name	Lab Control Sample KWG1301990-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301990-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Diethyl Phthalate	169	250	68	169	250	68	41-100	0	40
4-Nitroaniline	183	250	73	182	250	73	37-104	0	40
2-Methyl-4,6-dinitrophenol	161	250	65	178	250	71	23-99	10	40
N-Nitrosodiphenylamine	164	250	66	165	250	66	36-96	1	40
4-Bromophenyl Phenyl Ether	156	250	62	161	250	64	35-101	3	40
Hexachlorobenzene	160	250	64	173	250	69	40-99	8	40
Pentachlorophenol	134	250	54	151	250	60	21-97	12	40
Di-n-butyl Phthalate	161	250	64	178	250	71	42-109	10	40
Butyl Benzyl Phthalate	170	250	68	180	250	72	45-111	6	40
3,3'-Dichlorobenzidine	163	250	65	174	250	70	37-99	7	40
Bis(2-ethylhexyl) Phthalate	158	250	63	168	250	67	47-110	6	40
Di-n-octyl Phthalate	162	250	65	179	250	72	45-109	10	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: B-9 (26-20) GW
Lab Code: K1301603-028
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	0.028		0.024	1	02/27/13	03/01/13	KWG1301798	
2-Methylnaphthalene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Acenaphthylene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Acenaphthene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Dibenzofuran	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Fluorene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Phenanthrene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Anthracene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Fluoranthene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Pyrene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Benz(a)anthracene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Chrysene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Benzo(b)fluoranthene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Benzo(k)fluoranthene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Benzo(a)pyrene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Indeno(1,2,3-cd)pyrene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Dibenz(a,h)anthracene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	
Benzo(g,h,i)perylene	ND	U	0.024	1	02/27/13	03/01/13	KWG1301798	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	46-114	03/01/13	Acceptable
Fluoranthene-d10	79	51-121	03/01/13	Acceptable
Terphenyl-d14	77	58-140	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301798-5
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
2-Methylnaphthalene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Acenaphthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenzofuran	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluorene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Phenanthrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benz(a)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Chrysene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(b)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(k)fluoranthene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(a)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Indeno(1,2,3-cd)pyrene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Dibenz(a,h)anthracene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	
Benzo(g,h,i)perylene	ND	U	0.019	1	02/27/13	03/01/13	KWG1301798	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	82	46-114	03/01/13	Acceptable
Fluoranthene-d10	84	51-121	03/01/13	Acceptable
Terphenyl-d14	77	58-140	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: B8 (3.0-4.0)
Lab Code: K1301603-009
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
2-Methylnaphthalene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthylene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Acenaphthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenzofuran	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Fluorene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Phenanthrene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Anthracene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Fluoranthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Pyrene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Benz(a)anthracene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Chrysene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(b)fluoranthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(k)fluoranthene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(a)pyrene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Dibenz(a,h)anthracene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	
Benzo(g,h,i)perylene	ND	U	5.0	1	03/04/13	03/06/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	62	17-104	03/06/13	Acceptable
Fluoranthene-d10	61	27-106	03/06/13	Acceptable
Terphenyl-d14	58	35-109	03/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-9
Lab Code: K1301603-021
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	76		3.6	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	31		3.6	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	5.5		3.6	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	9.2		3.6	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	11		3.6	1	02/27/13	03/01/13	KWG1301787	
Fluorene	7.4		3.6	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	120		3.6	1	02/27/13	03/01/13	KWG1301787	
Anthracene	18		3.6	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	200		3.6	1	02/27/13	03/01/13	KWG1301787	
Pyrene	190		3.6	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	88		3.6	1	02/27/13	03/01/13	KWG1301787	
Chrysene	160		3.6	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	170		3.6	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	63		3.6	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	110		3.6	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	130		3.6	1	02/27/13	03/01/13	KWG1301787	*
Dibenz(a,h)anthracene	32		3.6	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	130		3.6	1	02/27/13	03/01/13	KWG1301787	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	75	17-104	03/01/13	Acceptable
Fluoranthene-d10	80	27-106	03/01/13	Acceptable
Terphenyl-d14	66	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-10
Lab Code: K1301603-022
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	6.1		3.7	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	4.7		3.7	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	3.7	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	6.4		3.7	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	ND	U	3.7	1	02/27/13	03/01/13	KWG1301787	
Fluorene	4.2		3.7	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	55		3.7	1	02/27/13	03/01/13	KWG1301787	
Anthracene	12		3.7	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	120		3.7	1	02/27/13	03/01/13	KWG1301787	
Pyrene	120		3.7	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	71		3.7	1	02/27/13	03/01/13	KWG1301787	
Chrysene	110		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	140		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	53		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	93		3.7	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	100		3.7	1	02/27/13	03/01/13	KWG1301787	*
Dibenz(a,h)anthracene	23		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	97		3.7	1	02/27/13	03/01/13	KWG1301787	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	70	17-104	03/01/13	Acceptable
Fluoranthene-d10	74	27-106	03/01/13	Acceptable
Terphenyl-d14	62	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: 02/21/2013
Date Received: 02/22/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-14
Lab Code: K1301603-023
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	4.9	1	03/04/13	03/06/13	KWG1301897	
2-Methylnaphthalene	ND	U	4.9	1	03/04/13	03/06/13	KWG1301897	
Acenaphthylene	6.7		4.9	1	03/04/13	03/06/13	KWG1301897	
Acenaphthene	ND	U	4.9	1	03/04/13	03/06/13	KWG1301897	
Dibenzofuran	ND	U	4.9	1	03/04/13	03/06/13	KWG1301897	
Fluorene	ND	U	4.9	1	03/04/13	03/06/13	KWG1301897	
Phenanthrene	24		4.9	1	03/04/13	03/06/13	KWG1301897	
Anthracene	14		4.9	1	03/04/13	03/06/13	KWG1301897	
Fluoranthene	76		4.9	1	03/04/13	03/06/13	KWG1301897	
Pyrene	95		4.9	1	03/04/13	03/06/13	KWG1301897	
Benz(a)anthracene	75		4.9	1	03/04/13	03/06/13	KWG1301897	
Chrysene	120		4.9	1	03/04/13	03/06/13	KWG1301897	
Benzo(b)fluoranthene	120		4.9	1	03/04/13	03/06/13	KWG1301897	
Benzo(k)fluoranthene	44		4.9	1	03/04/13	03/06/13	KWG1301897	
Benzo(a)pyrene	100		4.9	1	03/04/13	03/06/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	91		4.9	1	03/04/13	03/06/13	KWG1301897	
Dibenz(a,h)anthracene	24		4.9	1	03/04/13	03/06/13	KWG1301897	
Benzo(g,h,i)perylene	100		4.9	1	03/04/13	03/06/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	62	17-104	03/06/13	Acceptable
Fluoranthene-d10	66	27-106	03/06/13	Acceptable
Terphenyl-d14	58	35-109	03/06/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301787-5
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluorene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Chrysene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenz(a,h)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	17-104	03/01/13	Acceptable
Fluoranthene-d10	72	27-106	03/01/13	Acceptable
Terphenyl-d14	66	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301897-5
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
2-Methylnaphthalene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Acenaphthylene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Acenaphthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Dibenzofuran	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Fluorene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Phenanthrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benz(a)anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Chrysene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(b)fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(k)fluoranthene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(a)pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Indeno(1,2,3-cd)pyrene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Dibenz(a,h)anthracene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	
Benzo(g,h,i)perylene	ND	U	2.5	1	03/04/13	03/07/13	KWG1301897	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	64	17-104	03/07/13	Acceptable
Fluoranthene-d10	65	27-106	03/07/13	Acceptable
Terphenyl-d14	57	35-109	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301401-021	83	79	58
B-9 (26-20) GW	K1301603-028	74	79	77
Method Blank	KWG1301798-5	82	84	77
Batch QCMS	KWG1301798-1	80	79	63
Batch QCDMS	KWG1301798-2	81	80	69
Lab Control Sample	KWG1301798-3	81	83	70
Duplicate Lab Control Sample	KWG1301798-4	82	83	73

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	46-114
Sur2 = Fluoranthene-d10	51-121
Sur3 = Terphenyl-d14	58-140

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301490-005	63	70	60
B8 (3.0-4.0)	K1301603-009	62	61	58
SS-9	K1301603-021	75	80	66
SS-10	K1301603-022	70	74	62
SS-14	K1301603-023	62	66	58
Method Blank	KWG1301787-5	74	72	66
Method Blank	KWG1301897-5	64	65	57
Batch QCMS	KWG1301787-1	69	79	67
Batch QCDMS	KWG1301787-2	68	76	65
Lab Control Sample	KWG1301787-3	69	70	62
Duplicate Lab Control Sample	KWG1301787-4	64	65	58
Lab Control Sample	KWG1301897-3	72	73	63
Duplicate Lab Control Sample	KWG1301897-4	69	71	61

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	17-104
Sur2 = Fluoranthene-d10	27-106
Sur3 = Terphenyl-d14	35-109

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: Batch QC
Lab Code: K1301401-021
Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301798

Analyte Name	Sample Result	Batch QCMS KWG1301798-1 Matrix Spike			Batch QCDMS KWG1301798-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	0.036	1.98	2.38	82	1.95	2.38	80	37-118	2	30
2-Methylnaphthalene	0.020	1.86	2.38	78	1.86	2.38	78	37-117	0	30
Acenaphthylene	0.020	2.19	2.38	92	2.16	2.38	91	43-114	1	30
Acenaphthene	ND	2.08	2.38	88	2.09	2.38	88	45-114	0	30
Dibenzofuran	ND	2.13	2.38	90	2.11	2.38	88	44-122	1	30
Fluorene	ND	2.22	2.38	93	2.18	2.38	92	45-123	2	30
Phenanthrene	ND	2.06	2.38	87	2.07	2.38	87	42-127	0	30
Anthracene	0.029	1.86	2.38	77	1.93	2.38	80	32-125	4	30
Fluoranthene	ND	1.86	2.38	78	1.98	2.38	83	48-134	7	30
Pyrene	ND	2.18	2.38	92 #	2.33	2.38	98 #	44-130	7	30
Benz(a)anthracene	ND	1.48	2.38	62	1.96	2.38	82	41-128	28	30
Chrysene	ND	1.39	2.38	59	1.75	2.38	74	48-128	23	30
Benzo(b)fluoranthene	ND	1.31	2.38	55	1.76	2.38	74	40-139	29	30
Benzo(k)fluoranthene	ND	1.32	2.38	55	1.75	2.38	74	48-134	28	30
Benzo(a)pyrene	ND	1.44	2.38	60	1.96	2.38	82	35-132	31 *	30
Indeno(1,2,3-cd)pyrene	ND	1.52	2.38	64	2.17	2.38	91	40-135	35 *	30
Dibenz(a,h)anthracene	ND	1.43	2.38	60	1.99	2.38	84	43-135	33 *	30
Benzo(g,h,i)perylene	ND	1.27	2.38	53	1.78	2.38	75	44-128	33 *	30

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Sample Result	Batch QCMS KWG1301787-1 Matrix Spike			Batch QCDMS KWG1301787-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	18	362	496	69	366	496	70	23-114	1	40
2-Methylnaphthalene	9.4	374	496	73	375	496	74	24-115	0	40
Acenaphthylene	ND	398	496	80	379	496	76	32-117	5	40
Acenaphthene	7.2	388	496	77	414	496	82	33-118	6	40
Dibenzofuran	6.5	397	496	79	521	496	104	34-131	27	40
Fluorene	8.2	421	496	83	457	496	90	33-125	8	40
Phenanthrene	73	514	496	89	1290	496	244 *	29-125	86 *	40
Anthracene	9.0	447	496	88	550	496	109	30-127	21	40
Fluoranthene	220	703	496	98	2280E	496	416 *	35-139	106 *	40
Pyrene	200	717	496	103	2000E	496	361 *	27-134	94 *	40
Benz(a)anthracene	100	590	496	99	1430	496	268 *	35-122	83 *	40
Chrysene	150	615	496	95	1520	496	277 *	36-126	85 *	40
Benzo(b)fluoranthene	170	643	496	95	1610	496	290 *	35-124	86 *	40
Benzo(k)fluoranthene	72	531	496	92	876	496	162 *	38-124	49 *	40
Benzo(a)pyrene	98	606	496	102	1410	496	263 *	37-123	79 *	40
Indeno(1,2,3-cd)pyrene	98	627	496	106	1170	496	216 *	28-133	60 *	40
Dibenz(a,h)anthracene	18	460	496	89	561	496	109	32-125	20	40
Benzo(g,h,i)perylene	84	558	496	95	938	496	172 *	33-128	51 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Water

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C
Analysis Method: 8270D SIM

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG1301798

Analyte Name	Lab Control Sample KWG1301798-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301798-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	2.06	2.50	82	2.11	2.50	84	39-110	2	30
2-Methylnaphthalene	2.07	2.50	83	2.07	2.50	83	39-115	0	30
Acenaphthylene	2.26	2.50	90	2.33	2.50	93	44-115	3	30
Acenaphthene	2.21	2.50	88	2.27	2.50	91	44-113	3	30
Dibenzofuran	2.23	2.50	89	2.29	2.50	92	46-116	3	30
Fluorene	2.26	2.50	90	2.31	2.50	93	48-118	2	30
Phenanthrene	2.13	2.50	85	2.20	2.50	88	47-120	3	30
Anthracene	2.23	2.50	89	2.23	2.50	89	44-117	0	30
Fluoranthene	2.31	2.50	92	2.34	2.50	94	48-128	2	30
Pyrene	2.38	2.50	95	2.42	2.50	97	42-133	2	30
Benz(a)anthracene	2.23	2.50	89	2.30	2.50	92	48-125	3	30
Chrysene	2.29	2.50	92	2.38	2.50	95	50-128	4	30
Benzo(b)fluoranthene	2.24	2.50	90	2.33	2.50	93	49-131	4	30
Benzo(k)fluoranthene	2.46	2.50	98	2.55	2.50	102	54-131	4	30
Benzo(a)pyrene	2.52	2.50	101	2.61	2.50	104	43-134	3	30
Indeno(1,2,3-cd)pyrene	2.78	2.50	111	2.77	2.50	111	45-133	1	30
Dibenz(a,h)anthracene	2.57	2.50	103	2.57	2.50	103	49-133	0	30
Benzo(g,h,i)perylene	2.41	2.50	96	2.40	2.50	96	51-124	0	30

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Lab Control Sample KWG1301787-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301787-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	385	500	77	354	500	71	32-124	8	40
2-Methylnaphthalene	381	500	76	349	500	70	27-126	9	40
Acenaphthylene	408	500	82	377	500	75	38-126	8	40
Acenaphthene	402	500	80	368	500	74	39-124	9	40
Dibenzofuran	406	500	81	369	500	74	41-130	10	40
Fluorene	414	500	83	375	500	75	39-129	10	40
Phenanthrene	390	500	78	351	500	70	39-123	11	40
Anthracene	416	500	83	379	500	76	38-130	9	40
Fluoranthene	426	500	85	381	500	76	39-135	11	40
Pyrene	445	500	89	410	500	82	39-134	8	40
Benz(a)anthracene	424	500	85	378	500	76	46-120	11	40
Chrysene	440	500	88	401	500	80	49-120	9	40
Benzo(b)fluoranthene	434	500	87	396	500	79	51-121	9	40
Benzo(k)fluoranthene	470	500	94	427	500	85	55-120	10	40
Benzo(a)pyrene	472	500	94	428	500	86	49-122	10	40
Indeno(1,2,3-cd)pyrene	455	500	91	404	500	81	40-128	12	40
Dibenz(a,h)anthracene	391	500	78	335	500	67	43-125	15	40
Benzo(g,h,i)perylene	439	500	88	396	500	79	49-122	10	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301603
Date Extracted: 03/04/2013
Date Analyzed: 03/07/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301897

Analyte Name	Lab Control Sample KWG1301897-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301897-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	355	500	71	326	500	65	32-124	8	40
2-Methylnaphthalene	391	500	78	359	500	72	27-126	9	40
Acenaphthylene	399	500	80	367	500	73	38-126	9	40
Acenaphthene	378	500	76	348	500	70	39-124	8	40
Dibenzofuran	384	500	77	354	500	71	41-130	8	40
Fluorene	391	500	78	359	500	72	39-129	8	40
Phenanthrene	355	500	71	323	500	65	39-123	10	40
Anthracene	372	500	74	357	500	71	38-130	4	40
Fluoranthene	385	500	77	359	500	72	39-135	7	40
Pyrene	392	500	78	362	500	72	39-134	8	40
Benz(a)anthracene	413	500	83	386	500	77	46-120	7	40
Chrysene	402	500	80	373	500	75	49-120	8	40
Benzo(b)fluoranthene	409	500	82	378	500	76	51-121	8	40
Benzo(k)fluoranthene	420	500	84	395	500	79	55-120	6	40
Benzo(a)pyrene	458	500	92	425	500	85	49-122	8	40
Indeno(1,2,3-cd)pyrene	519	500	104	479	500	96	40-128	8	40
Dibenz(a,h)anthracene	472	500	94	439	500	88	43-125	7	40
Benzo(g,h,i)perylene	446	500	89	413	500	83	49-122	8	40

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

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



March 19, 2013

Analytical Report for Service Request No: K1301620

Ashleigh Fines
Ash Creek Associates
3015 SW First Avenue
Portland, OR 97201-4707

RE: Pier 99/320001975-00.001

Dear Ashleigh:

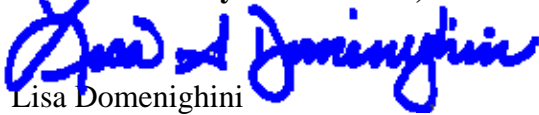
Enclosed are the results of the samples submitted to our laboratory on February 25, 2013. For your reference, these analyses have been assigned our service request number K1301620.

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

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental


Lisa Domenighini
Project Manager

LD/mj

Page 1 of 56



ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
Columbia Analytical Services, Inc.

Part of the ALS Group A Campbell Brothers Limited Company

Environmental 

www.caslab.com ■ www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

Columbia Analytical Services, Inc. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjllabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Louisiana DHH	Not available	LA110003
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
New Mexico ED	http://www.nmenv.state.nm.us/dwb/Index.htm	-
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.caslab.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

ALS ENVIRONMENTAL

Client: Ash Creek Associates, Inc.
Project: Pier 99/32001975-00.001
Sample Matrix: Soil

Service Request No.: K1301620
Date Received: 2/25/13

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Three soil samples were received for analysis at ALS Environmental on 2/25/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Aluminum and Iron for the Batch QC2 sample were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Antimony recoveries are generally low for soil and sediment samples when digested using EPA Method 3050B. Despite anticipated low recoveries, the method is still generally prescribed because of its versatility for general metals analysis. Antimony results (in conjunction with the matrix spike recovery) from this procedure should only be used as indicators to estimate concentrations. The matrix spike recovery of Antimony for the Batch QC2 sample was below the control criterion. Since low recoveries resulted from a method defect and were possibly magnified by certain matrix components, no corrective action was appropriate. Alternative procedures that specifically target Antimony are available but were not specified for this project. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control.

The matrix spike recovery of Silver for the Batch QC2 sample was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Organochlorine Pesticides by EPA Method 8081

Calibration Verification Exceptions:

The analysis of Chlorinated Pesticides by EPA 8081 requires the use of dual column confirmation. When the Continuing Calibration Verification (CCV) criterion is met for both columns, the lower of the two sample results is generally reported. The primary evaluation criteria were not met on the confirmation column for Decachlorobiphenyl in a associated CCV. The results were reported from the column with an acceptable CCV. The data quality was not affected. No further corrective action was necessary.

Approved by



Matrix Spike Recovery Exceptions:

The control criteria for the matrix spike recovery of several analytes for sample Batch QC was not applicable. The chromatogram indicated non-target matrix background components contributed to the reported matrix spike concentrations. Thus, the reported recoveries contained a high bias. Based on the magnitude of background contribution, the interference appeared to be minimal.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Toxaphene in the replicate matrix spike analyses of Batch QC was outside control criteria due to matrix interference. All spike recoveries in the MS, DMS, and associated Laboratory Control Sample (LCS) were within acceptance limits, or not applicable, indicating the analytical batch was in control. No further corrective action was appropriate.

Sample Confirmation Notes:

The confirmation comparison criteria of 40% difference for at least one analyte was exceeded in all field samples. The lower of the two values was reported when no evidence of a matrix interference was observed.

Elevated Detection Limits:

The reporting limit is elevated for all analytes in samples SS-11 and SS-13. The sample extract was diluted prior to instrumental analysis due to relatively high levels of non-target background components which prevented adequate resolution of the internal standard. Clean-up of the extract was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. A semiquantitative screen was performed prior to final analysis. The results of the screening indicated the need to perform a dilution. The result is flagged to indicate the matrix interference.

Some field samples required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

The detection limit was elevated, or further elevated, for several analytes in all field samples. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compounds at the normal limit. The results were flagged to indicate the matrix interference.

Sample Notes and Discussion:

Organochlorine Pesticides (O-C Pesticides) determined by EPA Method 8081B or equivalent gas chromatography-electron capture detector (GC/ECD) procedures are subject to interference from polychlorinated biphenyls (PCBs). The interference stems from the inability of the GC/ECD to differentiate selected PCB congeners from certain O-C Pesticides. This method limitation can result in false positive detections and/or high bias to pesticide values.

The magnitude of the interference is directly proportional to the concentration of PCBs in the sample. In addition, the affect on selected O-C Pesticides is complicated by the type PCB Aroclor(s) present in the sample. The presence of multiple Aroclors can result in contribution to the apparent concentration of O-C Pesticides by PCB congeners common to two or more Aroclors.

The samples in this delivery group contained PCB Aroclors at concentrations high enough to impact the O-C Pesticide results. Note that the results for the O-C Pesticides were reported as per the protocol defined in SW-846 regarding dual column confirmation. In some instances, certain PCB congeners were suspected of being detected on both columns simultaneously within the retention time window of the target pesticide. When the resulting chromatographic peaks met the criteria of a detection as defined in the method, the values were reported.

Results for 4,4-DDT have contribution from confirmed PCB interferences on both columns within the established retention time window, resulting in reported values with a significant high bias.

No other anomalies associated with the analysis of these samples were observed.

Approved by



PCB Aroclors by EPA Method 8082

Elevated Detection Limits:

Samples SS-11 and SS-13 required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

Sample Notes and Discussion:

Two Aroclors were identified in sample SS-12: Aroclor 1254 and Aroclor 1260. When mixtures of PCB Aroclors are present in a sample, correct identification and quantitative analysis of the individual Aroclors can be subjective. Care is taken to minimize the possibility of double-counting PCBs. Analytical peaks are selected based on the best resolution possible for that particular sample. However, when a mixture of Aroclors 1254 and 1260 is present in a sample, the potential exists for a high bias from contribution of one Aroclor to another due to common peaks or peaks that cannot be completely resolved.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270

Matrix Spike Recovery Exceptions:

The matrix spike recoveries of 4-Nitrophenol for sample SS-13 was outside control criteria because of suspected matrix interference. A matrix spike duplicate was also analyzed, but produced similar results. The results of the original analysis was reported. No further corrective action was appropriate.

The matrix spike recoveries of Pentachlorophenol for sample SS-13 were outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outliers suggested a potential high bias in this matrix. No further corrective action was appropriate.

The duplicate matrix spike recovery of Pyrene for sample SS-13 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The duplicate matrix spike outlier suggested a potential high bias in this matrix. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Benzoic Acid and 4-Chloro-3-methylphenol in the replicate Laboratory Control Samples. All spike recoveries in the LCS/DLCS were within acceptance limits, indicating the analytical batch was in control. No further corrective action was appropriate.

Elevated Detection Limits:

All samples required dilutions due to the presence of elevated levels of target analytes and matrix interferences. The reporting limits were adjusted to reflect the dilutions.

Sample Notes and Discussion:

Due to a matrix interference that prevented resolution of Benzo(b)fluoranthene and Benzo(k)fluoranthene the results for these compounds in samples SS-11 and SS-12 are reported as Benzo(b)fluoranthene. The results were flagged with "X" to indicate the issue.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____



Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Calibration Verification Exceptions:

The following analytes were flagged as outside the upper control criterion for Continuing Calibration Verification (CCV) MS11\0301F002.D: Indeno(1,2,3-cd)pyrene. In accordance with the EPA Method 8270D, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. The data quality was not affected. No further corrective action was required.

Matrix Spike Recovery Exceptions:

The matrix spike recovery of numerous analytes for sample Batch QC was outside the ALS control criteria as a result of the heterogeneous character of the sample. The Relative Percent Difference (RPD) for the replicate analysis supported this. Since the unspiked samples contained high analyte concentrations relative to the amount spiked, the variability between replicates was sufficient to bias the percent recoveries outside normal ALS control criteria. The associated QA/QC results (e.g. control sample, calibration standards, etc.) indicated the analysis was in control. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of most analytes in sample Batch QC was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. The sample contained relatively large amounts of rocks, which complicated the homogenization process. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Approved by _____



CHAIN OF CUSTODY RECORD

Client Name: Ash Creek Associates
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

K1301620

Project Manager: Ashleigh Fines

Analytical Lab: CAS/ALS

Project Name: Pier 99

Report To: ashleighfines@gmail.com

Project Number: 320001975-00.001

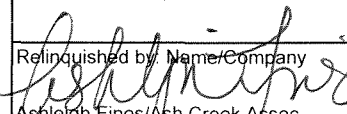
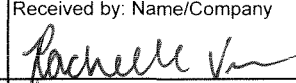
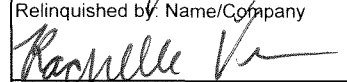


Page: 1 of 1

Sampler Name: Ian Maguire/Chris Luk

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative								Matrix				Analyze For:																RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
							Ice	HNO ₃ (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	H ₂ SO ₄ Glass(Yellow Label)	None (Black Label)	Other (Specify)	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	TAL 22 Metals per EPA Method 6010C	Mercury per EPA Method 7471B	SVOCs per EPA Method 8270D	Organochlorine pesticides per EPA Method 8081B	PCBs per EPA Method 8082	Diesel and Oil-range per NWTPH-Dx	Butylins per Krone Method	VOCs per EPA Method 8260B	Dissolved TAL Metals per EPA Method 6010C	Dissolved Mercury per EPA Method 7470A	Cu, Pb, and Zn per EPA 6010C							
SS-11	2/22/13	915	3	X			X						X			X	X	X	X	X													X					
SS-12	2/22/13	910	3	X			X						X			X	X	X	X	X												X						
SS-13	2/22/13	1010	3	X			X						X			X	X	X	X	X												X						

Special Instructions:

Laboratory Comments:

Method of Shipment:					
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
 Ashleigh Fines/Ash Creek Assoc.	2/25/2013	933	 Rachelle Van	2/25/13	933
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
 Rachelle Van	2/25/13	1000	 Duff	2/25/13	10:00
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
			 Ian Maguire	2/25/13	1130
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Temperature Upon Receipt: _____
VOCs Free of Headspace? Y N

PC Lisa

Cooler Receipt and Preservation Form

Client / Project: Ash Creek Service Request K13 01670
Received: 2/25/13 Opened: 2/25/13 By: HD Unloaded: 2/25/13 By: HD

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

Raw Temp	Corr. Temp	Raw Blank	Corr. Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number	NA	Filed
-1.2	-1.3	—	—	-1	287	NA		NA	

7. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? Indicate in the table below NA Y N
14. Were VOA vials received without headspace? Indicate in the table below. NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620**Total Solids**

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
SS-11	K1301620-001	02/22/2013	02/25/2013	02/27/2013	68.6	
SS-12	K1301620-002	02/22/2013	02/25/2013	02/27/2013	61.5	
SS-13	K1301620-003	02/22/2013	02/25/2013	02/27/2013	76.9	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013
Date Analyzed: 02/27/2013

Duplicate Sample Summary
Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
SS-11	K1301620-001	68.6	69.1	68.9	<1	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group

- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.
Project Name: Pier 99
Project No.: 320001975-00.001

Service Request: K1301620

Sample Name:

Batch QC1D

Batch QC1S

Batch QC2D

Batch QC2S

SS-11

SS-12

SS-13

Method Blank

Lab Code:

K1301527-001D

K1301527-001S

K1301603-001D

K1301603-001S

K1301620-001

K1301620-002

K1301620-003

K1301620-MB

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.	Service Request: K1301620
Project No.: 320001975-00.001	Date Collected: 02/22/13
Project Name: Pier 99	Date Received: 02/25/13
Matrix: SOIL	Units: mg/Kg
	Basis: DRY

Sample Name: SS-11	Lab Code: K1301620-001
---------------------------	-------------------------------

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.1	2.0	02/26/13	02/28/13	13500		
Antimony	6010C	2.0	2.0	02/26/13	02/28/13	4.9		N
Arsenic	6010C	2.0	2.0	02/26/13	02/28/13	13.3		
Barium	6010C	0.5	2.0	02/26/13	02/28/13	203		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	1.0		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	10.1	2.0	02/26/13	02/28/13	8230		
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	56.8		
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	13.8		
Copper	6010C	0.6	2.0	02/26/13	02/28/13	6500		
Iron	6010C	2.0	2.0	02/26/13	02/28/13	25400		
Lead	6010C	2.0	2.0	02/26/13	02/28/13	989		
Magnesium	6010C	4.1	2.0	02/26/13	02/28/13	4320		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	460		
Mercury	7471B	0.04	2.0	03/04/13	03/04/13	1.07		
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	28.7		
Potassium	6010C	60.7	2.0	02/26/13	02/28/13	1420		
Selenium	6010C	4.1	2.0	02/26/13	02/28/13	4.1	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.6		N
Sodium	6010C	40.5	2.0	02/26/13	02/28/13	309		
Thallium	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Vanadium	6010C	1.0	2.0	02/26/13	02/28/13	53.5		
Zinc	6010C	1.0	2.0	02/26/13	02/28/13	380		

% Solids: 68.6

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301620

Project No.: 320001975-00.001

Date Collected: 02/22/13

Project Name: Pier 99

Date Received: 02/25/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: SS-12

Lab Code: K1301620-002

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	12.1	2.0	02/26/13	02/28/13	14200		
Antimony	6010C	2.4	2.0	02/26/13	02/28/13	2.4	U	N
Arsenic	6010C	2.4	2.0	02/26/13	02/28/13	4.3		
Barium	6010C	0.6	2.0	02/26/13	02/28/13	130		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	1.0		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.4		
Calcium	6010C	12.1	2.0	02/26/13	02/28/13	6910		
Chromium	6010C	0.6	2.0	02/26/13	02/28/13	21.8		
Cobalt	6010C	0.6	2.0	02/26/13	02/28/13	11.0		
Copper	6010C	0.7	2.0	02/26/13	02/28/13	450		
Iron	6010C	2.4	2.0	02/26/13	02/28/13	23300		
Lead	6010C	2.4	2.0	02/26/13	02/28/13	151		
Magnesium	6010C	4.9	2.0	02/26/13	02/28/13	4040		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	478		
Mercury	7471B	0.02	1.0	03/04/13	03/04/13	0.21		
Nickel	6010C	0.5	2.0	02/26/13	02/28/13	16.0		
Potassium	6010C	72.8	2.0	02/26/13	02/28/13	2200		
Selenium	6010C	4.9	2.0	02/26/13	02/28/13	4.9	U	
Silver	6010C	0.6	2.0	02/26/13	02/28/13	0.6	U	N
Sodium	6010C	48.5	2.0	02/26/13	02/28/13	290		
Thallium	6010C	2.4	2.0	02/26/13	02/28/13	2.4	U	
Vanadium	6010C	1.2	2.0	02/26/13	02/28/13	56.3		
Zinc	6010C	1.2	2.0	02/26/13	02/28/13	345		

% Solids: 61.5

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc.

Service Request: K1301620

Project No.: 320001975-00.001

Date Collected: 02/22/13

Project Name: Pier 99

Date Received: 02/25/13

Matrix: SOIL

Units: mg/Kg

Basis: DRY

Sample Name: SS-13

Lab Code: K1301620-003

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	9.4	2.0	02/26/13	02/28/13	10700		
Antimony	6010C	1.9	2.0	02/26/13	02/28/13	3.3		N
Arsenic	6010C	1.9	2.0	02/26/13	02/28/13	25.4		
Barium	6010C	0.5	2.0	02/26/13	02/28/13	234		
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	1.1		
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.4		
Calcium	6010C	9.4	2.0	02/26/13	02/28/13	4650		
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	44.1		
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	13.6		
Copper	6010C	0.6	2.0	02/26/13	02/28/13	2650		
Iron	6010C	1.9	2.0	02/26/13	02/28/13	31100		
Lead	6010C	1.9	2.0	02/26/13	02/28/13	636		
Magnesium	6010C	3.8	2.0	02/26/13	02/28/13	3570		
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	489		
Mercury	7471B	0.91	50.0	03/04/13	03/04/13	6.26		
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	24.4		
Potassium	6010C	56.5	2.0	02/26/13	02/28/13	886		
Selenium	6010C	3.8	2.0	02/26/13	02/28/13	3.8	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.5		N
Sodium	6010C	37.7	2.0	02/26/13	02/28/13	326		
Thallium	6010C	1.9	2.0	02/26/13	02/28/13	1.9	U	
Vanadium	6010C	0.9	2.0	02/26/13	02/28/13	66.8		
Zinc	6010C	0.94	2.0	02/26/13	02/28/13	612		

% Solids: 76.9

Comments:

Metals
- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: Ash Creek Associates, Inc. **Service Request:** K1301620
Project No.: 320001975-00.001 **Date Collected:**
Project Name: Pier 99 **Date Received:**
Matrix: SOIL **Units:** mg/Kg
Basis: DRY

Sample Name: Method Blank **Lab Code:** K1301620-MB

Analyte	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	C	Q
Aluminum	6010C	10.0	2.0	02/26/13	02/28/13	10.0	U	
Antimony	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	N
Arsenic	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Barium	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Beryllium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Cadmium	6010C	0.1	2.0	02/26/13	02/28/13	0.1	U	
Calcium	6010C	10.0	2.0	02/26/13	02/28/13	10.0	U	
Chromium	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Cobalt	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	
Copper	6010C	0.6	2.0	02/26/13	02/28/13	0.6	U	
Iron	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Lead	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Magnesium	6010C	4.0	2.0	02/26/13	02/28/13	4.0	U	
Manganese	6010C	0.2	2.0	02/26/13	02/28/13	0.2	U	
Mercury	7471B	0.02	1.0	03/04/13	03/04/13	0.02	U	
Nickel	6010C	0.4	2.0	02/26/13	02/28/13	0.4	U	
Potassium	6010C	60.0	2.0	02/26/13	02/28/13	60.0	U	
Selenium	6010C	4.0	2.0	02/26/13	02/28/13	4.0	U	
Silver	6010C	0.5	2.0	02/26/13	02/28/13	0.5	U	N
Sodium	6010C	40.0	2.0	02/26/13	02/28/13	40.0	U	
Thallium	6010C	2.0	2.0	02/26/13	02/28/13	2.0	U	
Vanadium	6010C	1.0	2.0	02/26/13	02/28/13	1.0	U	
Zinc	6010C	1.0	2.0	02/26/13	02/28/13	1.0	U	

% Solids: 100.0

Comments:

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301620
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 81.8

Sample Name: Batch QC1S Lab Code: K1301527-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Mercury	80 - 120	1.41		0.87		0.49	110.2		7471B

An empty field in the Control Limit column indicates the control limit is not applicable

Metals

- 5A -

SPIKE SAMPLE RECOVERY

Client: Ash Creek Associates, Inc. Service Request: K1301620
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 93.4

Sample Name: Batch QC2S

Lab Code: K1301603-001S

Analyte	Control Limit %R	Spike Result	C	Sample Result	C	Spike Added	%R	Q	Method
Aluminum		5520		4910		310.34	196.6		6010C
Antimony	75 - 125	36.9		1.5	U	77.58	47.6	N	6010C
Arsenic	75 - 125	78.5		1.5	U	77.58	101.2		6010C
Barium	79 - 114	364		67.6		310.34	95.5		6010C
Beryllium	78 - 115	7.7		0.4		7.76	94.1		6010C
Cadmium	75 - 125	6.6		0.1	U	7.76	85.1		6010C
Calcium	75 - 125	3290		2650		775.84	82.5		6010C
Chromium	75 - 125	35.5		8.3		31.03	87.7		6010C
Cobalt	75 - 125	80.1		4.9		77.58	96.9		6010C
Copper	75 - 125	44.5		6.8		38.79	97.2		6010C
Iron		10700		10600		155.17	64.4		6010C
Lead	75 - 125	75.7		3.2		77.58	93.5		6010C
Magnesium	75 - 125	3240		2480		775.84	98.0		6010C
Manganese	75 - 125	212		146		77.58	85.1		6010C
Nickel	75 - 125	80.7		8.8		77.58	92.7		6010C
Potassium	75 - 125	1450		630		775.84	105.7		6010C
Selenium	75 - 125	69.7		3.1	U	77.58	89.8		6010C
Silver	75 - 125	9.8		0.4	U	7.76	126.3	N	6010C
Sodium	75 - 125	1170		361		775.84	104.3		6010C
Thallium	75 - 125	73.7		1.5	U	77.58	95.0		6010C
Vanadium	75 - 125	99.5		27.6		77.58	92.7		6010C
Zinc	75 - 125	107		32.6		77.58	95.9		6010C

An empty field in the Control Limit column indicates the control limit is not applicable

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals
- 6 -
DUPLICATES

Client: Ash Creek Associates, Inc. Service Request: K1301620
Project No.: 320001975-00.001 Units: MG/KG
Project Name: Pier 99 Basis: DRY
Matrix: SOIL % Solids: 81.8

Sample Name: Batch QC1D Lab Code: K1301527-001D

Analyte	Control Limit	Sample (S)C	Duplicate (D)C	RPD	Q	Method
Mercury	20	0.87	0.75	14.8		7471B

An empty field in the Control Limit column indicates the control limit is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Metals**- 6 -****DUPLICATES****Client:** Ash Creek Associates, Inc.**Service Request:** K1301620**Project No.:** 320001975-00.001**Units:** MG/KG**Project Name:** Pier 99**Basis:** DRY**Matrix:** SOIL**% Solids:** 93.4**Sample Name:** Batch QC2D**Lab Code:** K1301603-001D

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Aluminum	20	4910		4840		1.4		6010C
Antimony		1.5	U	1.6	U			6010C
Arsenic		1.5	U	1.8		200.0		6010C
Barium	20	67.6		61.0		10.3		6010C
Beryllium		0.4		0.4		0.0		6010C
Cadmium		0.1	U	0.1	U			6010C
Calcium	20	2650		2420		9.1		6010C
Chromium	20	8.3		8.3		0.0		6010C
Cobalt	20	4.9		4.9		0.0		6010C
Copper	20	6.8		6.8		0.0		6010C
Iron	20	10600		10400		1.9		6010C
Lead		3.2		3.1		3.2		6010C
Magnesium	20	2480		2390		3.7		6010C
Manganese	20	146		145		0.7		6010C
Nickel	20	8.8		8.6		2.3		6010C
Potassium	20	630		614		2.6		6010C
Selenium		3.1	U	3.2	U			6010C
Silver		0.4	U	0.4	U			6010C
Sodium	20	361		352		2.5		6010C
Thallium		1.5	U	1.6	U			6010C
Vanadium	20	27.6		27.4		0.7		6010C
Zinc	20	32.6		31.9		2.2		6010C

An empty field in the Control Limit column indicates the control limit is not applicable.

Metals

- 7 -

LABORATORY CONTROL SAMPLE

Client: Ash Creek Associates, Inc.

Service Request: K1301620

Project No.: 320001975-00.001

Project Name: Pier 99

Aqueous LCS Source:

Solid LCS Source: ERA D076-540

Analyte	Aqueous (ug/L)			Solid (mg/kg)					
	True	Found	%R	True	Found	C	Limits	%R	
Aluminum				8400	6530		47	152	77.7
Antimony				93.3	54.9		25	199	58.8
Arsenic				94.5	93.6		82	117	99.0
Barium				167	152		84	116	91.0
Beryllium				57.6	54.8		83	117	95.1
Cadmium				60.5	52.2		83	117	86.3
Calcium				6140	5720		83	117	93.2
Chromium				70.4	61.0		82	118	86.6
Cobalt				102	95.4		83	117	93.5
Copper				79.6	75.3		84	116	94.6
Iron				12500	10500		51	150	84.0
Lead				91.8	82.3		82	118	89.7
Magnesium				2580	2360		76	124	91.5
Manganese				283	251		82	117	88.7
Mercury				3.73	3.61		72	128	96.8
Nickel				57.6	50.6		83	117	87.8
Potassium				2490	2170		70	130	87.1
Selenium				86.4	79.5		80	120	92.0
Silver				34.4	33.2		66	134	96.5
Sodium				215	191		67	133	88.8
Thallium				120	112		78	121	93.3
Vanadium				57	52.2		74	126	91.6
Zinc				140	124		82	118	88.6

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Organochlorine Pesticides

Sample Name: SS-11
Lab Code: K1301620-001
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
beta-BHC	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
delta-BHC	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Heptachlor	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Aldrin	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Heptachlor Epoxide	ND	Ui	12	5	02/27/13	03/14/13	KWG1302031	
gamma-Chlordane†	12	PD	4.9	5	02/27/13	03/14/13	KWG1302031	
Endosulfan I	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
alpha-Chlordane	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Dieldrin	ND	Ui	17	5	02/27/13	03/14/13	KWG1302031	
4,4'-DDE	16	PD	4.9	5	02/27/13	03/14/13	KWG1302031	
Endrin	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Endosulfan II	ND	Ui	19	5	02/27/13	03/14/13	KWG1302031	
4,4'-DDD	170	D	9.7	10	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Endosulfan Sulfate	11	D	4.9	5	02/27/13	03/14/13	KWG1302031	
4,4'-DDT	130	D	9.7	10	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	U	4.9	5	02/27/13	03/14/13	KWG1302031	
Methoxychlor	5.5	PD	4.9	5	02/27/13	03/14/13	KWG1302031	
Toxaphene	ND	Ui	720	10	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	71	20-116	03/14/13	Acceptable
Decachlorobiphenyl	60	22-130	03/14/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Organochlorine Pesticides

Sample Name: SS-12
Lab Code: K1301620-002
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	1.8	P	1.1	1	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	Ui	1.2	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	1.6		1.1	1	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	Ui	1.8	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	1.4	P	1.1	1	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	Ui	1.4	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	Ui	12	1	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	Ui	1.5	1	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	U	1.1	1	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	Ui	72	1	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	67	20-116	03/07/13	Acceptable
Decachlorobiphenyl	88	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Organochlorine Pesticides

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	Ui	3.4	2	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	16	PD	1.7	2	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	Ui	4.3	2	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	Ui	26	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	99	D	8.5	10	02/27/13	03/07/13	KWG1302031	
Endrin	ND	Ui	2.4	2	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	Ui	5.3	2	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	1300	D	85	100	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	1.7	2	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	100	D	8.5	10	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	1600	D	85	100	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	Ui	6.8	2	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	Ui	6.5	2	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	Ui	750	10	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	68	20-116	03/07/13	Acceptable
Decachlorobiphenyl	91	22-130	03/14/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: NA
Date Received: NA

Organochlorine Pesticides

Sample Name: Method Blank
Lab Code: KWG1302031-7
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
alpha-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
beta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-BHC (Lindane)	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
delta-BHC	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Aldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Heptachlor Epoxide	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
gamma-Chlordane†	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan I	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
alpha-Chlordane	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Dieldrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDE	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan II	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDD	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Aldehyde	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endosulfan Sulfate	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
4,4'-DDT	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Endrin Ketone	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Methoxychlor	ND	U	0.65	1	02/27/13	03/07/13	KWG1302031	
Toxaphene	ND	U	33	1	02/27/13	03/07/13	KWG1302031	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Tetrachloro-m-xylene	62	20-116	03/07/13	Acceptable
Decachlorobiphenyl	62	22-130	03/07/13	Acceptable

† Analyte Comments

gamma-Chlordane For this analyte (CAS Registry No. 5103-74-2), USEPA has corrected the name to be beta-Chlordane, also known as trans-Chlordane.

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620

Surrogate Recovery Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
Batch QC	K1301490-005	57	63
SS-11	K1301620-001	71 D	60 D
SS-12	K1301620-002	67	88
SS-13	K1301620-003	68 D	91 D
Method Blank	KWG1302031-7	62	62
Batch QCMS	KWG1302031-1	60	64
Batch QCDMS	KWG1302031-2	61	69
Batch QCMS	KWG1302031-4	60	64
Batch QCDMS	KWG1302031-5	44	56
Lab Control Sample	KWG1302031-3	62	64

Surrogate Recovery Control Limits (%)

Sur1 =	Tetrachloro-m-xylene	20-116
Sur2 =	Decachlorobiphenyl	22-130

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/06/2013 -
 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	Batch QCMS KWG1302031-1 Matrix Spike			Batch QCDMS KWG1302031-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
alpha-BHC	ND	11.2	19.6	57	9.97	19.7	51	23-133	11	40
beta-BHC	ND	10.0	19.6	51	8.88	19.7	45	22-142	12	40
gamma-BHC (Lindane)	ND	12.0	19.6	61	11.4	19.7	58	26-135	5	40
delta-BHC	ND	12.7	19.6	65	11.3	19.7	57	25-148	11	40
Heptachlor	ND	11.4	19.6	58	9.97	19.7	51	21-136	14	40
Aldrin	ND	10.4	19.6	53	9.33	19.7	47	22-135	11	40
Heptachlor Epoxide	ND	12.1	19.6	62 #	11.8	19.7	60 #	25-129	2	40
gamma-Chlordane	1.5	11.9	19.6	53	11.1	19.7	49	24-133	7	40
Endosulfan I	ND	10.8	19.6	55	9.50	19.7	48	15-119	13	40
alpha-Chlordane	ND	10.8	19.6	55	9.43	19.7	48	24-132	14	40
Dieldrin	ND	11.8	19.6	60 #	9.96	19.7	50 #	26-133	17	40
4,4'-DDE	ND	13.1	19.6	67	13.3	19.7	67	22-142	1	40
Endrin	ND	10.4	19.6	53	9.45	19.7	48	22-145	10	40
Endosulfan II	ND	12.1	19.6	62 #	9.66	19.7	49 #	13-129	23	40
4,4'-DDD	6.3	16.2	19.6	51	17.8	19.7	58	19-143	9	40
Endrin Aldehyde	ND	10.6	19.6	54	9.68	19.7	49	10-129	9	40
Endosulfan Sulfate	ND	12.1	19.6	62	11.7	19.7	59	20-134	3	40
4,4'-DDT	ND	12.9	19.6	66 #	13.3	19.7	67 #	19-154	2	40
Endrin Ketone	ND	11.2	19.6	57	9.90	19.7	50	19-139	12	40
Methoxychlor	ND	12.7	19.6	65 #	10.7	19.7	54 #	24-151	17	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Organochlorine Pesticides

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Analyte Name	Sample Result	Batch QCMS KWG1302031-4 Matrix Spike			Batch QCDMS KWG1302031-5 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Toxaphene	ND	64.1	99.2	65 #	123	98.4	125 #	20-155	63 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Lab Control Spike Summary
Organochlorine Pesticides

Extraction Method: EPA 3541
Analysis Method: 8081B

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302031

Lab Control Sample
 KWG1302031-3
 Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
alpha-BHC	14.1	20.0	71	36-139
beta-BHC	12.4	20.0	62	38-142
gamma-BHC (Lindane)	13.9	20.0	70	40-142
delta-BHC	14.3	20.0	72	48-145
Heptachlor	13.3	20.0	67	39-135
Aldrin	12.5	20.0	63	37-134
Heptachlor Epoxide	13.3	20.0	66	45-118
gamma-Chlordane	13.0	20.0	65	41-135
Endosulfan I	13.4	20.0	67	35-121
alpha-Chlordane	13.2	20.0	66	41-134
Dieldrin	13.8	20.0	69	46-136
4,4'-DDE	13.3	20.0	66	46-141
Endrin	11.8	20.0	59	40-152
Endosulfan II	13.7	20.0	68	39-128
4,4'-DDD	13.5	20.0	68	46-146
Endrin Aldehyde	12.3	20.0	61	32-132
Endosulfan Sulfate	13.4	20.0	67	43-138
4,4'-DDT	13.5	20.0	67	46-151
Endrin Ketone	12.8	20.0	64	47-135
Methoxychlor	13.7	20.0	69	42-147
Toxaphene	88.2	100	88	53-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-11
Lab Code: K1301620-001
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1221	ND	U	200	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1232	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1242	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1248	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1254	950	D	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1260	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1262	ND	U	97	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1268	ND	U	97	10	02/27/13	03/08/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	94	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-12
Lab Code: K1301620-002
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1221	ND	U	21	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1232	ND	U	11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1242	ND	U	11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1248	ND	U	11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1254	69		11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1260	41		11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1262	ND	U	11	1	02/27/13	03/07/13	KWG1302032	
Aroclor 1268	ND	U	11	1	02/27/13	03/07/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	124	35-133	03/07/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polychlorinated Biphenyls (PCBs)

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1221	ND	U	170	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1232	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1242	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1248	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1254	1600	D	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1260	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1262	ND	U	85	10	02/27/13	03/08/13	KWG1302032	
Aroclor 1268	ND	U	85	10	02/27/13	03/08/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	117	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: NA
Date Received: NA

Polychlorinated Biphenyls (PCBs)

Sample Name: Method Blank
Lab Code: KWG1302032-4
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Aroclor 1016	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1221	ND	U	13	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1232	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1242	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1248	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1254	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1260	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1262	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	
Aroclor 1268	ND	U	6.5	1	02/27/13	03/08/13	KWG1302032	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Decachlorobiphenyl	108	35-133	03/08/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620

Surrogate Recovery Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>
Batch QC	K1301490-005	96
SS-11	K1301620-001	94 D
SS-12	K1301620-002	124
SS-13	K1301620-003	117 D
Method Blank	KWG1302032-4	108
Batch QCMS	KWG1302032-1	93
Batch QCDMS	KWG1302032-2	91
Lab Control Sample	KWG1302032-3	92

Surrogate Recovery Control Limits (%)

Sur1 = Decachlorobiphenyl 35-133

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/07/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polychlorinated Biphenyls (PCBs)

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Analyte Name	Sample Result	Batch QCMS KWG1302032-1 Matrix Spike			Batch QCDMS KWG1302032-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Aroclor 1016	ND	214	197	109	226	199	113	27-128	5	40
Aroclor 1260	70	247	197	90	236	199	83	29-131	5	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/08/2013

Lab Control Spike Summary
Polychlorinated Biphenyls (PCBs)

Extraction Method: EPA 3541
Analysis Method: 8082A

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302032

Lab Control Sample
KWG1302032-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Aroclor 1016	183	200	92	37-121
Aroclor 1260	181	200	91	42-123

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-11
Lab Code: K1301620-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Phenol	560	D	150	5	03/08/13	03/12/13	KWG1302098	
2-Chlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,3-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,4-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,2-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Benzyl Alcohol	4500	D	200	10	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroisopropyl) Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Methylphenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachloroethane	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
N-Nitrosodi-n-propylamine	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Methylphenol†	190	D	50	5	03/08/13	03/12/13	KWG1302098	
Nitrobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Isophorone	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Nitrophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4-Dimethylphenol	ND	U	250	5	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroethoxy)methane	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4-Dichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Benzoic Acid	ND	U	1000	5	03/08/13	03/12/13	KWG1302098	*
1,2,4-Trichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Chloroaniline	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorobutadiene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Chloro-3-methylphenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorocyclopentadiene	ND	U	250	5	03/08/13	03/12/13	KWG1302098	
2,4,6-Trichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4,5-Trichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Chloronaphthalene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Nitroaniline	ND	U	100	5	03/08/13	03/12/13	KWG1302098	
Dimethyl Phthalate	7500	D	100	10	03/08/13	03/12/13	KWG1302098	
2,6-Dinitrotoluene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
3-Nitroaniline	ND	U	100	5	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrophenol	ND	U	1000	5	03/08/13	03/12/13	KWG1302098	
4-Nitrophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrotoluene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-11
Lab Code: K1301620-001
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Diethyl Phthalate	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Nitroaniline	260	D	100	5	03/08/13	03/12/13	KWG1302098	
2-Methyl-4,6-dinitrophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
N-Nitrosodiphenylamine	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Bromophenyl Phenyl Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Pentachlorophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
Di-n-butyl Phthalate	1400	D	100	5	03/08/13	03/12/13	KWG1302098	
Butyl Benzyl Phthalate	470	D	50	5	03/08/13	03/12/13	KWG1302098	
3,3'-Dichlorobenzidine	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
Bis(2-ethylhexyl) Phthalate	2500	D	500	5	03/08/13	03/12/13	KWG1302098	
Di-n-octyl Phthalate	ND	U	50	5	03/08/13	03/12/13	KWG1302098	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	53	11-80	03/12/13	Acceptable
Phenol-d6	57	20-86	03/12/13	Acceptable
Nitrobenzene-d5	53	27-91	03/12/13	Acceptable
2-Fluorobiphenyl	78	25-97	03/12/13	Acceptable
2,4,6-Tribromophenol	97	10-119	03/12/13	Acceptable
Terphenyl-d14	67	33-129	03/12/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-12
Lab Code: K1301620-002
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Phenol	ND	U	150	5	03/08/13	03/12/13	KWG1302098	
2-Chlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,3-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,4-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
1,2-Dichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Benzyl Alcohol	ND	U	99	5	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroisopropyl) Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Methylphenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachloroethane	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
N-Nitrosodi-n-propylamine	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Methylphenol†	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Nitrobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Isophorone	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Nitrophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4-Dimethylphenol	ND	U	250	5	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroethoxy)methane	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4-Dichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Benzoic Acid	ND	U	1000	5	03/08/13	03/12/13	KWG1302098	*
1,2,4-Trichlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Chloroaniline	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorobutadiene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Chloro-3-methylphenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorocyclopentadiene	ND	U	250	5	03/08/13	03/12/13	KWG1302098	
2,4,6-Trichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2,4,5-Trichlorophenol	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Chloronaphthalene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
2-Nitroaniline	ND	U	99	5	03/08/13	03/12/13	KWG1302098	
Dimethyl Phthalate	530	D	50	5	03/08/13	03/12/13	KWG1302098	
2,6-Dinitrotoluene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
3-Nitroaniline	ND	U	99	5	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrophenol	ND	U	1000	5	03/08/13	03/12/13	KWG1302098	
4-Nitrophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrotoluene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-12
Lab Code: K1301620-002
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Diethyl Phthalate	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Nitroaniline	ND	U	99	5	03/08/13	03/12/13	KWG1302098	
2-Methyl-4,6-dinitrophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
N-Nitrosodiphenylamine	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
4-Bromophenyl Phenyl Ether	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Hexachlorobenzene	ND	U	50	5	03/08/13	03/12/13	KWG1302098	
Pentachlorophenol	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
Di-n-butyl Phthalate	ND	U	99	5	03/08/13	03/12/13	KWG1302098	
Butyl Benzyl Phthalate	150	D	50	5	03/08/13	03/12/13	KWG1302098	
3,3'-Dichlorobenzidine	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
Bis(2-ethylhexyl) Phthalate	ND	U	500	5	03/08/13	03/12/13	KWG1302098	
Di-n-octyl Phthalate	ND	U	50	5	03/08/13	03/12/13	KWG1302098	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	44	11-80	03/12/13	Acceptable
Phenol-d6	43	20-86	03/12/13	Acceptable
Nitrobenzene-d5	44	27-91	03/12/13	Acceptable
2-Fluorobiphenyl	66	25-97	03/12/13	Acceptable
2,4,6-Tribromophenol	88	10-119	03/12/13	Acceptable
Terphenyl-d14	65	33-129	03/12/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Phenol	ND	U	750	25	03/08/13	03/12/13	KWG1302098	
2-Chlorophenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
1,3-Dichlorobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
1,4-Dichlorobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
1,2-Dichlorobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Benzyl Alcohol	ND	U	500	25	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroisopropyl) Ether	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2-Methylphenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Hexachloroethane	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
N-Nitrosodi-n-propylamine	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
4-Methylphenol†	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Nitrobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Isophorone	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2-Nitrophenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2,4-Dimethylphenol	ND	U	1300	25	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroethoxy)methane	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2,4-Dichlorophenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Benzoic Acid	ND	U	5000	25	03/08/13	03/12/13	KWG1302098	*
1,2,4-Trichlorobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
4-Chloroaniline	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Hexachlorobutadiene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
4-Chloro-3-methylphenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Hexachlorocyclopentadiene	ND	U	1300	25	03/08/13	03/12/13	KWG1302098	
2,4,6-Trichlorophenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2,4,5-Trichlorophenol	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2-Chloronaphthalene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
2-Nitroaniline	ND	U	500	25	03/08/13	03/12/13	KWG1302098	
Dimethyl Phthalate	990	D	250	25	03/08/13	03/12/13	KWG1302098	
2,6-Dinitrotoluene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
3-Nitroaniline	ND	U	500	25	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrophenol	ND	U	5000	25	03/08/13	03/12/13	KWG1302098	
4-Nitrophenol	ND	U	2500	25	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrotoluene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Diethyl Phthalate	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
4-Nitroaniline	ND	U	500	25	03/08/13	03/12/13	KWG1302098	
2-Methyl-4,6-dinitrophenol	ND	U	2500	25	03/08/13	03/12/13	KWG1302098	
N-Nitrosodiphenylamine	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
4-Bromophenyl Phenyl Ether	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Hexachlorobenzene	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
Pentachlorophenol	ND	U	2500	25	03/08/13	03/12/13	KWG1302098	
Di-n-butyl Phthalate	ND	U	500	25	03/08/13	03/12/13	KWG1302098	
Butyl Benzyl Phthalate	ND	U	250	25	03/08/13	03/12/13	KWG1302098	
3,3'-Dichlorobenzidine	ND	U	2500	25	03/08/13	03/12/13	KWG1302098	
Bis(2-ethylhexyl) Phthalate	3400	D	2500	25	03/08/13	03/12/13	KWG1302098	
Di-n-octyl Phthalate	ND	U	250	25	03/08/13	03/12/13	KWG1302098	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	46	11-80	03/12/13	Acceptable
Phenol-d6	43	20-86	03/12/13	Acceptable
Nitrobenzene-d5	38	27-91	03/12/13	Acceptable
2-Fluorobiphenyl	75	25-97	03/12/13	Acceptable
2,4,6-Tribromophenol	74	10-119	03/12/13	Acceptable
Terphenyl-d14	69	33-129	03/12/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1302098-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Bis(2-chloroethyl) Ether	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
Phenol	ND	U	19	1	03/08/13	03/12/13	KWG1302098	
2-Chlorophenol	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
1,3-Dichlorobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
1,4-Dichlorobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
1,2-Dichlorobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Benzyl Alcohol	ND	U	13	1	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroisopropyl) Ether	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
2-Methylphenol	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
Hexachloroethane	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
N-Nitrosodi-n-propylamine	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
4-Methylphenol†	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
Nitrobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Isophorone	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
2-Nitrophenol	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
2,4-Dimethylphenol	ND	U	31	1	03/08/13	03/12/13	KWG1302098	
Bis(2-chloroethoxy)methane	ND	U	7.5	1	03/08/13	03/12/13	KWG1302098	
2,4-Dichlorophenol	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Benzoic Acid	ND	U	200	1	03/08/13	03/12/13	KWG1302098	*
1,2,4-Trichlorobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
4-Chloroaniline	ND	U	10	1	03/08/13	03/12/13	KWG1302098	
Hexachlorobutadiene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
4-Chloro-3-methylphenol	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Hexachlorocyclopentadiene	ND	U	50	1	03/08/13	03/12/13	KWG1302098	
2,4,6-Trichlorophenol	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
2,4,5-Trichlorophenol	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
2-Chloronaphthalene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
2-Nitroaniline	ND	U	13	1	03/08/13	03/12/13	KWG1302098	
Dimethyl Phthalate	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
2,6-Dinitrotoluene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
3-Nitroaniline	ND	U	13	1	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrophenol	ND	U	200	1	03/08/13	03/12/13	KWG1302098	
4-Nitrophenol	ND	U	61	1	03/08/13	03/12/13	KWG1302098	
2,4-Dinitrotoluene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: NA
Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: KWG1302098-5
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Chlorophenyl Phenyl Ether	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Diethyl Phthalate	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
4-Nitroaniline	ND	U	13	1	03/08/13	03/12/13	KWG1302098	
2-Methyl-4,6-dinitrophenol	ND	U	61	1	03/08/13	03/12/13	KWG1302098	
N-Nitrosodiphenylamine	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
4-Bromophenyl Phenyl Ether	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Hexachlorobenzene	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
Pentachlorophenol	ND	U	61	1	03/08/13	03/12/13	KWG1302098	
Di-n-butyl Phthalate	ND	U	13	1	03/08/13	03/12/13	KWG1302098	
Butyl Benzyl Phthalate	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	
3,3'-Dichlorobenzidine	ND	U	61	1	03/08/13	03/12/13	KWG1302098	
Bis(2-ethylhexyl) Phthalate	ND	U	61	1	03/08/13	03/12/13	KWG1302098	
Di-n-octyl Phthalate	ND	U	6.1	1	03/08/13	03/12/13	KWG1302098	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	49	11-80	03/12/13	Acceptable
Phenol-d6	54	20-86	03/12/13	Acceptable
Nitrobenzene-d5	59	27-91	03/12/13	Acceptable
2-Fluorobiphenyl	63	25-97	03/12/13	Acceptable
2,4,6-Tribromophenol	69	10-119	03/12/13	Acceptable
Terphenyl-d14	69	33-129	03/12/13	Acceptable

† Analyte Comments

4-Methylphenol This analyte cannot be separated from 3-Methylphenol.

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620

Surrogate Recovery Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
SS-11	K1301620-001	53 D	57 D	53 D	78 D	97 D	67 D
SS-12	K1301620-002	44 D	43 D	44 D	66 D	88 D	65 D
SS-13	K1301620-003	46 D	43 D	38 D	75 D	74 D	69 D
Method Blank	KWG1302098-5	49	54	59	63	69	69
SS-13MS	KWG1302098-1	58 D	58 D	51 D	83 D	72 D	67 D
SS-13DMS	KWG1302098-2	44 D	53 D	45 D	73 D	81 D	69 D
Lab Control Sample	KWG1302098-3	55	42	38	47	78	57
Duplicate Lab Control Sample	KWG1302098-4	41	43	46	51	72	48

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	11-80	Sur5 = 2,4,6-Tribromophenol	10-119
Sur2 = Phenol-d6	20-86	Sur6 = Terphenyl-d14	33-129
Sur3 = Nitrobenzene-d5	27-91		
Sur4 = 2-Fluorobiphenyl	25-97		

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 03/08/2013
Date Analyzed: 03/12/2013

Matrix Spike/Duplicate Matrix Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302098

Analyte Name	Sample Result	SS-13MS KWG1302098-1 Matrix Spike			SS-13DMS KWG1302098-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Phenol	ND	188	250	75	154	250	62	15-98	20	40
2-Chlorophenol	ND	151	250	60	131	250	52	19-92	14	40
1,4-Dichlorobenzene	ND	151	250	60	139	250	56	19-93	8	40
Hexachloroethane	ND	156	250	63	138	250	55	10-96	12	40
N-Nitrosodi-n-propylamine	ND	175	250	70	128	250	51	14-104	31	40
1,2,4-Trichlorobenzene	ND	208	250	83	198	250	79	23-99	5	40
4-Chloro-3-methylphenol	ND	192	250	77	198	250	79	12-106	3	40
2-Chloronaphthalene	ND	182	250	73	174	250	70	24-97	4	40
4-Nitrophenol	ND	ND	250	0 *	ND	250	0 *	11-131	NC	40
2,4-Dinitrotoluene	ND	171	250	68	145	250	58	25-114	17	40
Diethyl Phthalate	ND	213	250	85	199	250	80	10-135	6	40
4-Bromophenyl Phenyl Ether	ND	230	250	92	270	250	108	30-108	16	40
Pentachlorophenol	ND	484	250	194 *	446	250	179 *	10-123	8	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 03/08/2013
Date Analyzed: 03/12/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302098

Analyte Name	Lab Control Sample KWG1302098-3 Lab Control Spike			Duplicate Lab Control Sample KWG1302098-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Bis(2-chloroethyl) Ether	132	250	53	110	250	44	29-93	18	40
Phenol	110	250	44	102	250	41	27-97	7	40
2-Chlorophenol	132	250	53	114	250	45	28-95	15	40
1,3-Dichlorobenzene	136	250	54	117	250	47	27-88	15	40
1,4-Dichlorobenzene	130	250	52	115	250	46	28-89	12	40
1,2-Dichlorobenzene	123	250	49	116	250	46	27-91	6	40
Benzyl Alcohol	84.4	250	34	107	250	43	25-103	23	40
Bis(2-chloroisopropyl) Ether	97.0	250	39	95.5	250	38	22-95	2	40
2-Methylphenol	101	250	40	112	250	45	18-95	10	40
Hexachloroethane	104	250	42	114	250	46	26-90	9	40
N-Nitrosodi-n-propylamine	89.0	250	36	109	250	44	25-103	20	40
4-Methylphenol	97.1	250	39	115	250	46	17-99	17	40
Nitrobenzene	92.7	250	37	105	250	42	26-100	13	40
Isophorone	142	250	57	119	250	48	31-95	18	40
2-Nitrophenol	161	250	64	127	250	51	29-96	24	40
2,4-Dimethylphenol	473	750	63	441	750	59	10-93	7	40
Bis(2-chloroethoxy)methane	140	250	56	118	250	47	30-95	17	40
2,4-Dichlorophenol	157	250	63	134	250	54	31-96	16	40
Benzoic Acid	183	750	24	118	750	16	10-96	43 *	40
1,2,4-Trichlorobenzene	149	250	59	128	250	51	27-94	15	40
4-Chloroaniline	156	250	62	124	250	50	30-86	22	40
Hexachlorobutadiene	162	250	65	136	250	54	25-96	18	40
4-Chloro-3-methylphenol	208	250	83	137	250	55	28-101	41 *	40
Hexachlorocyclopentadiene	74.9	250	30	88.6	250	35	18-71	17	40
2,4,6-Trichlorophenol	139	250	56	132	250	53	31-97	5	40
2,4,5-Trichlorophenol	146	250	59	135	250	54	33-97	8	40
2-Chloronaphthalene	130	250	52	122	250	49	31-95	6	40
2-Nitroaniline	152	250	61	128	250	51	34-104	17	40
Dimethyl Phthalate	168	250	67	141	250	56	39-100	18	40
2,6-Dinitrotoluene	168	250	67	141	250	56	38-102	17	40
3-Nitroaniline	158	250	63	122	250	49	38-97	26	40
2,4-Dinitrophenol	178	250	71	141	250	56	10-91	24	40
4-Nitrophenol	180	250	72	122	250	49	34-103	38	40
2,4-Dinitrotoluene	199	250	79	149	250	60	41-104	29	40
4-Chlorophenyl Phenyl Ether	166	250	67	128	250	51	33-95	26	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 03/08/2013
Date Analyzed: 03/12/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541
Analysis Method: 8270D

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1302098

Analyte Name	Lab Control Sample KWG1302098-3 Lab Control Spike			Duplicate Lab Control Sample KWG1302098-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Diethyl Phthalate	181	250	72	134	250	54	41-100	30	40
4-Nitroaniline	169	250	68	122	250	49	37-104	32	40
2-Methyl-4,6-dinitrophenol	184	250	74	138	250	55	23-99	28	40
N-Nitrosodiphenylamine	184	250	74	137	250	55	36-96	29	40
4-Bromophenyl Phenyl Ether	189	250	75	147	250	59	35-101	25	40
Hexachlorobenzene	192	250	77	152	250	61	40-99	23	40
Pentachlorophenol	145	250	58	125	250	50	21-97	15	40
Di-n-butyl Phthalate	184	250	74	152	250	61	42-109	19	40
Butyl Benzyl Phthalate	189	250	76	143	250	57	45-111	28	40
3,3'-Dichlorobenzidine	177	250	71	142	250	57	37-99	22	40
Bis(2-ethylhexyl) Phthalate	189	250	76	141	250	56	47-110	29	40
Di-n-octyl Phthalate	199	250	80	150	250	60	45-109	28	40

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-11
Lab Code: K1301620-001
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	18		3.7	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	13		3.7	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	7.9		3.7	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	16		3.7	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	8.7		3.7	1	02/27/13	03/01/13	KWG1301787	
Fluorene	12		3.7	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	120		3.7	1	02/27/13	03/01/13	KWG1301787	
Anthracene	26		3.7	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	300		3.7	1	02/27/13	03/01/13	KWG1301787	
Pyrene	280		3.7	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	190		3.7	1	02/27/13	03/01/13	KWG1301787	
Chrysene	280		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	420		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	140		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	260		3.7	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	280		3.7	1	02/27/13	03/01/13	KWG1301787	*
Dibenz(a,h)anthracene	60		3.7	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	250		3.7	1	02/27/13	03/01/13	KWG1301787	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	72	17-104	03/01/13	Acceptable
Fluoranthene-d10	79	27-106	03/01/13	Acceptable
Terphenyl-d14	68	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-12
Lab Code: K1301620-002
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	8.7		4.1	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	10		4.1	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	4.1	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	11		4.1	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	4.5		4.1	1	02/27/13	03/01/13	KWG1301787	
Fluorene	7.2		4.1	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	99		4.1	1	02/27/13	03/01/13	KWG1301787	
Anthracene	20		4.1	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	210		4.1	1	02/27/13	03/01/13	KWG1301787	
Pyrene	200		4.1	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	120		4.1	1	02/27/13	03/01/13	KWG1301787	
Chrysene	150		4.1	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	180		4.1	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	73		4.1	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	160		4.1	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	140		4.1	1	02/27/13	03/01/13	KWG1301787	*
Dibenz(a,h)anthracene	31		4.1	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	130		4.1	1	02/27/13	03/01/13	KWG1301787	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	67	17-104	03/01/13	Acceptable
Fluoranthene-d10	73	27-106	03/01/13	Acceptable
Terphenyl-d14	62	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: 02/22/2013
Date Received: 02/25/2013

Polynuclear Aromatic Hydrocarbons

Sample Name: SS-13
Lab Code: K1301620-003
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	36		3.3	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	23		3.3	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	22		3.3	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	13		3.3	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	14		3.3	1	02/27/13	03/01/13	KWG1301787	
Fluorene	18		3.3	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	190		3.3	1	02/27/13	03/01/13	KWG1301787	
Anthracene	37		3.3	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	270		3.3	1	02/27/13	03/01/13	KWG1301787	
Pyrene	260		3.3	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	120		3.3	1	02/27/13	03/01/13	KWG1301787	
Chrysene	220		3.3	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	280		3.3	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	93		3.3	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	190		3.3	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	290		3.3	1	02/27/13	03/01/13	KWG1301787	*
Dibenz(a,h)anthracene	64		3.3	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	270		3.3	1	02/27/13	03/01/13	KWG1301787	

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	73	17-104	03/01/13	Acceptable
Fluoranthene-d10	86	27-106	03/01/13	Acceptable
Terphenyl-d14	67	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Results

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Collected: NA
Date Received: NA

Polynuclear Aromatic Hydrocarbons

Sample Name: Method Blank
Lab Code: KWG1301787-5
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
2-Methylnaphthalene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Acenaphthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenzofuran	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluorene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Phenanthrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benz(a)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Chrysene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(b)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(k)fluoranthene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(a)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Indeno(1,2,3-cd)pyrene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Dibenz(a,h)anthracene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	
Benzo(g,h,i)perylene	ND	U	2.5	1	02/27/13	03/01/13	KWG1301787	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	17-104	03/01/13	Acceptable
Fluoranthene-d10	72	27-106	03/01/13	Acceptable
Terphenyl-d14	66	35-109	03/01/13	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: PERCENT
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>	<u>Sur3</u>
Batch QC	K1301490-005	63	70	60
SS-11	K1301620-001	72	79	68
SS-12	K1301620-002	67	73	62
SS-13	K1301620-003	73	86	67
Method Blank	KWG1301787-5	74	72	66
Batch QCMS	KWG1301787-1	69	79	67
Batch QCDMS	KWG1301787-2	68	76	65
Lab Control Sample	KWG1301787-3	69	70	62
Duplicate Lab Control Sample	KWG1301787-4	64	65	58

Surrogate Recovery Control Limits (%)

Sur1 = Fluorene-d10	17-104
Sur2 = Fluoranthene-d10	27-106
Sur3 = Terphenyl-d14	35-109

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name: Batch QC
Lab Code: K1301490-005
Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Sample Result	Batch QCMS KWG1301787-1 Matrix Spike			Batch QCDMS KWG1301787-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	18	362	496	69	366	496	70	23-114	1	40
2-Methylnaphthalene	9.4	374	496	73	375	496	74	24-115	0	40
Acenaphthylene	ND	398	496	80	379	496	76	32-117	5	40
Acenaphthene	7.2	388	496	77	414	496	82	33-118	6	40
Dibenzofuran	6.5	397	496	79	521	496	104	34-131	27	40
Fluorene	8.2	421	496	83	457	496	90	33-125	8	40
Phenanthrene	73	514	496	89	1290	496	244 *	29-125	86 *	40
Anthracene	9.0	447	496	88	550	496	109	30-127	21	40
Fluoranthene	220	703	496	98	2280E	496	416 *	35-139	106 *	40
Pyrene	200	717	496	103	2000E	496	361 *	27-134	94 *	40
Benz(a)anthracene	100	590	496	99	1430	496	268 *	35-122	83 *	40
Chrysene	150	615	496	95	1520	496	277 *	36-126	85 *	40
Benzo(b)fluoranthene	170	643	496	95	1610	496	290 *	35-124	86 *	40
Benzo(k)fluoranthene	72	531	496	92	876	496	162 *	38-124	49 *	40
Benzo(a)pyrene	98	606	496	102	1410	496	263 *	37-123	79 *	40
Indeno(1,2,3-cd)pyrene	98	627	496	106	1170	496	216 *	28-133	60 *	40
Dibenz(a,h)anthracene	18	460	496	89	561	496	109	32-125	20	40
Benzo(g,h,i)perylene	84	558	496	95	938	496	172 *	33-128	51 *	40

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

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

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

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Ash Creek Associates, Inc.
Project: Pier 99/320001975-00.001
Sample Matrix: Soil

Service Request: K1301620
Date Extracted: 02/27/2013
Date Analyzed: 03/01/2013

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3541
Analysis Method: 8270D SIM

Units: ug/Kg
Basis: Dry
Level: Low
Extraction Lot: KWG1301787

Analyte Name	Lab Control Sample KWG1301787-3 Lab Control Spike			Duplicate Lab Control Sample KWG1301787-4 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Naphthalene	385	500	77	354	500	71	32-124	8	40
2-Methylnaphthalene	381	500	76	349	500	70	27-126	9	40
Acenaphthylene	408	500	82	377	500	75	38-126	8	40
Acenaphthene	402	500	80	368	500	74	39-124	9	40
Dibenzofuran	406	500	81	369	500	74	41-130	10	40
Fluorene	414	500	83	375	500	75	39-129	10	40
Phenanthrene	390	500	78	351	500	70	39-123	11	40
Anthracene	416	500	83	379	500	76	38-130	9	40
Fluoranthene	426	500	85	381	500	76	39-135	11	40
Pyrene	445	500	89	410	500	82	39-134	8	40
Benz(a)anthracene	424	500	85	378	500	76	46-120	11	40
Chrysene	440	500	88	401	500	80	49-120	9	40
Benzo(b)fluoranthene	434	500	87	396	500	79	51-121	9	40
Benzo(k)fluoranthene	470	500	94	427	500	85	55-120	10	40
Benzo(a)pyrene	472	500	94	428	500	86	49-122	10	40
Indeno(1,2,3-cd)pyrene	455	500	91	404	500	81	40-128	12	40
Dibenz(a,h)anthracene	391	500	78	335	500	67	43-125	15	40
Benzo(g,h,i)perylene	439	500	88	396	500	79	49-122	10	40

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

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

Appendix G

EE/CA Cost Estimates

Table G-1
Cleanup Action Alternative Cost Estimates
Pier 99 - Portland Site

Present Worth Costs @ 5%

Cost Item	Unit Cost	Units	Extension	Notes
OU1 - Remove Gravel Filter, Clean and Plug Discharge Line				
Filter Excavation and Disposal				
Equipment mobilization	\$5,000 /lump sum	1 each	\$5,000	
Filter Rock excavation	\$6.5 /cy	220 cy	\$1,400	Assumed depth of 3.5 feet
Rock screening	\$8 /cy	220 cy	\$1,800	
Disposal of screened soil fraction	\$90 /ton	75 tons	\$6,800	20% of total; Assumed non-hazardous
Filter Rock makeup volume (new)	\$28 /cy	44 cy	\$1,200	
Filter Rock backfill	\$2.5 /cy	220 cy	\$600	
Confirmation Sampling Analyses	\$170 /sample	11 each	\$1,900	Metals - 11 samples
Confirmation Sampling Analyses	\$720 /sample	2 each	\$1,400	PAHs, pesticides, PCBs, TBT - 2 samples
Construction oversight	\$2,800 /day	3 day	\$8,400	
		Total Excavation	\$28,500	
Discharge Pipe Cleanout and Plug Pipe, E.O.P. Removal				
Equipment mobilization	\$500 /lump sum	1 each	\$500	
Cleanout	\$120 /hr	6 hours	\$700	
Pipe End Excavation	\$15 /cy	10 cy	\$200	Assumed depth of 1.0 feet
End of Pipe Confirmation Sampling Analyses	\$170 /sample	5 each	\$900	RCRA-8 for 5 samples
End of Pipe Confirmation Sampling Analyses	\$720 /sample	1 each	\$700	Expanded analysis for 1 samples
Excavation Disposal	\$90 /ton	17 tons	\$1,500	
Excavation Backfill	\$30 /cy	10 cy	\$300	
Cleanout and Plug	\$145 /hr	10 hours	\$1,500	
Plug Materials	\$250 /lump sum	1 each	\$300	
Disposal of sediment	\$90 /ton	1 ton	\$100	Assumed 80 feet, 8" pipe, 50% sedimented
Disposal of cleanout Water	\$250 /lump sum	1 each	\$300	500 gallons at \$0.50 gallon
Construction oversight	\$2,800 /day	2 day	\$5,600	
		Total Cleanout	\$12,600	
Engineering				
Design, permits, waste profiling, PM	\$134 /hour	60 hours	\$8,000	
Construction report	\$10,000 /lump sum	1 each	\$10,000	
		Total Engineering Costs	\$18,000	
		30% Contingency	\$17,700	
		Total Project Cost	\$77,000	
OU1 - Remove Gravel Filter, Cleanout and Remove Discharge Line				
Filter Excavation and Disposal				
Equipment mobilization	\$5,000 /lump sum	1 each	\$5,000	
Filter Rock excavation	\$6.5 /cy	220 cy	\$1,400	Assumed depth of 3.5 feet
Rock screening	\$8 /cy	220 cy	\$1,800	
Disposal of screened soil fraction	\$90 /ton	75 tons	\$6,800	20% of total; Assumed non-hazardous
Filter Rock makeup volume (new)	\$28 /cy	44 cy	\$1,200	
Filter Rock backfill	\$2.5 /cy	220 cy	\$600	
Confirmation Sampling Analyses	\$170 /sample	11 each	\$1,900	Metals - 5 samples
Confirmation Sampling Analyses	\$720 /sample	2 each	\$1,400	PAHs, pesticides, PCBs, TBT - 2 samples
Construction oversight	\$2,800 /day	3 day	\$8,400	
		Total Excavation	\$28,500	
Discharge Pipe Excavation, E.O.P. Removal				
Equipment mobilization	\$500 /lump sum	1 each	\$500	Pipe cleanout prior to removal
Cleanout	\$145 /hr	6 hours	\$900	
Trench Excavation	\$16 /foot	80 feet	\$1,300	2'x5' trench with minimal sloping
Trench Confirmation Sampling Analyses	\$170 /sample	3 each	\$500	Sample every 25' for RCRA-8 Metals
Trench Confirmation Sampling Analyses	\$720 /sample	1 each	\$700	Expanded analysis for 1 samples
End of Pipe Excavation	\$15 /cy	10 cy	\$200	Assumed depth of 1.0 feet
End of Pipe Confirmation Sampling Analyses	\$170 /sample	5 each	\$900	RCRA-8 Metals for 5 samples
End of Pipe Confirmation Sampling Analyses	\$720 /sample	1 each	\$700	Expanded analysis for 1 samples
End of Pipe Excavation Soil Disposal	\$90 /ton	17 tons	\$1,500	
Disposal of pipe debris and sediment	\$90 /ton	77 tons	\$6,900	Assumed non-hazardous
Disposal of cleanout Water	\$250 /lump sum	1 each	\$300	500 gallons at \$0.50 gallon
Excavation backfill	\$30 /cy	40 cy	\$1,200	Trench and End of Pipe Excavation areas
Construction oversight	\$2,800 /day	2 day	\$5,600	
		Total Cleanout	\$21,200	
Engineering				
Design, permits, waste profiling, PM	\$134 /hour	60 hours	\$8,000	
Construction report	\$10,000 /lump sum	1 each	\$10,000	
		Total Engineering Costs	\$18,000	
		30% Contingency	\$20,300	
		Total Project Cost	\$88,000	

Table G-1
Cleanup Action Alternative Cost Estimates
Pier 99 - Portland Site

Present Worth Costs @ 5%

Cost Item	Unit Cost	Units	Extension	Notes
OU1 – Cap Gravel Filter, Clean and Plug Discharge Line				
Cap Inspection and Maintenance				
Cap installation (Paving)	\$8 /sf	1800 sf	\$14,400	
Construction oversight	\$2,800 /day	3 day	\$8,400	
Annual Inspections (1/2-day each)	\$1,200 /year	25 years	\$28,400	Present-value discount rate 5%
Maintenance (5th years)	\$3,000 /event	5 events	\$7,652	Present-value discount rate 5%
		Total Capping	\$58,852	
Discharge Pipe Cleanout and Plug, E.O.P. Removal				
Equipment mobilization	\$500 /lump sum	1 each	\$500	
Cleanout	\$120 /hr	6 hours	\$700	
Pipe End Excavation	\$15 /cy	10 cy	\$200	Assumed depth of 1.0 feet
End of Pipe Confirmation Sampling Analyses	\$170 /sample	5 each	\$900	RCRA-8 Metals for 5 samples
End of Pipe Confirmation Sampling Analyses	\$720 /sample	1 each	\$700	Expanded analysis for 1 samples
Excavation Disposal	\$90 /ton	17 tons	\$1,500	
Excavation Backfill	\$26 /cy	10 cy	\$300	
Cleanout and Plug	\$145 /hr	10 hours	\$1,500	
Plug Materials	\$250 /lump sum	1 each	\$300	
Disposal of sediment	\$90 /ton	1 ton	\$100	Assumed 80 feet, 8" pipe, 50% sediment
Disposal of cleanout Water	\$250 /lump sum	1 each	\$300	500 gallons at \$0.50 gallon
Construction oversight	\$2,800 /day	2 day	\$5,600	
		Total Cleanout	\$12,600	
Engineering				
Design, permits, waste profiling, PM	\$134 /hour	60 hours	\$8,040	
Construction report	\$10,000 /lump sum	1 each	\$10,000	
Cap Management Plan	\$8,000 /lump sum	1 each	\$8,000	
		Total Engineering Costs	\$26,040	
		30% Contingency	\$29,200	
		Total Project Cost	\$127,000	
OU2 – Bank Stabilization				
Clearing and Stabilizing				
Equipment mobilization	\$5,000 /lump sum	1 each	\$5,000	
Removal and Replacement of Dock Stairs	\$10,000 /lump sum	1 each	\$10,000	
Silt Fence Installation	\$3 /ft	300 feet	\$900	
Vegetation Grubbing and Disposal	\$1.0 /sf	7400 sf	\$7,400	
Select soil and debris removal	\$3,000 /lump sum	1 each	\$3,000	
Soil and debris disposal	\$90 /ton	1.7 tons	\$200	
Topsoil placement	\$40 /cy	140 cy	\$5,600	
Jute mat installation	\$3 /sf	823 sf	\$2,058	
Hydroseeding	\$3 /sf	823 sf	\$2,469	
Construction oversight	\$2,800 /day	5 days	\$14,000	
		Total Excavation	\$50,627	
Engineering				
Design, permits, waste profiling, PM	\$134 /hour	80 hours	\$10,720	
Slope inspection and geotechnical analysis	\$134 /hour	12 hours	\$1,608	
Construction report	\$10,000 /lump sum	1 each	\$10,000	
		Total Engineering Costs	\$22,328	
		30% Contingency	\$21,900	
		Total Project Cost	\$95,000	
OU2 – Bank Removal and Stabilization				
Clearing, Removal, and Stabilizing				
Equipment mobilization	\$5,000 /lump sum	1 each	\$5,000	
Removal and Replacement of Dock Stairs	\$10,000 /lump sum	1 each	\$10,000	
Silt Fence Installation	\$3 /ft	300 feet	\$900	
Vegetation Grubbing and Disposal	\$0.2 /sf	7400 sf	\$1,500	
Incidental soil and debris removal	\$30 /cy	10 cy	\$300	
Targeted soil removal	\$60 /cy	120 cy	\$7,200	
Confirmation Sampling for 2 Targeted areas	\$170 /sample	10 each	\$1,700	RCRA-8 Metals for 10 samples
Follow-up Analyses	\$720 /sample	2 each	\$1,400	Expanded analysis for 2 samples
Soil and debris disposal	\$90 /ton	221 tons	\$19,900	
Topsoil placement	\$40 /cy	220 cy	\$8,800	
Soil grading	\$4 /sf	2000 sf	\$8,000	
Jute mat installation	\$3 /sf	2000 sf	\$5,000	
Hydroseeding	\$3 /sf	2000 sf	\$6,000	
Construction oversight	\$2,800 /day	7 days	\$19,600	
		Total Excavation	\$95,300	
Engineering				
Design, permits, waste profiling, PM	\$134 /hour	80 hours	\$10,720	
Slope inspection and geotechnical analysis	\$134 /hour	12 hours	\$1,608	
Construction report	\$10,000 /lump sum	1 each	\$10,000	
		Total Engineering Costs	\$22,328	
		30% Contingency	\$35,300	
		Total Project Cost	\$153,000	