

PCB Building Material Work Plan

1940 E. 11th Street Abatement, Remediation & Deconstruction Project

Project Number: 013PT-002

**Prepared for:
The Port of Tacoma**

February 3, 2014

Prepared by:



Crete Consulting Incorporated, PC
100 South King Street, Suite 240
Seattle, WA 98104
www.creteconsulting.com

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Prepared by:



Jamie C. Stevens, P.E.

Reviewed by:



Mike Byers, P.E.

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- A6: 2005 Letter documenting Near Surface Soil Investigation 1940 East 11th

Appendix B Standard Operating Procedures

1 Introduction

CRETE Consulting, Inc. (CRETE) has prepared this Polychlorinated Biphenyl (PCB) Building Materials Work Plan (Work Plan) for the Port of Tacoma's (Port) 1940 East 11th Street project (project; Figure 1). This work is authorized as part of a Professional Services Agreement between CRETE and the Port titled 1940 E 11th Street Abatement, Remediation & Deconstruction Engineering Services. This Work Plan evaluates historical PCB data and provides recommendations for additional PCB data collection at the project to provide input into a PCB management and abatement plan that will be used to develop site cleanup and building demolition/disposal details. This Work Plan provides recommendations for evaluation of building materials and of shallow PCB soil contamination immediately around the building. Soil contamination is thought to have resulted from leaching and flaking of the PCB-containing building paint. Potential soil and groundwater contamination on the site is outside of the focus of this study and is being evaluated and detailed by reports prepared by the previous property owner.

An 117,000-square foot, two-story vacant building occupies the majority of the 1940 East 11th Street property (Figure 1). The last tenant of the building was Brown & Haley, and several previous investigations referred to the building as the "Brown & Haley Building". This project is part of the Sound Mattress Site which is under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP); Project No. SW0857, Facility/Site No. 1232087.

1.1 Site Background

Several historical reports describe the site's history and environmental sampling. The summary presented here is based on information in Pacific Crest's *Data Gaps Investigation Report* for the Former Sound Mattress and Felt Property (PCE 2010).

- Prior to 1948, the property was vacant and undeveloped.
- In 1948, Washington Steel Products (Washington Steel) constructed the northern portion of the existing building. Washington Steel extended the building with additions in 1950 and 1953.
- Between 1948 and 1959, Washington Steel manufactured hardware, including enameled metal drawers, knobs, pulls and hinges.
- In 1959, Ekco Products Company (Ekco) purchased Washington Steel, and in 1965 American Home Products Corporation purchased Ekco.
- In 1964, Sound Mattress and Felt purchased the property and continued to lease the building to American Home Products Corporation through 1967, when that lease ended.
- In 1965, Sound Mattress leased a portion of the building to Brown & Haley for commercial activities associated with the sale and distribution of Brown & Haley

candy. However, a 1991 Phase 1 Environmental Site Assessment states that Brown & Haley occupied the building starting in 1962 (Saltbush 1991).

- In 2006, the Port purchased the property from Sound Mattress and continued to lease it to Brown & Haley.
- Brown & Haley vacated the property in 2010, and it has since remained vacant.

2 Previous PCB Investigation Summary

The current understanding of PCB nature and extent in building materials, soil and catch basin sediment is summarized from historical reports (Table 1). Many of the available historical reports focus on chlorinated solvent contamination in site soil and groundwater and do not discuss any PCB analyses.

In 2012 and 2013 Pioneer Technologies Corporation (Pioneer) conducted four PCB investigations, identified as Phase 1, Phase 2, Phase 3 and the groundwater investigation. These four investigations are summarized below, and these reports are included in Appendix A. Limited soil removal activities conducted on the site in 2005 and 2012 are also summarized below. The reports documenting these activities are also included in Appendix A.

Table 1 Historical Reports

Report Date	Title	Author
April 2013	Port of Tacoma, 1940 East 11 th Street Building Direct-Push PCB Groundwater Sampling	Pioneer Technologies Corporation
April 2013	Draft FS. Sound Mattress and Felt Company	Pacific Crest Environmental
September 2012	1940 East 11 th Street Building Soil Excavation Sampling and Documentation	Pioneer Technologies Corporation
August 2012	1940 East 11 th Street Building Additional Soil Characterization Sampling	Pioneer Technologies Corporation
June 2012	1940 East 11 th Street Building Materials and Soil/Sediment Characterization Sampling	Pioneer Technologies Corporation
March 2012	Brown & Haley Building Materials Characterization Sampling	Pioneer Technologies Corporation
April 2010	Data Gap Investigation Report. Former Sound Mattress and Felt Company	Pacific Crest Environmental
March 2010	Regulated Building Materials Assessment Report	Argus Pacific
December 2009	Remedial Investigation Report, Sound Felt and Mattress Property, 1940 East 11 th Street, Tacoma, Washington, FS ID 1232087	Pacific Crest Environmental
July 2009	Results of Organic Vapor Sampling at Brown and Haley Candy Distribution Facility	Stephen Frost
March 2009	Asbestos Assessment	Argus Pacific
February 2006	Phase 1 ESA Brown & Haley Warehouse	Nowicki Environmental Services
September 2005	Letter re: Near Surface Soil Investigation, 1940 East 11 th	Environmental Management Services, LLC
October 2001	Addendum to Request for NFA Brown and Haley Facility	Sound Earth Strategies
July 2001	Request for NFA Brown and Haley Facility	Sound Earth Strategies
November 1991	Phase 1 ESA Sound Mattress and Felt Company	Saltbush Environmental Services

2.1 Investigation Methods and Removal Activities

2.1.1 Phase 1 - March 2012

Phase 1 investigation activities focused on characterizing building paint, coatings, drywall and caulk for PCB contamination. Associated field work was conducted on March 21, 2012 and is detailed in the Pioneer report *1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling* (Pioneer 2012A; Appendix A1).

Ten discrete grab samples were collected from painted/coated surfaces or caulking materials and analyzed for PCB Aroclors. Sample locations were based on a visual inventory of the building's interior and exterior surfaces, and samples were selected to represent the overall building material present. Figures 2 and 3 present the Phase 1 and Phase 2 (discussed below) sampling locations for the 1st floor interior/exterior and 2nd floor interior/exterior building materials, respectively.

2.1.2 Phase 2 - April 2012

Phase 2 investigation activities focused on analyzing PCBs in additional building paint, coating, drywall and caulk samples, as well as in shallow surface soil (from 0 to 6 inches below ground surface [bgs]) and catch basin sediment. The field work was conducted on April 24-26, 2012 and is detailed in *1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling* (Pioneer 2012B; Appendix A2).

The following samples were analyzed for PCB Aroclors:

- 50 discrete grab samples of building paint, coating, drywall and caulk from both the interior and exterior of the building (Figures 2 and 3)
- 18 surface soil samples collected immediately adjacent to the building (Figure 4)
- 8 "step out" samples collected approximately 3 feet from the building (Figure 4)
- 3 surface soil samples collected from low-lying depressions along the southwestern side of the building (Figure 4)
- 8 sediment samples collected from onsite catch basins (Figure 5).

2.1.3 Phase 3 - July 2012

Phase 3 investigation activities were conducted based on the results of Phase 2 and focused on collecting PCB soil samples from shallow (0-6 inches bgs), intermediate (6-12 inches bgs) and deep (12-18 inches bgs) depths. The field work was conducted on July 19 and 20, 2012 and detailed in the *1940 East 11th Street Building Additional Soil Characterization Sampling* (Pioneer 2012C; Appendix A3). The following samples (Figure 4) were analyzed for PCB Aroclors:

- 16 shallow soil samples and 3 intermediate soil samples from 16 locations not previously sampled
- 5 intermediate subsurface soil samples and 3 deep subsurface soil samples collected from locations previously sampled during Phase 2.

2.1.4 Groundwater Investigation - March 2013

In 2013 Pioneer conducted a PCB groundwater investigation, collecting one sample from each of four temporary wells installed with a direct-push drill rig (Figure 6). The field work was conducted on March 29, 2013 and is detailed in *Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling* (Pioneer 2013; Appendix A4). Results of the groundwater sampling investigation are not discussed in this report.

2.1.5 Previous Removals

In 2005 a limited soil removal and sampling event was conducted to address hydraulic fluid released by Tacoma Transload (Figure 8; EMS 2005). Hydraulic fluid was associated with the storage and maintenance of heavy lifting equipment at the site. Samples were collected from the gravel parking lot and in access areas outside of the building footprint and were analyzed for petroleum hydrocarbons. Excavated soil was stockpiled and sampled. One stockpile sample was analyzed for PCBs, which were not detected above the laboratory reporting limit of 0.1 mg/kg (for individual Aroclors). The 2005 letter documenting the removal indicates that excavated soil was transported off-site and disposed of at a licensed sub-title D disposal facility (EMS 2005; Appendix A6).

In August 2012 approximately 23 cubic yards of soil were excavated from the southwestern portion of the parking lot, around sample location SL-20 (Figure 4). Removal in this area was conducted to target soil in the open gravel parking lot above MTCA Level A Unrestricted Land Use cleanup standards. Six sidewall samples and two floor samples were collected from the 1-foot deep excavation. Figure 7 shows the approximate removal area and total PCBs in both the excavated soil and the remaining floor/sidewall soil. Excavated soil is currently secured and stockpiled on site. Data tables, laboratory reports, and field notes documenting removal efforts are included in Appendix A5. (Pioneer 2012D).

2.2 PCB Data Summary

2.2.1 Building Materials

Total PCBs are present throughout building surfaces/coatings and caulk above the Toxic Substances Control Act (TSCA)-regulated level of 50 mg/kg (Figures 2 and 3, Appendices A1 and A2):

- 21 of 60 samples exceed the TSCA-regulated total PCB level of 50 mg/kg. The average concentration of these 21 samples is 5,693 mg/kg.
- The highest total PCB concentrations were detected in exterior yellow paint (BH_OB2_4_032112, BH_OB2_5_032112, and POT_BH_PT_30_0_0_042512), exterior black caulking (POT_BH_CK_10_0_0_042512) and interior grey paint (POT_BH_PT_13_0_0_042512). The concentrations of these 5 samples ranged from 7,700 (POT_BH_CK_10_0_0_042512) to 22,000 mg/kg (BH_OB2_4_032112).

A 1991 Phase 1 Environmental Site Assessment discusses PCB contamination in and around transformer vaults (Saltbush 1991). Sampling conducted in 2012 identified total PCBs in the paint collected from electrical panels (POT_BH_PT_15_0_0_04512) at a concentration of 220 mg/kg.

2.2.2 Soil

Soil samples characterize the building perimeter, 3-foot 'step-out' locations, and the southwestern portion of the parking lot (Figures 4 and 5, Appendices A2 and A3). Total PCBs were compared to the total PCB MTCA Method A Unrestricted Land Use soil screening level of 1.0 mg/kg:

- 34 shallow samples (0-6 inches bgs) – PCBs were detected in all samples, and total PCBs ranged from 0.012 (SL-26) to 220 mg/kg (SL-07). The average concentration was 12 mg/kg. Excluding the 2 TSCA-level samples (SL-07 at 220 mg/kg and SL-11 at 51 mg/kg), the average detected concentration is 4.3 mg/kg. Thirteen of the 34 samples exceed the PCB MTCA Method A soil screening level.
- 8 intermediate samples (6-12 inches bgs) – PCBs were detected in all samples, and total PCBs range from 0.26 (SL-15) to 7 mg/kg (SL-7). The average concentration is 2.4 mg/kg. Five of the eight samples exceed the PCB MTCA Method A soil screening level.
- 3 deep soil samples (12-18 inches bgs) – PCBs were detected in all samples, and total PCBs range from 0.53 (SL-01) to 5.2 mg/kg (SL-05). The average concentration is 2.5 mg/kg. Two of the three samples exceed the PCB MTCA Method A soil screening level.

2.2.3 Catch Basin Data

Eight sediment samples were collected from the nine catch basins located on the western and northern sides of the property (Figure 5, Appendix A2).

PCBs were detected in all eight samples. Total PCBs ranged from 0.082 (POT_BH_CB_01_0_0_042412) to 3.8 mg/kg (POT_BH_CB_03_0_0_042412). The average concentration was 1.1 mg/kg. Of the eight detections, six are above the Commencement Bay Near Shore Tide Flats Superfund Site PCB Sediment Quality Objective of 0.3 mg/kg, and two are above the MTCA Method A Unrestricted Land Use PCB Soil Cleanup level of 1 mg/kg.

In August 2012 sediment was removed, using a vacuum truck, from nine site catch basins. Sediment from the August 2012 removal is currently stockpiled on site. Filter fabric was placed in each of the catch basins. Details of this work are included in Appendix A5.

3 Data Gaps and Recommendations

3.1 PCB Building Materials

Previous building material sampling efforts, as described in Section 2, have characterized a large proportion of the building materials; however, the following data gaps remain:

- Ecology Dangerous Waste – composite sampling of PCB-containing building materials is recommended to assess PCB concentrations to satisfy Ecology Dangerous Waste regulations (Washington Administrative Code 173-303).
- Roof material – roof material and roof paint have not been adequately characterized to support decisions related to PCB handling and disposal.

To assist with evaluation of PCB-containing paint removal technologies, the following additional sampling is recommended to support decision related to PCB handling and disposal (room designators are based on the Building Layout Plan dated December 16, 2013 [Figure 9]).

- White paint on exterior and interior walls of offices in the area of Rooms 8 through 27 has not been adequately characterized.
- Grey floor paint in Room 52 and red floor paint in the boiler room (Room 61) has not adequately characterized.
- Pink/salmon wall paint in Rooms 57 and 58 and yellow wall paint in bathrooms (Room 92 to 94) has not adequately characterized.

3.2 Soil

Previous PCB soil sampling efforts, as described in Section 2, have been focused along and near (3-feet offset) the perimeter of the building and in low drainage areas in the gravel parking area. Sample collection has been limited to 1.5 feet bgs and has been focused on soil that was previously identified as containing PCBs leached or flaked from PCB-containing building paint. Although, limited samples have been collected from outside of the building footprint, shallow PCB soil contamination sourced from the building paint has been adequately delineated for cleanup purposes. Soil contamination that is not related to leaching/flaking of the building paint may be present, and it is anticipated to be characterized by the previous property owner.

3.2.1 Parking Areas

A shallow PCB-contaminated soil removal occurred in August 2012. Soil was removed until confirmation samples indicated that the impacted area had been removed. The potential for deeper contamination in the parking area is being addressed by the previous property owner and is, therefore, not addressed in this Work Plan.

3.2.2 Sub-Slab and Drainage Areas

Historical records indicate that portions of the building slab were not always covered by concrete, and they show several sumps and low points within the building. Potential contamination below the building slab and foundation is being evaluated by the previous property owner as part of their cleanup efforts on the site and not part of this study.

3.3 Catch Basin Sediment

Catch basin sediment was removed in August 2012, and filter fabric was placed in each of the catch basins (Pioneer 2012D; Appendix A5). Catch basins should be inspected if they are not currently on a routine inspection program. If sediment is present it should be removed with a vacuum truck. The filter fabric should be replaced in any site catch basins where it shows signs of wear or deterioration. No additional sampling is recommended.

4 Field Work Plan

This section is the field work plan for a PCB-paint removal study, for further characterization of the regulated building materials identified in Section 3.1, and for characterization of building debris and an evaluation of catch basins. This section does not include soil or groundwater sampling activities.

4.1 PCB Paint Removal Small-Scale Study

The purpose of this study is to determine if PCB-contaminated paint can be economically removed from the building concrete to a level that will render the total PCB concentrations in the remaining concrete below 50 mg/kg. CRETE will conduct a small-scale study to compare the efficacy of different abrasive approaches to removing PCB-laden paint and residual PCBs from building walls and flooring in select areas where total PCBs exceed the TSCA level of 50 mg/kg (Pioneer 2012A, B). The small-scale test locations will include:

- The yellow painted exterior concrete walls. This yellow paint is nearly universal on all exterior walls. Up to three representative locations will be tested.
- Interior concrete wall in the area of sample PT-13 collected on 4/25/2012 identified as grey paint. One location will be tested.

Although the general approach for removal is similar no matter what abrasive material is used, it is expected that some media will be better at removing the paint than others, and the overall desire will be to remove the PCB paints in the shortest amount of time and using a material that will contribute the least to the overall waste stream. CRETE will work with the blasting subcontractor to determine the best abrasive method which may include:

- dry ice blasting
- sandblasting
- soda blasting
- diamond grinding
- recyclable steel shot blasting (if this is viable).

A baseline sample for PCB testing will be collected from each location prior to starting the small-scale study. Upon removal of the painted surface by each of the approaches, samples will be collected and tested for PCBs and compared to the baseline data. The various paint removal approaches will be applied for differing durations and at various forces in an effort to determine an optimal paint removal strategy. Removal goals will be based on visual inspection of paint removal (per 761.79(b)(3)(ii)(B)). The efficiency of PCB removal will be determined by comparing the percentage of PCB reduction (baseline vs. post-removal concentration at each location) to the level of effort (time, power, etc.) needed to remove the paint. The engineering and health and safety controls required for each material will also be factored into the final decision.

All concrete samples (baseline and post removal samples) will be collect following EPA's Standard Operating Procedure for sampling porous surfaces for PCBs (EPA 2011; Appendix B). To collect concrete samples, a one-inch diameter (or smaller) carbide drill bit attached to a portable roto-hammer will be used to generate a fine concrete powder. Samples will be collected at ½-inch depth intervals with the initial surface sample being from 0- to ½-inch depth. Multiple holes located closely adjacent to each other may be needed to generate sufficient sample volume for analyses. Surface samples (0 – ½ inch) are planned for all areas. Sampling deeper than ½ inch may occur depending on observations during the surface sampling. A clean catch surface will be used to collect the falling powder below the drill. That powder will be combined with any concrete powder within the drill hole(s). The powder will be homogenized and placed in appropriate glassware for laboratory analysis.

The drill bit will be decontaminated between each sample location (not between adjacent holes drilled for a single sample). Gloves will be disposed after each sample is collected.

A single contractor under contract to CRETE will mobilize to the site with all equipment and material necessary to test each abrasive material selected. It is anticipated that two full days will be required for the testing. The program will retain flexibility to quickly adapt to conditions that become evident as the testing proceeds. For example, if one blasting material is found to be ineffective at the first location, it will likely not be carried forward to other locations. The blasting contractor will determine the most efficient combination of test parameters (material, time, power level/nozzle strength), and these parameters will be adjusted as the investigation proceeds. All sample areas will be contained within a pressurized environment with filtration. Select workers will wear air sampling badges during the small-scale study to evaluate PCB inhalation exposure. These samples will help determine conditions to be expected during full-scale implementation.

4.2 Regulated Building Materials

Collection of additional regulated building material samples, for PCB analysis, is recommended in the following areas (Figure 10):

- White wall paint on exterior walls of offices and interior of some offices in the area of Rooms 8 through 27 (up to 4 samples)
- Grey floor paint in Room 52 (1 sample)
- Pink/salmon wall paint in Rooms 57 and 58 (2 samples)
- Yellow wall paint in Rooms 92 to 94 (1 sample)
- Red floor paint in boiler room, Room 61 (1 sample)
- Roof (1 composite sample and 1 sample of silver paint).

Bulk samples of paint and caulk will be collected according ASTM Method E1729: *SOP for Field Collection of Dried Paint Sample for Subsequent Lead Determination*, with the following protocol:

- Wear a new pair of disposable gloves for each sample.

- Label sample container with its identification number. Record sample identification number, type of material, material description, substrate, location, date/time, and any other relevant observations on a sampling field form.
- Extract sample using a clean knife or hammer and chisel to cut out or scrape off approximately 50 grams of the material.
- Place sample in labeled glass or plastic laboratory-supplied jar with lid and tightly seal.
- Wipe the exterior of the container with a wet wipe to remove any material that may have adhered to it during sampling.
- Decontaminate sample tools between each sample.
- Discard gloves and wet wipes as municipal solid waste.

4.3 Building Debris

In addition to these samples, composite building debris samples are recommended in order to characterize the anticipated waste stream (during demolition) and define disposal requirements. Based on the homogenous nature of the building debris, 5-10 representative samples are proposed for the building. Sample collection will follow Ecology's sampling and waste characterization guidance¹. This sampling method includes the following steps:

- Identify different building components for demolition across the entire waste stream.
- Wear a new pair of disposable gloves for each sample.
- Collect aliquots of each component using a power drill, or by removing portions of the component. Aliquots will be selected to ensure that the resulting composite sample will be truly representative of the component.
- To collect concrete aliquots, a one-inch diameter (or smaller) carbide drill bit attached to a portable roto-hammer will be used to generate a fine concrete powder. Samples will be collected from a 0- to ½-inch depth. A clean catch surface will be used to collect the falling powder below the drill. The drill bit will be decontaminated between each sample location.
- Mix the aliquots together in proportion to their percent by weight in the total quantity of debris being removed.
- Place sample in labeled glass or plastic laboratory-supplied jar with lid and tightly seal.
- Record sample identification number, type of material, material description, substrate, location, date/time, and any other relevant observations on a sampling field form.

¹ http://www.ecy.wa.gov/programs/hwtr/manage_waste/identify_by_sampling_demo_debris.html

- Wipe the exterior of the container with a wet wipe to remove any material that may have adhered to it during sampling.
- Decontaminate sample tools between each sample.
- Discard gloves and wet wipes as municipal solid waste.

4.4 Catch Basins

No additional sampling or investigation is recommended for the existing site Catch Basins. It is recommended that all site catch basins be inspected and that any sediment present be removed and filter fabric replaced if it shows signs of degradation or wear.

4.5 Sample Handling and Custody

Sampling containers (Table 2) will be filled to minimize head space, and will be appropriately labeled and stored prior to shipment or delivery to the laboratory. Reusable sampling equipment such as stainless steel spoons and bowls shall be decontaminated between sample locations (not between individual locations composing a composite sample).

Samples must be packed to prevent damage to the sample containers and labeled to allow sample identification. All samples must be packaged so that they do not leak, break, vaporize or cause cross-contamination of other samples. Each individual sample must be properly labeled and identified. When refrigeration is required for sample preservation, samples must be kept cool, by means of ice packs in coolers, during the time between collection and final packaging.

All samples must be clearly identified immediately upon collection. Each sample container label will list:

- Client and project name
- A unique sample description/sample ID
- Sample collection date and time.

Additionally, the sample container label may include:

- Sampler's name or initials
- Indication of addition of preservative, if applicable
- Analyses to be performed.

Chain-of-custody procedures are intended to document sample possession from the time of collection, through analysis, to disposal. Chain-of-custody forms must document transfers of sample custody. A sample is considered to be under custody if it is in one's possession, view, or in a designated secure area. The chain-of-custody record will include, at a minimum, the following information:

- Client and project name
- Sample collector's name

- Sampler's company mailing address and telephone number
- Designated recipient of data (name, email, and telephone number)
- Analytical laboratory's name and city
- Description of each sample (i.e., unique identifier and matrix)
- Date and time of collection
- Quantity of each sample or number of containers
- Type of analysis required
- Requested turn-around times
- Date and method of shipment.

When transferring custody, both the staff relinquishing custody of samples and the staff receiving custody of samples will sign, date, and note the time on the form. If samples are to leave the collector's possession for shipment to the laboratory, the subsequent packaging procedures will be followed. All samples will be stored appropriately by the laboratory.

All samples will be transported under chain-of-custody procedures to Analytical Resources Inc. (ARI) in Tukwila, Washington. All samples will be analyzed for PCB content using EPA Method 8082: PCBs by Gas Chromatography on standard turn around. ARI is accredited by the Washington State Department of Ecology and by the National Environmental Lab Accreditation program as administered by the National Laboratory Accreditation Committee for analysis of PCB Aroclors by EPA Method 8082.

Table 2 Analytes, Reporting Limits, Methods and Sample Containers

Analytes	Analytical Method	Method Reporting Limit	Media	Sample Container	Laboratory
PCB Aroclors	EPA Method 8082A	0.8 mg/kg	Concrete, Paint and Debris	4-ounce amber glass	ARI

Notes:

Sample containers can be modified by laboratory.

mg/kg = milligrams per kilograms

5 Quality Objectives and Criteria

The overall data quality objective for this project is to develop and implement procedures that will ensure the collection of representative data of known and acceptable quality. The QA procedures and measurements that will be used for this project are based on EPA, and Ecology guidance (EPA 2001, 2006; Ecology 2011). Parameters related to precision, accuracy or bias, representativeness, completeness, and comparability (PARCC) are commonly used to assess the quality of environmental data. Table 3 summarizes the sample measurement quality objectives, which are discussed in more detail in the following sections.

Table 3 Sample Measurement Quality Objectives

Parameter	Method	Precision (RPD)	Accuracy	Completeness	Preservation/Storage
EPA Aroclors	EPA Method SW846-8082A	20%	n/a	95%	Cool/0-6°C

Note: RPD = relative percent difference.

5.1 Precision

Precision is a measure of how closely one result matches another result expected to have the same value. Field precision is estimated by collecting one duplicate sample for every ten field samples per sample media. Field precision is determined by the relative percent difference (RPD) between a parent sample and its duplicate.

Laboratory precision can be measured through the evaluation of laboratory control samples/duplicates (LCS/ LCSD). The laboratory will perform the analysis of 1 set of LCS/LCSD samples for every 20 field samples per sample media. Laboratory precision will be evaluated by the RPD between LCS/LCSD samples.

$$RPD = \frac{ABS(R1-R2)}{(R1+R2)/2} \times 100$$

Where:

R1 = Sample result or recovery for spiked compound

R2 = Duplicate sample result or recovery for spiked compound duplicate

For calculation of RPD using field duplicates, sample and duplicate sample results used will be the calculated totals (total PCBs) as opposed to the individual Aroclors.

5.2 Accuracy

Accuracy is an expression of the degree to which a measured or computed value represents the true value. Accuracy may be expressed as a percentage of the true or reference value for reference material or as spike recovery from matrix spike/matrix spike

duplicate (MS/MSD) samples. The RPD between the MS and MSD is used to evaluate laboratory precision. The following equations are used to express accuracy:

- For reference materials:
 - Percent of true value = (measured value/true value) x 100
- For spiked samples:
 - Percent recovery = (SQ - NQ)/(S) x 100

SQ = quantity of spike or surrogate found in sample

NQ = quantity found in native (unspiked) sample

S = quantity of spike or surrogate added to native sample

The performance of the method will be monitored using surrogate compounds. Surrogate standards are added to all samples, method blanks, matrix spikes and calibration standards.

5.3 Representativeness

Representativeness is the degree to which data from the project accurately represent a particular characteristic of the environmental matrix which is being tested. Representativeness of samples is ensured by adherence to standard field sampling protocols and standard laboratory protocols. The design of the sampling scheme and number of samples provides a representativeness of each matrix being sampled.

5.4 Comparability

Comparability is the qualitative similarity of one data set to another (i.e., the extent to which different data sets can be combined for use). Comparability will be addressed through the use of field and laboratory methods that are consistent with methods and procedures recommended by EPA.

5.5 Completeness

Completeness is a measure of the amount of data that is determined to be valid in proportion to the amount of data collected. Completeness will be calculated as follows:

$$\text{Completeness} = \frac{\text{(number of valid measurements)}}{\text{total number of data points planned}} \times 100$$

Completeness will be calculated for each matrix type. The data quality objective (DQO) for completeness for all analytes from all units is 90%. Data that have been qualified as estimated (J qualified) will be considered valid for the purpose of assessing completeness. Data that have been qualified as rejected will not be considered valid for the purpose of assessing completeness, and these data will not be used to evaluate excavation completion.

5.6 Laboratory QC Procedures

Additional laboratory QC procedures will be evaluated to provide supplementary information regarding overall quality of the data, performance of instruments and measurement systems and sample-specific matrix effects.

QC samples and procedures are specified in each method protocol. All QC requirements will be completed by the laboratory as described in the protocols, including the following (as applicable to each analysis):

- Instrument tuning
- Initial calibration
- Initial calibration verification
- Continuing calibration
- Calibration or instrument blanks
- Method blanks
- LCS/LCSD
- Internal standards
- Surrogate spikes
- Serial dilutions
- MS/MSD.

5.7 Quality Control

5.7.1 Laboratory Quality Control

Internal quality control procedures are designed to ensure the consistency and continuity of data. A routine QC protocol is an essential part of the analytical process. The minimum requirements for each analytical run are described here. Additional description of laboratory QA/QC procedures can be found in the laboratory's QA manual. A project narrative detailing analytical results must accompany all data packages submitted by the laboratory.

- **Initial and continuing calibration:** A calibration standard will be analyzed each time an instrument is calibrated. The instruments used to perform the analyses will be calibrated, and the calibrations will be verified as required by EPA methodologies. For example, a standard five-point initial calibration will be utilized to determine the linearity of response with the gas chromatograph/electron capture detection. Once calibrated, the system must be verified every 12 hours. All relative response factors, as specified by the analytical method, must be greater than or equal to 0.05. All relative standard deviations, as specified by the analytical method, must be less than or equal to 30 percent for the initial calibration and less than or equal to 25 percent for the continuing calibration.
- **Laboratory control sample:** The LCS is an analyte-free water or solid phase sample that is spiked with target analytes of known concentration. The LCS will be processed through the entire method procedure, and the results will be

examined for target analyte recovery (accuracy). Precision evaluations will be generated using an LCSD. The LCS/LCSD results will be used as a fall-back position by the laboratory in cases where the MS/MSD has failed to achieve acceptable recovery and/or precision. Inability to obtain acceptable LCS results will be directly related to an inability to generate acceptable results for any sample. One LCS/LCSD pair will be analyzed for each extraction batch.

- **Method blank analysis:** The method blank is utilized to rule out laboratory-introduced contamination by reagents or method preparation. Concentrations of compounds detected in the blank will be compared to the samples. Any concentration of common laboratory contaminants (i.e., phthalates, acetone, methylene chloride, or 2-butanone) in a sample lower than 10 times that found in the blank will be considered a laboratory contaminant. For other contaminants, any compounds detected at concentrations lower than five times that found in the blank will be considered laboratory contamination (EPA 2008). Values reported for the method blanks are expected to be below the detection limits for all compounds, except the common laboratory contaminants. Deviations from this must be explained in the laboratory project narrative(s). One method blank will be analyzed for each extraction/digestion batch
- **Matrix spike analysis:** An MS is the addition of a known amount of target analyte to a sample. Comparison of target analyte concentration in the spiked sample to that in the unspiked sample (background) using the equation in Section A7.2 is used to determine accuracy (the ability of the test to provide measured results matching the true concentration). Precision is determined with an MS/MSD pair (RPD equation in Section A7.1). One MS/MSD will be analyzed in every 20 samples.
- **Surrogate evaluations:** Surrogate recovery is a QC measure used in organics analyses. Surrogates are compounds added to every sample at the initiation of preparation to monitor the success of the sample preparation on an individual sample basis (accuracy). Although some methods have established surrogate recovery acceptance criteria that are part of the method or contract compliance, for the most part, acceptable surrogate recoveries need to be determined by the laboratory. Recoveries of surrogates will be calculated for all samples, blanks and QC samples. Acceptance limits will be listed for each surrogate and sample type and will be compared against the actual result by the data validator.
- **Laboratory management review:** The Laboratory QA Officer will review all analytical results prior to final external distribution (preliminary results will be reported before this review). If the QA Officer finds that the data meet project quality requirements, the data will be released as “final” information. Data which are not acceptable will be held until the problems are resolved, or the data will be flagged appropriately.

5.7.2 Data Review, Verification and Validation

EPA method control limits for surrogate and MS recoveries will be used to determine data quality. If surrogate or MS recoveries are not within their method-specific control limits, the analysis must be repeated. If the re-analyzed values are within required limits and holding times, they will be reported as true values. If, in the repeated analysis, the values are still outside required limits, the data will be identified and the data validator will verify the representativeness of the data following EPA guidelines. Laboratory analysts are responsible for reviewing calibration integrity, sample holding times, method compliance and completeness of tests, forms and log books.

5.7.3 Verification and Validation Methods

Analytes detected at concentrations between the MRL and the method detection limit (MDL) will be reported with a J qualifier to indicate that the value is an estimate (i.e., the analyte concentration is below the calibration range). J-qualified data are considered valid when completeness is calculated. Undetected data will be reported at the MRL. The MRL will be adjusted by the laboratory as necessary to reflect sample dilution or matrix interference.

Verification of completeness and method compliance, as well as raw data entry and calculations by analysts will be reviewed by the Laboratory QA Officer. The Laboratory QA Officer will be responsible for checking each group or test data package for precision, accuracy, method compliance, compliance to special client requirements and completeness. The Laboratory QA Officer will also be responsible certifying that data in PDFs and EDDs are identical prior to release from the laboratory.

5.7.4 Field Quality Control

Field QC samples (duplicates and rinsate blanks) are useful in identifying problems with sample collection or sample processing. A minimum of one duplicate sample will be collected from the material homogenized from every 10 field samples per sample matrix. Each field duplicate will be analyzed for the same parameters as the parent samples to evaluate heterogeneity attributable to sample handling. The RPD for homogenate duplicate samples must be below 50% for the data to be acceptable.

At least one equipment rinsate sample will be collected after equipment decontamination for every 20 samples collected per matrix. Equipment rinsate blanks will be collected for each type of sampling equipment that comes into contact with sample material, and will be analyzed for the same parameters as the samples which the equipment was used to collect.

5.7.5 Testing, Inspection and Maintenance

The primary objective of an instrument/equipment testing, inspection and maintenance program is to help ensure the timely and effective completion of a measurement effort by

minimizing the downtime of crucial sampling and/or analytical equipment due to expected or unexpected component failure.

Testing, inspection and maintenance will be carried out on all field and laboratory instrumentation and equipment in accordance with manufacturer's recommendations and with professional judgment. Analytical laboratory equipment preventative testing, inspection and maintenance is addressed in the laboratory QA manual, which will be kept on file at the contracted laboratory.

As appropriate, schedules and records of calibration and maintenance of field equipment will be maintained in the field notebook. Equipment that is out of calibration or is malfunctioning will be removed from operation until it is recalibrated or repaired.

Instrument and Equipment Calibration and Frequency

Field equipment used for sample collection will be subject to the following calibration requirements:

- **Identification.** Either the manufacturer's serial number or the calibration system identification number will be used to uniquely identify equipment. This identification, along with a label indicating when the next calibration is due, will be attached to the equipment. If this is not possible, records traceable to the equipment will be readily available for reference.
- **Standards.** Equipment will be calibrated, whenever possible, against reference standards having known valid relationships to nationally recognized standards (e.g., National Institute of Standards and Technology) or accepted values of natural physical constraints. If national standards do not exist, the basis for calibration will be described and documented.
- **Frequency.** Equipment will be calibrated at prescribed intervals and/or prior to use. Frequency will be based on the type of equipment, inherent stability, manufacturers' recommendations, intended use, and observation of equipment readings over the course of the field work. All sensitive equipment to be used in the field or laboratory will be calibrated or checked prior to use.
- **Records.** Calibration records (certifications, logs, etc.) will be maintained for all measuring and test equipment used.

If equipment is found to be out of calibration, the validity of previous measurements will be investigated and/or corrective action will be implemented. The laboratory Project Manager will lead the evaluation process, which will be documented in the field or laboratory log book.

All laboratory calibration requirements must be met before sample analysis may begin. The laboratory will follow the calibration procedures dictated by the analytical methods to be performed. If calibration non-conformances are noted, samples will be reanalyzed under compliant calibration conditions within method-specified hold times (likely not applicable because analyses are to be expedited).

5.8 Special Training and Certification

Specific training requirements for performing field work, which may bring employees in contact with hazardous materials include:

- All field personnel assigned to the site must have successfully completed 40 hours of training for work (with current annual 8-hour refresher training) related to hazardous waste and emergency response (HAZWOPER) in accordance with Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120(e). Documentation of OSHA training is required prior to personnel being permitted to work on site.
- Personnel managing or supervising work on site will also have successfully completed 8 hours of manager/supervisor training meeting the OSHA requirements specified in 29 CFR 1910.120(e)(4).
- Personnel assigned to the site must be enrolled in a medical surveillance program meeting the requirements of 29 CFR 1910.120(f). Personnel must have successfully passed an occupational physical during the past 12 months and be medically cleared to work on a hazardous waste site and capable of wearing appropriate personal protective equipment.
- Personnel performing the sampling work must have extensive knowledge, skill and demonstrated experience in the execution of the sampling methods.

5.9 Documents and Records

All field activities and observations will be noted in a field log book at the time they occur. Information will include personnel, date, time, station designation, sampler, types and number of samples collected, weather conditions, concurrent site activities, health and safety meetings conducted (tailgate meeting) and general observations. Any changes that occur at the site (e.g., personnel, responsibilities, deviations from this plan) and the reasons for these changes will be documented in the field log book.

All field activities and observations will be noted in a field log book during fieldwork. The descriptions will be clearly written with enough detail so that participants can reconstruct events later if necessary. Requirements for log book entries include:

- Entries will be made legibly with black (or dark) waterproof ink.
- Unbiased, accurate language will be used.
- Entries will be made while activities are in progress or as soon afterward as possible (the date and time that the notation is made should be noted, as well as the time of the observation itself).
- Each consecutive day's first entry will be made on a new, blank page.
- The date and time, based on a 24-hour (military) clock (e.g., 0900 a.m. for 9 a.m. and 2100 for 9 p.m.), will appear on each page.
- When field activity is complete, the log book will be entered into the project file.

- The person recording the information must initial and date each page of the field log book. If more than one individual makes entries on the same page, each recorder must initial and date each entry. The bottom of the page must be signed and dated by the individual who makes the last entry.

Log book corrections will be made by drawing a single line through the original entry allowing the original entry to be read. The corrected entry will be written alongside the original. Corrections will be initialed, dated and explained.

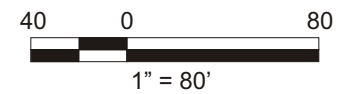
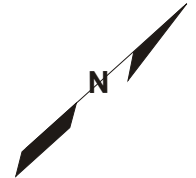
All laboratory deliverables with verifiable supporting documentation shall be submitted by the laboratory to the CRETE QA Officer. The following documents will be archived at the laboratory: 1) signed hard copies of sampling and chain-of-custody records; and 2) electronic files of analytical data including extraction and sample preparation bench sheets, raw data and reduced analytical data. The laboratory will store all laboratory documentation of sample receipt and login; sample extraction, cleanup, and analysis; and instrument output in accordance with the laboratory Standard Operating Procedure or QA manual.

PDFs of all analytical reports will be retained in the laboratory files, and at the discretion of laboratory management, the data will be stored electronically for a minimum of one year. After one year, or whenever the data become inactive, the files will be transferred to archives in accordance with standard laboratory procedure. Data may be retrieved from archives upon request.

6 References

- EMS 2005. Letter re: Near Surface Soil Investigation, 1940 East 11th. Environmental Management Services, LLC. September 14, 2005.
- EPA 2011. Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs), Revision 4. Environmental Protection Agency. May 5, 2011.
- PCE 2010. Data Gaps Investigation Report. Former Sound Mattress and Felt Property. Pacific Crest Environmental, LLC. August 4, 2010.
- Pioneer 2012A. Brown & Haley Building Materials Characterization Sampling. Pacific Crest Environmental, LLC. Pioneer Technologies Corporation. March 29, 2012.
- Pioneer 2012B. 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling. Pioneer Technologies Corporation. June 6, 2012.
- Pioneer 2012C. 1940 East 11th Street Building Additional Soil Characterization Sampling. Pioneer Technologies Corporation. August 22, 2012
- Pioneer 2012D. 1940 East 11th Street Building Soil Excavation Sampling and Documentation. Port of Tacoma, WA. Pioneer Technologies Corporation. September 13, 2012.
- Pioneer 2013. Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling. Pioneer Technologies Corporation. April 19, 2013.
- Saltbush 1991. Phase 1 Environmental Site Assessment The 11th Street Project (Subject Site: 1940 E. 11th Street and 1160 Thorne Road Tacoma WA). Saltbush Environmental Services. November 22, 1991.

Figures



Legend

Area Designation

* = Sample Locations (Phase 1)

* = Sample Locations (Phase 2)

GENERAL NOTES:

- ALL EXTERIOR WALLS ARE POURED CONCRETE, REINFORCING UNKNOWN, UNLESS OTHERWISE NOTED.
- INTERIOR WALLS ARE CONSTRUCTED OF WOOD UNLESS OTHERWISE NOTED.
- ALL SLAB PENETRATIONS SHALL BE GROUTED SHUT, SUCH THAT ALL PENETRATIONS, FLOOR DRAINS, TRENCHES, ETC. ARE WATER-TIGHT AND FLUSH WITH SURROUNDING FLOOR SLABS.

DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET

Figure 2

FIRST FLOOR PLAN
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"

Legend

 Area Designation

* = Sample Locations (Phase 1)

* = Sample Locations (Phase 2)

Figure 2

FILE: W:\505 Port of Tacoma\18 Auto Site Improvements\E2741\Drawings\BH-03-04 (Floor Plan)

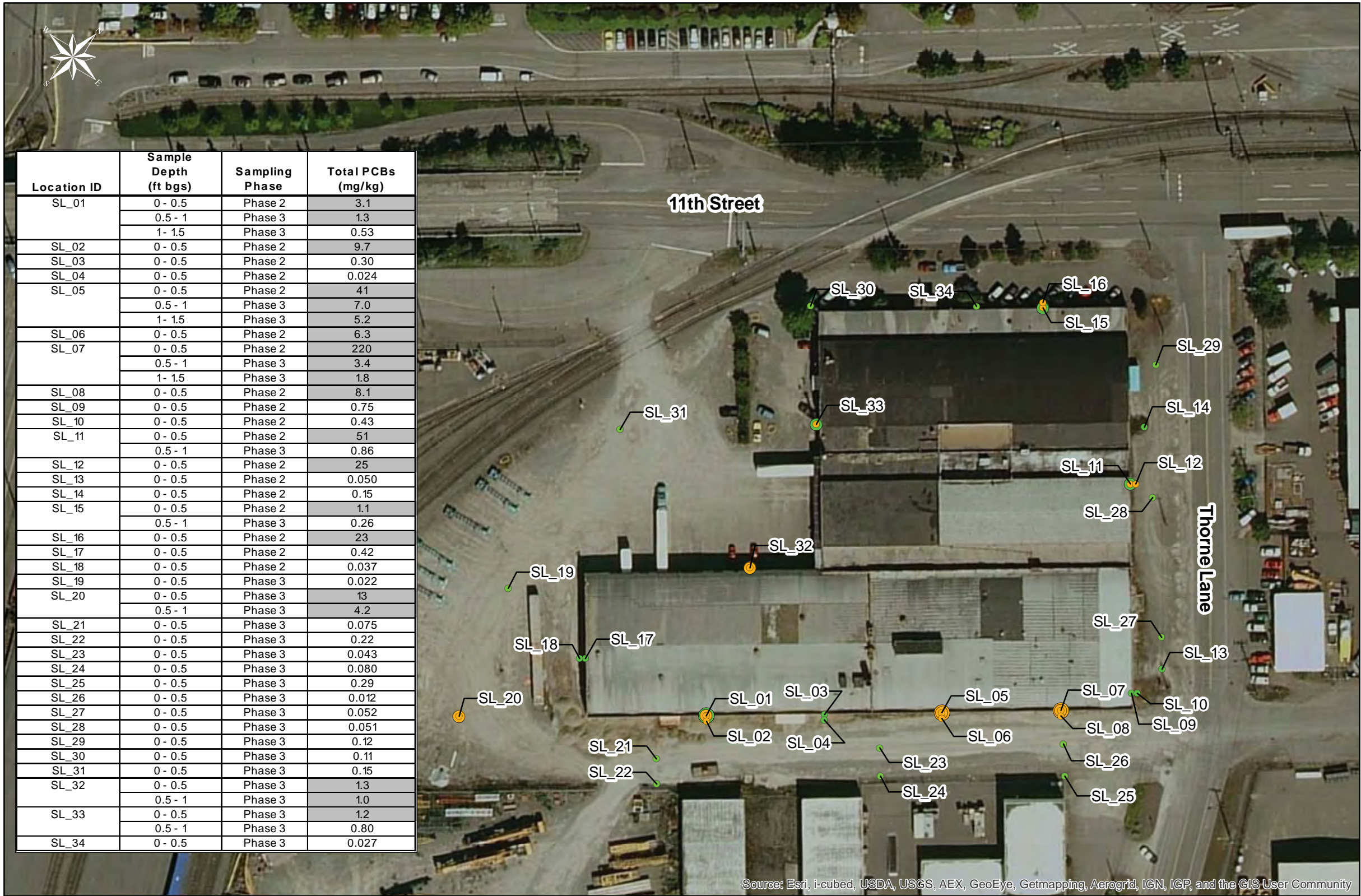


APPROVED:	CHECKED BY	DATE
	DATE	PROJ. ENGR
	PRINTED BY:	Dell Mar 05, 2012
PORT ADDRESS: ONE SITCOM PLAZA		

DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET	BUILDING LAYOUT PLAN	
TOWN&SHIP:	RANGE:	SECTION:
COAT-&RZ:	WAB3-SF	VERT: MLLW 19.39' @ Tm 22 1953

Figure 3

Document Path: G:\Projects\Port of Tacoma Maps\August 2012\Fig4_BrownHaley_SoilSampling_July2012.mxd; Author: SIM; Date Saved: 8/14/2012



- Legend**
- Surface Samples (0-0.5 ft bgs)**
- Total PCBs < 1.0 mg/kg
 - Total PCBs >= 1.0 mg/kg
- Intermediate Subsurface Samples (0.5-1 ft bgs)**
- Total PCBs < 1.0 mg/kg
 - Total PCBs >= 1.0 mg/kg
- Deep Subsurface Samples (1-1.5 ft bgs)**
- Total PCBs < 1.0 mg/kg
 - Total PCBs >= 1.0 mg/kg

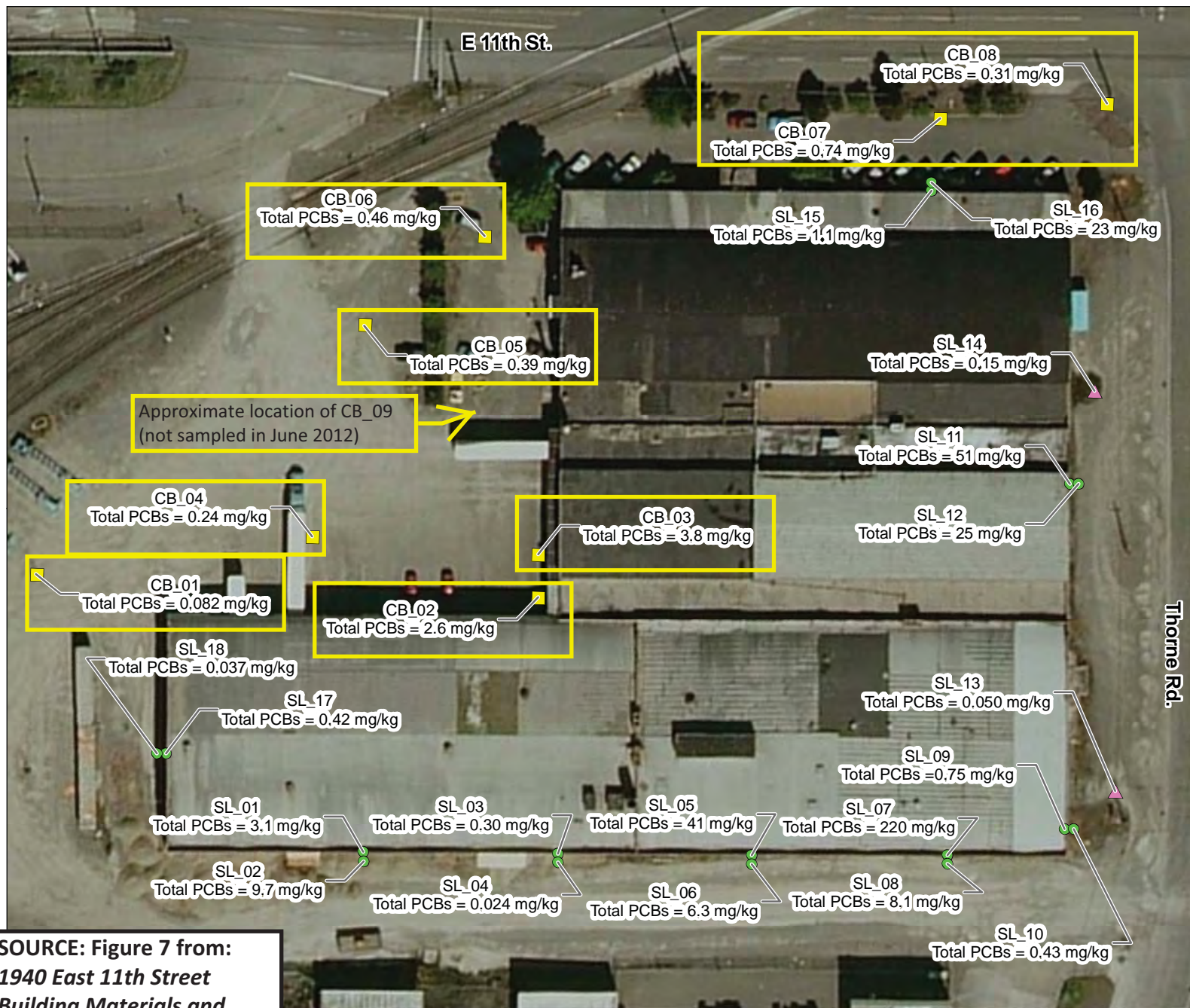
Notes:
Highlighted cells denote those samples which had a Total PCB concentration greater than or equal to the MTCA Method A Soil Screening Level (1.0 mg/kg) (WAC 173-340-740(2))
ft bgs: feet below ground surface
PCBs: Polychlorinated biphenyls



SOURCE: Figure 4 from: *1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling*, Pioneer Technologies Corporation; 8/22/2012.

1940 East 11th Street Building Phase 2 and Phase 3 Soil Sample Locations and Data
1940 East 11th Street Building Additional Soil Characterization Sampling
Port of Tacoma, Tacoma, Washington

Figure 4



- Phase**
- Phase 2 Sample Locations**
- Exterior Shallow Soil Depression Area
 - Exterior Shallow Soil & Step-Outs
 - Exterior Sediment Catch Basins

Notes:
PCBs: Polychlorinated biphenyls

0 25 50 100 Feet

SOURCE: Figure 7 from:
1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling, Pioneer Technologies Corporation; 6/6/2012.

1940 East 11th Street Building Exterior Soil and Sediment Sample Locations and Data
1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling
Port of Tacoma, Tacoma, Washington

DWN:	PROJECT:
SM	
DATE:	FIGURE NO.:
June 2012	5



SOURCE: Figure 2 from: Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling, Pioneer Technologies Corporation; 4/19/2013.

PCB Groundwater Sample Locations and Data
11th Street Building Direct-Push PCB Groundwater Sampling
Port of Tacoma, Tacoma, Washington

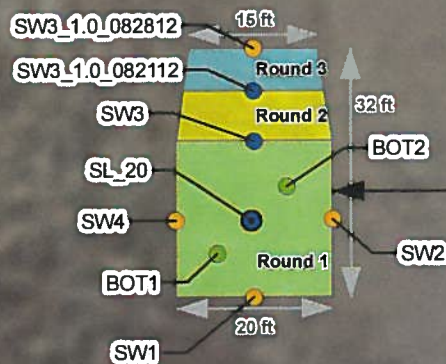
Figure 6



Location ID	Sample Depth (ft bgs)	Sample Type	Total PCBs (mg/kg)	Soil Was Excavated?
SL_20	0-0.5	Characterization	13	Yes
SL_20	0.5-1.0	Characterization	4.2	Yes
SW1	0-0.5	Sidewall	0.15	No - Below CUL
SW2	0-0.5	Sidewall	0.18	No - Below CUL
SW3	0-0.5	Sidewall	1.6	Yes
SW4	0-0.5	Sidewall	0.40	No - Below CUL
BOT1	1.0	Bottom	0.044	No - Below CUL
BOT2	1.0	Bottom	0.10	No - Below CUL
SW3_1.0_082112	0-1.0	Sidewall	1.6	Yes
SW3_1.0_082812	0-1.0	Sidewall	0.29	No - Below CUL

1940 East 11th Street Building

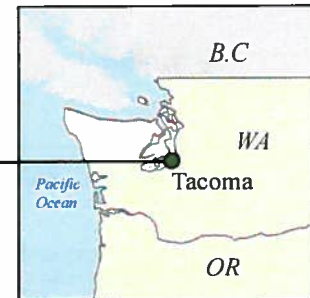
Excavation Area



Shipping Containers

~100 ft

Source: Esri, Intel, USDA, USGS, AEX, GeoEye, Geomapping, AeroGRID, IGN, IGP, and the GIS User Community



Legend

Soil Samples

- Confirmation - Bottom
- Confirmation - Sidewall
- Confirmation - Sidewall
- -Exceeded CUL (Excavated)
- Original SL_20 Location
- -Exceeded CUL (Excavated)

Excavations By Date

- 8/15/2012, Round 1
- 8/21/2012, Round 2
- 8/28/2012, Round 3

Notes:

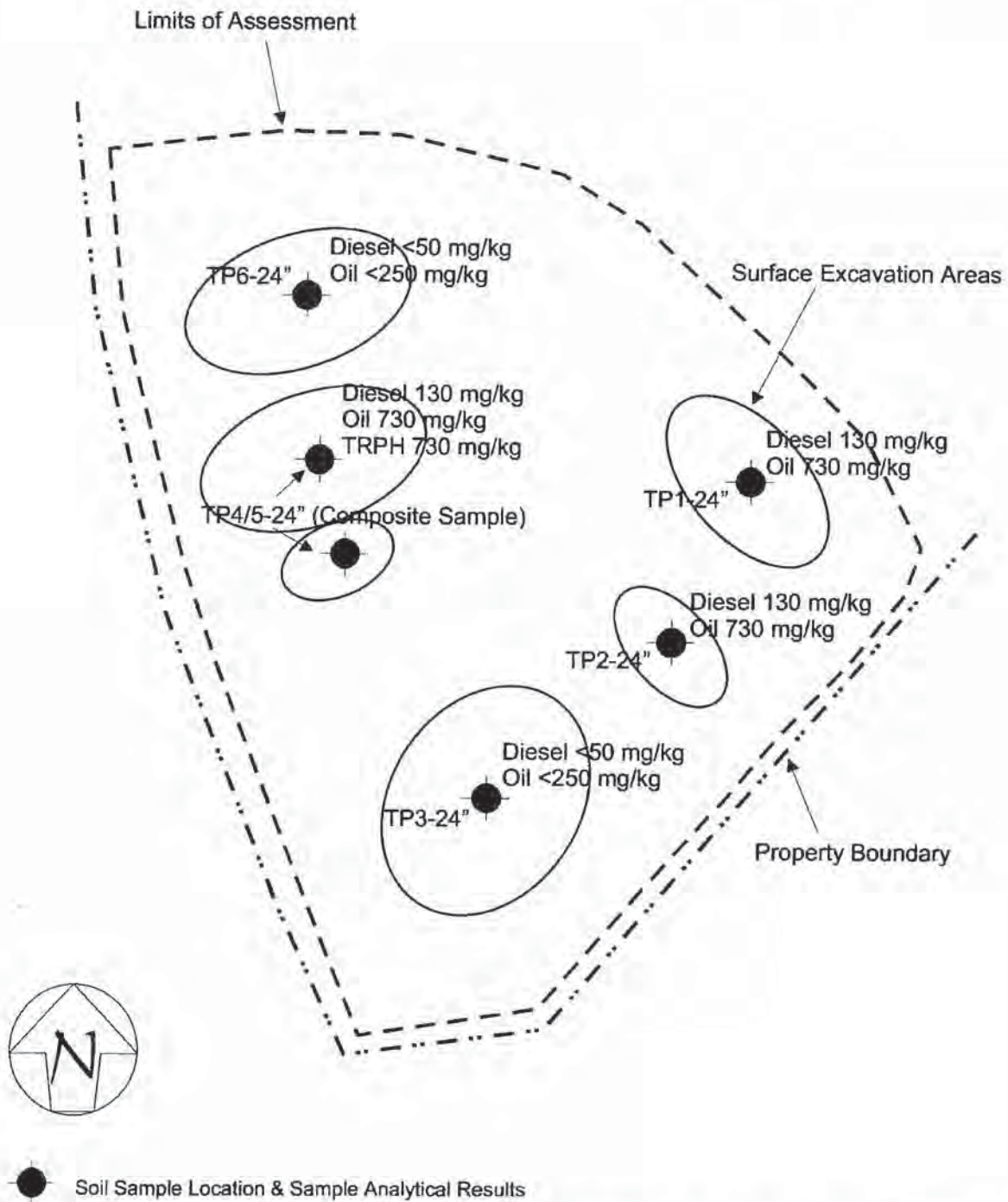
The excavation area was advanced to 1.0 ft bgs. The excavation area shown is approximate. Shaded cells denote samples with Total PCB concentrations greater than or equal to the CUL. CUL: MTCA Method A Soil PCB Cleanup Level (1.0 mg/kg) (WAC 173-340-740(2)) ft bgs: feet below ground surface mg/kg: milligrams per kilogram PCBs: polychlorinated biphenyls



SOURCE: Figure 3 from:
1940 East 11th Street Building Soil Excavation Sampling and Documentation, Pioneer Technologies Corporation; 9/13/2012.

Soil Excavation Area and Confirmation Sample Results
1940 East 11th Street Building Soil Excavation Sampling and Documentation
Port of Tacoma, Tacoma, Washington

Figure 7



SOURCE: Figure 4 from: Letter re: Near Surface Soil Investigation, 1940 East 11th; 9/14/2005.
Figure Title: 2005 Near Surface Soil Investigation
Figure 8

File: C:\Users\swp\appdata\local\temp\AcPublish_4756\PORT_FLOORPLAN.dwg User: swp Plotted: Dec 16, 2013 - 3:37pm Xref's:



- GENERAL NOTES:**
1. ALL EXTERIOR WALLS ARE POURED CONCRETE, REINFORCING UNKNOWN, UNLESS OTHERWISE NOTED.
 2. INTERIOR WALLS ARE CONSTRUCTED OF WOOD UNLESS OTHERWISE NOTED.



FIRST FLOOR PLAN
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"
4' 0' 4' 8' 12'



PORT OF TACOMA
1940 East 11th Street Building

DATE: 12/16/2013

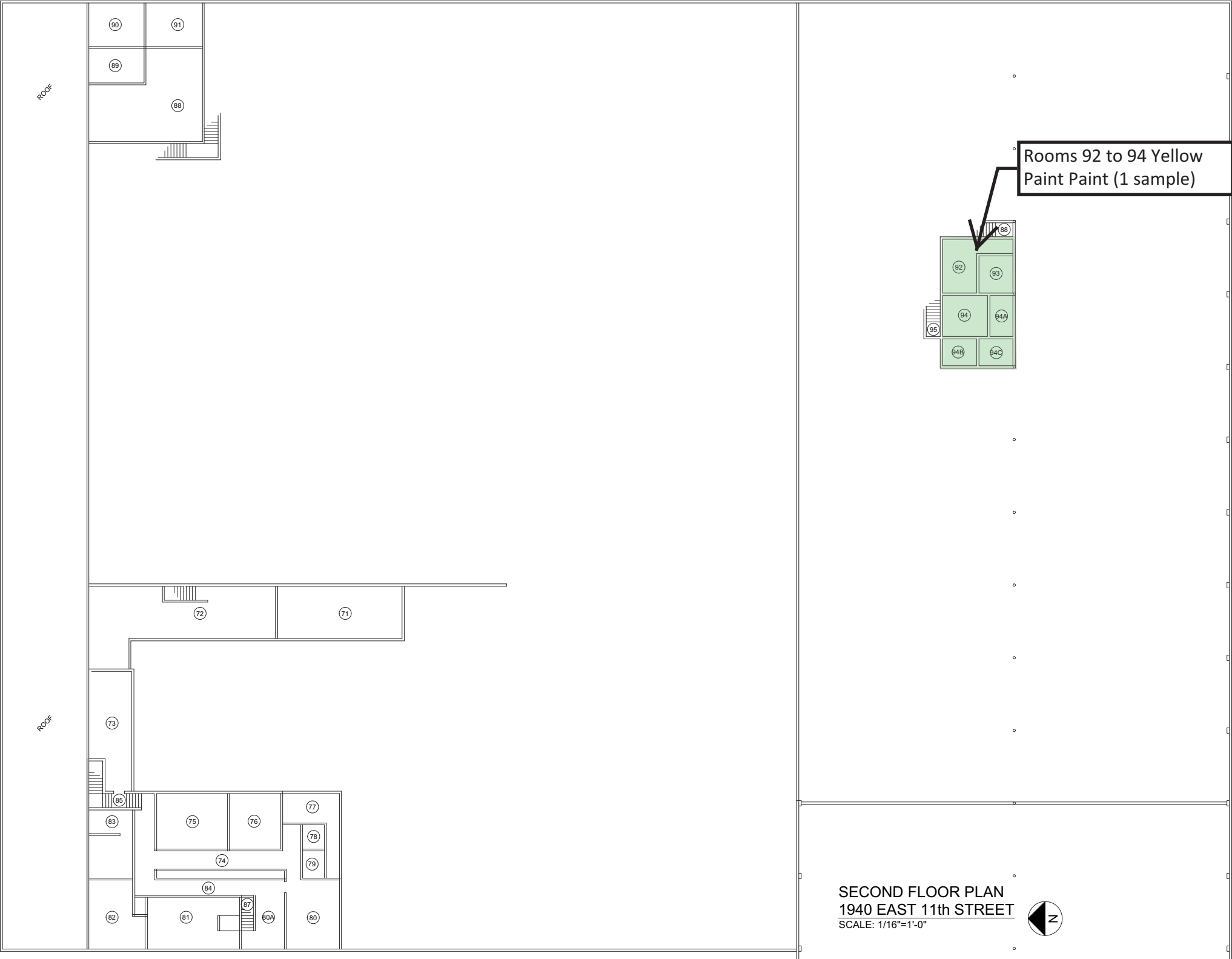
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BUILDING MATERIAL SAMPLES

FIGURE 9A

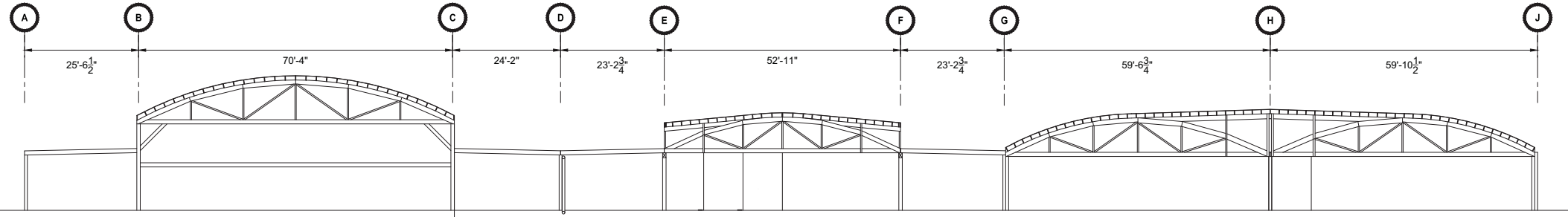
File: C:\Users\swp\appdata\local\temp\AcPublish_4756\PORT_FLOORPLAN.dwg Layout: D4 User: swp Plotted: Dec 16, 2013 - 3:37pm Xref's:

GENERAL NOTES:
1. ALL INTERIOR MEZZANINE WALLS ARE CONSTRUCTED OF WOOD UNLESS OTHERWISE NOTED.



SECOND FLOOR PLAN
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"

SECTION
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"



Appendix A Historical PCB-Related Reports

A1: 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling

A2: 1940 East 11th Street Building Materials Characterization Sampling

A3: 1940 East 11th Street Building Additional Soil Characterization Sampling

A4: Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling

A5: 1940 East 11th Street Building Soil Excavation Sampling and Documentation

A6: 2005 Letter documenting Near Surface Soil Investigation 1940 East 11th

**A1: 1940 East 11th Street Building Materials and
Soil/Sediment Characterization Sampling**

Memo



5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

Phone: 360.570.1700

Fax: 360.570.1777

www.uspioneer.com

to: Bill Evans (Port of Tacoma)
from: Stacy Munson
cc: Chris Waldron
date: June 6, 2012
subject: 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling

Dear Mr. Evans:

Per your request, PIONEER Technologies Corporation (PIONEER) recently conducted a materials characterization and soil/sediment sampling event at an approximately 117,000-square foot, two-story, vacant building located at 1940 East 11th Street in Tacoma, Washington (the building) (see Figure 1). The last tenant of the building was the Brown & Haley Company, and previous investigations referred to the building as the Brown & Haley building. It is our understanding that the building is slated for demolition.

Building paints, coatings, drywall, caulks, drip-line and offset surface soil, and catch-basin soil/sediment were sampled for polychlorinated biphenyls (PCBs) on April 24th, 25th, and 26th, 2012. Previous investigations partially characterized building materials (e.g., lead-based paint, asbestos, PCBs in paint and caulks, lead in concrete, and lead in building materials) found in and around the building (Argus Pacific, Inc. [Argus] 2010; PIONEER 2012). The purpose of this memo is to present a summary of the April 2012 field operations and sampling results, and compare all PCB sampling results obtained to date to regulatory screening and cleanup levels.

SAMPLING OBJECTIVES AND FIELD OPERATIONS

Building materials were initially sampled by PIONEER in March 2012, and building materials and soil/sediment were sampled in April 2012; the two sampling events will henceforth be referred to as Phase 1 and Phase 2, respectively. The Phase 2 characterization sampling event was designed to supplement and enhance the Phase 1 investigation and address the three primary objectives discussed below. Phase 2 field operations were conducted on April 24th, 25th, and 26th, 2012; samples were submitted to Analytical Resources Incorporated (ARI) in Tukwila, Washington on each of these three days. ARI also performed the analytical work on Phase 1 samples. Phase 2 field notes are presented in Attachment 1.

- Objective #1: Provide a thorough sampling survey of paints, coatings, drywall and caulks from the interior and exterior of the building to determine if these materials contain PCBs at levels of concern.

To achieve Objective #1, 50 discrete Phase 2 grab samples were collected from the interior and exterior of the building and submitted to ARI for analysis of PCB Aroclors using Environmental Protection Agency (EPA) Method SW846-8082A. Based on guidance from Port personnel, as well as the Phase 1 Investigation results (PIONEER 2012), paints, coatings, drywall and caulks (which represent the main types of suspect materials observed within the building) were sampled.

Paint and coating samples were collected using hand chisels, drywall samples were collected using drywall saws and hand chisels, and caulk samples were collected using a utility knife. Sampling equipment was decontaminated between each sampling location. Figures 2 and 3 present Objective #1 sample locations, and Figures 4 and 5 present the Objective #1 sample locations with the total PCB result for each sample.



- Objective #2: Determine whether or not PCBs in exterior paints, coatings and caulks have impacted soil proximate to the building.

To achieve Objective #2, 18 surface soil samples (from zero to six inches below ground surface) were collected and submitted to ARI for analysis of PCB Aroclors using EPA Method SW846-8082A. Eight samples were collected from shallow surface soil immediately adjacent to the building, and eight additional “step out” samples were collected approximately three feet from the building. In addition, two surface soil samples were collected from low-lying depressions along the northeast side of the structure.

Samples were collected using stainless-steel trowels and bowls, and were homogenized before being placed into jars. Trowels and bowls were decontaminated between each sampling location. Figures 6 and 7 present the sampling locations and total PCBs results, respectively, for Objective #2.

- Objective #3: Determine whether or not PCBs in exterior paints, coatings, caulks and site soil have migrated to soil/sediment in storm drains proximate to the building.

To achieve Objective #3, eight soil/sediment samples were collected from onsite catch basins and submitted to ARI for analysis of PCB Aroclors using EPA Method SW846-8082A. Based on guidance from Port personnel, the samples were collected from various grated catch basins in parking and loading dock areas.

Samples were collected by removing catch basin grates, and collecting soil/sediment using a standard long-handled shovel. Samples were homogenized in a stainless-steel bowl before being placed into jars. The long-handled shovel was decontaminated between each catch basin sampling location. Figures 6 and 7 present the sampling locations and total PCBs results, respectively, for Objective #3.

SAMPLING RESULTS

Tables 1-3 present the analytical results for samples collected per Objectives #1 through #3, respectively. Complete Phase 2 analytical laboratory reports are presented in Attachment 2. Phase 1 and 2 sampling results are summarized below with a comparison to several regulatory screening levels¹ specified by the Port.

Objective #1: Table 1 presents the analytical results obtained from Phase 1 and Phase 2 for individual PCB Aroclors in paint, coating, drywall and caulk samples. Of the 60 paint, coating, drywall and caulk samples, 21 samples (35%) had total PCB concentrations greater than the Toxic Substances Control Act (TSCA) regulated level of ≥ 50 mg/kg for PCB bulk product waste (EPA 2012).

Objective #2: Table 2 presents the analytical results for individual PCB Aroclors in exterior shallow soil samples. Of the 18 samples collected to satisfy Objective #2, 10 samples (56%) had total PCB concentrations greater than the Model Toxics Control Act (MTCA) Method A Unrestricted Land Use cleanup level of 1 mg/kg (WAC 173-340-740(2), Washington State Department of Ecology 2012).

Objective #3: Table 3 presents the analytical results for individual PCB Aroclors in catch basin soil/sediment samples. Six of the eight samples (75%) collected to satisfy Objective #3 had total PCB concentrations greater than the Commencement Bay, Near Shore/Tide Flats Superfund Site Sediment Quality Objective (SQO) of 0.3 mg/kg (EPA 1997).

¹ Screening levels were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

REFERENCES:

- Argus Pacific, Inc. 2010. Regulated Building Materials Assessment of the Brown and Haley Building. Port of Tacoma, Washington. March.
- Ecology. 2012. Cleanup Levels and Risk Calculation database, queried on May 15, 2012.
- EPA. 1997. EPA Superfund Explanation of Significant Differences: Commencement Bay, Near Shore/Tide Flats. EPA ID: WAD980726368. OU 1 - Sediment. Pierce County, WA. July 28.
- EPA. 2012. Title 40: Protection of Environment, Part 761 – Polychlorinated Biphenyls. Electronic Code of Federal Regulations, queried on May 15.
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FIGURES:

- Figure 1: Site Location
- Figure 2: 1940 East 11th Street Building 1st Floor Sample Locations
- Figure 3: 1940 East 11th Street Building 2nd Floor Sample Locations
- Figure 4: 1940 East 11th Street Building 1st Floor Sample Locations and Data
- Figure 5: 1940 East 11th Street Building 2nd Floor Sample Locations and Data
- Figure 6: 1940 East 11th Street Building Exterior Soil and Sediment Sample Locations
- Figure 7: 1940 East 11th Street Building Exterior Soil and Sediment Sample Locations and Data

TABLES:

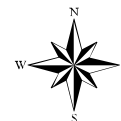
- Table 1: Sampling Objective #1 – Paints, Coatings, Drywall and Caulks – Sample Details and Results
- Table 2: Sampling Objective #2 – Exterior Shallow Soil – Sample Details and Results
- Table 3: Sampling Objective #3 – Catch Basin Soil/Sediment – Sample Details and Results

ATTACHMENTS:

- Attachment 1: Field Notes
- Attachment 2: Analytical Laboratory Reports

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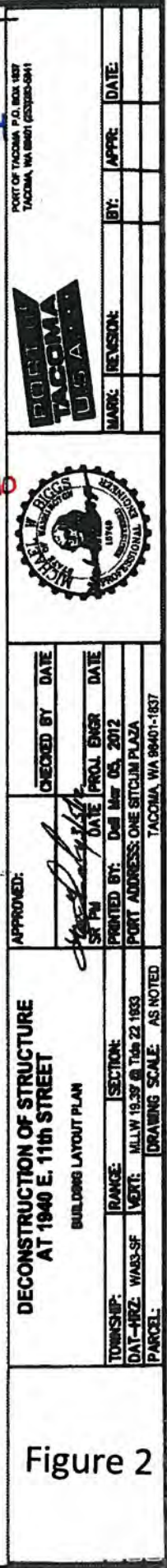
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Site Location
1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling
Port of Tacoma, Tacoma, Washington

DWN: SM	PROJECT:
DATE: June 2012	FIGURE NO.: 1

FILE: W:\605 Port of Tacoma\18 Auto Site Improvements E274\Drawings\BH-03-D4 (Floor Plan)



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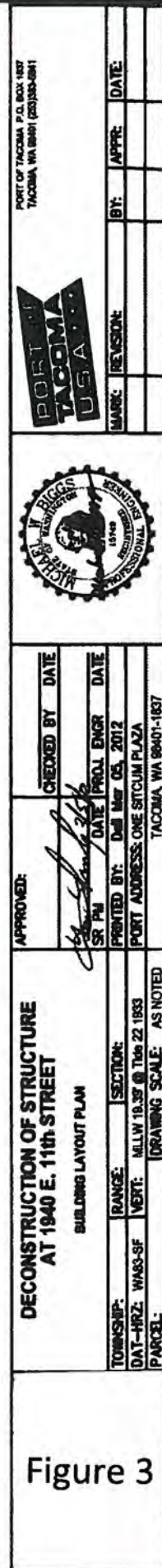


Figure 3

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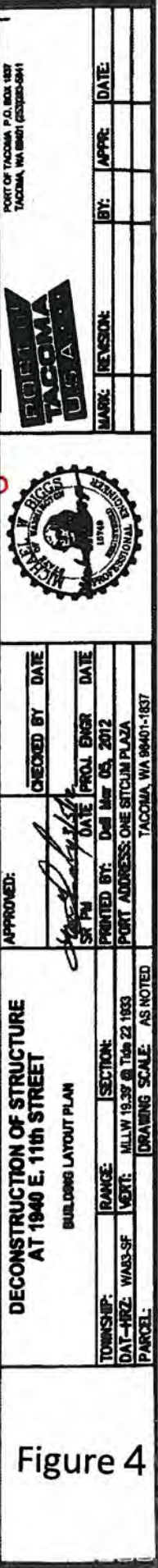
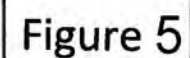


Figure 4

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Legend

Sample Locations

- ▲ Exterior Shallow Soil Depression Area
- Exterior Shallow Soil & Step-Outs
- Exterior Sediment Catch Basins

0 25 50 100 Feet



1940 East 11th Street Building Exterior Soil and Sediment Sample Locations
1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling
Port of Tacoma, Tacoma, Washington

DWN:

SM

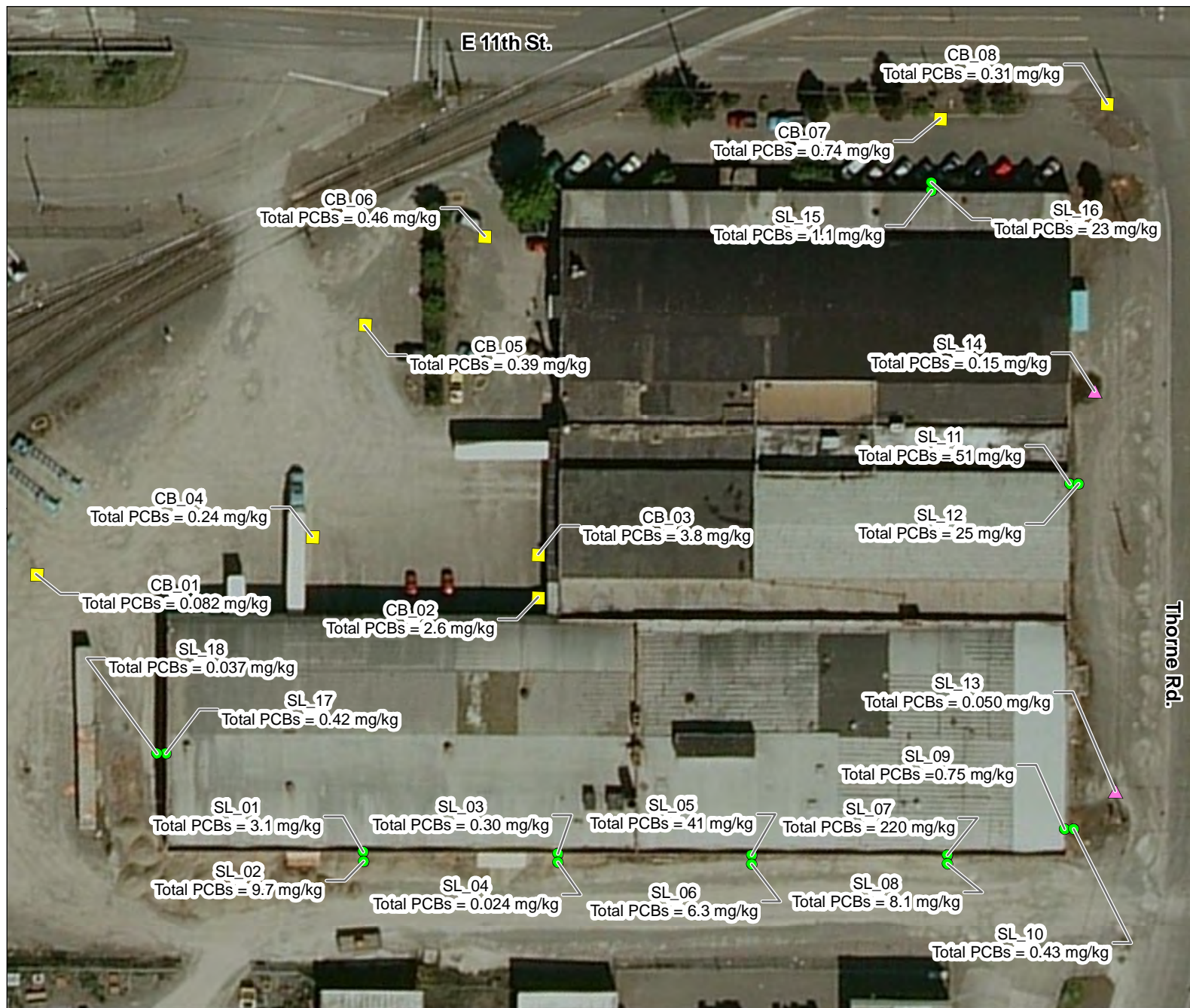
PROJECT:

DATE:

June 2012

FIGURE NO.:

6



- Legend**
- Sample Locations**
- ▲ Exterior Shallow Soil Depression Area
 - Exterior Shallow Soil & Step-Outs
 - Exterior Sediment Catch Basins

Notes:
PCBs: Polychlorinated biphenyls

0 25 50 100
Feet

DWN:	PROJECT:
SM	
DATE:	FIGURE NO.:
June 2012	7

1940 East 11th Street Building Exterior Soil and Sediment Sample Locations and Data
1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling
Port of Tacoma, Tacoma, Washington



Table 1: Sampling Objective #1 – Paints, Coatings, Drywall and Caulks – Sample Details and Results

Sample	Sampling Phase	Date Collected	Sample Location (see Figures 2, 3, 4, and 5)	PCB Aroclor Results (mg/kg)										TSCA-Regulated PCB Level (mg/kg)
				Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_PT_01_0_0_042512	Phase 2	4/25/2012	Area #4 - Glossy Grey Paint on Concrete	0.79 U	0.79 U	18	19	3.0	0.79 U	0.79 U	0.79 U	0.79 U	40	50
POT_BH_PT_02_0_0_042512	Phase 2	4/25/2012	Area #4 - Light Green Paint on Wood	0.80 U	0.80 U	11	11	1.2 Y	0.80 U	0.80 U	0.80 U	0.80 U	22	50
POT_BH_PT_03_0_0_042512	Phase 2	4/25/2012	Area #4 - Beige Paint on Fire Piping	0.76 U	0.76 U	26	17	2.9	0.76 U	0.76 U	0.76 U	0.76 U	46	50
POT_BH_PT_04_0_0_042512	Phase 2	4/25/2012	Area #4 - White Paint on Wood Wall	0.79 U	0.79 U	2.6	4.1	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	6.7	50
POT_BH_PT_05_0_0_042512	Phase 2	4/25/2012	Area #4 - Dull White Paint on Concrete Wall	0.77 U	0.77 U	7.2	14	1.5 Y	0.77 U	0.77 U	0.77 U	0.77 U	21	50
POT_BH_PT_06_0_0_042512	Phase 2	4/25/2012	Area #4 - Glossy Beige Paint on Concrete Wall	0.77 U	0.77 U	11	14	1.4 Y	0.77 U	0.77 U	0.77 U	0.77 U	25	50
POT_BH_PT_07_0_0_042512	Phase 2	4/25/2012	Area #4 - Dull Green Paint on Wood Wall	0.80 U	0.80 U	7.2	6.7	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	14	50
POT_BH_PT_08_0_0_042512	Phase 2	4/25/2012	Area #4 - Greenish-Blue Paint on Wood Wall	0.78 U	0.78 U	3.6	5.2	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	8.8	50
POT_BH_PT_09_0_0_042512	Phase 2	4/25/2012	Area #4 - White Paint on Wood Wall	0.77 U	0.77 U	3.5	2.8	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	6.3	50
POT_BH_CK_10_0_0_042512	Phase 2	4/25/2012	Exterior - Black Caulk Between Wall Joint	150 U	150 U	2,300 Y	7,700	770 Y	150 U	150 U	150 U	150 U	7,700	50
POT_BH_PT_11_0_0_042512	Phase 2	4/25/2012	Areas #3 and #4 - Dull Sage Paint on Support Columns	3.7 U	3.7 U	23 Y	39	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	39	50
POT_BH_PT_12_0_0_042512	Phase 2	4/25/2012	Area #3 - Green Paint on Concrete	3.9 U	3.9 U	91	97	12 Y	3.9 U	3.9 U	3.9 U	3.9 U	188	50
POT_BH_PT_13_0_0_042512	Phase 2	4/25/2012	Area #3 - Grey Paint on Concrete	780 U	780 U	7,800 Y	18,000	1,600 Y	780 U	780 U	780 U	780 U	18,000	50
POT_BH_PT_14_0_0_042512	Phase 2	4/25/2012	Area #3 - Dark Grey Paint on Concrete	4 U	4 U	200	180	12 Y	4 U	4 U	4 U	4 U	380	50
POT_BH_PT_15_0_0_042512	Phase 2	4/25/2012	Area #3 - Orange Paint on Electrical Panels	4 U	4 U	120	100	6 Y	4 U	4 U	4 U	4 U	220	50
POT_BH_PT_16_0_0_042512	Phase 2	4/25/2012	Area #3 - Light Beige Paint on Concrete Wall	3.7 U	3.7 U	62	32	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	94	50
POT_BH_PT_17_0_0_042512	Phase 2	4/25/2012	Area #3 - Grey Floor Paint with Salmon-Colored Paint Beneath	4 U	4 U	120	120	10 Y	4 U	4 U	4 U	4 U	240	50

Table 1: Sampling Objective #1 – Paints, Coatings, Drywall and Caulks – Sample Details and Results

Sample	Sampling Phase	Date Collected	Sample Location (see Figures 2, 3, 4, and 5)	PCB Aroclor Results (mg/kg)										TSCA-Regulated PCB Level (mg/kg)
				Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_PT_18_0_0_042512	Phase 2	4/25/2012	Area #3 - Black Paint on Wood/Drywall	3.9 U	3.9 U	51	36	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	87	50
POT_BH_DW_19_0_0_042512	Phase 2	4/25/2012	Area #3 - Drywall	0.75 U	0.75 U	1.6	2.2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8	50
POT_BH_PT_20_0_0_042512	Phase 2	4/25/2012	Area #2 - Yellow Paint Striping on Concrete	3.7 U	3.7 U	20	46	9.1	3.7 U	3.7 U	3.7 U	3.7 U	75	50
POT_BH_PT_21_0_0_042512	Phase 2	4/25/2012	Area #2 - White Floor Paint on Concrete Floors Near Walls	0.78 U	0.78 U	15	22	1.9 Y	0.78 U	0.78 U	0.78 U	0.78 U	37	50
POT_BH_PT_22_0_0_042512	Phase 2	4/25/2012	Area #2 - Grey Floor Paint with Walnut Shells on Concrete	0.78 U	0.78 U	3.3	2.0	1.0	0.78 U	0.78 U	0.78 U	0.78 U	6.3	50
POT_BH_PT_23_0_0_042512	Phase 2	4/25/2012	Areas #2 and #3 - Sage Green Paint on Metal Fire Doors (2 part composite)	0.77 U	0.77 U	11	12	1.4 Y	0.77 U	0.77 U	0.77 U	0.77 U	23	50
POT_BH_DW_24_0_0_042512	Phase 2	4/25/2012	Area #2 - Drywall	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0	50
POT_BH_PT_25_0_0_042512	Phase 2	4/25/2012	Area #4 - Pink Trim Paint on Wood Doors and Trim	0.79 U	0.79 U	11	17	1.4 Y	0.79 U	0.79 U	0.79 U	0.79 U	28	50
POT_BH_PT_26_0_0_042512	Phase 2	4/25/2012	Area #2 - Light Green Paint Covering Dark Green Paint on Cinder Block Wall	0.78 U	0.78 U	13	11	0.97 Y	0.78 U	0.78 U	0.78 U	0.78 U	24	50
POT_BH_PT_27_0_0_042612	Phase 2	4/26/2012	Exterior - Glossy Yellow Paint	770 U	770 U	3,100 Y	8,800	960 Y	770 U	770 U	770 U	770 U	8,800	50
POT_BH_PT_28_0_0_042612	Phase 2	4/26/2012	Exterior - Glossy Yellow Paint	290 U	290 U	4,400 Y	11,000	1,100 Y	290 U	290 U	290 U	290 U	11,000	50
POT_BH_PT_29_0_0_042612	Phase 2	4/26/2012	Exterior - Glossy Yellow Paint	300 U	300 U	3,700 Y	9,000	890 Y	300 U	300 U	300 U	300 U	9,000	50
POT_BH_PT_30_0_0_042612	Phase 2	4/26/2012	Exterior - Glossy Yellow Paint	1,600 U	1,600 U	7,800 Y	20,000	1,900 Y	1,600 U	1,600 U	1,600 U	1,600 U	20,000	50
POT_BH_PT_31_0_0_042612	Phase 2	4/26/2012	Exterior - 2nd Story Red Paint on Wood	0.76 U	0.76 U	1.5 Y	3.8	2.1 P	0.76 U	0.76 U	0.76 U	0.76 U	5.9	50
POT_BH_PT_32_0_0_042612	Phase 2	4/26/2012	Area #2 - White/Beige Paint on Wood Siding Wall	0.80 U	0.80 U	7.2 Y	10	1.2 Y	0.80 U	0.80 U	0.80 U	0.80 U	10	50
POT_BH_PT_33_0_0_042612	Phase 2	4/26/2012	Area #1 - Glossy Green Paint on Cinder Block Wall	0.76 U	0.76 U	7.1	7.0	3.7	0.76 U	0.76 U	0.76 U	0.76 U	18	50
POT_BH_PT_34_0_0_042612	Phase 2	4/26/2012	Area #1 - Glossy White Paint on Cinder Block/Concrete Wall	0.77 U	0.77 U	8.7	10	5.0	0.77 U	0.77 U	0.77 U	0.77 U	24	50

Table 1: Sampling Objective #1 – Paints, Coatings, Drywall and Caulks – Sample Details and Results

Sample	Sampling Phase	Date Collected	Sample Location (see Figures 2, 3, 4, and 5)	PCB Aroclor Results (mg/kg)										TSCA-Regulated PCB Level (mg/kg)
				Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_PT_35_0_0_042612	Phase 2	4/26/2012	Area #1 - Glossy Green Paint on Wood Wall	0.79 U	0.79 U	15	27	12	0.79 U	0.79 U	0.79 U	0.79 U	54	50
POT_BH_PT_36_0_0_042612 ⁽¹⁾	Phase 2	4/26/2012	Area #1 - Glossy Grey Floor Paint on Concrete	0.79 U	0.79 U	7.3	17.5	5.75	0.79 U	0.79 U	0.79 U	0.79 U	31	50
POT_BH_PT_37_0_0_042612	Phase 2	4/26/2012	Area #1 - Yellow Paint on Composite Wall	0.80 U	0.80 U	3.6	4.5	1.6 Y	0.80 U	0.80 U	0.80 U	0.80 U	8.1	50
POT_BH_CK_38_0_0_042612	Phase 2	4/26/2012	Area #1 and #2 and #3 - Caulk along Glass Windows (3 part composite)	0.80 U	0.80 U	3.8	2.6	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	6.4	50
POT_BH_PT_39_0_0_042612	Phase 2	4/26/2012	Area #1 - Glossy Red Paint on Composite Wall	0.79 U	0.79 U	7.7	2.8 Y	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	7.7	50
POT_BH_CK_40_0_0_042612	Phase 2	4/26/2012	Area #2 - Floor Caulk between Floor Joints	0.79 U	0.79 U	11	16	3.2	0.79 U	0.79 U	0.79 U	0.79 U	30	50
POT_BH_PT_41_0_0_042612	Phase 2	4/26/2012	Area #1 - Fleshly Pink Paint on Wood Doors and Trim	0.77 U	0.77 U	10	7.9	1.7 Y	0.77 U	0.77 U	0.77 U	0.77 U	18	50
POT_BH_CK_42_0_0_042612	Phase 2	4/26/2012	Area #3 - Floor Caulk between Floor Joints	15 U	15 U	540	270	22 Y	15 U	15 U	15 U	15 U	810	50
POT_BH_PT_43_0_0_042612	Phase 2	4/26/2012	Area #1 - White Paint on Drywall	0.73 U	0.73 U	3.1	1.1	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	4.2	50
POT_BH_PT_44_0_0_042612	Phase 2	4/26/2012	Area #1 - Dark Brown Paint on Wood Doors and Trim	0.80 U	0.80 U	8.0	5.3	1.3 Y	0.80 U	0.80 U	0.80 U	0.80 U	13	50
POT_BH_PT_45_0_0_042612	Phase 2	4/26/2012	Area #1 - Dark Red Paint on Drywall	0.73 U	0.73 U	6.9	2.5	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	9.4	50
POT_BH_PT_46_0_0_042612	Phase 2	4/26/2012	Area #1 - Green Paint on Wood Wall	0.75 U	0.75 U	17	10	3.4 Y	0.75 U	0.75 U	0.75 U	0.75 U	27	50
POT_BH_PT_47_0_0_042612	Phase 2	4/26/2012	Area #1 - Yellow Paint on Drywall	0.78 U	0.78 U	3.9	3.5	6.8	0.78 U	0.78 U	0.78 U	0.78 U	14	50
POT_BH_PT_48_0_0_042612	Phase 2	4/26/2012	Area #1 - Greyish Green Paint on Low Concrete Wall	0.73 U	0.73 U	8.8	8.4	1.8	0.73 U	0.73 U	0.73 U	0.73 U	19	50
POT_BH_PT_49_0_0_042612	Phase 2	4/26/2012	Area #5 - Bluish Green Paint on Drywall	0.75 U	0.75 U	4.3	2.9	1.8	0.75 U	0.75 U	0.75 U	0.75 U	9.0	50
POT_BH_DW_50_0_0_042612	Phase 2	4/26/2012	Area #5 - Drywall	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0	50
BH_OB2_1_032112	Phase 1	3/21/2012	(Area #1, Area #4 two part sample) Wall Caulk	3.7 U	3.7 U	11 Y	17	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	17	50

Table 1: Sampling Objective #1 – Paints, Coatings, Drywall and Caulks – Sample Details and Results

Sample	Sampling Phase	Date Collected	Sample Location (see Figures 2, 3, 4, and 5)	PCB Aroclor Results (mg/kg)										TSCA-Regulated PCB Level (mg/kg)
				Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
BH_OB2_2_032112	Phase 1	3/21/2012	(Area #1, Area #4 two part sample) Floor Caulk	4.0 U	4.0 U	78 B	56 B	6.0 Y	4.0 U	4.0 U	4.0 U	4.0 U	134	50
BH_OB2_3_032112	Phase 1	3/21/2012	(Area #1, Area #3, Area #4, Area #4 four part sample) Floor Paint	78 U	78 U	390 Y	1,900 B	350 Y	78 U	78 U	78 U	78 U	1,900	50
BH_OB2_4_032112	Phase 1	3/21/2012	(Area #4) Exterior Yellow Paint - South	800 U	800 U	8,000 Y	22,000 B	2,000 Y	800 U	800 U	800 U	800 U	22,000	50
BH_OB2_5_032112	Phase 1	3/21/2012	(Area #1) Exterior Yellow Paint - West	730 U	730 U	7,300 Y	18,000 B	1,800 Y	730 U	730 U	730 U	730 U	18,000	50
BH_OB2_6_032112	Phase 1	3/21/2012	(Area #1) Exterior Red Paint - North	20 U	20 U	300 Y	800 B	79 Y	20 U	20 U	20 U	20 U	800	50
BH_OB2_7_032112	Phase 1	3/21/2012	(Area #4) Interior Green Paint	3.8 U	3.8 U	29 Y	47 B	31 P	3.8 U	3.8 U	3.8 U	3.8 U	78	50
BH_OB2_8_032112	Phase 1	3/21/2012	(Area #3) Interior Metallic silver Paint	0.78 U	0.78 U	5.9 Y	11 B	1.9	0.78 U	0.78 U	0.78 U	0.78 U	13	50
BH_OB2_9_032112	Phase 1	3/21/2012	(Area #4) Interior White on Bottom of Walls	3.8 U	3.8 U	18	12	3.8 U	3.8 U	3.8 U	3.8 U	5.8 Y	30	50
BH_OB2_10_032112	Phase 1	3/21/2012	(Area #1) Interior White in Northeast Portion of Building	3.7 U	3.7 U	4.6 Y	7.0	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	7.0	50

Notes:

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

TSCA: Toxic Substances Control Act

⁽¹⁾ A field duplicate was collected for this sample. Results shown for each Aroclor are a combination of both sample and field duplicate. If both samples were non-detect, lower reporting limit is shown. If one sample was detected, detected value is shown. If both samples were detected, average is shown.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detected at the shown concentration, reporting limit is raised due to chromatograph interference.

B=analyte was detected in the associated method blank.

P=analyte was detected on both chromatograph columns but the quantified relative percent difference was greater than 40%.

Table 2: Sampling Objective #2 – Exterior Shallow Soil – Sample Details and Results

Sample	Date Collected	Sample Location (see Figures 6 and 7)	PCB Aroclor Results (mg/kg)										MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)
			Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_SL_01_0_0.5_042412	4/24/2012	Exterior Shallow Soil	0.27 U	0.27 U	0.93 Y	3.1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	3.1	1
POT_BH_SL_02_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.44 U	0.44 U	4.4 Y	9.7	1.1 Y	0.44 U	0.44 U	0.44 U	0.44 U	9.7	1
POT_BH_SL_03_0_0.5_042412	4/24/2012	Exterior Shallow Soil	0.047 U	0.047 U	0.083 Y	0.30	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.30	1
POT_BH_SL_04_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.0083 U	0.0083 U	0.010 Y	0.024	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.0083 U	0.024	1
POT_BH_SL_05_0_0.5_042412	4/24/2012	Exterior Shallow Soil	4.4 U	4.4 U	12 Y	41	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	41	1
POT_BH_SL_06_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.28 U	0.28 U	2.8 Y	6.3	0.69 Y	0.28 U	0.28 U	0.28 U	0.28 U	6.3	1
POT_BH_SL_07_0_0.5_042412	4/24/2012	Exterior Shallow Soil	42 U	42 U	66 Y	220	42 U	42 U	42 U	42 U	42 U	220	1
POT_BH_SL_08_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	1.1 U	1.1 U	3.2 U	8.1	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	8.1	1
POT_BH_SL_09_0_0.5_042412 ⁽²⁾	4/24/2012	Exterior Shallow Soil	47 U	47 U	150 Y	0.75	56 Y	47 U	47 U	47 U	47 U	0.75	1
POT_BH_SL_10_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.0088 U	0.0088 U	0.11 Y	0.34	0.091	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.43	1
POT_BH_SL_11_0_0.5_042412	4/24/2012	Exterior Shallow Soil	8.6 U	8.6 U	14 Y	51	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	51	1
POT_BH_SL_12_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	1.2 U	1.2 U	9.0 Y	19	5.5	1.2 U	1.2 U	1.2 U	1.2 U	25	1
POT_BH_SL_13_0_0.5_042412	4/24/2012	Exterior Shallow Soil - Depression Area	0.048 U	0.048 U	0.048 U	0.050	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.050	1
POT_BH_SL_14_0_0.5_042412	4/24/2012	Exterior Shallow Soil - Depression Area	0.047 U	0.047 U	0.047 U	0.15	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.15	1
POT_BH_SL_15_0_0.5_042412	4/24/2012	Exterior Shallow Soil	0.097 U	0.097 U	0.32 Y	1.1	0.097 U	0.097 U	0.097 U	0.097 U	0.097 U	1.1	1
POT_BH_SL_16_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.46 U	0.46 U	9.3 Y	23	2.3 Y	0.46 U	0.46 U	0.46 U	0.46 U	23	1

Table 2: Sampling Objective #2 – Exterior Shallow Soil – Sample Details and Results

Sample	Date Collected	Sample Location (see Figures 6 and 7)	PCB Aroclor Results (mg/kg)										MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)
			Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_SL_17_0_0.5_042412	4/24/2012	Exterior Shallow Soil	0.049 U	0.049 U	0.13 Y	0.42	0.049 U	0.049 U	0.049 U	0.049 U	0.049 U	0.42	1
POT_BH_SL_18_0_0.5_042412	4/24/2012	Exterior Shallow Soil - 3 Foot Stepout	0.0085 U	0.0085 U	0.011 Y	0.037	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.037	1

Notes:

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

MTCA: Model Toxics Control Act

⁽¹⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

⁽²⁾A field duplicate was collected for this sample. Results shown for each Aroclor are a combination of both sample and field duplicate. If both samples were non-detect, lower reporting limit is shown. If one sample was detected, detected value is shown. If both samples were detected, average is shown.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detected at the shown concentration, reporting limit is raised due to chromatograph interference.

B=analyte was detected in the associated method blank.

P=analyte was detected on both chromatograph columns but the quantified relative percent difference was greater than 40%.

Table 3: Sampling Objective #3 – Catch Basin Soil/Sediment – Sample Details and Results

Sample	Date Collected	Sample Location (see Figures 6 and 7) and Composition	PCB Aroclor Results (mg/kg)										Soil/Sediment PCB Screening Level	
			Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	SQO ⁽¹⁾ (mg/kg)	MTCA Method A ⁽²⁾ (mg/kg)
POT_BH_CB_01_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.048 U	0.048 U	0.048 U	0.082	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.082	0.3	1
POT_BH_CB_02_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.24 U	0.24 U	0.73 Y	2.6	0.62 Y	0.24 U	0.24 U	0.24 U	0.24 U	2.6	0.3	1
POT_BH_CB_03_0_0_042412 ⁽³⁾	4/24/2012	Catch Basin Soil/Sediment	0.50 U	0.50 U	0.59 U	3.8	0.59 U	0.50 U	0.50 U	0.50 U	0.50 U	3.8	0.3	1
POT_BH_CB_04_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.048 U	0.048 U	0.058 Y	0.24	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.24	0.3	1
POT_BH_CB_05_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.048 U	0.048 U	0.10 Y	0.39	0.099 Y	0.048 U	0.048 U	0.048 U	0.048 U	0.39	0.3	1
POT_BH_CB_06_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.048 U	0.048 U	0.090 Y	0.46	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.46	0.3	1
POT_BH_CB_07_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.18 U	0.18 U	0.18 U	0.74	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.74	0.3	1
POT_BH_CB_08_0_0_042412	4/24/2012	Catch Basin Soil/Sediment	0.050 U	0.050 U	0.085 Y	0.31	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.31	0.3	1

Notes:

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

⁽¹⁾Commencement Bay, Near Shore/Tide Flats Superfund Site PCB Sediment Quality Objective

⁽²⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

⁽³⁾A field duplicate was collected for this sample. Results shown for each Aroclor are a combination of both sample and field duplicate. If both samples were non-detect, lower reporting limit is shown. If one sample was detected, detected value is shown. If both samples were detected, average is shown.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detected at the shown concentration, reporting limit is raised due to chromatograph interference.

B=analyte was detected in the associated method blank.

P=analyte was detected on both chromatograph columns but the quantified relative percent difference was greater than 40%.

Attachment 1

PIONEER DAILY FIELD REPORT

Date: 4/24/12 Site Location: Drawn & Holly Bldg Site Arrival Time: 7:20 Site Departure Time: 4:15

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Steve Munson	PTC	7:30 - 4:15
Gretchen Millari	PTC	7:30 - 4:15
Bill Evans	PAT	8:00 -

Day 1
① of 4

NOTES ON WORK COMPLETED

- 7:30 Arrive on site, tailgate safety meeting. Unload roll-up door and begin unloading and setup of equipment.
- 8:00 Meet with Bill Evans. Begin walking perimeter of site, identifying sampling locations for soil and catch basin sampling. Created preliminary sampling plan map with guidance from Bill.
- 8:30 Set up to begin soil sampling along south side of building. Will collect 4 samples right by building and 4 steepent samples 3' out from those. Begin by collecting sample POT-BH-SL-01-0-0.5-042412 from approximately 100' east of SW building corner. Collected sample POT-BH-SL-02-0-0.5-042412 at 8:55. Glass at 8:45 collect approximately 0-4" thick at locations 01 and 02.
- 9:00 Collected sample POT-BH-SL-03-0-0.5-042412 at 9:10. More plant matter present at location 03, and mixed glass collect and soil closely resemble soil composition from 01 and 02. Collected sample POT-BH-SL-04-0-0.5-042412 at 9:20 am.
- 9:30 Collected sample POT-BH-SL-05-0-0.5-042412 at 9:30 am. This glass collect, and more organic material than 03 and 04. Collected sample POT-BH-SL-06-0-0.5-042412 at 9:40 am. steepent from 05. All samples along south side were spaced 100' from each other.
- 10:00 Moved to east side of building. Collected sample at POT-BH-SL-09-0-0.5-042412 at 10 ft. from SE corner of building. Also collected sufficient sample volume for field duplicate POT-BH-SL-DUP-0-0.5-042412. Prior to collecting 09 and DUP collected final 100 ft spacing samples on south side of building. POT-BH-SL-07-0-0.5-042412 at 9:50, and POT-BH-SL-08-0-0.5-042412 at 10:00.

SIGNATURE: Steve Munson

DATE: 4/24/12

PIONEER DAILY FIELD REPORT

Date: 4/24/12 Site Location: Brown + Haley Bluffs Site Arrival Time: 7:30 Site Departure Time: 4:15

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME _____

ASSOCIATION

TIME ON-SITE AND OFF-SITE

[illegible]

NOTES ON WORK COMPLETED

10:00 Collected sample POT-BH-SL-10-O-0.5-042412 at stepout
From 09, on East side of building, at 10:20 am.
Collected sample POT-BH-SL-11-O-0.5-042412 at 10:30,
130 ft From NE corner of building, along eastern
exterior wall. Collected sample POT-BH-SL-12-O-0.5-042412
at stepout to 11, at 10:40 am.

10:40. Sampling low depression areas on East side of
highway. Collected sample POT-BH-SL-13-0-0.5-042412 from
southernmost depression at 10:50 am. Collected sample
POT-BH-SL-14-0-0.5-042412 at 11:00. From northernmost depression.

11:00 Sampling triangular landscaping areas on north end of building.
Collected sample POT-BH-SL-15-0-0.5-042412 70' from NE corner
of building, at 11:10 am. Collected sample POT-BH-SL-16-0-0.5-042412
as stepped to 15, at 11:20 am

11:30 Sampling on west side of building. Thick glass cullet layer, and very gravelly soils beneath. Collected sample POT-BH-SL-17-0-0.5-042412 50 Feet from southwest corner of building, at 11:30 am. Collected sample POT-BH-SL-18-0-0.5-042412 as stepout for it, at 11:40 am.

12:00	Break For Lunch
-------	-----------------

SIGNATURE:

DATE: 4/24/12

PIONEER DAILY FIELD REPORT

Date: 4/24/12 Site Location: Brown + Haley Bldg Site Arrival Time: 7:30 Site Departure Time: 4:15

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 1
③ of 4

NOTES ON WORK COMPLETED

12:30 Meet briefly w/ Bill, then begin catch basin sampling.

Began at furthest catch basin to the west.

Opened catch basin. Drain leads to the east.

Collected sample POT-BH-CB-01-0-0-042412 using decontaminated shovel at 1:00pm. Closed grate, and decontaminated shovel.

Moved to catch basin in corner of loading dock area. Drain leads to the north. Collected sample POT-BH-CB-02-0-0-042412 using decontaminated shovel at 1:15 pm.

Moved to catch basin just north of catch basin 02. Opened grate, and collected sample POT-BH-CB-03-0-0-042412 using decontaminated shovel at 1:30pm. Also collected sufficient sample volume for a field duplicate, sample POT-BH-CB-DUP-0-0-042412 at 1:45p.

Moved to catch basin between 01 and 02/03. Opened grate, and collected sample POT-BH-CB-04-0-0-042412 using decontaminated shovel at 1:55pm.

2:00 Moved to catch basin 05. Opened grate, deeper than others, heavy shear observed in sludge. Collected sample POT-BH-CB-05-0-0-042412 using decontaminated shovel at 2:05pm.

Moved to catch basin 06. Opened grate, very little material in catch basin. Mostly organic debris, decomposing, with little sediment/soil present. Collected sample POT-BH-CB-06-0-0-042412 using decontaminated shovel at 2:20.

SIGNATURE:

Sherry Munn

DATE:

4/24/12

PIONEER DAILY FIELD REPORT

Date: 4/24/12 Site Location: Brown + Haley Bldg Site Arrival Time: 7:30 Site Departure Time: 4:15

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
16-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 1
4 of 4

NOTES ON WORK COMPLETED

2:30 Setup on Catch basin 07, NW of entrance to B+H Building. Large amount of organic material, about 1/2 1/2 with sediments. Collected sample ~~POT-BH-07-010~~ POT-BH-CB-07-0-0-042412 using decontaminated shovel at 2:35

2:45 Setup on Catch basin 08, at NW corner of B+H Building. Heavy organic material, deep circular catch basin. Collected sample POT-BH-CB-08-0-0-012412 using decontaminated shovel at 2:45 pm. Returned all soil sampling gear to van.

3:00 Heading to front of building to collect 2nd story exterior sample, however, ladder was gone. Will collect tomorrow. Filled out chains for soil samples. Met with Bill, discussed plan for paint sampling tomorrow

3:45 Began re-survey of interior B+H Building, based on Troy's previous survey.

4:00 ARI Sample pickup

4:15 off-site

SIGNATURE: Steve Munn

DATE: 4/24/12

PIONEER DAILY FIELD REPORT

Date: 4/25/12 Site Location: Brown + Haley Bldg Site Arrival Time: 7:30 Site Departure Time: 5:15

WEATHER
TEMPERATURE
WIND

Clear Sun To 32 Calm	Overcast 32-50 Med.	Drizzle 50-70 Strong	Rain 70-85 Severe	Snow 85 Up
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PEOPLE PRESENT ON-SITE

NAME ASSOCIATION TIME ON-SITE AND OFF-SITE

Stacy Munson	PTC	7:30-5:15
Gretchen Muller	PTC	7:26-4:45
Bill Evans	POT	8:00-
Dave Myers	POT	8:00-

Day 2
① of 2

NOTES ON WORK COMPLETED

7:30 Arrive on-site w/ Gretchen Setup equipment

8:00 Meet w/ Bill Evans and Dave? from POT. Commence building walkthrough. Identifying sampling locations and areas as well as the different types of paints present in each area. Refining sampling plan.

9:15 Commence sampling at extension of building in SW corner collected grey paint floor sample 01. Collected sample 02 from wood wall in SW corner. Light green paint. Collected sample 03 from beige-painted fire pipe extending through SW corner office room, which also contained 03. Collected sample 04 from white/beige painted wood wall which divides SW extension of building. Collected sample 05 from beige wall surrounding roll-up doors in SW extension of building. Collected sample 06 from glossy beige wall near SW offices and XFMR room.

10:30 Collected sample 07 from green paint on wood on exterior of SW offices. Collected 08 from greenish-blue paint on small square structure near roll-up door. Collected 09 from textured interior white walls in SW offices. Collected 10 (caulk) from exterior of building in wall joint identified by Bill Evans. Black, hard tacky substance.

11:30 Collected sample 11 from multiple lt sage green metal pillars which run the length of the large southern extension.

12:30 Collected sample 12 from green paint on wall (which also has lt grey & dark grey paint) along southern exterior wall. Collected sample 13 from lt grey paint on same wall as 12.

SIGNATURE: _____

Stacy Munson

DATE: 4/25/12

PIONEER DAILY FIELD REPORT

Date: 4/25/12 Site Location: Brown + Haley Bldg Site Arrival Time: 7:30 Site Departure Time: 5:15

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 2
② of 2

NOTES ON WORK COMPLETED

1:00 Collected sample 14 From dark grey paint on same wall as 12 and 13. Collected sample 15 from orange paint on metal electrical cabinet. Collected sample 16 from light beige/white wall near bathrooms. Collected 17 from grey floor near bathrooms in long building extension, which also had a salmon-colored floor paint beneath it. Collected sample 18 from black-painted drywall adjacent to bathrooms.

2:00 Collected sample 19 from drywall near interior monitoring well. Collected sample 20 from yellow striping paint on floor. Collected sample 21 from white floor paint near wall bumper paint, along wooden wall near 20.

3:00 Collected sample 22 from grey floor paint w/ walnut chunks. Collected sample 23 from two sage green fire doors. Scrapped paint from both composited sample. Collected sample 24 from drywall near 2nd boiler room. Collected sample 25 from pink trim on door and boards in SW offices area. Collected sample 26 from lt. green paint on grey paint, near room where 22 was collected.

4:00 Packing up gear and filling out COCs

5:10 Air sample pickup: off-site.

SIGNATURE: _____

Sherry Munn

DATE: _____

4/25/12

PIONEER DAILY FIELD REPORT

Date: 4/26/12 Site Location: Brown & Hickey Site Arrival Time: 7:30 Site Departure Time: 2:00

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Stacy Munson	PTC	7:30 - 2:00
Gretchen Mullovi	PTC	7:30 - 2:00
Dave Myers	POT	7:30 - 7:40

Day 3

① of 2

NOTES ON WORK COMPLETED

7:30 Arrive up site meet Dave Myers to get access to building. Quick tailgate safety meeting and begin sampling exterior paint.

8:00 Collected sample 27 from exterior yellow paint on western exterior wall. Potentially white and bright yellow paint observed beneath top coat. Collected sample 28 from Eastern exterior wall of building. Collected sample 29 from Northern exterior wall near loading bay doors. Yellow and light green paint observed beneath outer coating. Collected sample 30 from Northern exterior wall, near main entrance. Collected sample 31 from 2nd story exterior red. Used window access from 2nd story office to reach sampling location. Collected sample 32 from white/beige paint on fence-and-grave siding wall, near white shipping container.

9:00 Collected sample 33 from green-painted walls in small room adjacent to shipping container walk-through. Paint appeared glossy. Collected sample 34 from white glossy painted walls in area between open warehouse and shipping container. Glossy white paint, mostly on cinder block walls. Collected sample 35 from glossy green paint on wood, near outside of white-painted cinder-block room near shipping container. Small wood wall juts out into warehouse. Collected sample 36 from grey floor paint at office/warehouse transition room. Also collected field duplicate at 36. Collected sample 37 from yellow paint in hallway connecting to office/warehouse transition room.

SIGNATURE: _____

Stacy Munson

DATE: _____

4/26/12

PIONEER DAILY FIELD REPORT

Date: 4/26/12 Site Location: Brown & Haley Bldg Site Arrival Time: 7:30 Site Departure Time: 2:00

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 4/3

(2)

NOTES ON WORK COMPLETED

10:00 Collected sample 38 from 3 windows. Sampled window could be a 7-part composite. From similar type windows in 3 sections of building, all along eastern wall. Collected sample 39 from red-painted wall in office area, near mail room. Collected sample 40 from floor could be in open warehouse area south of office/warehouse transition room. From floor could be in between floor joints. Collected sample 41 from flesh-colored paint on door in office area, near mail room. Collected sample 42 from floor could be in southeast corner of building between floor joints. Black-colored could be. Collected sample 43 as white paint on walls in office areas. Nearly all offices appear to be painted with the same white paint as 43.

11:00 Collected sample 44 from brass trim on doors and door jags in office areas. Collected sample 45 from dark red paint in office very near to main building entrance. Collected sample 46 from glossy green paint on wood in small storage closet in office area near main entrance. Collected sample 47 from beige/yellow paint in northern bathroom for offices. Collected sample 48 from dark green paint on low concrete walls in northernmost corner of building. Collected sample 49 from bluish green paint in 2nd story office with windows. Collected sample 50 from drywall in 2nd story offices landing room.

12:00 Filling out CDC Forms, conducted photo survey of entire building where all samples were collected.

Pack up gear, dump decon water down sink, off site following AECI sample pickup.

SIGNATURE:

Stacy Munn

DATE:

4/26/12

Attachment 2

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 0058	Turn-around Requested: NO LATER THAN	Page: 1 of 2
ARI Client Company: PORT OF TACOMA	Phone: 253-543-4563	Date: 3/21/12
Client Contact: BILL EVANS (w.evans@porttacomawash.com)	360-570-1700	Ice Present? N
Client Project Name: BROWN HARBOR BUDG DEND (PO# 53586)	Sampers: SM-24	No. of Coolers: 1
Client Project #: PO# 53586	360-570-1700	Cooler Temps: 11.2



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested					Notes/Comments
BH-OB2-1-032112	3/21/12	1100	BUILDING MATERIAL	1	✓					
BH-OB2-2-032112	3/21/12	1110	BUILDING MATERIAL	1	✓					
BH-OB2-3-032112	3/21/12	1230		1	✓					
BH-OB2-4-032112	3/21/12	1345		1	✓					
BH-OB2-5-032112	3/21/12	2:10		1	✓					
BH-OB2-6-032112	3/21/12	2:25		1	✓					
BH-OB2-7-032112	3/21/12	2:30		1	✓					
BH-OB2-8-032112	3/21/12	2:40		1	✓					
BH-OB2-9-032112	3/21/12	3:00		1	✓					
BH-OB2-10-032112	3/21/12	3:50		1	✓					
Comments/Special Instructions PLEASE SEND RESULTS TO BOTH TRAY BUSSEY AND BILL EVANS VIA EMAIL	Relinquished by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Received by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Relinquished by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Received by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC						
	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18						

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

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



Cooler Receipt Form

ARI Client: Port of Tacoma

COC No(s): NA

Assigned ARI Job No: UN58

Project Name: Brown & Haley Bldg Demo

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

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 11.2

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

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 3/22/12 Time: 818

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI... NA

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

Samples Logged by: JM Date: 3/22/12 Time: 828

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: BH_OB2_1_032112

SAMPLE

Lab Sample ID: UN58A

LIMS ID: 12-4974

Matrix: Solid

Data Release Authorized: *AS*

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 14:33

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: No

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	11,000	< 11,000 Y
11097-69-1	Aroclor 1254	3,700	17,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	116%
Tetrachlorometaxylene	110%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1


Sample ID: BH_OB2_2_032112

SAMPLE

Lab Sample ID: UN58B

LIMS ID: 12-4975

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 07:53

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,000	< 4,000 U
53469-21-9	Aroclor 1242	4,000	< 4,000 U
12672-29-6	Aroclor 1248	4,000	78,000 B
11097-69-1	Aroclor 1254	4,000	56,000 B
11096-82-5	Aroclor 1260	6,000	< 6,000 Y
11104-28-2	Aroclor 1221	4,000	< 4,000 U
11141-16-5	Aroclor 1232	4,000	< 4,000 U
37324-23-5	Aroclor 1262	4,000	< 4,000 U
11100-14-4	Aroclor 1268	4,000	< 4,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	65.0%
Tetrachlorometaxylene	67.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_3_032112
SAMPLELab Sample ID: UN58C
LIMS ID: 12-4976
Matrix: Solid
Data Release Authorized: *AS*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/22/12 21:02
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: NoSample Amount: 1.02 g-as-rec
Final Extract Volume: 160 mL
Dilution Factor: 25.0
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	78,000	< 78,000 U
53469-21-9	Aroclor 1242	78,000	< 78,000 U
12672-29-6	Aroclor 1248	390,000	< 390,000 Y
11097-69-1	Aroclor 1254	78,000	1,900,000 B
11096-82-5	Aroclor 1260	350,000	< 350,000 Y
11104-28-2	Aroclor 1221	78,000	< 78,000 U
11141-16-5	Aroclor 1232	78,000	< 78,000 U
37324-23-5	Aroclor 1262	78,000	< 78,000 U
11100-14-4	Aroclor 1268	78,000	< 78,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_4_032112
SAMPLELab Sample ID: UN58D
LIMS ID: 12-4977
Matrix: Solid
Data Release Authorized: *B*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/23/12 08:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: NoSample Amount: 1.00 g-as-rec
Final Extract Volume: 400 mL
Dilution Factor: 100
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800,000	< 800,000 U
53469-21-9	Aroclor 1242	800,000	< 800,000 U
12672-29-6	Aroclor 1248	8.0E6	< 8.0E6 Y
11097-69-1	Aroclor 1254	800,000	22,000,000 B
11096-82-5	Aroclor 1260	2.0E6	< 2.0E6 Y
11104-28-2	Aroclor 1221	800,000	< 800,000 U
11141-16-5	Aroclor 1232	800,000	< 800,000 U
37324-23-5	Aroclor 1262	800,000	< 800,000 U
11100-14-4	Aroclor 1268	800,000	< 800,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1


Sample ID: BH_OB2_5_032112

SAMPLE

Lab Sample ID: UN58E

LIMS ID: 12-4978

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 08:35

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 400 mL

Dilution Factor: 100

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	730,000	< 730,000 U
53469-21-9	Aroclor 1242	730,000	< 730,000 U
12672-29-6	Aroclor 1248	7.3E6	< 7.3E6 Y
11097-69-1	Aroclor 1254	730,000	18,000,000 B
11096-82-5	Aroclor 1260	1.8E6	< 1.8E6 Y
11104-28-2	Aroclor 1221	730,000	< 730,000 U
11141-16-5	Aroclor 1232	730,000	< 730,000 U
37324-23-5	Aroclor 1262	730,000	< 730,000 U
11100-14-4	Aroclor 1268	730,000	< 730,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: BH_OB2_6_032112
SAMPLE

Lab Sample ID: UN58F
 LIMS ID: 12-4979
 Matrix: Solid
 Data Release Authorized: *RB*
 Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
 Project: Brown & Haley Bldg Demo (PO#53586)
 PO #53586
 Date Sampled: 03/21/12
 Date Received: 03/22/12

Date Extracted: 03/22/12
 Date Analyzed: 03/22/12 22:05
 Instrument/Analyst: ECD7/JGR
 GPC Cleanup: No
 Sulfur Cleanup: No
 Acid Cleanup: Yes
 Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec
 Final Extract Volume: 40.0 mL
 Dilution Factor: 25.0
 Silica Gel: Yes
 Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20,000	< 20,000 U
53469-21-9	Aroclor 1242	20,000	< 20,000 U
12672-29-6	Aroclor 1248	300,000	< 300,000 Y
11097-69-1	Aroclor 1254	20,000	800,000 B
11096-82-5	Aroclor 1260	79,000	< 79,000 Y
11104-28-2	Aroclor 1221	20,000	< 20,000 U
11141-16-5	Aroclor 1232	20,000	< 20,000 U
37324-23-5	Aroclor 1262	20,000	< 20,000 U
11100-14-4	Aroclor 1268	20,000	< 20,000 U


Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	80.6%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: BH_OB2_7_032112
SAMPLE

Lab Sample ID: UN58G
LIMS ID: 12-4980
Matrix: Solid
Data Release Authorized: 
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12

Date Extracted: 03/22/12
Date Analyzed: 03/22/12 22:26
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,800	< 3,800 U
53469-21-9	Aroclor 1242	3,800	< 3,800 U
12672-29-6	Aroclor 1248	29,000	< 29,000 Y
11097-69-1	Aroclor 1254	3,800	47,000 B
11096-82-5	Aroclor 1260	3,800	31,000 P
11104-28-2	Aroclor 1221	3,800	< 3,800 U
11141-16-5	Aroclor 1232	3,800	< 3,800 U
37324-23-5	Aroclor 1262	3,800	< 3,800 U
11100-14-4	Aroclor 1268	3,800	< 3,800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	76.1%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: BH_OB2_8_032112

SAMPLE

Lab Sample ID: UN58H

LIMS ID: 12-4981

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/22/12 22:47

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.02 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	5,900	< 5,900 Y
11097-69-1	Aroclor 1254	780	11,000 B
11096-82-5	Aroclor 1260	780	1,900
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.0%
Tetrachlorometaxylene	65.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: BH_OB2_9_032112
SAMPLE

Lab Sample ID: UN58I
LIMS ID: 12-4982
Matrix: Solid
Data Release Authorized: *AA*
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12

Date Extracted: 03/22/12
Date Analyzed: 03/23/12 14:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: No
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,800	< 3,800 U
53469-21-9	Aroclor 1242	3,800	< 3,800 U
12672-29-6	Aroclor 1248	3,800	18,000
11097-69-1	Aroclor 1254	3,800	12,000
11096-82-5	Aroclor 1260	3,800	< 3,800 U
11104-28-2	Aroclor 1221	3,800	< 3,800 U
11141-16-5	Aroclor 1232	3,800	< 3,800 U
37324-23-5	Aroclor 1262	3,800	< 3,800 U
11100-14-4	Aroclor 1268	5,800	< 5,800 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	98.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_10_032112
SAMPLELab Sample ID: UN58J
LIMS ID: 12-4983
Matrix: Solid
Data Release Authorized: *AB*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/23/12 15:15
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: No
Florisil Cleanup: NoSample Amount: 1.08 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	4,600	< 4,600 Y
11097-69-1	Aroclor 1254	3,700	7,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	99.1%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: MB-032212
METHOD BLANK

Lab Sample ID: MB-032212
 LIMS ID: 12-4982
 Matrix: Solid
 Data Release Authorized: *[Signature]*
 Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
 Project: Brown & Haley Bldg Demo (PO#53586)
 PO #53586
 Date Sampled: NA
 Date Received: NA

Date Extracted: 03/22/12
 Date Analyzed: 03/23/12 15:36
 Instrument/Analyst: ECD7/JGR
 GPC Cleanup: No
 Sulfur Cleanup: No
 Acid Cleanup: No
 Florisil Cleanup: No

Sample Amount: 1.00 g
 Final Extract Volume: 40.0 mL
 Dilution Factor: 1.00
 Silica Gel: No
 Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.5%
Tetrachlorometaxylene	94.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-032212
METHOD BLANK

Lab Sample ID: MB-032212
LIMS ID: 12-4974
Matrix: Solid
Data Release Authorized: *AS*
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: NA
Date Received: NA

Date Extracted: 03/22/12
Date Analyzed: 03/22/12 18:35
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	810
11097-69-1	Aroclor 1254	800	1,800
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	72.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Solid

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-032212	77.8%	51-127	72.5%	30-160	0
LCS-032212	80.8%	51-127	78.0%	30-160	0
LCSD-032212	88.5%	51-127	81.5%	30-160	0
BH_OB2_1_032112	116%	30-160	110%	30-160	0
BH_OB2_2_032112	65.0%	30-160	67.8%	30-160	0
BH_OB2_3_032112	D	30-160	D	30-160	0
BH_OB2_4_032112	D	30-160	D	30-160	0
BH_OB2_5_032112	D	30-160	D	30-160	0
BH_OB2_6_032112	87.5%	30-160	80.6%	30-160	0
BH_OB2_7_032112	NR	30-160	76.1%	30-160	0
BH_OB2_8_032112	67.0%	30-160	65.0%	30-160	0
MB-032212	86.5%	51-127	94.2%	30-160	0
BH_OB2_9_032112	NR	30-160	98.2%	30-160	0
BH_OB2_10_032112	100%	30-160	99.1%	30-160	0

Medium Level Control Limits
Prep Method: SW3580A
Log Number Range: 12-4974 to 12-4983

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: LCS-032212

LCS/LCSD

Lab Sample ID: LCS-032212

LIMS ID: 12-4974

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 03/22/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 03/22/12 18:56

Final Extract Volume LCS: 40.0 mL

LCSD: 03/22/12 19:17

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	17700	20000	88.5%	19100	20000	95.5%	7.6%
Aroclor 1260	19100	20000	95.5%	21600	20000	108%	12.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	80.8%	88.5%
Tetrachlorometaxylene	78.0%	81.5%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 7, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UR79

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted ten solid matrix samples on April 25, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: U279	Turn-around Requested: Standard	Page: 1 of 3
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 4/25/12 Ice Present? Y
Client Contact: Bill Evans - Port of Tacoma		No. of Coolers: 1 Cooler Temps: 12.6



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Client Project Name: Brown + Haley Bldg - PCB Sampling
Client Project #: Samplers: Stacy Munson + Gretchen Malwri

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested					Notes/Comments
POT-BH-PT-01-0-0-042512	4/25/12	9:30	Paint	1						
POT-BH-PT-02-0-0-042512		9:40	Paint	1						
POT-BH-PT-03-0-0-042512		9:50	Paint	1						
POT-BH-PT-04-0-0-042512		10:00	Paint	1						
POT-BH-PT-05-0-0-042512		10:10	Paint	1						
POT-BH-PT-06-0-0-042512		10:20	Paint	1						
POT-BH-PT-07-0-0-042512		10:30	Paint	1						
POT-BH-PT-08-0-0-042512		10:50	Paint	1						
POT-BH-PT-09-0-0-042512		11:00	Paint	1						
POT-BH-CK-10-0-0-042512	✓	11:10	Caulk	1						
Comments/Special Instructions Run all samples.					Relinquished by (Signature) <i>Stacy Munson</i>					Received by (Signature) <i>Chris Atwell</i>
					Printed Name: Stacy Munson					Printed Name: Chris Atwell
					Company: Pioneer					Company: ARI
					Date & Time: 4/25/12 5:05					Date & Time: 4/25/12 1705

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

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

Cooler Receipt Form

ARI Client Port of Tacoma

Project Name Brown and Haley Bldy PCB samples

COC No(s) NA

Delivered by: Fed-Ex UPS Courier 0 Hand Delivered Other

Assigned ARI Job No. WL79

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc) YES NO

Temperature of Cooler(s) (°C) (recommended 2-6-0 °C for chemistry) 12.6

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 90877952

Cooler Accepted by BT Date 4/25/12 Time 1705

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA

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

Samples Logged by JLM Date 4/20/12 Time 741

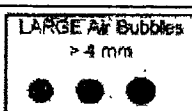
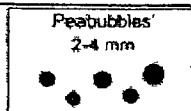
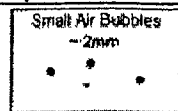
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By

Date



Small → "sm"

Peabubbles → "pb"

Large → "lg"

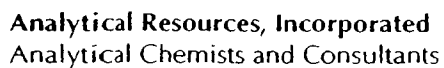
Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: UR79
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg - PCB Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_PT_01_0_0_042512	UR79A	12-7353	Paint	04/25/12 09:30	04/25/12 17:05
2. POT_BH_PT_02_0_0_042512	UR79B	12-7354	Paint	04/25/12 09:40	04/25/12 17:05
3. POT_BH_PT_03_0_0_042512	UR79C	12-7355	Paint	04/25/12 09:50	04/25/12 17:05
4. POT_BH_PT_04_0_0_042512	UR79D	12-7356	Paint	04/25/12 10:00	04/25/12 17:05
5. POT_BH_PT_05_0_0_042512	UR79E	12-7357	Paint	04/25/12 10:10	04/25/12 17:05
6. POT_BH_PT_06_0_0_042512	UR79F	12-7358	Paint	04/25/12 10:20	04/25/12 17:05
7. POT_BH_PT_07_0_0_042512	UR79G	12-7359	Paint	04/25/12 10:30	04/25/12 17:05
8. POT_BH_PT_08_0_0_042512	UR79H	12-7360	Paint	04/25/12 10:50	04/25/12 17:05
9. POT_BH_PT_09_0_0_042512	UR79I	12-7361	Paint	04/25/12 11:00	04/25/12 17:05
10. POT_BH_CK_10_0_0_042512	UR79J	12-7362	Caulk	04/25/12 11:10	04/25/12 17:05



Cooler Temperature Compliance Form

UR 79

Version 000
3/3/09

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082


Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_PT_01_0_0_042512
SAMPLE

Lab Sample ID: UR79A

LIMS ID: 12-7353

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/05/12 23:26

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	18,000
11097-69-1	Aroclor 1254	790	19,000
11096-82-5	Aroclor 1260	790	3,000
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	84.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_PT_02_0_0_042512
SAMPLE

Lab Sample ID: UR79B

LIMS ID: 12-7354

Matrix: Paint

Data Release Authorized: *AS*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/05/12 23:47

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	11,000
11097-69-1	Aroclor 1254	800	11,000
11096-82-5	Aroclor 1260	1,200	< 1,200 Y
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	80.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_03_0_0_042512
SAMPLE

Lab Sample ID: UR79C
LIMS ID: 12-7355
Matrix: Paint
Data Release Authorized: *B*
Reported: 05/07/12

QC Report No: UR79-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling
Date Sampled: 04/25/12
Date Received: 04/25/12

Date Extracted: 04/27/12
Date Analyzed: 05/06/12 00:07
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.06 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	760	< 760 U
53469-21-9	Aroclor 1242	760	< 760 U
12672-29-6	Aroclor 1248	760	26,000
11097-69-1	Aroclor 1254	760	17,000
11096-82-5	Aroclor 1260	760	2,900
11104-28-2	Aroclor 1221	760	< 760 U
11141-16-5	Aroclor 1232	760	< 760 U
37324-23-5	Aroclor 1262	760	< 760 U
11100-14-4	Aroclor 1268	760	< 760 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	91.2%
Tetrachlorometaxylene	87.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_04_0_0_042512
SAMPLE

Lab Sample ID: UR79D

LIMS ID: 12-7356

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 00:28

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	2,600
11097-69-1	Aroclor 1254	790	4,100
11096-82-5	Aroclor 1260	790	< 790 U
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	91.2%
Tetrachlorometaxylene	82.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1




Sample ID: POT_BH_PT_05_0_0_042512
SAMPLE

Lab Sample ID: UR79E

LIMS ID: 12-7357

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 00:49

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	7,200
11097-69-1	Aroclor 1254	770	14,000
11096-82-5	Aroclor 1260	1,500	< 1,500 Y
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.5%
Tetrachlorometaxylene	72.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: POT_BH_PT_06_0_0_042512
SAMPLE

Lab Sample ID: UR79F

QC Report No: UR79-Port of Tacoma

LIMS ID: 12-7358

Project: Brown & Haley Bldg - PCB Sampling

Matrix: Paint

Data Release Authorized: *AB*

Date Sampled: 04/25/12

Reported: 05/07/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Sample Amount: 1.04 g-as-rec

Date Analyzed: 05/06/12 01:52

Final Extract Volume: 40.0 mL

Instrument/Analyst: ECD7/JGR

Dilution Factor: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	11,000
11097-69-1	Aroclor 1254	770	14,000
11096-82-5	Aroclor 1260	1,400	< 1,400 Y
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	94.5%
Tetrachlorometaxylene	84.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_07_0_0_042512
SAMPLE

Lab Sample ID: UR79G

LIMS ID: 12-7359

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 02:13

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	7,200
11097-69-1	Aroclor 1254	800	6,700
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.5%
Tetrachlorometaxylene	78.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_08_0_0_042512
SAMPLE

Lab Sample ID: UR79H

LIMS ID: 12-7360

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 02:34

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.02 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	780	3,600
11097-69-1	Aroclor 1254	780	5,200
11096-82-5	Aroclor 1260	780	< 780 U
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	113%
Tetrachlorometaxylene	80.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_PT_09_0_0_042512
SAMPLE

Lab Sample ID: UR79I

LIMS ID: 12-7361

Matrix: Paint

Data Release Authorized: *RP*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 02:54

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	3,500
11097-69-1	Aroclor 1254	770	2,800
11096-82-5	Aroclor 1260	770	< 770 U
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	83.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_CK_10_0_0_042512
SAMPLE


Lab Sample ID: UR79J

QC Report No: UR79-Port of Tacoma

LIMS ID: 12-7362

Project: Brown & Haley Bldg - PCB Sampling

Matrix: Caulk

Data Release Authorized: 

Date Sampled: 04/25/12

Reported: 05/07/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Sample Amount: 1.04 g-as-rec

Date Analyzed: 05/06/12 03:15

Final Extract Volume: 400 mL

Instrument/Analyst: ECD7/JGR

Dilution Factor: 20.0

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	150,000	< 150,000 U
53469-21-9	Aroclor 1242	150,000	< 150,000 U
12672-29-6	Aroclor 1248	2.3E6	< 2.3E6 Y
11097-69-1	Aroclor 1254	150,000	7,700,000
11096-82-5	Aroclor 1260	770,000	< 770,000 Y
11104-28-2	Aroclor 1221	150,000	< 150,000 U
11141-16-5	Aroclor 1232	150,000	< 150,000 U
37324-23-5	Aroclor 1262	150,000	< 150,000 U
11100-14-4	Aroclor 1268	150,000	< 150,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: MB-042712

METHOD BLANK

Lab Sample ID: MB-042712

LIMS ID: 12-7353

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR79-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted: 04/27/12

Date Analyzed: 05/05/12 22:02

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.2%
Tetrachlorometaxylene	83.2%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Paint

QC Report No: UR79-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-042712	92.2%	51-127	83.2%	30-160	0
LCS-042712	88.5%	51-127	79.8%	30-160	0
LCSD-042712	92.2%	51-127	80.5%	30-160	0
POT_BH_PT_01_0_0_042512	88.0%	30-160	84.2%	30-160	0
POT_BH_PT_02_0_0_042512	87.5%	30-160	80.5%	30-160	0
POT_BH_PT_03_0_0_042512	91.2%	30-160	87.5%	30-160	0
POT_BH_PT_04_0_0_042512	91.2%	30-160	82.5%	30-160	0
POT_BH_PT_05_0_0_042512	74.5%	30-160	72.0%	30-160	0
POT_BH_PT_06_0_0_042512	94.5%	30-160	84.5%	30-160	0
POT_BH_PT_07_0_0_042512	88.5%	30-160	78.8%	30-160	0
POT_BH_PT_08_0_0_042512	113%	30-160	80.2%	30-160	0
POT_BH_PT_09_0_0_042512	88.0%	30-160	83.5%	30-160	0
POT_BH_CK_10_0_0_042512	D	30-160	D	30-160	0

Medium Level Control Limits
Prep Method: SW3580A
Log Number Range: 12-7353 to 12-7362

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: LCS-042712
LCS/LCSD

Lab Sample ID: LCS-042712
 LIMS ID: 12-7353
 Matrix: Paint
 Data Release Authorized: *[Signature]*
 Reported: 05/07/12

QC Report No: UR79-Port of Tacoma
 Project: Brown & Haley Bldg - PCB Sampling
 Date Sampled: NA
 Date Received: NA

Date Extracted LCS/LCSD: 04/27/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 05/05/12 22:23

Final Extract Volume LCS: 40.0 mL

LCSD: 05/05/12 22:44

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	15900	20000	79.5%	16200	20000	81.0%	1.9%
Aroclor 1260	16100	20000	80.5%	16800	20000	84.0%	4.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	88.5%	92.2%
Tetrachlorometaxylene	79.8%	80.5%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 7, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UR80

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted sixteen solid matrix samples on April 25, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 11290	Turn-around Requested: Standard	Page: 2 of 3
ARI Client Company: PORT OF TACOMA	Phone: 253 593 4563	Date: 4/25/12 Ice Present? Y
Client Contact: BILL EVANS - PORT OF TACOMA		No. of Coolers: 1 Cooler Temps: 12.6

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments	
					PCBs											
POT_BH_PT_11-0-0-042512	4/25/12	11:30	PAINT	1	X											
POT_BH_PT_12-0-0-042512		11:45	PAINT	1	X											
POT_BH_PT_13-0-0-042512		12:45	PAINT	1	X											
POT_BH_PT_14-0-0-042512		1:00	PAINT	1	X											
POT_BH_PT_15-0-0-042512		12:50	PAINT	1	X											
POT_BH_PT_16-0-0-042512		1:10	PAINT	1	X											
POT_BH_PT_17-0-0-042512		1:30	PAINT	1	X											
POT_BH_PT_18-0-0-042512		1:45	PAINT	1	X											
POT_BH_DW-19-0-0-042512		2:00	DRY WALL	1	X											
POT_BH_PT_20-0-0-042512	4/25/12	2:10	PAINT	1	X											
Comments/Special Instructions	Relinquished by: <i>[Signature]</i> (Signature) Printed Name: STACY MUNSON Company: PIONEER				Received by: <i>[Signature]</i> (Signature) Printed Name: Chris Atwell Company: ARI				Relinquished by: <i>[Signature]</i> (Signature) Printed Name: Company: Date & Time: 4/25/2012 5:05				Received by: <i>[Signature]</i> (Signature) Printed Name: Company: Date & Time: 4/25/2012 5:05			
RUN ALL																
SAMPLES																

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

[illegible]

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

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

Sample ID Cross Reference Report



ARI Job No: UR80
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg - PCB Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_PT_11_0_0_042512	UR80A	12-7363	Paint	04/25/12 11:30	04/25/12 17:05
2. POT_BH_PT_12_0_0_042512	UR80B	12-7364	Paint	04/25/12 11:45	04/25/12 17:05
3. POT_BH_PT_13_0_0_042512	UR80C	12-7365	Paint	04/25/12 12:45	04/25/12 17:05
4. POT_BH_PT_14_0_0_042512	UR80D	12-7366	Paint	04/25/12 13:00	04/25/12 17:05
5. POT_BH_PT_15_0_0_042512	UR80E	12-7367	Paint	04/25/12 12:50	04/25/12 17:05
6. POT_BH_PT_16_0_0_042512	UR80F	12-7368	Paint	04/25/12 13:10	04/25/12 17:05
7. POT_BH_PT_17_0_0_042512	UR80G	12-7369	Paint	04/25/12 13:30	04/25/12 17:05
8. POT_BH_PT_18_0_0_042512	UR80H	12-7370	Paint	04/25/12 13:45	04/25/12 17:05
9. POT_BH_DW_19_0_0_042512	UR80I	12-7371	Dry Wall	04/25/12 14:00	04/25/12 17:05
10. POT_BH_PT_20_0_0_042512	UR80J	12-7372	Paint	04/25/12 14:10	04/25/12 17:05
11. POT_BH_PT_21_0_0_042512	UR80K	12-7373	Paint	04/25/12 14:15	04/25/12 17:05
12. POT_BH_PT_22_0_0_042512	UR80L	12-7374	Paint	04/25/12 14:40	04/25/12 17:05
13. POT_BH_PT_23_0_0_042512	UR80M	12-7375	Paint	04/25/12 14:25	04/25/12 17:05
14. POT_BH_DW_24_0_0_042512	UR80N	12-7376	Dry Wall	04/25/12 14:45	04/25/12 17:05
15. POT_BH_PT_25_0_0_042512	UR80O	12-7377	Paint	04/25/12 15:20	04/25/12 17:05
16. POT_BH_PT_26_0_0_042512	UR80P	12-7378	Paint	04/25/12 15:30	04/25/12 17:05



Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: Brown and Haley Bldg PCB samples

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS 0 Courier Hand Delivered Other: _____

Assigned ARI Job No: UR20

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)
Were custody papers included with the cooler? (YES) NO
Were custody papers properly filled out (ink, signed, etc.) (YES) NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 12.6
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90872952

Cooler Accepted by: (Signature) Date: 4/25/12 Time: 1705

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES (NO)
Were all bottles sealed in individual plastic bags? YES (NO)
Did all bottles arrive in good condition (unbroken)? (YES) NO
Were all bottle labels complete and legible? (YES) NO
Did the number of containers listed on COC match with the number of containers received? (YES) NO
Did all bottle labels and tags agree with custody papers? (YES) NO
Were all bottles used correct for the requested analyses? (YES) NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO
Were all VOC vials free of air bubbles? (NA) YES NO
Was sufficient amount of sample sent in each bottle? (YES) NO
Date VOC Trip Blank was made at ARI... (NA)
Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 4/26/12 Time: 745

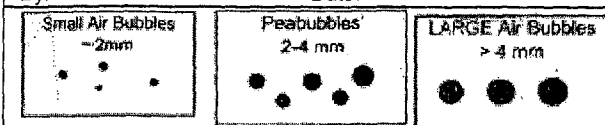
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____

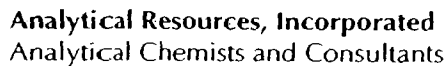


Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"



Cooler Temperature Compliance Form

URSD

Completed by: Jm Date: 4/26/12 Time: 740

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_11_0_0_042512
SAMPLE

Lab Sample ID: UR80A

LIMS ID: 12-7363

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 09:31

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.08 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	23,000	< 23,000 Y
11097-69-1	Aroclor 1254	3,700	39,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.6%
Tetrachlorometaxylene	80.8%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_12_0_0_042512
SAMPLE

Lab Sample ID: UR80B

LIMS ID: 12-7364

Matrix: Paint

Data Release Authorized: *AS*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 09:52

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,900	< 3,900 U
53469-21-9	Aroclor 1242	3,900	< 3,900 U
12672-29-6	Aroclor 1248	3,900	91,000
11097-69-1	Aroclor 1254	3,900	97,000
11096-82-5	Aroclor 1260	12,000	< 12,000 Y
11104-28-2	Aroclor 1221	3,900	< 3,900 U
11141-16-5	Aroclor 1232	3,900	< 3,900 U
37324-23-5	Aroclor 1262	3,900	< 3,900 U
11100-14-4	Aroclor 1268	3,900	< 3,900 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	84.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082


Page 1 of 1

Sample ID: POT_BH_PT_13_0_0_042512
SAMPLE

Lab Sample ID: UR80C

LIMS ID: 12-7365

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/07/12 13:41

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 1600 mL

Dilution Factor: 25.0

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780,000	< 780,000 U
53469-21-9	Aroclor 1242	780,000	< 780,000 U
12672-29-6	Aroclor 1248	7.8E6	< 7.8E6 Y
11097-69-1	Aroclor 1254	780,000	18,000,000
11096-82-5	Aroclor 1260	1.6E6	< 1.6E6 Y
11104-28-2	Aroclor 1221	780,000	< 780,000 U
11141-16-5	Aroclor 1232	780,000	< 780,000 U
37324-23-5	Aroclor 1262	780,000	< 780,000 U
11100-14-4	Aroclor 1268	780,000	< 780,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D



ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_14_0_0_042512

SAMPLE

Lab Sample ID: UR80D

LIMS ID: 12-7366

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 10:33

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,000	< 4,000 U
53469-21-9	Aroclor 1242	4,000	< 4,000 U
12672-29-6	Aroclor 1248	4,000	200,000
11097-69-1	Aroclor 1254	4,000	180,000
11096-82-5	Aroclor 1260	12,000	< 12,000 Y
11104-28-2	Aroclor 1221	4,000	< 4,000 U
11141-16-5	Aroclor 1232	4,000	< 4,000 U
37324-23-5	Aroclor 1262	4,000	< 4,000 U
11100-14-4	Aroclor 1268	4,000	< 4,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	86.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_15_0_0_042512
SAMPLE

Lab Sample ID: UR80E

LIMS ID: 12-7367

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 10:54

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,000	< 4,000 U
53469-21-9	Aroclor 1242	4,000	< 4,000 U
12672-29-6	Aroclor 1248	4,000	120,000
11097-69-1	Aroclor 1254	4,000	100,000
11096-82-5	Aroclor 1260	6,000	< 6,000 Y
11104-28-2	Aroclor 1221	4,000	< 4,000 U
11141-16-5	Aroclor 1232	4,000	< 4,000 U
37324-23-5	Aroclor 1262	4,000	< 4,000 U
11100-14-4	Aroclor 1268	4,000	< 4,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	84.6%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082


Page 1 of 1

Sample ID: POT_BH_PT_16_0_0_042512
SAMPLE

Lab Sample ID: UR80F

LIMS ID: 12-7368

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 11:15

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	3,700	62,000
11097-69-1	Aroclor 1254	3,700	32,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.5%
Tetrachlorometaxylene	79.4%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_17_0_0_042512
SAMPLE

Lab Sample ID: UR80G

LIMS ID: 12-7369

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 11:36

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,000	< 4,000 U
53469-21-9	Aroclor 1242	4,000	< 4,000 U
12672-29-6	Aroclor 1248	4,000	120,000
11097-69-1	Aroclor 1254	4,000	120,000
11096-82-5	Aroclor 1260	10,000	< 10,000 Y
11104-28-2	Aroclor 1221	4,000	< 4,000 U
11141-16-5	Aroclor 1232	4,000	< 4,000 U
37324-23-5	Aroclor 1262	4,000	< 4,000 U
11100-14-4	Aroclor 1268	4,000	< 4,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	95.2%
Tetrachlorometaxylene	81.5%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_18_0_0_042512
SAMPLE

Lab Sample ID: UR80H

LIMS ID: 12-7370

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 11:57

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.02 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,900	< 3,900 U
53469-21-9	Aroclor 1242	3,900	< 3,900 U
12672-29-6	Aroclor 1248	3,900	51,000
11097-69-1	Aroclor 1254	3,900	36,000
11096-82-5	Aroclor 1260	3,900	< 3,900 U
11104-28-2	Aroclor 1221	3,900	< 3,900 U
11141-16-5	Aroclor 1232	3,900	< 3,900 U
37324-23-5	Aroclor 1262	3,900	< 3,900 U
11100-14-4	Aroclor 1268	3,900	< 3,900 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.4%
Tetrachlorometaxylene	79.4%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_DW_19_0_0_042512
SAMPLE

Lab Sample ID: UR80I

LIMS ID: 12-7371

Matrix: Dry Wall

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 12:18

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.07 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	750	< 750 U
53469-21-9	Aroclor 1242	750	< 750 U
12672-29-6	Aroclor 1248	750	1,600
11097-69-1	Aroclor 1254	750	2,200
11096-82-5	Aroclor 1260	750	< 750 U
11104-28-2	Aroclor 1221	750	< 750 U
11141-16-5	Aroclor 1232	750	< 750 U
37324-23-5	Aroclor 1262	750	< 750 U
11100-14-4	Aroclor 1268	750	< 750 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	89.5%
Tetrachlorometaxylene	81.0%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082


Page 1 of 1

Sample ID: POT_BH_PT_20_0_0_042512
SAMPLE

Lab Sample ID: UR80J

LIMS ID: 12-7372

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 13:21

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.08 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	3,700	20,000
11097-69-1	Aroclor 1254	3,700	46,000
11096-82-5	Aroclor 1260	3,700	9,100
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	99.1%
Tetrachlorometaxylene	87.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_21_0_0_042512
SAMPLE

Lab Sample ID: UR80K

LIMS ID: 12-7373

Matrix: Paint

Data Release Authorized: *AD*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 13:42

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	780	15,000
11097-69-1	Aroclor 1254	780	22,000
11096-82-5	Aroclor 1260	1,900	< 1,900 Y
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	89.8%
Tetrachlorometaxylene	92.5%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_22_0_0_042512
SAMPLE

Lab Sample ID: UR80L

LIMS ID: 12-7374

Matrix: Paint

Data Release Authorized: *BB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 14:03

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	780	3,300
11097-69-1	Aroclor 1254	780	2,000
11096-82-5	Aroclor 1260	780	1,000
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	94.0%
Tetrachlorometaxylene	84.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_23_0_0_042512
SAMPLE

Lab Sample ID: UR80M

LIMS ID: 12-7375

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 14:24

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	11,000
11097-69-1	Aroclor 1254	770	12,000
11096-82-5	Aroclor 1260	1,400	< 1,400 Y
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	78.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_DW_24_0_0_042512
SAMPLE

Lab Sample ID: UR80N

LIMS ID: 12-7376

Matrix: Dry Wall

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 14:44

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	< 770 U
11097-69-1	Aroclor 1254	770	< 770 U
11096-82-5	Aroclor 1260	770	< 770 U
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	89.0%
Tetrachlorometaxylene	77.0%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_25_0_0_042512
SAMPLE

Lab Sample ID: UR800

LIMS ID: 12-7377

Matrix: Paint

Data Release Authorized: *B*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 15:05

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	11,000
11097-69-1	Aroclor 1254	790	17,000
11096-82-5	Aroclor 1260	1,400	< 1,400 Y
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.8%
Tetrachlorometaxylene	81.5%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082


Page 1 of 1

Sample ID: POT_BH_PT_26_0_0_042512
SAMPLE

Lab Sample ID: UR80P

LIMS ID: 12-7378

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/25/12

Date Received: 04/25/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 15:26

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	780	13,000
11097-69-1	Aroclor 1254	780	11,000
11096-82-5	Aroclor 1260	970	< 970 Y
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.5%
Tetrachlorometaxylene	79.8%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: MB-042712

METHOD BLANK

Lab Sample ID: MB-042712

LIMS ID: 12-7363

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 07:46

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.2%
Tetrachlorometaxylene	84.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Paint

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-042712	88.2%	51-127	84.5%	30-160	0
LCS-042712	95.8%	51-127	85.8%	30-160	0
LCSD-042712	94.2%	51-127	84.2%	30-160	0
POT_BH_PT_11_0_0_042512	97.6%	30-160	80.8%	30-160	0
POT_BH_PT_12_0_0_042512	NR	30-160	84.2%	30-160	0
POT_BH_PT_13_0_0_042512	D	30-160	D	30-160	0
POT_BH_PT_14_0_0_042512	100%	30-160	86.2%	30-160	0
POT_BH_PT_15_0_0_042512	100%	30-160	84.6%	30-160	0
POT_BH_PT_16_0_0_042512	97.5%	30-160	79.4%	30-160	0
POT_BH_PT_17_0_0_042512	95.2%	30-160	81.5%	30-160	0
POT_BH_PT_18_0_0_042512	97.4%	30-160	79.4%	30-160	0
POT_BH_DW_19_0_0_042512	89.5%	30-160	81.0%	30-160	0
POT_BH_PT_20_0_0_042512	99.1%	30-160	87.2%	30-160	0
POT_BH_PT_21_0_0_042512	89.8%	30-160	92.5%	30-160	0
POT_BH_PT_22_0_0_042512	94.0%	30-160	84.2%	30-160	0
POT_BH_PT_23_0_0_042512	87.5%	30-160	78.2%	30-160	0
POT_BH_DW_24_0_0_042512	89.0%	30-160	77.0%	30-160	0
POT_BH_PT_25_0_0_042512	86.8%	30-160	81.5%	30-160	0
POT_BH_PT_26_0_0_042512	92.5%	30-160	79.8%	30-160	0

Medium Level Control Limits

Prep Method: SW3580A

Log Number Range: 12-7363 to 12-7378

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: LCS-042712

LCS/LCSD

Lab Sample ID: LCS-042712

LIMS ID: 12-7363

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR80-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 04/27/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 05/06/12 08:07

Final Extract Volume LCS: 40.0 mL

LCSD: 05/06/12 08:28

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	16800	20000	84.0%	16600	20000	83.0%	1.2%
Aroclor 1260	16900	20000	84.5%	17000	20000	85.0%	0.6%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	95.8%	94.2%
Tetrachlorometaxylene	85.8%	84.2%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 7, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UR91

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted ten solid matrix samples on April 26, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 0251	Turn-around Requested: STANDARD	Page: 1 of 3
ARI Client Company: POINT OF TACOMA	Phone: 253 543 4563	Date: 4/26/2012
Client Contact: BILL EVANS - POIT OF TACOMA		No. of Coolers: 1
Client Project Name: BROWN & HAWK BLDG - PCB SAMPLING		Cooler Temps:
Client Project #:	Samplers: STACY MUNSON & GRETCHEN MALLARI	



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested										Notes/Comments	
					PCBs											
POT-BH-PT-27-0-0-042612	4/26/12	8:00	PAINT	1												
POT-BH-PT-28-0-0-042612		8:10	PAINT	1												
POT-BH-PT-29-0-0-042612		8:20	PAINT	1												
POT-BH-PT-30-0-0-042612		8:30	PAINT	1												
POT-BH-PT-31-0-0-042612		8:40	PAINT	1												
POT-BH-PT-32-0-0-042612		8:50	PAINT	1												
POT-BH-PT-33-0-0-042612		9:00	PAINT	1												
POT-BH-PT-34-0-0-042612		9:10	PAINT	1												
POT-BH-PT-35-0-0-042612		9:30	PAINT	1												
POT-BH-PT-36-0-0-042612		9:20	PAINT													
Comments/Special Instructions Run All SAMPLES	Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>											Relinquished by: (Signature)	Received by: (Signature)		
	Printed Name: STACY MUNSON	Printed Name: Chris Atwell											Printed Name:	Printed Name:		
	Company: PIONEER	Company:											Company:	Company:		
	Date & Time: 4/26/12 12:40	Date & Time: 4/26/12 12:40											Date & Time:	Date & Time:		

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

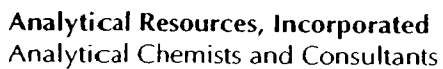
Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Sample ID Cross Reference Report



ARI Job No: UR91
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown + Haley BLDG - PCB Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_PT_27_0_0_042612	UR91A	12-7437	Paint	04/26/12 08:00	04/26/12 12:40
2. POT_BH_PT_28_0_0_042612	UR91B	12-7438	Paint	04/26/12 08:10	04/26/12 12:40
3. POT_BH_PT_29_0_0_042612	UR91C	12-7439	Paint	04/26/12 08:20	04/26/12 12:40
4. POT_BH_PT_30_0_0_042612	UR91D	12-7440	Paint	04/26/12 08:30	04/26/12 12:40
5. POT_BH_PT_31_0_0_042612	UR91E	12-7441	Paint	04/26/12 08:40	04/26/12 12:40
6. POT_BH_PT_32_0_0_042612	UR91F	12-7442	Paint	04/26/12 08:50	04/26/12 12:40
7. POT_BH_PT_33_0_0_042612	UR91G	12-7443	Paint	04/26/12 09:00	04/26/12 12:40
8. POT_BH_PT_34_0_0_042612	UR91H	12-7444	Paint	04/26/12 09:10	04/26/12 12:40
9. POT_BH_PT_35_0_0_042612	UR91I	12-7445	Paint	04/26/12 09:30	04/26/12 12:40
10. POT_BH_PT_36_0_0_042612	UR91J	12-7446	Paint	04/26/12 09:20	04/26/12 12:40



Cooler Temperature Compliance Form

Completed by: JS Date: 4-26-2 Time: 1340



Cooler Receipt Form

ARI Client part of Tacoma

COC No(s) _____ NA

Assigned ARI Job No UR91

Project Name Brown + Harley Bldg RB Sample

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

Tracking No. _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

☒ YES ☐ NO

Were custody papers properly filled out (ink, signed, etc) _____

☒ YES ☐ NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) _____

7.3

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

Temp Gun ID#: 90941619

Cooler Accepted by: CA Date 4/26/12 Time 1240

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? _____ Bubble Wrap ☒ Wet Ice ☐ Gel Packs ☐ Baggies ☐ Foam Block ☐ Paper ☐ Other: _____

Was sufficient ice used (if appropriate)? _____

NA ☐ YES ☒ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☐ NO ☒

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) _____

NA ☒ YES ☐ NO ☐

Were all VOC vials free of air bubbles? _____

NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

NA ☒

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

Samples Logged by TS Date: 4-26-12 Time: 1330

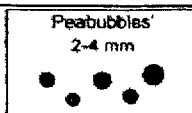
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By _____

Date _____



Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_27_0_0_042612
SAMPLE

Lab Sample ID: UR91A

LIMS ID: 12-7437

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/07/12 13:00

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec

Final Extract Volume: 400 mL

Dilution Factor: 100

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770,000	< 770,000 U
53469-21-9	Aroclor 1242	770,000	< 770,000 U
12672-29-6	Aroclor 1248	3.1E6	< 3.1E6 Y
11097-69-1	Aroclor 1254	770,000	8,800,000
11096-82-5	Aroclor 1260	960,000	< 960,000 Y
11104-28-2	Aroclor 1221	770,000	< 770,000 U
11141-16-5	Aroclor 1232	770,000	< 770,000 U
37324-23-5	Aroclor 1262	770,000	< 770,000 U
11100-14-4	Aroclor 1268	770,000	< 770,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_28_0_0_042612
SAMPLE

Lab Sample ID: UR91B

LIMS ID: 12-7438

Matrix: Paint

Data Release Authorized: *B*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 03:57

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 800 mL

Dilution Factor: 20.0

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	290,000	< 290,000 U
53469-21-9	Aroclor 1242	290,000	< 290,000 U
12672-29-6	Aroclor 1248	4.4E6	< 4.4E6 Y
11097-69-1	Aroclor 1254	290,000	11,000,000
11096-82-5	Aroclor 1260	1.1E6	< 1.1E6 Y
11104-28-2	Aroclor 1221	290,000	< 290,000 U
11141-16-5	Aroclor 1232	290,000	< 290,000 U
37324-23-5	Aroclor 1262	290,000	< 290,000 U
11100-14-4	Aroclor 1268	290,000	< 290,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: POT_BH_PT_29_0_0_042612
SAMPLE

Lab Sample ID: UR91C

LIMS ID: 12-7439

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 04:18

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.08 g-as-rec

Final Extract Volume: 800 mL

Dilution Factor: 20.0

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	300,000	< 300,000 U
53469-21-9	Aroclor 1242	300,000	< 300,000 U
12672-29-6	Aroclor 1248	3.7E6	< 3.7E6 Y
11097-69-1	Aroclor 1254	300,000	9,000,000
11096-82-5	Aroclor 1260	890,000	< 890,000 Y
11104-28-2	Aroclor 1221	300,000	< 300,000 U
11141-16-5	Aroclor 1232	300,000	< 300,000 U
37324-23-5	Aroclor 1262	300,000	< 300,000 U
11100-14-4	Aroclor 1268	300,000	< 300,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_30_0_0_042612
SAMPLE

Lab Sample ID: UR91D

LIMS ID: 12-7440

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/07/12 13:21

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.03 g-as-rec

Final Extract Volume: 800 mL

Dilution Factor: 100

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1.6E6	< 1.6E6 U
53469-21-9	Aroclor 1242	1.6E6	< 1.6E6 U
12672-29-6	Aroclor 1248	7.8E6	< 7.8E6 Y
11097-69-1	Aroclor 1254	1.6E6	2.0E7
11096-82-5	Aroclor 1260	1.9E6	< 1.9E6 Y
11104-28-2	Aroclor 1221	1.6E6	< 1.6E6 U
11141-16-5	Aroclor 1232	1.6E6	< 1.6E6 U
37324-23-5	Aroclor 1262	1.6E6	< 1.6E6 U
11100-14-4	Aroclor 1268	1.6E6	< 1.6E6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_31_0_0_042612
SAMPLE

Lab Sample ID: UR91E

LIMS ID: 12-7441

Matrix: Paint

Data Release Authorized: *AS*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 05:41

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.05 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	760	< 760 U
53469-21-9	Aroclor 1242	760	< 760 U
12672-29-6	Aroclor 1248	1,500	< 1,500 Y
11097-69-1	Aroclor 1254	760	3,800
11096-82-5	Aroclor 1260	760	2,100 P
11104-28-2	Aroclor 1221	760	< 760 U
11141-16-5	Aroclor 1232	760	< 760 U
37324-23-5	Aroclor 1262	760	< 760 U
11100-14-4	Aroclor 1268	760	< 760 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	81.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_32_0_0_042612
SAMPLE

Lab Sample ID: UR91F

QC Report No: UR91-Port of Tacoma

LIMS ID: 12-7442

Project: Brown + Haley BLDG - PCB Sampling

Matrix: Paint

Data Release Authorized: *AB*

Date Sampled: 04/26/12

Reported: 05/07/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Sample Amount: 1.00 g-as-rec

Date Analyzed: 05/06/12 06:02

Final Extract Volume: 40.0 mL

Instrument/Analyst: ECD7/JGR

Dilution Factor: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	7,200	< 7,200 Y
11097-69-1	Aroclor 1254	800	10,000
11096-82-5	Aroclor 1260	1,200	< 1,200 Y
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.2%
Tetrachlorometaxylene	78.5%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

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Sample ID: POT_BH_PT_33_0_0_042612

SAMPLE

Lab Sample ID: UR91G

LIMS ID: 12-7443

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 06:23

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.06 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	760	< 760 U
53469-21-9	Aroclor 1242	760	< 760 U
12672-29-6	Aroclor 1248	760	7,100
11097-69-1	Aroclor 1254	760	7,000
11096-82-5	Aroclor 1260	760	3,700
11104-28-2	Aroclor 1221	760	< 760 U
11141-16-5	Aroclor 1232	760	< 760 U
37324-23-5	Aroclor 1262	760	< 760 U
11100-14-4	Aroclor 1268	760	< 760 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery


Decachlorobiphenyl	90.2%
Tetrachlorometaxylene	81.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_34_0_0_042612
SAMPLE

Lab Sample ID: UR91H
LIMS ID: 12-7444
Matrix: Paint
Data Release Authorized: 
Reported: 05/07/12

QC Report No: UR91-Port of Tacoma
Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/27/12
Date Analyzed: 05/06/12 06:44
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	8,700
11097-69-1	Aroclor 1254	770	10,000
11096-82-5	Aroclor 1260	770	5,000
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.0%
Tetrachlorometaxylene	83.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_PT_35_0_0_042612
SAMPLE

Lab Sample ID: UR91I

LIMS ID: 12-7445

Matrix: Paint

Data Release Authorized: *MB*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 07:05

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	15,000
11097-69-1	Aroclor 1254	790	27,000
11096-82-5	Aroclor 1260	790	12,000
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	80.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_36_0_0_042612
SAMPLE

Lab Sample ID: UR91J

LIMS ID: 12-7446

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/27/12

Date Analyzed: 05/06/12 07:26

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	8,400
11097-69-1	Aroclor 1254	790	19,000
11096-82-5	Aroclor 1260	790	5,900
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	90.0%
Tetrachlorometaxylene	83.2%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

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Sample ID: MB-042712

METHOD BLANK

Lab Sample ID: MB-042712

LIMS ID: 12-7437

Matrix: Paint

Data Release Authorized: 

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted: 04/27/12

Date Analyzed: 05/05/12 22:02

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.2%
Tetrachlorometaxylene	83.2%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Paint

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-042712	92.2%	51-127	83.2%	30-160	0
LCS-042712	88.5%	51-127	79.8%	30-160	0
LCSD-042712	92.2%	51-127	80.5%	30-160	0
POT_BH_PT_27_0_0_042612	D	30-160	D	30-160	0
POT_BH_PT_28_0_0_042612	D	30-160	D	30-160	0
POT_BH_PT_29_0_0_042612	D	30-160	D	30-160	0
POT_BH_PT_30_0_0_042612	D	30-160	D	30-160	0
POT_BH_PT_31_0_0_042612	87.5%	30-160	81.5%	30-160	0
POT_BH_PT_32_0_0_042612	87.2%	30-160	78.5%	30-160	0
POT_BH_PT_33_0_0_042612	90.2%	30-160	81.0%	30-160	0
POT_BH_PT_34_0_0_042612	86.0%	30-160	83.0%	30-160	0
POT_BH_PT_35_0_0_042612	NR	30-160	80.0%	30-160	0
POT_BH_PT_36_0_0_042612	90.0%	30-160	83.2%	30-160	0

Medium Level Control Limits

Prep Method: SW3580A

Log Number Range: 12-7437 to 12-7446

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: LCS-042712

LCS/LCSD

Lab Sample ID: LCS-042712

LIMS ID: 12-7437

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/07/12

QC Report No: UR91-Port of Tacoma

Project: Brown + Haley BLDG - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 04/27/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 05/05/12 22:23

Final Extract Volume LCS: 40.0 mL

LCSD: 05/05/12 22:44

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	15900	20000	79.5%	16200	20000	81.0%	1.9%
Aroclor 1260	16100	20000	80.5%	16800	20000	84.0%	4.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	88.5%	92.2%
Tetrachlorometaxylene	79.8%	80.5%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 7, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UR92

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted fifteen solid matrix samples on April 26, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 15012	Turn-around Requested: STANDARD	Page: 2 of 3
ARI Client Company: Part of TRICOMP	Phone: 253 543 4563	Date: 4/26/12
Client Contact: BILL EVANS - Port of DUYMPA		No. of Coolers: 1
Client Project Name: BROWN'S HALEY BLDG - PCB SAMPLING		Cooler Temps:
Client Project #: 	Samplers: STACY MUNSON & GISELE RAYEN	

Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)



Analysis Requested				Notes/Comments			
Sample ID	Date	Time	Matrix	No. Containers			
POT-BH-PT-DUP-0-0-042612	4/26/12	9:40	PAINT	1	X		
POT-BH-PT-37-0-0-042612		9:50	PAINT	1	X		
POT-BH-CK-38-0-0-042612		10:00	CAULK	1	X		
POT-BH-PT-39-0-0-042612		10:10	PAINT	1	X		
POT-BH-CK-40-0-0-042612		10:20	CAULK	1	X		
POT-BH-PT-41-0-0-042612		10:30	PAINT	1	X		
POT-BH-CK-42-0-0-042612		10:40	CAULK	1	X		
POT-BH-PT-43-0-0-042612		10:50	PAINT	1	X		
POT-BH-PT-44-0-0-042612		11:00	PAINT	1	X		
POT-BH-PT-45-0-0-042612		11:10	PAINT	1	X		
Comments/Special Instructions RUN ALL SAMPLES							
Relinquished by: Stacy Munson				Received by: Chris Howell			
(Signature)				(Signature)			
Printed Name: STACY MUNSON				Printed Name: Chris Howell			
Company: PIONEER				Company: ARI			
Date & Time: 4/26/12 12:40				Date & Time: 4/26/12 1240			

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Page: 3	of 3
Date: 4/26/12	Ice Present? y 27
No. of Coolers: 1	Cooler Temps:

ARI Assigned Number:	0292	Turn-around Requested:	Standard
ARI Client Company:	PORT OF TACOMA 253 543 45 63		
Client Contact:	BILL EVANS - PORT OF TACOMA		
Client Project Name:	BROWN: HACEY BLDG - PUB SAMPLING		
Client Project #:	Samplers:	STACY MUNSON & GRETCHEN MALLARD	

[illegible]

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

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Cooler Receipt Form

ARI Client: part of Tacoma

COC No(s): _____ NA

Assigned ARI Job No: UR92

Project Name: Brown + Haley JLDG PCB Sample

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

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) _____

YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) _____

8.3

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

Temp Gun ID#: 90941619

Cooler Accepted by: CA Date: 9/26/12 Time: 1240

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap ☒ Wet Ice ☐ Gel Packs ☐ Baggies ☐ Foam Block ☐ Paper ☐ Other: _____

Was sufficient ice used (if appropriate)? _____

NA ☐ YES ☒ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☐ NO ☒

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA ☒ YES ☐ NO ☐

Were all VOC vials free of air bubbles? _____

NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

NA ☒

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

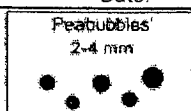
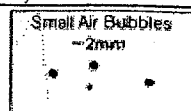
Samples Logged by: TS Date: 10-26-12 Time: 1455

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

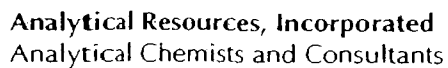


Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"



Cooler Temperature Compliance Form

00070F

Sample ID Cross Reference Report



ARI Job No: UR92
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley BLDG - PCB Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_PT_DUP_0_0_042612UR92A		12-7447	Paint	04/26/12 09:40	04/26/12 12:40
2. POT_BH_PT_37_0_0_042612 UR92B		12-7448	Paint	04/26/12 09:50	04/26/12 12:40
3. POT_BH_CK_38_0_0_042612 UR92C		12-7449	Caulk	04/26/12 10:00	04/26/12 12:40
4. POT_BH_PT_39_0_0_042612 UR92D		12-7450	Paint	04/26/12 10:10	04/26/12 12:40
5. POT_BH_CK_40_0_0_042612 UR92E		12-7451	Caulk	04/26/12 10:20	04/26/12 12:40
6. POT_BH_PT_41_0_0_042612 UR92F		12-7452	Paint	04/26/12 10:30	04/26/12 12:40
7. POT_BH_CK_42_0_0_042612 UR92G		12-7453	Caulk	04/26/12 10:40	04/26/12 12:40
8. POT_BH_PT_43_0_0_042612 UR92H		12-7454	Paint	04/26/12 10:50	04/26/12 12:40
9. POT_BH_PT_44_0_0_042612 UR92I		12-7455	Paint	04/26/12 11:00	04/26/12 12:40
10. POT_BH_PT_45_0_0_042612 UR92J		12-7456	Paint	04/26/12 11:10	04/26/12 12:40
11. POT_BH_PT_46_0_0_042612 UR92K		12-7457	Paint	04/26/12 11:15	04/26/12 12:40
12. POT_BH_PT_47_0_0_042612 UR92L		12-7458	Paint	04/26/12 11:20	04/26/12 12:40
13. POT_BH_PT_48_0_0_042612 UR92M		12-7459	Paint	04/26/12 11:30	04/26/12 12:40
14. POT_BH_PT_49_0_0_042612 UR92N		12-7460	Paint	04/26/12 11:40	04/26/12 12:40
15. POT_BH_DW_50_0_0_042612 UR92O		12-7461	Drywall	04/26/12 11:45	04/26/12 12:40

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_DUP_0_0_042612
SAMPLE

Lab Sample ID: UR92A
LIMS ID: 12-7447
Matrix: Paint
Data Release Authorized: *[Signature]*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 14:13
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	6,200
11097-69-1	Aroclor 1254	800	16,000
11096-82-5	Aroclor 1260	800	5,600
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	63.5%
Tetrachlorometaxylene	62.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_37_0_0_042612
SAMPLE

Lab Sample ID: UR92B
LIMS ID: 12-7448
Matrix: Paint
Data Release Authorized: *AB*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 14:32
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	3,600
11097-69-1	Aroclor 1254	800	4,500
11096-82-5	Aroclor 1260	1,600	< 1,600 Y
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.5%
Tetrachlorometaxylene	59.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_CK_38_0_0_042612
SAMPLE

Lab Sample ID: UR92C
LIMS ID: 12-7449
Matrix: Caulk
Data Release Authorized: *AB*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 14:51
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	3,800
11097-69-1	Aroclor 1254	800	2,600
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	61.5%
Tetrachlorometaxylene	58.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_39_0_0_042612
SAMPLE

Lab Sample ID: UR92D
LIMS ID: 12-7450
Matrix: Paint
Data Release Authorized: *[Signature]*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 15:10
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	7,700
11097-69-1	Aroclor 1254	2,800	< 2,800 Y
11096-82-5	Aroclor 1260	790	< 790 U
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	64.2%
Tetrachlorometaxylene	62.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_CK_40_0_0_042612
SAMPLE

Lab Sample ID: UR92E
LIMS ID: 12-7451
Matrix: Caulk
Data Release Authorized: *B*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 15:29
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	11,000
11097-69-1	Aroclor 1254	790	16,000
11096-82-5	Aroclor 1260	790	3,200
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

Reported in µg/kg (ppb)


PCB Surrogate Recovery

Decachlorobiphenyl	64.0%
Tetrachlorometaxylene	64.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_41_0_0_042612
SAMPLE

Lab Sample ID: UR92F
LIMS ID: 12-7452
Matrix: Paint
Data Release Authorized: 
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 15:48
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	770	< 770 U
53469-21-9	Aroclor 1242	770	< 770 U
12672-29-6	Aroclor 1248	770	10,000
11097-69-1	Aroclor 1254	770	7,900
11096-82-5	Aroclor 1260	1,700	< 1,700 Y
11104-28-2	Aroclor 1221	770	< 770 U
11141-16-5	Aroclor 1232	770	< 770 U
37324-23-5	Aroclor 1262	770	< 770 U
11100-14-4	Aroclor 1268	770	< 770 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	58.0%
Tetrachlorometaxylene	59.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_CK_42_0_0_042612
SAMPLE

Lab Sample ID: UR92G
LIMS ID: 12-7453
Matrix: Caulk
Data Release Authorized: *AB*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 16:07
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 10.0
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	7,300	< 7,300 U
53469-21-9	Aroclor 1242	7,300	< 7,300 U
12672-29-6	Aroclor 1248	7,300	470,000 E
11097-69-1	Aroclor 1254	7,300	230,000
11096-82-5	Aroclor 1260	23,000	< 23,000 Y
11104-28-2	Aroclor 1221	7,300	< 7,300 U
11141-16-5	Aroclor 1232	7,300	< 7,300 U
37324-23-5	Aroclor 1262	7,300	< 7,300 U
11100-14-4	Aroclor 1268	7,300	< 7,300 U

Reported in µg/kg (ppb)


PCB Surrogate Recovery

Decachlorobiphenyl	81.2%
Tetrachlorometaxylene	75.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: POT_BH_CK_42_0_0_042612
DILUTION

Lab Sample ID: UR92G
LIMS ID: 12-7453
Matrix: Caulk
Data Release Authorized: 
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/04/12 14:41
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 20.0
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	15,000	< 15,000 U
53469-21-9	Aroclor 1242	15,000	< 15,000 U
12672-29-6	Aroclor 1248	15,000	540,000
11097-69-1	Aroclor 1254	15,000	270,000
11096-82-5	Aroclor 1260	22,000	< 22,000 Y
11104-28-2	Aroclor 1221	15,000	< 15,000 U
11141-16-5	Aroclor 1232	15,000	< 15,000 U
37324-23-5	Aroclor 1262	15,000	< 15,000 U
11100-14-4	Aroclor 1268	15,000	< 15,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.5%
Tetrachlorometaxylene	81.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_43_0_0_042612
SAMPLE

Lab Sample ID: UR92H

LIMS ID: 12-7454

Matrix: Paint

Data Release Authorized: *AB*

Reported: 05/04/12

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/30/12

Date Analyzed: 05/02/12 17:04

Instrument/Analyst: ECD5/YZ

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	730	< 730 U
53469-21-9	Aroclor 1242	730	< 730 U
12672-29-6	Aroclor 1248	730	3,100
11097-69-1	Aroclor 1254	730	1,100
11096-82-5	Aroclor 1260	730	< 730 U
11104-28-2	Aroclor 1221	730	< 730 U
11141-16-5	Aroclor 1232	730	< 730 U
37324-23-5	Aroclor 1262	730	< 730 U
11100-14-4	Aroclor 1268	730	< 730 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	63.0%
Tetrachlorometaxylene	58.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_44_0_0_042612
SAMPLE

Lab Sample ID: UR92I
LIMS ID: 12-7455
Matrix: Paint
Data Release Authorized: *[Signature]*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling
Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 17:23
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	8,000
11097-69-1	Aroclor 1254	800	5,300
11096-82-5	Aroclor 1260	1,300	< 1,300 Y
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	55.0%
Tetrachlorometaxylene	57.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_45_0_0_042612
SAMPLE

Lab Sample ID: UR92J

LIMS ID: 12-7456

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/04/12

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/30/12

Date Analyzed: 05/02/12 17:42

Instrument/Analyst: ECD5/YZ

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	730	< 730 U
53469-21-9	Aroclor 1242	730	< 730 U
12672-29-6	Aroclor 1248	730	6,900
11097-69-1	Aroclor 1254	730	2,500
11096-82-5	Aroclor 1260	730	< 730 U
11104-28-2	Aroclor 1221	730	< 730 U
11141-16-5	Aroclor 1232	730	< 730 U
37324-23-5	Aroclor 1262	730	< 730 U
11100-14-4	Aroclor 1268	730	< 730 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	62.8%
Tetrachlorometaxylene	58.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_46_0_0_042612
SAMPLE

Lab Sample ID: UR92K

LIMS ID: 12-7457

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/04/12

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/30/12

Date Analyzed: 05/02/12 18:01

Instrument/Analyst: ECD5/YZ

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.07 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	750	< 750 U
53469-21-9	Aroclor 1242	750	< 750 U
12672-29-6	Aroclor 1248	750	17,000
11097-69-1	Aroclor 1254	750	10,000
11096-82-5	Aroclor 1260	3,400	< 3,400 Y
11104-28-2	Aroclor 1221	750	< 750 U
11141-16-5	Aroclor 1232	750	< 750 U
37324-23-5	Aroclor 1262	750	< 750 U
11100-14-4	Aroclor 1268	750	< 750 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	61.8%
Tetrachlorometaxylene	60.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_47_0_0_042612
SAMPLE

Lab Sample ID: UR92L
LIMS ID: 12-7458
Matrix: Paint
Data Release Authorized: *[Signature]*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 18:20
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.02 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	780	3,900
11097-69-1	Aroclor 1254	780	3,500
11096-82-5	Aroclor 1260	780	6,800
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	57.8%
Tetrachlorometaxylene	56.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_PT_48_0_0_042612
SAMPLE

Lab Sample ID: UR92M
LIMS ID: 12-7459
Matrix: Paint
Data Release Authorized: *[Signature]*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12
Date Received: 04/26/12

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 18:39
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	730	< 730 U
53469-21-9	Aroclor 1242	730	< 730 U
12672-29-6	Aroclor 1248	730	8,800
11097-69-1	Aroclor 1254	730	8,400
11096-82-5	Aroclor 1260	730	1,800
11104-28-2	Aroclor 1221	730	< 730 U
11141-16-5	Aroclor 1232	730	< 730 U
37324-23-5	Aroclor 1262	730	< 730 U
11100-14-4	Aroclor 1268	730	< 730 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	61.8%
Tetrachlorometaxylene	60.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_PT_49_0_0_042612
SAMPLE

Lab Sample ID: UR92N

LIMS ID: 12-7460

Matrix: Paint

Data Release Authorized: *[Signature]*

Reported: 05/04/12

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/30/12

Date Analyzed: 05/02/12 18:58

Instrument/Analyst: ECD5/YZ

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.07 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	750	< 750 U
53469-21-9	Aroclor 1242	750	< 750 U
12672-29-6	Aroclor 1248	750	4,300
11097-69-1	Aroclor 1254	750	2,900
11096-82-5	Aroclor 1260	750	1,800
11104-28-2	Aroclor 1221	750	< 750 U
11141-16-5	Aroclor 1232	750	< 750 U
37324-23-5	Aroclor 1262	750	< 750 U
11100-14-4	Aroclor 1268	750	< 750 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.8%
Tetrachlorometaxylene	70.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: POT_BH_DW_50_0_0_042612
SAMPLE

Lab Sample ID: UR920

LIMS ID: 12-7461

Matrix: Drywall

Data Release Authorized: *AB*

Reported: 05/04/12

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: 04/26/12

Date Received: 04/26/12

Date Extracted: 04/30/12

Date Analyzed: 05/02/12 19:17

Instrument/Analyst: ECD5/YZ

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	790	< 790 U
53469-21-9	Aroclor 1242	790	< 790 U
12672-29-6	Aroclor 1248	790	< 790 U
11097-69-1	Aroclor 1254	790	< 790 U
11096-82-5	Aroclor 1260	790	< 790 U
11104-28-2	Aroclor 1221	790	< 790 U
11141-16-5	Aroclor 1232	790	< 790 U
37324-23-5	Aroclor 1262	790	< 790 U
11100-14-4	Aroclor 1268	790	< 790 U

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

PCB Surrogate Recovery

Decachlorobiphenyl	77.2%
Tetrachlorometaxylene	72.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1



Sample ID: MB-043012
METHOD BLANK

Lab Sample ID: MB-043012
LIMS ID: 12-7447
Matrix: Paint
Data Release Authorized: *AB*
Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
Project: Brown & Haley BLDG - PCB Sampling

Date Sampled: NA
Date Received: NA

Date Extracted: 04/30/12
Date Analyzed: 05/02/12 13:16
Instrument/Analyst: ECD5/YZ
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

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

PCB Surrogate Recovery

Decachlorobiphenyl	71.8%
Tetrachlorometaxylene	61.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Paint

QC Report No: UR92-Port of Tacoma

Project: Brown & Haley BLDG - PCB Sampling

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT	OUT
MB-043012	71.8%	51-127	61.5%	30-160	0	
LCS-043012	64.8%	51-127	58.8%	30-160	0	
LCSD-043012	63.0%	51-127	57.0%	30-160	0	
POT_BH_PT_DUP_0_0_042612	63.5%	30-160	62.5%	30-160	0	
POT_BH_PT_37_0_0_042612	62.5%	30-160	59.8%	30-160	0	
POT_BH_CK_38_0_0_042612	61.5%	30-160	58.8%	30-160	0	
POT_BH_PT_39_0_0_042612	64.2%	30-160	62.8%	30-160	0	
POT_BH_CK_40_0_0_042612	64.0%	30-160	64.2%	30-160	0	
POT_BH_PT_41_0_0_042612	58.0%	30-160	59.0%	30-160	0	
POT_BH_CK_42_0_0_042612	81.2%	30-160	75.0%	30-160	0	
POT_BH_CK_42_0_0_042612 DL	96.5%	30-160	81.5%	30-160	0	
POT_BH_PT_43_0_0_042612	63.0%	30-160	58.8%	30-160	0	
POT_BH_PT_44_0_0_042612	55.0%	30-160	57.0%	30-160	0	
POT_BH_PT_45_0_0_042612	62.8%	30-160	58.5%	30-160	0	
POT_BH_PT_46_0_0_042612	61.8%	30-160	60.5%	30-160	0	
POT_BH_PT_47_0_0_042612	57.8%	30-160	56.2%	30-160	0	
POT_BH_PT_48_0_0_042612	61.8%	30-160	60.0%	30-160	0	
POT_BH_PT_49_0_0_042612	70.8%	30-160	70.2%	30-160	0	
POT_BH_DW_50_0_0_042612	77.2%	30-160	72.0%	30-160	0	

Medium Level Control Limits

Prep Method: SW3580A

Log Number Range: 12-7447 to 12-7461

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: LCS-043012
LCS/LCSD

Lab Sample ID: LCS-043012
 LIMS ID: 12-7447
 Matrix: Paint
 Data Release Authorized: *AB*
 Reported: 05/04/12

QC Report No: UR92-Port of Tacoma
 Project: Brown & Haley BLDG - PCB Sampling
 Date Sampled: NA
 Date Received: NA

Date Extracted LCS/LCSD: 04/30/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 05/02/12 13:35

Final Extract Volume LCS: 40.0 mL

LCSD: 05/02/12 13:54

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD5/YZ

Dilution Factor LCS: 1.00

LCSD: ECD5/YZ

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: No

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	13500	20000	67.5%	13000	20000	65.0%	3.8%
Aroclor 1260	16400	20000	82.0%	15900	20000	79.5%	3.1%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	64.8%	63.0%
Tetrachlorometaxylene	58.8%	57.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 4, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UR65

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted twenty eight soil and sediment/soil matrix samples on April 24, 2012. There were no discrepancies in the paperwork. Several samples have been placed on frozen hold pending further client instructions.

The samples were analyzed for PCBs, as requested on the COC.

The PCB surrogate DCBP is out of control high for sample POT_BH_CB_05_0_0_042412. All other surrogate recoveries were in control and no further corrective action was taken.

The matrix spike in association with sample POT_BH_SL_07_0_0.5_042412 is out of control high for aroclor 1260. All other QC is in control and no further corrective action was taken.

The remaining analyses proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: WRLS	Turn-around Requested: Standard	Page: 1 of 3
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 4/24/12 Ice Present? No
Client Contact: Bill Givens - Port of Tacoma		No. of Coolers: 1 Cooler Temps: 14.0



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Client Project Name: Brown + Haley Bldg - PCB sampling
Client Project #: Samplers: Stacy Munson + Gretchen Muller

Sample ID	Date	Time	Matrix	Containers	Analysis Requested					Notes/Comments
POT-BH-SL-01-0-0.5-042412	4/24/12	8:45	SL	1	X					RUN
POT-BH-SL-02-0-0.5-042412		8:55	SL	1	X					HOLD
POT-BH-SL-03-0-0.5-042412		9:10	SL	1	X					RUN
POT-BH-SL-04-0-0.5-042412		9:20	SL	1	X					HOLD
POT-BH-SL-05-0-0.5-042412		9:30	SL	1	X					RUN
POT-BH-SL-06-0-0.5-042412		9:40	SL	1	X					HOLD
POT-BH-SL-07-0-0.5-042412		9:50	SL	1	X					RUN
POT-BH-SL-08-0-0.5-042412		10:00	SL	1	X					HOLD
POT-BH-SL-09-0-0.5-042412		10:10	SL	1	X					RUN
POT-BH-SL-10-0-0.5-042412	✓	10:15	SL	1	X					RUN

Comments/Special Instructions Analyze only samples marked "RUN". Hold all others for later analysis.	Relinquished by: Stacy Munson (Signature) Printed Name: Stacy Munson Company: Pioneer Date & Time: 4/24/12 4 30	Received by: Chris Atwell (Signature) Printed Name: Chris Atwell Company: ARI Date & Time: 4/24/12 1630
	Relinquished by: Stacy Munson (Signature) Printed Name: Stacy Munson Company: Pioneer Date & Time: 4/24/12 4 30	Received by: Chris Atwell (Signature) Printed Name: Chris Atwell Company: ARI Date & Time: 4/24/12 1630
	Relinquished by: Stacy Munson (Signature) Printed Name: Stacy Munson Company: Pioneer Date & Time: 4/24/12 4 30	Received by: Chris Atwell (Signature) Printed Name: Chris Atwell Company: ARI Date & Time: 4/24/12 1630
	Relinquished by: Stacy Munson (Signature) Printed Name: Stacy Munson Company: Pioneer Date & Time: 4/24/12 4 30	Received by: Chris Atwell (Signature) Printed Name: Chris Atwell Company: ARI Date & Time: 4/24/12 1630

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



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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Page: 2	of 3
Date: 4/24/12	Ice Present: NO
No. of Coolers: 1	Cooler Temps: 12.1

ARI Assigned Number:	W665	Turn-around Requested:	Standard
ARI Client Company:	Port of Tacoma		
Client Contact:	Bill Evans - Port of Tacoma		
Client Project Name:	Brown + Haley Bldg - PCB Sampling		
Client Project #:	Samplers: Stacy Munson + Gretchen Malloy		

Sample ID	Date	Time	Matrix	Containers
POT-BH-SL-10-0-0.5-042412	4/24/12	10:20	SL	1
POT-BH-SL-11-0-0.5-042412	4/24/12	10:30	SL	1
POT-BH-SL-12-0-0.5-042412	4/24/12	10:40	SL	1
POT-BH-SL-13-0-0.5-042412	4/24/12	10:50	SL	1
POT-BH-SL-14-0-0.5-042412	4/24/12	11:00	SL	1
POT-BH-SL-15-0-0.5-042412	4/24/12	11:10	SL	1
POT-BH-SL-16-0-0.5-042412	4/24/12	11:20	SL	1
POT-BH-SL-17-0-0.5-042412	4/24/12	11:30	SL	1
POT-BH-SL-18-0-0.5-042412	4/24/12	11:40	SL	1

Comments/Special Instructions	Relinquished by (Signature)	Relinquished by: (Signature)
Analyze only samples marked "PCUN". Hold all others for later analysis.		
	Printed Name: Steve Munson	Printed Name: Chris Appell
	Company Pioneer	Company APL
Date & Time 1/24/12 4:30	Date & Time 4/24/12 16:30	Date & Time

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

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AKOS	Turn-around Requested: Standard
ARI Client Company: Pot of Tacoma	Phone: 253-593-4563
Client Contact: Bill Evans - Pot of Tacoma	
Client Project Name: Brown + Haley Bldg - PCB Sampling	
Client Project #:	Samples: Stacy Munson + Graham Malin

Sample ID	Date	Time	Matrix	No. Containers
POT-BH-CB-01-0-0-042412	4/24/12	1:00	Sludge	1
POT-BH-CB-02-0-0-042412		1:15	Sludge	1
POT-BH-CB-DMP-0-0-042412		1:45	Sludge	1
POT-BH-CB-03-0-0-042412		1:30	Sludge	1
POT-BH-CB-04-0-0-042412		1:55	Sludge	1
POT-BH-CB-05-0-0-042412		2:05	Sludge	1
POT-BH-CB-06-0-0-042412		2:20	Sludge	1
POT-BH-CB-07-0-0-042412		2:35	Sludge	1
POT-BH-CB-08-0-0-042412	↓	2:45	Sludge	1

Comments/Special Instructions Analyze only sample marked "Rump" Hold all others for later analyses.	Relinquished by: Stacy Munson	Received by: Chris Atwell
	(Signature)	(Signature)
	Printed Name: Stacy Munson	Printed Name: Chris Atwell
	Company: Pioneer	Company: ARI
Date & Time: 4/24/12 4:30	Date & Time: 4/24/12 1630	

Page: 3	of 3
Date: 4/24/12	Ice Present? NO
No. of Coolers: 1	Cooler Temps: 14.6

Analysis Requested		Notes/Comments	
888	888		
X	matrix SO		RUN
X	Soil / Sed		RUN
X	soil 4/24/12		RUN
X			RUN
X			RUN
X			RUN
X			RUN
X			RUN
X			RUN
X			RUN

Relinquished by: Chris Atwell	Received by: Chris Atwell
(Signature)	(Signature)
Printed Name: Chris Atwell	Printed Name: Chris Atwell
Company: ARI	Company: ARI
Date & Time: 4/24/12 1630	Date & Time: 4/24/12 1630



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

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

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



Cooler Receipt Form

ARI Client Port of Tacoma

Project Name Brown + Haley Bldg - PCB

COC No(s). _____ (NA)

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

Assigned ARI Job No UR65

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 14.0 14.6 12.1

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

Temp Gun ID#: 9087952

Cooler Accepted by: CA Date 7/24/12 Time 1630

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES (NO)

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

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

Samples Logged by JM Date 4/25/12 Time 805

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By _____ Date _____

Small Air Bubbles ~2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" Peabubbles → "pb" Large → "lg" Headspace → "hs"
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Sample ID Cross Reference Report



ARI Job No: UR65
 Client: Port of Tacoma
 Project Event: N/A
 Project Name: Brown & Haley Bldg - PCB Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	POT_BH_SL_01_0_0.5_04241UR65A	12-7252	Soil	04/24/12 08:45	04/24/12 16:30
2.	POT_BH_SL_03_0_0.5_04241UR65B	12-7253	Soil	04/24/12 09:10	04/24/12 16:30
3.	POT_BH_SL_05_0_0.5_04241UR65C	12-7254	Soil	04/24/12 09:30	04/24/12 16:30
4.	POT_BH_SL_07_0_0.5_04241UR65D	12-7255	Soil	04/24/12 09:50	04/24/12 16:30
5.	POT_BH_SL_09_0_0.5_04241UR65E	12-7256	Soil	04/24/12 10:10	04/24/12 16:30
6.	POT_BH_SL_DUP_0_0.5_0424UR65F	12-7257	Soil	04/24/12 10:15	04/24/12 16:30
7.	POT_BH_SL_11_0_0.5_04241UR65G	12-7258	Soil	04/24/12 10:30	04/24/12 16:30
8.	POT_BH_SL_13_0_0.5_04241UR65H	12-7259	Soil	04/24/12 10:50	04/24/12 16:30
9.	POT_BH_SL_14_0_0.5_04241UR65I	12-7260	Soil	04/24/12 11:00	04/24/12 16:30
10.	POT_BH_SL_15_0_0.5_04241UR65J	12-7261	Soil	04/24/12 11:10	04/24/12 16:30
11.	POT_BH_SL_17_0_0.5_04241UR65K	12-7262	Soil	04/24/12 11:30	04/24/12 16:30
12.	POT_BH_CB_01_0_0_042412 UR65L	12-7263	Sed/Soil	04/24/12 13:00	04/24/12 16:30
13.	POT_BH_CB_02_0_0_042412 UR65M	12-7264	Sed/Soil	04/24/12 13:15	04/24/12 16:30
14.	POT_BH_CB_DUP_0_0_042412UR65N	12-7265	Sed/Soil	04/24/12 13:45	04/24/12 16:30
15.	POT_BH_CB_03_0_0_042412 UR65O	12-7266	Sed/Soil	04/24/12 13:30	04/24/12 16:30
16.	POT_BH_CB_04_0_0_042412 UR65P	12-7267	Sed/Soil	04/24/12 13:55	04/24/12 16:30
17.	POT_BH_CB_05_0_0_042412 UR65Q	12-7268	Sed/Soil	04/24/12 14:05	04/24/12 16:30
18.	POT_BH_CB_06_0_0_042412 UR65R	12-7269	Sed/Soil	04/24/12 14:20	04/24/12 16:30
19.	POT_BH_CB_07_0_0_042412 UR65S	12-7270	Sed/Soil	04/24/12 14:35	04/24/12 16:30
20.	POT_BH_CB_08_0_0_042412 UR65T	12-7271	Sed/Soil	04/24/12 14:45	04/24/12 16:30
21.	POT_BH_SL_02_0_0.5_04241UR65U	12-7272	Soil	04/24/12 08:55	04/24/12 16:30
22.	POT_BH_SL_04_0_0.5_04241UR65V	12-7273	Soil	04/24/12 09:20	04/24/12 16:30
23.	POT_BH_SL_06_0_0.5_04241UR65W	12-7274	Soil	04/24/12 09:40	04/24/12 16:30
24.	POT_BH_SL_08_0_0.5_04241UR65X	12-7275	Soil	04/24/12 10:00	04/24/12 16:30
25.	POT_BH_SL_10_0_0.5_04241UR65Y	12-7276	Soil	04/24/12 10:20	04/24/12 16:30
26.	POT_BH_SL_12_0_0.5_04241UR65Z	12-7277	Soil	04/24/12 10:40	04/24/12 16:30
27.	POT_BH_SL_16_0_0.5_04241UR65AA	12-7278	Soil	04/24/12 11:20	04/24/12 16:30
28.	POT_BH_SL_18_0_0.5_04241UR65AB	12-7279	Soil	04/24/12 11:40	04/24/12 16:30



Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

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

Organic Data

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



- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**



Geotechnical Data

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

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PSDDA PCB by GC/ECD
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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_01_0_0.5_042412
SAMPLE

Lab Sample ID: UR65A

QC Report No: UR65-Port of Tacoma

LIMS ID: 12-7252

Project: Brown & Haley Bldg - PCB Sampling

Matrix: Soil

Data Release Authorized: *MW*

Date Sampled: 04/24/12

Reported: 05/07/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Sample Amount: 4.68 g-dry-wt

Date Analyzed: 05/01/12 20:49

Final Extract Volume: 2.50 mL

Instrument/Analyst: ECD5/AAR

Dilution Factor: 10.0

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: Yes

Percent Moisture: 8.0%

Acid Cleanup: Yes

Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	270	< 270 U
53469-21-9	Aroclor 1242	270	< 270 U
12672-29-6	Aroclor 1248	930	< 930 Y
11097-69-1	Aroclor 1254	270	3,100
11096-82-5	Aroclor 1260	270	< 270 U
11104-28-2	Aroclor 1221	270	< 270 U
11141-16-5	Aroclor 1232	270	< 270 U
37324-23-5	Aroclor 1262	270	< 270 U
11100-14-4	Aroclor 1268	270	< 270 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	110%
Tetrachlorometaxylene	107%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_03_0_0.5_042412
SAMPLE

Lab Sample ID: UR65B
LIMS ID: 12-7253
Matrix: Soil
Data Release Authorized: *M*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 05/01/12 13:52
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: 5.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	47	< 47 U
53469-21-9	Aroclor 1242	47	< 47 U
12672-29-6	Aroclor 1248	83	< 83 Y
11097-69-1	Aroclor 1254	47	300
11096-82-5	Aroclor 1260	47	< 47 U
11104-28-2	Aroclor 1221	47	< 47 U
11141-16-5	Aroclor 1232	47	< 47 U
37324-23-5	Aroclor 1262	47	< 47 U
11100-14-4	Aroclor 1268	47	< 47 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	95.2%
Tetrachlorometaxylene	100%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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Sample ID: POT_BH_SL_05_0_0.5_042412
SAMPLE

Lab Sample ID: UR65C

LIMS ID: 12-7254

Matrix: Soil

Data Release Authorized: *Mu*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 04/27/12 17:46

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 4.52 g-dry-wt

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 10.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,400	< 4,400 U
53469-21-9	Aroclor 1242	4,400	< 4,400 U
12672-29-6	Aroclor 1248	12,000	< 12,000 Y
11097-69-1	Aroclor 1254	4,400	41,000
11096-82-5	Aroclor 1260	4,400	< 4,400 U
11104-28-2	Aroclor 1221	4,400	< 4,400 U
11141-16-5	Aroclor 1232	4,400	< 4,400 U
37324-23-5	Aroclor 1262	4,400	< 4,400 U
11100-14-4	Aroclor 1268	4,400	< 4,400 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.0%
Tetrachlorometaxylene	129%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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Sample ID: POT_BH_SL_07_0_0.5_042412
SAMPLE

Lab Sample ID: UR65D

QC Report No: UR65-Port of Tacoma

LIMS ID: 12-7255

Project: Brown & Haley Bldg - PCB Sampling

Matrix: Soil

Data Release Authorized: *Mw*

Date Sampled: 04/24/12

Reported: 05/07/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Sample Amount: 4.74 g-dry-wt

Date Analyzed: 04/30/12 13:24

Final Extract Volume: 40.0 mL

Instrument/Analyst: ECD5/AAR

Dilution Factor: 50.0

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: 6.0%

Acid Cleanup: Yes

Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	42,000	< 42,000 U
53469-21-9	Aroclor 1242	42,000	< 42,000 U
12672-29-6	Aroclor 1248	66,000	< 66,000 Y
11097-69-1	Aroclor 1254	42,000	220,000
11096-82-5	Aroclor 1260	42,000	< 42,000 U
11104-28-2	Aroclor 1221	42,000	< 42,000 U
11141-16-5	Aroclor 1232	42,000	< 42,000 U
37324-23-5	Aroclor 1262	42,000	< 42,000 U
11100-14-4	Aroclor 1268	42,000	< 42,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	118%
Tetrachlorometaxylene	112%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_07_0_0.5_042412
MATRIX SPIKE

Lab Sample ID: UR65D

LIMS ID: 12-7255

Matrix: Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 04/27/12 18:24

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 4.75 g-dry-wt

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 6.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,200	---
53469-21-9	Aroclor 1242	4,200	< 4,200 U
12672-29-6	Aroclor 1248	18,000	< 18,000 Y
11097-69-1	Aroclor 1254	4,200	44,000 E
11096-82-5	Aroclor 1260	4,200	---
11104-28-2	Aroclor 1221	4,200	< 4,200 U
11141-16-5	Aroclor 1232	4,200	< 4,200 U
37324-23-5	Aroclor 1262	4,200	< 4,200 U
11100-14-4	Aroclor 1268	4,200	< 4,200 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.1%
Tetrachlorometaxylene	103%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_07_0_0.5_042412
MATRIX SPIKE DUP

Lab Sample ID: UR65D

LIMS ID: 12-7255

Matrix: Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 04/27/12 18:43

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 4.76 g-dry-wt

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 6.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,200	---
53469-21-9	Aroclor 1242	4,200	< 4,200 U
12672-29-6	Aroclor 1248	15,000	< 15,000 Y
11097-69-1	Aroclor 1254	4,200	34,000
11096-82-5	Aroclor 1260	4,200	---
11104-28-2	Aroclor 1221	4,200	< 4,200 U
11141-16-5	Aroclor 1232	4,200	< 4,200 U
37324-23-5	Aroclor 1262	4,200	< 4,200 U
11100-14-4	Aroclor 1268	4,200	< 4,200 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	108%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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Sample ID: POT_BH_SL_09_0_0.5_042412
SAMPLE

Lab Sample ID: UR65E
LIMS ID: 12-7256
Matrix: Soil
Data Release Authorized: *MW*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 05/01/12 14:11
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.2 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: 6.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	47	< 47 U
53469-21-9	Aroclor 1242	47	< 47 U
12672-29-6	Aroclor 1248	150	< 150 Y
11097-69-1	Aroclor 1254	47	630
11096-82-5	Aroclor 1260	56	< 56 Y
11104-28-2	Aroclor 1221	47	< 47 U
11141-16-5	Aroclor 1232	47	< 47 U
37324-23-5	Aroclor 1262	47	< 47 U
11100-14-4	Aroclor 1268	47	< 47 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	85.0%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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Sample ID: POT_BH_SL_DUP_0_0.5_042412
SAMPLE

Lab Sample ID: UR65F

LIMS ID: 12-7257

Matrix: Soil

Data Release Authorized: *MMW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/02/12 20:14

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.2 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 10.0

Silica Gel: Yes

Percent Moisture: 6.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	94	< 94 U
53469-21-9	Aroclor 1242	94	< 94 U
12672-29-6	Aroclor 1248	180	< 180 Y
11097-69-1	Aroclor 1254	94	870
11096-82-5	Aroclor 1260	150	< 150 Y
11104-28-2	Aroclor 1221	94	< 94 U
11141-16-5	Aroclor 1232	94	< 94 U
37324-23-5	Aroclor 1262	94	< 94 U
11100-14-4	Aroclor 1268	94	< 94 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	110%
Tetrachlorometaxylene	90.5%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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Sample ID: POT_BH_SL_11_0_0.5_042412
SAMPLE

Lab Sample ID: UR65G
LIMS ID: 12-7258
Matrix: Soil
Data Release Authorized: *MW*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 04/27/12 19:02
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 4.64 g-dry-wt
Final Extract Volume: 40.0 mL
Dilution Factor: 10.0
Silica Gel: No
Percent Moisture: 8.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8,600	< 8,600 U
53469-21-9	Aroclor 1242	8,600	< 8,600 U
12672-29-6	Aroclor 1248	14,000	< 14,000 Y
11097-69-1	Aroclor 1254	8,600	51,000
11096-82-5	Aroclor 1260	8,600	< 8,600 U
11104-28-2	Aroclor 1221	8,600	< 8,600 U
11141-16-5	Aroclor 1232	8,600	< 8,600 U
37324-23-5	Aroclor 1262	8,600	< 8,600 U
11100-14-4	Aroclor 1268	8,600	< 8,600 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	108%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_13_0_0.5_042412
SAMPLE

Lab Sample ID: UR65H

LIMS ID: 12-7259

Matrix: Soil

Data Release Authorized: MW

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 14:49

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 7.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	< 48 U
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	48	< 48 U
11097-69-1	Aroclor 1254	48	50
11096-82-5	Aroclor 1260	48	< 48 U
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.9%
Tetrachlorometaxylene	93.1%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_13_0_0.5_042412
MATRIX SPIKE

Lab Sample ID: UR65H

LIMS ID: 12-7259

Matrix: Soil

Data Release Authorized: *MMW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 15:08

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 7.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	---
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	48	< 48 U
11097-69-1	Aroclor 1254	48	68
11096-82-5	Aroclor 1260	48	---
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.1%
Tetrachlorometaxylene	96.0%

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ANALYTICAL
RESOURCES

INCORPORATED

Sample ID: POT_BH_SL_13_0_0.5_042412

MATRIX SPIKE DUP

Lab Sample ID: UR65H

LIMS ID: 12-7259

Matrix: Soil

Data Release Authorized: *MMW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 15:27

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 7.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	---
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	48	< 48 U
11097-69-1	Aroclor 1254	48	64
11096-82-5	Aroclor 1260	48	---
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.4%
Tetrachlorometaxylene	93.5%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_14_0_0.5_042412
SAMPLE

Lab Sample ID: UR65I

LIMS ID: 12-7260

Matrix: Soil

Data Release Authorized: *W*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 16:24

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.4 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 11.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	47	< 47 U
53469-21-9	Aroclor 1242	47	< 47 U
12672-29-6	Aroclor 1248	47	< 47 U
11097-69-1	Aroclor 1254	47	150
11096-82-5	Aroclor 1260	47	< 47 U
11104-28-2	Aroclor 1221	47	< 47 U
11141-16-5	Aroclor 1232	47	< 47 U
37324-23-5	Aroclor 1262	47	< 47 U
11100-14-4	Aroclor 1268	47	< 47 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.1%
Tetrachlorometaxylene	91.0%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_15_0_0.5_042412
SAMPLE

Lab Sample ID: UR65J

LIMS ID: 12-7261

Matrix: Soil

Data Release Authorized: *M*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/02/12 20:33

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 12.9 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 10.0

Silica Gel: Yes

Percent Moisture: 28.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	97	< 97 U
53469-21-9	Aroclor 1242	97	< 97 U
12672-29-6	Aroclor 1248	320	< 320 Y
11097-69-1	Aroclor 1254	97	1,100
11096-82-5	Aroclor 1260	97	< 97 U
11104-28-2	Aroclor 1221	97	< 97 U
11141-16-5	Aroclor 1232	97	< 97 U
37324-23-5	Aroclor 1262	97	< 97 U
11100-14-4	Aroclor 1268	97	< 97 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	116%
Tetrachlorometaxylene	101%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_17_0_0.5_042412
SAMPLE

Lab Sample ID: UR65K

LIMS ID: 12-7262

Matrix: Soil

Data Release Authorized: MWJ

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 17:02

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 12.8 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 2.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	49	< 49 U
53469-21-9	Aroclor 1242	49	< 49 U
12672-29-6	Aroclor 1248	130	< 130 Y
11097-69-1	Aroclor 1254	49	420
11096-82-5	Aroclor 1260	49	< 49 U
11104-28-2	Aroclor 1221	49	< 49 U
11141-16-5	Aroclor 1232	49	< 49 U
37324-23-5	Aroclor 1262	49	< 49 U
11100-14-4	Aroclor 1268	49	< 49 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.1%
Tetrachlorometaxylene	90.1%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_01_0_0_042412
SAMPLE

Lab Sample ID: UR65L

LIMS ID: 12-7263

Matrix: Sed/Soil

Data Release Authorized: *WV*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 17:21

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 23.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	< 48 U
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	48	< 48 U
11097-69-1	Aroclor 1254	48	82
11096-82-5	Aroclor 1260	48	< 48 U
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	90.9%
Tetrachlorometaxylene	88.4%

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Sample ID: POT_BH_CB_02_0_0_042412
SAMPLE

Lab Sample ID: UR65M
LIMS ID: 12-7264
Matrix: Sed/Soil
Data Release Authorized: *MM*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 05/02/12 20:52
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.17 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 10.0
Silica Gel: Yes
Percent Moisture: 58.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	240	< 240 U
53469-21-9	Aroclor 1242	240	< 240 U
12672-29-6	Aroclor 1248	730	< 730 Y
11097-69-1	Aroclor 1254	240	2,600
11096-82-5	Aroclor 1260	620	< 620 Y
11104-28-2	Aroclor 1221	240	< 240 U
11141-16-5	Aroclor 1232	240	< 240 U
37324-23-5	Aroclor 1262	240	< 240 U
11100-14-4	Aroclor 1268	240	< 240 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	112%
Tetrachlorometaxylene	108%

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Sample ID: POT_BH_CB_DUP_0_0_042412
SAMPLE

Lab Sample ID: UR65N
LIMS ID: 12-7265
Matrix: Sed/Soil
Data Release Authorized: *MW*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 05/01/12 17:59
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.06 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: 20.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	590	< 590 U
53469-21-9	Aroclor 1242	590	< 590 U
12672-29-6	Aroclor 1248	590	< 590 U
11097-69-1	Aroclor 1254	590	2,000
11096-82-5	Aroclor 1260	590	< 590 U
11104-28-2	Aroclor 1221	590	< 590 U
11141-16-5	Aroclor 1232	590	< 590 U
37324-23-5	Aroclor 1262	590	< 590 U
11100-14-4	Aroclor 1268	590	< 590 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	85.6%
Tetrachlorometaxylene	84.6%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_03_0_0_042412
SAMPLE

Lab Sample ID: UR650

LIMS ID: 12-7266

Matrix: Sed/Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/02/12 21:11

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 12.6 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 21.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	500	< 500 U
53469-21-9	Aroclor 1242	500	< 500 U
12672-29-6	Aroclor 1248	1,600	< 1,600 Y
11097-69-1	Aroclor 1254	500	5,500
11096-82-5	Aroclor 1260	760	< 760 Y
11104-28-2	Aroclor 1221	500	< 500 U
11141-16-5	Aroclor 1232	500	< 500 U
37324-23-5	Aroclor 1262	500	< 500 U
11100-14-4	Aroclor 1268	500	< 500 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

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Sample ID: POT_BH_CB_04_0_0_042412
SAMPLE

Lab Sample ID: UR65P
LIMS ID: 12-7267
Matrix: Sed/Soil
Data Release Authorized: *WW*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12
Date Received: 04/24/12

Date Extracted: 04/27/12
Date Analyzed: 05/01/12 18:37
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.9 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: 25.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	< 48 U
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	58	< 58 Y
11097-69-1	Aroclor 1254	48	240
11096-82-5	Aroclor 1260	48	< 48 U
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	111%
Tetrachlorometaxylene	96.6%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_05_0_0_042412
SAMPLE

Lab Sample ID: UR65Q

LIMS ID: 12-7268

Matrix: Sed/Soil

Data Release Authorized: *mm*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 19:34

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 12.9 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 39.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	< 48 U
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	100	< 100 Y
11097-69-1	Aroclor 1254	48	390
11096-82-5	Aroclor 1260	99	< 99 Y
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	135%
Tetrachlorometaxylene	93.1%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_06_0_0_042412
SAMPLE

Lab Sample ID: UR65R

LIMS ID: 12-7269

Matrix: Sed/Soil

Data Release Authorized: *mw*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 19:52

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 48.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	48	< 48 U
53469-21-9	Aroclor 1242	48	< 48 U
12672-29-6	Aroclor 1248	90	< 90 Y
11097-69-1	Aroclor 1254	48	460
11096-82-5	Aroclor 1260	48	< 48 U
11104-28-2	Aroclor 1221	48	< 48 U
11141-16-5	Aroclor 1232	48	< 48 U
37324-23-5	Aroclor 1262	48	< 48 U
11100-14-4	Aroclor 1268	48	< 48 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	90.4%
Tetrachlorometaxylene	83.9%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_07_0_0_042412
SAMPLE

Lab Sample ID: UR65S

LIMS ID: 12-7270

Matrix: Sed/Soil

Data Release Authorized: MW

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 20:11

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 3.40 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 72.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	180	< 180 U
53469-21-9	Aroclor 1242	180	< 180 U
12672-29-6	Aroclor 1248	180	< 180 U
11097-69-1	Aroclor 1254	180	740
11096-82-5	Aroclor 1260	180	< 180 U
11104-28-2	Aroclor 1221	180	< 180 U
11141-16-5	Aroclor 1232	180	< 180 U
37324-23-5	Aroclor 1262	180	< 180 U
11100-14-4	Aroclor 1268	180	< 180 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	94.5%

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_CB_08_0_0_042412
SAMPLE

Lab Sample ID: UR65T

LIMS ID: 12-7271

Matrix: Sed/Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 04/27/12

Date Analyzed: 05/01/12 20:30

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 12.5 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 79.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	50	< 50 U
53469-21-9	Aroclor 1242	50	< 50 U
12672-29-6	Aroclor 1248	85	< 85 Y
11097-69-1	Aroclor 1254	50	310
11096-82-5	Aroclor 1260	50	< 50 U
11104-28-2	Aroclor 1221	50	< 50 U
11141-16-5	Aroclor 1232	50	< 50 U
37324-23-5	Aroclor 1262	50	< 50 U
11100-14-4	Aroclor 1268	50	< 50 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	117%
Tetrachlorometaxylene	86.2%

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Sample ID: MB-042712
METHOD BLANK

Lab Sample ID: MB-042712
LIMS ID: 12-7259
Matrix: Soil
Data Release Authorized: *mw*
Reported: 05/07/12

QC Report No: UR65-Port of Tacoma
Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA
Date Received: NA

Date Extracted: 04/27/12
Date Analyzed: 05/01/12 12:17
Instrument/Analyst: ECD5/AAR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	103%
Tetrachlorometaxylene	92.0%

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PSDDA PCB by GC/ECD
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Sample ID: MB-042712
METHOD BLANK

Lab Sample ID: MB-042712

LIMS ID: 12-7255

Matrix: Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted: 04/27/12

Date Analyzed: 04/27/12 16:49

Instrument/Analyst: ECD5/AAR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.00 g

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.5%
Tetrachlorometaxylene	82.2%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
POT_BH_SL_01_0_0.5_042412	110%	24-127	107%	34-109	0
POT_BH_SL_03_0_0.5_042412	95.2%	24-127	100%	34-109	0
POT_BH_SL_05_0_0.5_042412	84.0%	30-160	129%	30-160	0
MB-042712	70.5%	51-127	82.2%	30-160	0
LCS-042712	73.0%	51-127	83.5%	30-160	0
LCSD-042712	76.5%	51-127	87.0%	30-160	0
POT_BH_SL_07_0_0.5_042412	118%	30-160	112%	30-160	0
POT_BH_SL_07_0_0.5_042412 MS	84.1%	30-160	103%	30-160	0
POT_BH_SL_07_0_0.5_042412 MSD	87.5%	30-160	108%	30-160	0
POT_BH_SL_09_0_0.5_042412	96.0%	24-127	85.0%	34-109	0
POT_BH_SL_DUP_0_0.5_042412	110%	24-127	90.5%	34-109	0
POT_BH_SL_11_0_0.5_042412	96.0%	30-160	108%	30-160	0
MB-042712	103%	48-123	92.0%	43-107	0
LCS-042712	91.2%	48-123	83.2%	43-107	0
LCSD-042712	88.2%	48-123	81.0%	43-107	0
POT_BH_SL_13_0_0.5_042412	92.9%	24-127	93.1%	34-109	0
POT_BH_SL_13_0_0.5_042412 MS	97.1%	24-127	96.0%	34-109	0
POT_BH_SL_13_0_0.5_042412 MSD	97.4%	24-127	93.5%	34-109	0
POT_BH_SL_14_0_0.5_042412	84.1%	24-127	91.0%	34-109	0
POT_BH_SL_15_0_0.5_042412	116%	24-127	101%	34-109	0
POT_BH_SL_17_0_0.5_042412	87.1%	24-127	90.1%	34-109	0
POT_BH_CB_01_0_0_042412	90.9%	24-127	88.4%	34-109	0
POT_BH_CB_02_0_0_042412	112%	24-127	108%	34-109	0
POT_BH_CB_DUP_0_0_042412	85.6%	24-127	84.6%	34-109	0
POT_BH_CB_03_0_0_042412	D	24-127	D	34-109	0
POT_BH_CB_04_0_0_042412	111%	24-127	96.6%	34-109	0
POT_BH_CB_05_0_0_042412	135%*	24-127	93.1%	34-109	1
POT_BH_CB_06_0_0_042412	90.4%	24-127	83.9%	34-109	0
POT_BH_CB_07_0_0_042412	100%	24-127	94.5%	34-109	0
POT_BH_CB_08_0_0_042412	117%	24-127	86.2%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-7252 to 12-7271

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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Sample ID: LCS-042712

LCS/LCSD

Lab Sample ID: LCS-042712

LIMS ID: 12-7255

Matrix: Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 04/27/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 04/27/12 17:08

Final Extract Volume LCS: 40.0 mL

LCSD: 04/27/12 17:27

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD5/AAR

Dilution Factor LCS: 1.00

LCSD: ECD5/AAR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	Spike		LCS		Spike		RPD
	LCS	Added-LCS	Recovery	LCSD	Added-LCSD	Recovery	
Aroclor 1016	3200	4000	80.0%	3410	4000	85.2%	6.4%
Aroclor 1260	3400	4000	85.0%	3560	4000	89.0%	4.6%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	73.0%	76.5%
Tetrachlorometaxylene	83.5%	87.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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Sample ID: LCS-042712

LCS/LCSD

Lab Sample ID: LCS-042712

LIMS ID: 12-7259

Matrix: Soil

Data Release Authorized: *WW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 04/27/12

Sample Amount LCS: 12.5 g-dry-wt

LCSD: 12.5 g-dry-wt

Date Analyzed LCS: 05/01/12 12:36

Final Extract Volume LCS: 2.50 mL

LCSD: 05/01/12 12:55

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD5/AAR

Dilution Factor LCS: 1.00

LCSD: ECD5/AAR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	Spike		LCS		Spike		LCSD		RPD
	LCS	Added-LCS	Recovery	LCSD	Added-LCSD	Recovery	LCSD	RPD	
Aroclor 1016	90.0	101	89.1%	85.2	101	84.4%	5.5%		
Aroclor 1260	91.2	101	90.3%	88.9	101	88.0%	2.6%		

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	91.2%	88.2%
Tetrachlorometaxylene	83.2%	81.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_07_0_0.5_042412
MS/MSD

Lab Sample ID: UR65D

LIMS ID: 12-7255

Matrix: Soil

Data Release Authorized: *MW*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted MS/MSD: 04/27/12

Sample Amount MS: 4.75 g-dry-wt

MSD: 4.76 g-dry-wt

Date Analyzed MS: 04/27/12 18:24

Final Extract Volume MS: 40 mL

MSD: 04/27/12 18:43

MSD: 40 mL

Instrument/Analyst MS: ECD5/AAR

Dilution Factor MS: 5.00

MSD: ECD5/AAR

MSD: 5.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: 6.0%

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 42200 U	4650	4210	110%	4790	4200	114%	3.0%
Aroclor 1260	< 42200 U	6970	4210	166%	6480	4200	154%	7.3%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_13_0_0.5_042412
MS/MSD

Lab Sample ID: UR65H

LIMS ID: 12-7259

Matrix: Soil

Data Release Authorized: *Ww*

Reported: 05/07/12

QC Report No: UR65-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted MS/MSD: 04/27/12

Sample Amount MS: 13.1 g-dry-wt

MSD: 13.1 g-dry-wt

Date Analyzed MS: 05/01/12 15:08

Final Extract Volume MS: 2.5 mL

MSD: 05/01/12 15:27

MSD: 2.5 mL

Instrument/Analyst MS: ECD5/AAR

Dilution Factor MS: 5.00

MSD: ECD5/AAR

MSD: 5.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: Yes

Percent Moisture: 7.6%

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 47.6 U	82.1	96.2	85.3%	76.6	96.3	79.5%	6.9%
Aroclor 1260	< 47.6 U	92.1	96.2	95.7%	96.4	96.3	100%	4.6%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 10, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Sampling
ARI Job No. UT32

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted twenty eight soil and sediment/soil matrix samples on April 24, 2012. There were no discrepancies in the paperwork. Several samples have been placed on frozen hold pending further client instructions.

The several samples were originally analyzed for PCBs, as requested on the COC and reported under ARI SDG UR65. At the request of Pioneer Tech. Corp, samples that had been previously frozen were removed from hold and analyzed for PCBs and reported under ARI SDG UT32.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottom
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: WRLGS	Turn-around Requested: Stanford	Page: 1 of 3
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 4/24/12 Ice Present? No
Client Contact: Bill Evans - Port of Tacoma		No. of Coolers: 1 Cooler Temps: 14.0
Client Project Name: Brown + Haley Bldg - PCB sampling		
Client Project #: Samplers: Stacy Munson + Gretchen Muller		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	Containers	Analysis Requested					Notes/Comments
POT-BH-SL-01-0-0.5-042412	4/24/12	8:45	SL	1						RUN
POT-BH-SL-02-0-0.5-042412		8:55	SL	1						HOLD
POT-BH-SL-03-0-0.5-042412		9:10	SL	1						RUN
POT-BH-SL-04-0-0.5-042412		9:20	SL	1						HOLD
POT-BH-SL-05-0-0.5-042412		9:30	SL	1						RUN
POT-BH-SL-06-0-0.5-042412		9:40	SL	1						HOLD
POT-BH-SL-07-0-0.5-042412		9:50	SL	1						RUN
POT-BH-SL-08-0-0.5-042412		10:00	SL	1						HOLD
POT-BH-SL-09-0-0.5-042412		10:10	SL	1						RUN
POT-BH-SL-10-0-0.5-042412		10:15	SL	1						RUN
Comments/Special Instructions Analyze only samples marked "RUN". Hold all others for later analysis.										
Relinquished by: Stacy Munson (Signature) Stacy Munson Printed Name					Relinquished by: Chris Atwell (Signature) Chris Atwell Printed Name					
Company: Port of Tacoma					Company: ARI					
Date & Time: 4/24/12 4 30					Date & Time: 4/24/12 630					

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

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: W665	Turn-around Requested: Standard	Page: 2 of 3				
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 4/24/12 Ice Present: NO				
Client Contact: Bill Evans - Port of Tacoma		No. of Coolers: 1 Cooler Temps: 12.1				
Client Project Name: Brown + Haley Bldg - PCB Sampling						
Client Project #: 8082						
Samplers: Stacy Munson + Gretchen Malin						
Matrix: 8082 PCBs						
Sample ID	Date	Time	Matrix	Containers	Analysis Requested	Notes/Comments
POT-BH-SL-10-0.0.5-042412	4/24/12	10:20	SL	1	X	HOLD
POT-BH-SL-11-0.0.5-042412	4/24/12	10:30	SL	1	X	RUN
POT-BH-SL-12-0.0.5-042412	4/24/12	10:40	SL	1	X	HOLD
POT-BH-SL-13-0.0.5-042412	4/24/12	10:50	SL	1	X	RUN
POT-BH-SL-14-0.0.5-042412	4/24/12	11:00	SL	1	X	RUN
POT-BH-SL-15-0.0.5-042412	4/24/12	11:10	SL	1	X	RUN
POT-BH-SL-16-0.0.5-042412	4/24/12	11:20	SL	1	X	HOLD
POT-BH-SL-17-0.0.5-042412	4/24/12	11:30	SL	1	X	RUN
POT-BH-SL-18-0.0.5-042412	4/24/12	11:40	SL	1	X	HOLD
Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Printed Name	Company	Date & Time	
Analyze only samples noted "RUN". Hold all others for later analysis.	Stacy Munson	Chris Ansell	Chris Ansell	ARI	4/24/12 1630	

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

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



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AKOS	Turn-around Requested: Standard	Page: 3 of 3
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 4/24/12 Ice Present? NO
Client Contact: Bill Evans - Port of Tacoma		No. of Coolers: 1 Cooler Temps: 14.6

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Client Project Name: Brown & Haley Bldg - PCB Sampling	Analysis Requested	Notes/Comments
Client Project #: Stacy Munson & Gretchen Mahon		

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested	Notes/Comments
POT-BH-CB-01-0.0-042412	4/24/12	1:00	Sludge	1	X	matrix is RUN
POT-BH-CB-02-0.0-042412		1:15	Sludge	1	X	SOX/SeD RUN
POT-BH-CB-DWP-0.0-042412		1:45	Sludge	1	X	matrix 4/24/12 RUN
POT-BH-CB-03-0.0-042412		1:30	Sludge	1	X	RUN
POT-BH-CB-04-0.0-042412		1:55	Sludge	1	X	RUN
POT-BH-CB-05-0.0-042412		2:05	Sludge	1	X	RUN
POT-BH-CB-06-0.0-042412		2:20	Sludge	1	X	RUN
POT-BH-CB-07-0.0-042412		2:35	Sludge	1	X	RUN
POT-BH-CB-08-0.0-042412		2:45	Sludge	1	X	RUN

Comments/Special Instructions Analyze only sample marked "RWP" Hold all others for later analysis.	Relinquished by (Signature) Stacy Munson	Received by (Signature) Chris Atwell
	Printed Name: Stacy Munson	Printed Name: Chris Atwell
	Company: Pioneer	Company: ARI
	Date & Time: 4/24/12 4:30	Date & Time: 4/24/12 1630

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

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



Cooler Receipt Form

ARI Client Port of Tacoma

Project Name Brown + Haley Bldg - PCO

COC No(s) _____ (NA)

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

Assigned ARI Job No UR65

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 14.0 14.6 12.1

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

Temp Gun ID#: 90877952

Cooler Accepted by: CA Date 7/24/12 Time 1630

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

Were all bottles sealed in individual plastic bags? _____

YES NO

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ..

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI. _____

NA

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

Samples Logged by JM Date 4/25/12 Time 805

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By _____ Date _____

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: UT32
Client: Port of Tacoma
Project Event: Brown & Haley Bldg - PCB Sampling
Project Name: N/A

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SL_02_0_0.5_04241UT32A		12-8212	Soil	04/24/12 08:55	04/24/12 16:30
2. POT_BH_SL_04_0_0.5_04241UT32B		12-8213	Soil	04/24/12 09:20	04/24/12 16:30
3. POT_BH_SL_06_0_0.5_04241UT32C		12-8214	Soil	04/24/12 09:40	04/24/12 16:30
4. POT_BH_SL_08_0_0.5_04241UT32D		12-8215	Soil	04/24/12 10:00	04/24/12 16:30
5. POT_BH_SL_10_0_0.5_04241UT32E		12-8216	Soil	04/24/12 10:20	04/24/12 16:30
6. POT_BH_SL_12_0_0.5_04241UT32F		12-8217	Soil	04/24/12 10:40	04/24/12 16:30
7. POT_BH_SL_16_0_0.5_04241UT32G		12-8218	Soil	04/24/12 11:20	04/24/12 16:30
8. POT_BH_SL_18_0_0.5_04241UT32H		12-8219	Soil	04/24/12 11:40	04/24/12 16:30

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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Sample ID: POT_BH_SL_02_0_0.5_042412
SAMPLE

Lab Sample ID: UT32A

LIMS ID: 12-8212

Matrix: Soil

Data Release Authorized: *AB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/10/12 08:19

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.62 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 7.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	440	< 440 U
53469-21-9	Aroclor 1242	440	< 440 U
12672-29-6	Aroclor 1248	4,400	< 4,400 Y
11097-69-1	Aroclor 1254	440	9,700
11096-82-5	Aroclor 1260	1,100	< 1,100 Y
11104-28-2	Aroclor 1221	440	< 440 U
11141-16-5	Aroclor 1232	440	< 440 U
37324-23-5	Aroclor 1262	440	< 440 U
11100-14-4	Aroclor 1268	440	< 440 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD


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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_04_0_0.5_042412
SAMPLE

Lab Sample ID: UT32B

LIMS ID: 12-8213

Matrix: Soil

Data Release Authorized: 

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/09/12 19:58

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 6.02 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: 5.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.3	< 8.3 U
53469-21-9	Aroclor 1242	8.3	< 8.3 U
12672-29-6	Aroclor 1248	10	< 10 Y
11097-69-1	Aroclor 1254	8.3	24
11096-82-5	Aroclor 1260	8.3	< 8.3 U
11104-28-2	Aroclor 1221	8.3	< 8.3 U
11141-16-5	Aroclor 1232	8.3	< 8.3 U
37324-23-5	Aroclor 1262	8.3	< 8.3 U
11100-14-4	Aroclor 1268	8.3	< 8.3 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	94.8%
Tetrachlorometaxylene	92.5%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_06_0_0.5_042412
SAMPLE

Lab Sample ID: UT32C

LIMS ID: 12-8214

Matrix: Soil

Data Release Authorized: *AB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/09/12 20:19

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 0.90 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: 12.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	280	< 280 U
53469-21-9	Aroclor 1242	280	< 280 U
12672-29-6	Aroclor 1248	2,800	< 2,800 Y
11097-69-1	Aroclor 1254	280	6,300
11096-82-5	Aroclor 1260	690	< 690 Y
11104-28-2	Aroclor 1221	280	< 280 U
11141-16-5	Aroclor 1232	280	< 280 U
37324-23-5	Aroclor 1262	280	< 280 U
11100-14-4	Aroclor 1268	280	< 280 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	105%
Tetrachlorometaxylene	94.5%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES

INCORPORATED

Sample ID: POT_BH_SL_08_0_0.5_042412
SAMPLE

Lab Sample ID: UT32D

LIMS ID: 12-8215

Matrix: Soil

Data Release Authorized: *BB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Sample Amount: 2.33 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 8.3%

Date Extracted: 05/08/12
Date Analyzed: 05/10/12 08:40
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,100	< 1,100 U
53469-21-9	Aroclor 1242	1,100	< 1,100 U
12672-29-6	Aroclor 1248	3,200	< 3,200 Y
11097-69-1	Aroclor 1254	1,100	8,100
11096-82-5	Aroclor 1260	1,100	< 1,100 U
11104-28-2	Aroclor 1221	1,100	< 1,100 U
11141-16-5	Aroclor 1232	1,100	< 1,100 U
37324-23-5	Aroclor 1262	1,100	< 1,100 U
11100-14-4	Aroclor 1268	1,100	< 1,100 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1



Sample ID: POT_BH_SL_10_0_0.5_042412
SAMPLE

Lab Sample ID: UT32E

LIMS ID: 12-8216

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/09/12 21:01

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.69 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: 6.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.8	< 8.8 U
53469-21-9	Aroclor 1242	8.8	< 8.8 U
12672-29-6	Aroclor 1248	110	< 110 Y
11097-69-1	Aroclor 1254	8.8	340
11096-82-5	Aroclor 1260	8.8	91
11104-28-2	Aroclor 1221	8.8	< 8.8 U
11141-16-5	Aroclor 1232	8.8	< 8.8 U
37324-23-5	Aroclor 1262	8.8	< 8.8 U
11100-14-4	Aroclor 1268	8.8	< 8.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	99.0%
Tetrachlorometaxylene	87.8%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_12_0_0.5_042412
SAMPLE

Lab Sample ID: UT32F

LIMS ID: 12-8217

Matrix: Soil

Data Release Authorized: *RB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/10/12 09:01

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 2.07 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 18.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,200	< 1,200 U
53469-21-9	Aroclor 1242	1,200	< 1,200 U
12672-29-6	Aroclor 1248	9,000	< 9,000 Y
11097-69-1	Aroclor 1254	1,200	19,000
11096-82-5	Aroclor 1260	1,200	5,500
11104-28-2	Aroclor 1221	1,200	< 1,200 U
11141-16-5	Aroclor 1232	1,200	< 1,200 U
37324-23-5	Aroclor 1262	1,200	< 1,200 U
11100-14-4	Aroclor 1268	1,200	< 1,200 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_16_0_0.5_042412
SAMPLE

Lab Sample ID: UT32G

LIMS ID: 12-8218

Matrix: Soil

Data Release Authorized: *B*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/10/12 09:22

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.37 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: Yes

Percent Moisture: 26.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	460	< 460 U
53469-21-9	Aroclor 1242	460	< 460 U
12672-29-6	Aroclor 1248	9,300	< 9,300 Y
11097-69-1	Aroclor 1254	460	23,000
11096-82-5	Aroclor 1260	2,300	< 2,300 Y
11104-28-2	Aroclor 1221	460	< 460 U
11141-16-5	Aroclor 1232	460	< 460 U
37324-23-5	Aroclor 1262	460	< 460 U
11100-14-4	Aroclor 1268	460	< 460 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD


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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_18_0_0.5_042412
SAMPLE

Lab Sample ID: UT32H

LIMS ID: 12-8219

Matrix: Soil

Data Release Authorized: 

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: 04/24/12

Date Received: 04/24/12

Date Extracted: 05/08/12

Date Analyzed: 05/09/12 22:04

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.90 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: 3.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.5	< 8.5 U
53469-21-9	Aroclor 1242	8.5	< 8.5 U
12672-29-6	Aroclor 1248	11	< 11 Y
11097-69-1	Aroclor 1254	8.5	37
11096-82-5	Aroclor 1260	8.5	< 8.5 U
11104-28-2	Aroclor 1221	8.5	< 8.5 U
11141-16-5	Aroclor 1232	8.5	< 8.5 U
37324-23-5	Aroclor 1262	8.5	< 8.5 U
11100-14-4	Aroclor 1268	8.5	< 8.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	91.0%
Tetrachlorometaxylene	86.5%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1



Sample ID: MB-050812
METHOD BLANK

Lab Sample ID: MB-050812

LIMS ID: 12-8212

Matrix: Soil

Data Release Authorized: *AB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted: 05/08/12

Date Analyzed: 05/09/12 18:35

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.00 g

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.2%
Tetrachlorometaxylene	80.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Client ID	DCBP	DCBP	TCMX	TCMX	TOT OUT
	% REC	LCL-UCL	% REC	LCL-UCL	
MB-050812	92.2%	48-123	80.5%	43-107	0
LCS-050812	93.5%	48-123	84.8%	43-107	0
LCSD-050812	95.5%	48-123	89.0%	43-107	0
POT_BH_SL_02_0_0.5_042412	D	24-127	D	34-109	0
POT_BH_SL_04_0_0.5_042412	94.8%	24-127	92.5%	34-109	0
POT_BH_SL_06_0_0.5_042412	105%	24-127	94.5%	34-109	0
POT_BH_SL_08_0_0.5_042412	D	24-127	D	34-109	0
POT_BH_SL_10_0_0.5_042412	99.0%	24-127	87.8%	34-109	0
POT_BH_SL_12_0_0.5_042412	D	24-127	D	34-109	0
POT_BH_SL_16_0_0.5_042412	D	24-127	D	34-109	0
POT_BH_SL_18_0_0.5_042412	91.0%	24-127	86.5%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-8212 to 12-8219

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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ANALYTICAL
RESOURCES
INCORPORATED 

Sample ID: LCS-050812

LCS/LCSD

Lab Sample ID: LCS-050812

LIMS ID: 12-8212

Matrix: Soil

Data Release Authorized: *AB*

Reported: 05/10/12

QC Report No: UT32-Port of Tacoma

Project: Brown & Haley Bldg - PCB Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 05/08/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 05/09/12 18:56

Final Extract Volume LCS: 2.50 mL

LCSD: 05/09/12 19:17

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Percent Moisture: NA

Florisil Cleanup: No

Analyte	Spike		LCS		Spike		LCSD	RPD
	LCS	Added-LCS	Recovery	LCSD	Added-LCSD	Recovery		
Aroclor 1016	199	252	79.0%	201	252	79.8%	1.0%	
Aroclor 1260	192	252	76.2%	195	252	77.4%	1.6%	

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	93.5%	95.5%
Tetrachlorometaxylene	84.8%	89.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

A2: 1940 East 11th Street Building Materials Characterization Sampling

Memo



5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

Phone: 360.570.1700

Fax: 360.570.1777

www.uspioneer.com

to: Bill Evans (Port of Tacoma)
from: Stacy Munson
cc: Chris Waldron
date: March 29, 2012
subject: Brown & Haley Building Materials Characterization Sampling

Dear Mr. Evans:

Per your request, PIONEER Technologies Corporation (PIONEER) conducted a materials characterization sampling event at the former Brown & Haley (B&H) Building located in the Port of Tacoma (Port). This memo presents a summary of the sampling operations, analytical results, and conclusions.

BACKGROUND

The B&H Building is an approximately 117,000-foot, two-story, vacant building located at 1940 East 11th Street in Tacoma, Washington (see Figure 1). A previous investigation was conducted at the B&H Building that partially characterized materials (e.g., lead-based paint and asbestos) found in and around the building (Argus Pacific, Inc. [Argus] 2010).

SAMPLING OBJECTIVES AND FIELD OPERATIONS

This characterization sampling event was (1) designed to supplement and enhance the previous investigation, (2) based on your outline and request, and (3) designed to address the three primary objectives discussed below. Field operations were conducted by Troy Bussey, Stacy Munson, and Lisa Graves on March 21st, 2012. Samples were submitted to Analytical Resources Incorporated in Tukwila, Washington on March 21st and 22nd, 2012. Field notes are presented in Attachment 1.

- Objective #1: Characterize for waste disposal the major non-asbestos-containing building materials that will clearly be designated as a waste during building demolition.

To achieve Objective #1, five samples (comprised of various materials) were collected and analyzed by Toxicity Characteristic Leachate Procedure (TCLP) lead using Environmental Protection Agency (EPA) Method SW846-846-1311/6010/6020. Based on a review of the B&H Building floor plans that were provided by the Port, PIONEER divided the building into five sampling areas (designated as Areas 1 through 5) (see Figures 2 and 3). PIONEER collected one non-asbestos-containing building-materials sample from each of the five areas. The composition of each sample was determined based on a visual inventory of the most common types of materials observed in each area (i.e., painted and unpainted wood, drywall, ceramic/porcelain from bathroom fixtures, carpet, glass from windows and doors, rubber from miscellaneous tubing, and metal pieces from metal fixtures). These materials were the primary focus of the sampling and PIONEER attempted to obtain five to six of these materials in each sample. Materials known to contain asbestos, as described in section 3.0 of the *Regulated Building Materials Assessment of the Brown and Haley Building* report, were not sampled (Argus 2010). Samples were collected using hand tools and powered hand tools. Sampling equipment was decontaminated between each sampling area. Table 1 presents a summary of the materials included in each sample by area.



- Objective #2: Determine if the painted/coated surfaces, or caulking materials, contain poly-chlorinated biphenyls (PCBs) at regulated concentrations.

To achieve Objective #2, 10 discrete grab samples were collected from painted/coated surfaces or caulking materials and analyzed for poly-chlorinated biphenyls (PCBs) by EPA Method SW846-8082. Sampling locations were based on a visual inventory of the majority of the building's interior and exterior painted/coated surfaces and caulking materials, and direction and guidance from the Port. Paint samples were collected using a hand chisel or hammer and chisel. Caulk samples were collected using a utility knife. Figures 2 and 3 present the locations of the samples collected to satisfy objective #2. Table 2 presents the composition of sampled materials.

- Objective #3: Determine typical lead concentrations in materials that have elevated surface lead concentrations and will be recycled.

To achieve Objective #3, three concrete dust samples were collected from locations with elevated surface lead concentrations and analyzed for total lead by EPA Method SW846-6010/6020. Three sampling locations were identified based on a review of previous characterization sampling (Argus 2010). The locations were drilled using a hammer drill with a masonry bit, and the dust generated from the drilling was collected in dedicated materials capture equipment. Sampling locations for Objective #3 are shown on Figure 2. Table 3 presents the sample details.

SAMPLING RESULTS AND CONCLUSIONS

Tables 1 -3 present the analytical results for Objectives 1 through 3, respectively. Complete analytical reports are presented in Attachment 2. Results and conclusions for the three objectives are presented below.

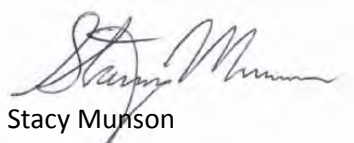
Objective #1: Table 1 presents the analytical results for TCLP lead. All samples collected to satisfy Objective #1 were below the 5 mg/L TCLP lead waste designation criterion. The materials sampled in Objective #1 should be designated as non-dangerous waste for disposal purposes.

Objective #2: Table 2 presents the analytical results for individual PCB Aroclors. Several PCB Aroclors were detected in the samples collected to satisfy Objective #2. Further investigation/assessment is needed to complete Objective #2.

Objective #3: Table 3 presents the analytical results for total lead. Lead concentrations in samples collected to satisfy Objective #3 were compared to Model Toxics Control Act (MTCA) Method A unrestricted land use and Method A Industrial land use screening criteria (as described in Washington Administrative Code 173-340-704) (Ecology 2012) to determine future use. Lead concentrations in all three samples collected were below the aforementioned screening values. All of these materials are considered to be recyclable.

Please let me know if you have any questions or comments.

Sincerely,



Stacy Munson

REFERENCES:

Argus Pacific, Inc. 2010. Regulated Building Materials Assessment of the Brown and Haley Building. Port of Tacoma, Washington. March, 2010.

Washington State Department of Ecology (Ecology), 2012. Cleanup Levels and Risk Calculation database, queried on March 26, 2012.

FIGURES:

Figure 1: Site Location

Figure 2: B&H Building 1st Floor

Figure 3: B&H Building 2nd Floor

TABLES:

Table 1: Sampling Objective #1 – Sample Details and Results

Table 2: Sampling Objective #2 – Sample Details and Results

Table 3: Sampling Objective #3 – Sample Details and Results

ATTACHMENTS:

Attachment 1: Field Notes

Attachment 2: Analytical Lab Reports

Figures



0 0.25 0.5
Miles



PIONEER
TECHNOLOGIES CORPORATION

Site Location
Brown and Haley Building Materials Characterization Sampling
Port of Tacoma, Tacoma, Washington

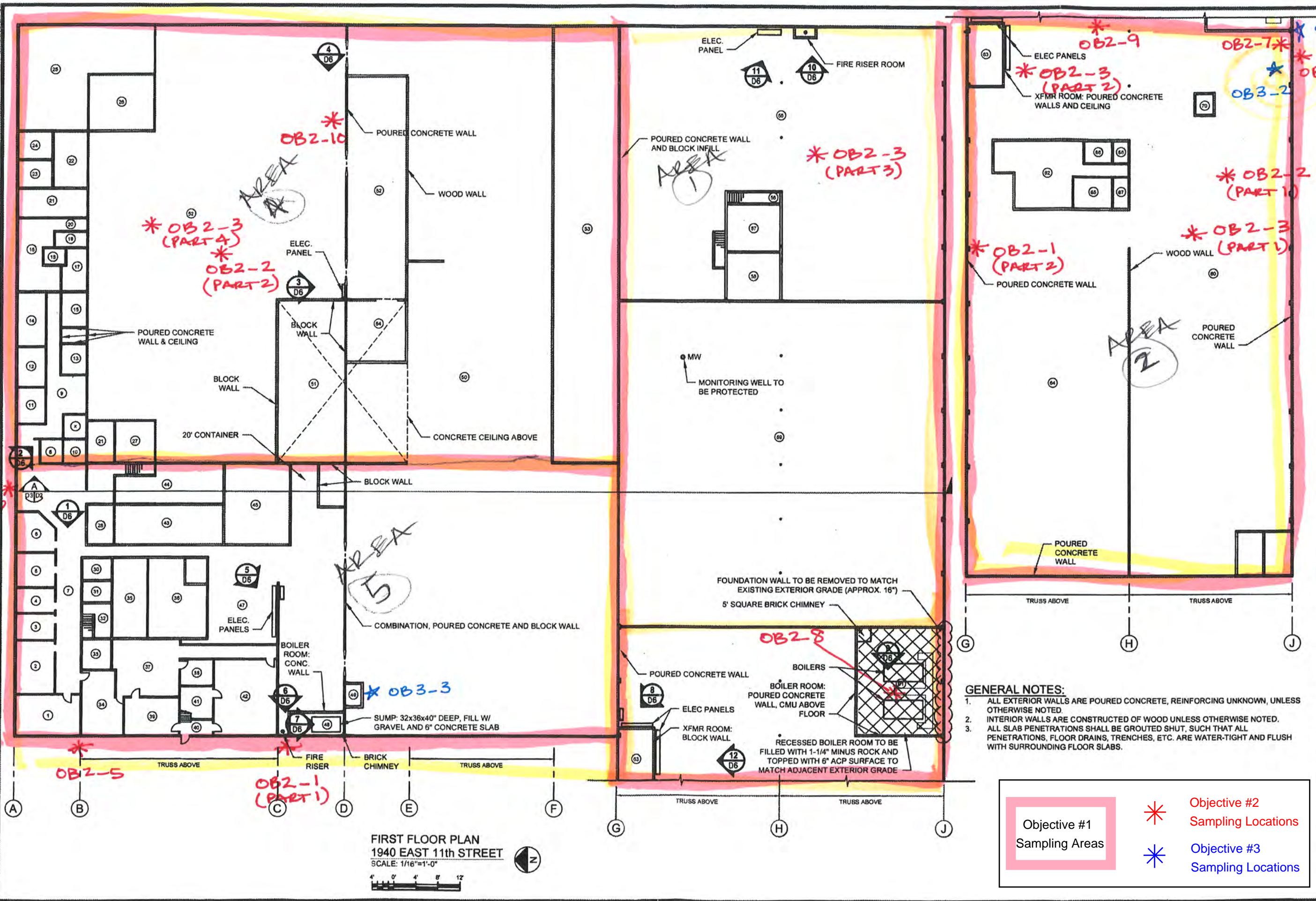
DWN:
SM

PROJECT:

DATE:
March 2012

FIGURE NO.:
1

FILE: W:\USOS Port of Tacoma\18 Auto Site Improvements E2741\Drawings\BH-03-D4 (Floor Plan)



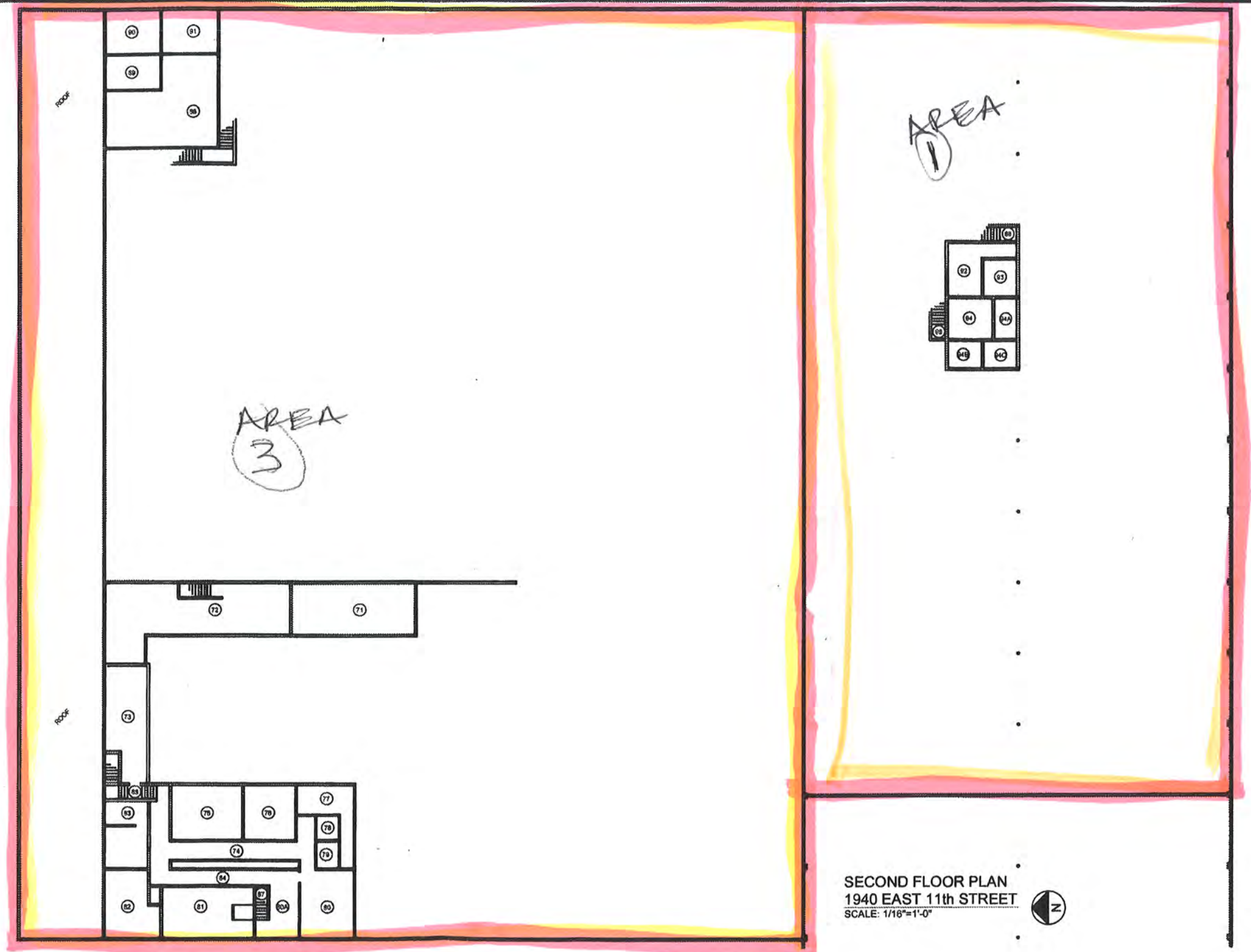
PORT OF TACOMA TACOMA, WA 98401-1837		MARK: REVISION: BY: DATE:	
DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET		APPROVED: <i>[Signature]</i> CHECKED BY: DATE: <i>[Signature]</i>	
CONTR: 069121	TOWNSHIP: 069121	SECTION: 069121	DATE: 06/05/2012
U. D. 098028	DAT-HRZ: WAB3-SF	VERT: MLLW 19.39' @ Tide 22 1933	PRINTED BY: 06/05/2012
PHASE: BID SET	PARCEL: 069121	DRAWING SCALE: AS NOTED	PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837

FILE: W:\505 Port of Tacoma\18 Auto Site Improvements E2741\Drawings\BH-D3-D4 (Floor Plan)

GENERAL NOTES:

1. ALL INTERIOR MEZZANINE WALLS ARE CONSTRUCTED OF WOOD UNLESS OTHERWISE NOTED.

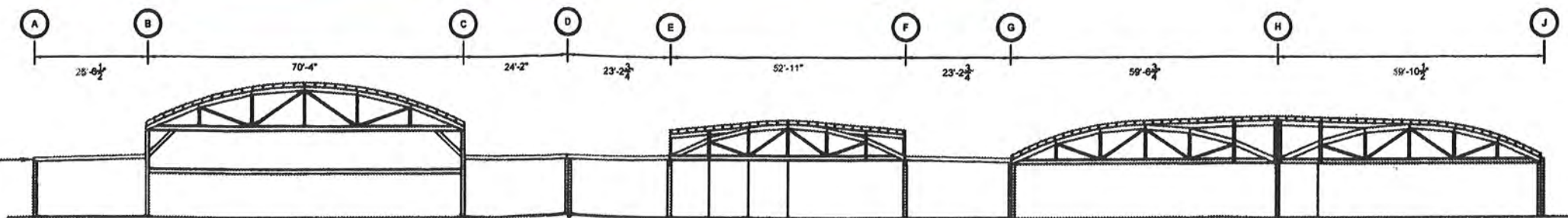
Objective #1
Sampling Areas


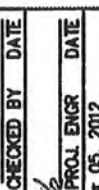


SECOND FLOOR PLAN
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"

DEMOLISH ALL STRUCTURE ABOVE THE
FLOOR SLAB REPAIR ANY DAMAGE TO FLOOR
SLAB TO MATCH EXISTING CONDITION

SECTION
1940 EAST 11th STREET
SCALE: 1/16"=1'-0"



3	DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET BUILDING LAYOUT PLAN				APPROVED: 	CHECKED BY: 	DATE: 05/05/2012
	CONTRACT/CONS: 069121	TOWNSHIP: 14N 03E 02W	RANGE: 36N 03E 02W	SECTION: 36	PRINTED BY: SR PM	DATE: 05/05/2012	DATE: 05/05/2012
M. D.: 098028				PORT ADDRESS: ONE SITCUM PLAZA			DATE: 05/05/2012
PHASE: BID SET				DRAWING SCALE: AS NOTED			DATE: 05/05/2012
THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION							

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (206)383-5841

PORT OF TACOMA
TACOMA U.S.A.

Michael J. Higgins
Professional Engineer
15748
Professional Engineer

Tables

Table 1: Sampling Objective #1 – Sample Details and Results

Sample	Date Collected	Sampling Area	Sample Composition	TCLP Lead Result (mg/L)	TCLP Lead Waste Designation Criterion ¹
BH_OB1_1_032112	3/21/2012	Area #1	33% Unpainted Wood 33% Drywall 34% Other *Painted Wood *Ceramic/Porcelain *Metal Washer *Glass	0.2	5 mg/L
BH_OB1_2_032112	3/21/2012	Area #2	33% Wood 33% Drywall 34% Other *Painted Wood *Ceramic/Porcelain *Rubber *Glass	0.1 U	
BH_OB1_3_032112	3/21/2012	Area #3	50% Drywall 20% Painted Wood 20% Unpainted Wood 5% Carpet (2 types) 5% Glass	0.1 U	
BH_OB1_4_032112	3/21/2012	Area #4	33% White Wall Board 33% Brown Wall Board 34% Other *Carpet (2 types) *Drywall *Glass *Unpainted Wood	0.1 U	
BH_OB1_5_032112	3/21/2012	Area #5	50% Drywall 20% Painted Wood 20% Unpainted Wood 5% Carpet (3 types) 5% Glass	0.7	

Notes:

mg/L: milligrams per liter

TCLP: Toxicity Characteristic Leachate Procedure

U: analyte was non-detect at the shown concentration

See Field Notes in Attachment 1 for details regarding the locations of materials collected for each sample.

Complete analytical results are presented in Attachment 2.

¹ Lead waste designation criterion from Washington Administrative Code 173-303-090(8) dangerous waste characteristics.

Table 2: Sampling Objective #2 – Sample Details and Results

Sample	Date Collected	Sampling Area	Sample Composition	PCB Aroclor Results (mg/kg)									
				Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs
BH_OB2_1_032112	3/21/2012	Area #2, Area #5 (two part sample)	Wall Caulk	3.7 U	3.7 U	11 Y	17	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	17
BH_OB2_2_032112	3/21/2012	Area #2, Area #4 (two part sample)	Floor Caulk	4.0 U	4.0 U	78 B	56 B	6.0 Y	4.0 U	4.0 U	4.0 U	4.0 U	134
BH_OB2_3_032112	3/21/2012	Area #2, Area #2, Area #1, Area #4 (four part sample)	Floor Paint	78 U	78 U	390 Y	1,900 B	350 Y	78 U	78 U	78 U	78 U	1,900
BH_OB2_4_032112	3/21/2012	Area #2	Exterior Yellow Paint - South	800 U	800 U	8,000 Y	22,000 B	2,000 Y	800 U	800 U	800 U	800 U	22,000
BH_OB2_5_032112	3/21/2012	Area #5	Exterior Yellow Paint - West	730 U	730 U	7,300 Y	18,000 B	1,800 Y	730 U	730 U	730 U	730 U	18,000
BH_OB2_6_032112	3/21/2012	Area #5	Exterior Red Paint - North	20 U	20 U	300 Y	800 B	79 Y	20 U	20 U	20 U	20 U	800
BH_OB2_7_032112	3/21/2012	Area #2	Interior Green Paint	3.8 U	3.8 U	29 Y	47 B	31 P	3.8 U	3.8 U	3.8 U	3.8 U	78
BH_OB2_8_032112	3/21/2012	Area #1	Interior Metallic silver Paint	0.78 U	0.78 U	5.9 Y	11 B	1.9	0.78 U	0.78 U	0.78 U	0.78 U	13
BH_OB2_9_032112	3/21/2012	Area #2	Interior White on Bottom of Walls	3.8 U	3.8 U	18	12	3.8 U	3.8 U	3.8 U	3.8 U	5.8 Y	30
BH_OB2_10_032112	3/21/2012	Area #4	Interior White in Northeast Portion of Building	3.7 U	3.7 U	4.6 Y	7	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	7

Notes:

mg/kg: miligrams per kilogram

PCBs: Poly-chlorinated biphenyls

Bolded/highlighted cells denote detected aroclors. All other aroclors were non-detect.

See Field Notes in Attachment 1 for details of materials collected for each sample.

Complete analytical results are presented in Attachment 2.

Qualifiers presented in this table include: U=analyte was non-detect at the shown concentration, Y=analyte was non-detected at the shown concentration, reporting limit is raised due to chromatograph interference,

B=analyte was detected in the associated method blank, P=analyte was detected on both chromatograph columns but the quantified relative percent difference was greater than 40%.

Table 3: Sampling Objective #3 – Sample Details and Results

Sample	Date Collected	Sampling Area and Description	Sample Composition	Total Lead Result (mg/kg)	MTCA Screening Values	
					Method A - Unrestricted Land Use	Method A - Industrial Land Use
BH_OB3_1_032112	3/21/2012	Area #2 - Beige Paint (External) on Concrete	Concrete Dust	29	250 mg/kg	1,000 mg/kg
BH_OB3_2_032112	3/21/2012	Area #2 - Green Paint (Internal) on Concrete	Concrete Dust	5		
BH_OB3_3_032112	3/21/2012	Area #5 - White Paint (Internal) on Concrete	Concrete Dust	26		

Notes:

mg/kg: milligrams per kilogram

MTCA: Washington Model Toxics Control Act

See Field Notes in Attachment 1 for details of material collected for each sample.

Complete analytical results are presented in Attachment 2.

Attachment 1

PIONEER DAILY FIELD REPORT

Date: 21-MAR-12 Site Location: BROWN & HALEY BLDG. Site Arrival Time: 7:30K Site Departure Time: 5:30P

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
LISA GRAVES	PTC	
STACY MUNSON	PTC	
TROY BUSSEY	PTC	
BILL EVANS	PORT OF TACOMA	

NOTES ON WORK COMPLETED

8:00A SAFETY MTG. (PARTICIPANTS: TROY BUSSEY, STACY MUNSON, LISA GRAVES)

8:15-8:40 WALK THRU BUILDING FOR ORIENTATION; TROY SURVEYED CONCRETE FOR POTENTIAL PCBs.

8:50 BREAKOUT AREAS ON MAPS TO IDENTIFY OBJECTIVE 1 SAMPLE AREAS. STARTED AT AREA #2. COLLECTED WOOD SAMPLES ALONG OUTSIDE OF ROOM 67-68 (SOUTH WALL). COLLECTED DRYWALL SAMPLES ON INSIDE OF ^{ROOM} 67-68 (ABOVE SINKS). COLLECTED TILE MATERIAL (WHITISH W/ GREY FLECK) IN ROOM 62. COLLECTED GLASS MATERIAL FROM INSIDE ROOM 62F. AFTER REVIEWING ASBESTOS NOTES IDENTIFIED THE WHITE TILE COLLECTED TO CONTAIN ASBESTOS. ALL SAMPLES WERE RECOLLECTED FROM SAME LOCATIONS WITHOUT THE TILE. COLLECTED SAMPLE OF CERAMIC FROM SINK IN ROOM 67. COLLECTED SOME OF A BLACK RUBBER TUBING LITTERED THROUGHOUT AREA. COLLECTED SOME PAINTED WOOD OFF DOOR FRAME OF ROOM 62. ALL SAMPLES WERE COMBINED IN A GLASS 16 OZ JAR AND LABELED BH-OB1-2-⁰³²¹¹²~~032112~~.

9:50 IDENTIFIED OBJECTIVE 1, AREA #1 LOCATION. COLLECTED ^{UNFINISHED} WOOD SAMPLE ALONG SOUTH WALL OF ROOM 57-58. COLLECTED DRYWALL SAMPLE INSIDE ROOM 57. COLLECTED CERAMIC SAMPLE UPSTAIRS IN ROOM 92. COLLECTED PAINTED WOOD FROM ROOM 57-58. COLLECTED GLASS FROM A BROKEN WINDOW PANE. ADDED SMALL METAL WASHER TO SAMPLE COLLECTION. ^{INSIDE OF BUILDING}
ALL SAMPLES WERE COLLECTED IN A GLASS 16 OZ JAR AND LABELED BH-OB1-1-⁰³²¹¹²~~032112~~.

10:50 IDENTIFIED OBJECTIVE 1, AREA #3 LOCATION. COLLECTED UNFINISHED WOOD SAMPLE ALONG EAST SIDE OF ROOM 71. COLLECTED DRYWALL INSIDE ROOM 80A. CARPET SAMPLE COLLECTED IN HALLWAY 84 AND ROOM 82.

SIGNATURE: LISA GRAVES

DATE: 21-MAR-2012

PIONEER DAILY FIELD REPORT

Date: 21 MAR 12 Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

CONTINUED.

GLASS SAMPLE COLLECTED FROM ROOM 83. COLLECTED PAINTED WOOD SAMPLE FROM DOOR FRAME OF ROOM 80A. ALL SAMPLES WERE COLLECTED INTO A 16 OZ GLASS JAR AND LABELED BH-OB1-3-032112.

TROY COLLECTED TWO PART COMPOSITE OF WALL CAULK AROUND 11A THAT LOOKED POTENTIALLY SUSPECT. BH-OB2-1-032112. SEE MAP

TROY COLLECTED TWO PART COMPOSITE OF FLOOR CAULK AROUND 11:10A. BH-OB2-2-032112 LOCATION 1D ON MAP.

11:40A IDENTIFIED OBJECTIVE 1 AREA #4. COLLECTED WHITE COMPOSITE PRESSED BOARD FROM WALL IN ROOM 21. COLLECTED PRESSED WOOD COMPOSITE OFF WALL IN ROOM 14. CARPET SAMPLES COLLECTED FROM ROOMS 12 AND 14. DRYWALL COLLECTED FROM ROOM 25. GLASS SAMPLE COLLECTED FROM INSIDE WINDOW OF ROOM 21. UNFINISHED WOOD SAMPLE FROM ROOM 52 COLLECTED. ALL SAMPLES WERE COLLECTED INTO A 16 OZ GLASS JAR AND LABELED BH-OB1-4-032112.

12:10A IDENTIFIED OBJECTIVE 1 AREA #5. COLLECTED DRYWALL FROM HALLWAY 7. COLLECTED 3 CARPET SAMPLES OF DIFFERENT COLOR & TEXTURE FROM ROOM 1, 33, AND 34. GLASS FROM INSIDE WINDOW OF ROOM 5. UNFINISHED WOOD COLLECTED FROM 47. PAINTED WOOD COLLECTED FROM DOOR FRAME IN ROOM 2. ALL SAMPLES WERE COLLECTED INTO

TROY COLLECTED COMPOSITE OF 4 LOCATIONS W/ 4 PAINT. SAMPLE TIME 12:30P. BH-OB2-3-032112

SIGNATURE: W.A. GIBBS

DATE: 21 MAR 2012

BH-OB1-5-032112 LABELED AND

16 OZ JAR

PIONEER DAILY FIELD REPORT

Date: 21 MAR 12 Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

CONTINUED

TR SELECTED PCB (OB 2) SAMPLE LOCATION BASED ON PORT OF JACOMA ~~RELATIVE~~ DIRECTION AND REPRESENTATIVE VOLUME OF PAINTED CONCRETE.

WALL CAULK - DONE ; ~~FLOOR~~ OB 2-1

FLOOR CAULK - DONE , OB 2-2

FLOOR PAINT - DONE , OB 2-3

EXTERIOR YELLOW X 2 , OB 2-4 & OB 2-5

EXTERIOR RED , OB 2-6

INTERIOR GREEN , OB 2-7

INTERIOR METALIC SILVER , OB 2-8

INTERIOR WHITE ON BOTTOM OF WALLS , OB 2-9

INTERIOR WHITE IN NE PART OF BUILDING , OB 2-10

1:30P STARTED OBJECTIVE 2 - DEFINE AREAS TO SAMPLE
COLLECTED ADDITIONAL SAMPLES: OB 2-4 COLLECTED FROM SOUTH EXTERIOR WALL

2:00P OB 2-5 COLLECTED FROM WEST EXTERIOR WALL.

2:20P OB 2-6 COLLECTED FROM NORTH EXTERIOR WALL.

2:30P OB 2-7 COLLECTED FROM SOUTH INTERIOR WALL.

2:40P OB 2-8 COLLECTED FROM INTERIOR OF SOUTHERN BROILER ROOM

~~3:00P~~ OB 2-9 COLLECTED FROM EAST INTERIOR WALL.

3:20P OB 2-10 COLLECTED FROM NORTHEAST INTERIOR WALL.

SIGNATURE: LRA GILES

DATE: 21 MAR 2012

PIONEER DAILY FIELD REPORT

Date: 21 MAR 12 Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

CONTINUED

4:00P ^{START} ~~IDENTIFY~~ OBJECTIVE 3 - DEFINE AREAS TO SAMPLE
OB3-1 SAMPLE COLLECTED FROM EXTERIOR SOUTH WALL.

4:20P OB3-2 COLLECTED FROM INTERIOR SOUTH WALL.

4:40P WALKED THRU SITE TO LOCATE DESCRIPTION FROM ARGUS PACIFIC PROJECT REPORT (PG. 14) "PB12: WHITE PAINT ON CONCRETE, INTERIOR PERIMETER WALLS THROUGHOUT NORTH HALF OF SW OFFICES." WITH A LEAD RESULT 6,100 ppm. ONLY ONE OFFICE WAS IDENTIFIED IN THE NORTHWEST AREA OF OFFICES. THIS SAMPLE LOCATION WAS THE FURTHEST SOUTH HOWEVER NO OTHER "OFFICES" WERE ADJACENT TO IT. SAMPLE OTHER DESCRIPTION CRITERIA: OFFICE W/ WHITE CONCRETE WALL MATCHED.

5:20 SAMPLES WERE PACKETED INTO THE COOLER FOR TRANSPORT TO ARI LAB.

SIGNATURE: WA GAMES

DATE: 21 MAR 2012

Attachment 2



Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 26, 2012

Chris Waldron
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG Demo
ARI Job No. UN58

Dear Chris:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted thirteen solid materials on March 22, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for PCBs and Total Lead, as requested on the COC.

The PCBs method blank was contaminated during the clean up process. All associated samples reported were greater than ten times the method blank contamination. The uncleaned archived method blanks and sample extracts were analyzed and reported for samples with lesser aroclor detections with no method blank contamination.

The total metals sample duplicate RPD for lead is outside of the +/-5% control limit. The matrix spike is in control and no further corrective action was taken.

The remaining analyses proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 0058	Turn-around Requested: NO LATER THAN	Page: 1 of 2
ARI Client Company: PORT OF TACOMA	Phone: 253-543-4563 / 360-570-1700	Date: 3/21/12
Client Contact: BILL EVANS (w.evans@porttacomawash.com)		Ice Present? N
Client Project Name: BROWN HARBOR BUDG DEND (PO# 53586)		No. of Coolers: 1
Client Project #: PO# 53586	Samplers: SM-24	Cooler Temps: 11.2
	Planned Turnaround: 360-570-1700	



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested					Notes/Comments
BH-OB2-1-032112	3/21/12	1100	BUILDING MATERIAL	1	✓					
BH-OB2-2-032112	3/21/12	1110	BUILDING MATERIAL	1	✓					
BH-OB2-3-032112	3/21/12	1230		1	✓					
BH-OB2-4-032112	3/21/12	1345		1	✓					
BH-OB2-5-032112	3/21/12	2:10		1	✓					
BH-OB2-6-032112	3/21/12	2:25		1	✓					
BH-OB2-7-032112	3/21/12	2:30		1	✓					
BH-OB2-8-032112	3/21/12	2:40		1	✓					
BH-OB2-9-032112	3/21/12	3:00		1	✓					
BH-OB2-10-032112	3/21/12	3:50		1	✓					
Comments/Special Instructions PLEASE SEND RESULTS TO BOTH TRAY BUSSEY AND BILL EVANS VIA EMAIL	Relinquished by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Received by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Relinquished by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC	Received by: (Signature) LISA GRAVES Printed Name: LISA GRAVES Company: PTC						
	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18	Date & Time: 3-22-12 8:18						

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

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

ARI Assigned Number: <u>WMS</u>	Turn-around Requested:
ARI Client Company: <u>PAGE 1 of 1</u>	
Client Contact: <u>SC</u>	<u>PAGE 1 of 1</u>
Client Project Name: <u>PART OF ARENA</u>	<u>Pt# 53586</u>

Page: <u>2</u>	of <u>2</u>
Date: <u>3.21.12</u>	Ice Present? <u>N</u>
No. of Coolers: <u>1</u>	Cooler Temps: <u>11.2</u>
Analysis Requested	

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

[illegible]

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

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



Cooler Receipt Form

ARI Client: Port of Tacoma

COC No(s): NA

Assigned ARI Job No: UN58

Project Name: Brown & Haley Bldg Demo

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

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 11.2

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

Temp Gun ID#: 90877952

Cooler Accepted by: JM Date: 3/22/12 Time: 818

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI... NA

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

Samples Logged by: JM Date: 3/22/12 Time: 828

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: UN58
Client: Port of Tacoma
Project Event: PO #53586
Project Name: Brown & Haley Bldg Demo (PO#53586)

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. BH_OB2_1_032112	UN58A	12-4974	Solid	03/21/12 11:00	03/22/12 08:18
2. BH_OB2_2_032112	UN58B	12-4975	Solid	03/21/12 11:10	03/22/12 08:18
3. BH_OB2_3_032112	UN58C	12-4976	Solid	03/21/12 12:30	03/22/12 08:18
4. BH_OB2_4_032112	UN58D	12-4977	Solid	03/21/12 13:45	03/22/12 08:18
5. BH_OB2_5_032112	UN58E	12-4978	Solid	03/21/12 14:10	03/22/12 08:18
6. BH_OB2_6_032112	UN58F	12-4979	Solid	03/21/12 14:25	03/22/12 08:18
7. BH_OB2_7_032112	UN58G	12-4980	Solid	03/21/12 14:30	03/22/12 08:18
8. BH_OB2_8_032112	UN58H	12-4981	Solid	03/21/12 14:40	03/22/12 08:18
9. BH_OB2_9_032112	UN58I	12-4982	Solid	03/21/12 15:00	03/22/12 08:18
10. BH_OB2_10_032112	UN58J	12-4983	Solid	03/21/12 15:50	03/22/12 08:18
11. BH_OB3_1_032112	UN58K	12-4984	Solid	03/21/12 16:15	03/22/12 08:18
12. BH_OB3_2_032112	UN58L	12-4985	Solid	03/21/12 16:30	03/22/12 08:18
13. BH_OB3_3_032112	UN58M	12-4986	Solid	03/21/12 17:00	03/22/12 08:18

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: BH_OB2_1_032112

SAMPLE

Lab Sample ID: UN58A

LIMS ID: 12-4974

Matrix: Solid

Data Release Authorized: *AS*

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 14:33

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: No

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	11,000	< 11,000 Y
11097-69-1	Aroclor 1254	3,700	17,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	116%
Tetrachlorometaxylene	110%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1


Sample ID: BH_OB2_2_032112

SAMPLE

Lab Sample ID: UN58B

LIMS ID: 12-4975

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 07:53

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.00 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 5.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,000	< 4,000 U
53469-21-9	Aroclor 1242	4,000	< 4,000 U
12672-29-6	Aroclor 1248	4,000	78,000 B
11097-69-1	Aroclor 1254	4,000	56,000 B
11096-82-5	Aroclor 1260	6,000	< 6,000 Y
11104-28-2	Aroclor 1221	4,000	< 4,000 U
11141-16-5	Aroclor 1232	4,000	< 4,000 U
37324-23-5	Aroclor 1262	4,000	< 4,000 U
11100-14-4	Aroclor 1268	4,000	< 4,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	65.0%
Tetrachlorometaxylene	67.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_3_032112
SAMPLELab Sample ID: UN58C
LIMS ID: 12-4976
Matrix: Solid
Data Release Authorized: *AS*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/22/12 21:02
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: NoSample Amount: 1.02 g-as-rec
Final Extract Volume: 160 mL
Dilution Factor: 25.0
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	78,000	< 78,000 U
53469-21-9	Aroclor 1242	78,000	< 78,000 U
12672-29-6	Aroclor 1248	390,000	< 390,000 Y
11097-69-1	Aroclor 1254	78,000	1,900,000 B
11096-82-5	Aroclor 1260	350,000	< 350,000 Y
11104-28-2	Aroclor 1221	78,000	< 78,000 U
11141-16-5	Aroclor 1232	78,000	< 78,000 U
37324-23-5	Aroclor 1262	78,000	< 78,000 U
11100-14-4	Aroclor 1268	78,000	< 78,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_4_032112
SAMPLELab Sample ID: UN58D
LIMS ID: 12-4977
Matrix: Solid
Data Release Authorized: *B*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/23/12 08:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: NoSample Amount: 1.00 g-as-rec
Final Extract Volume: 400 mL
Dilution Factor: 100
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800,000	< 800,000 U
53469-21-9	Aroclor 1242	800,000	< 800,000 U
12672-29-6	Aroclor 1248	8.0E6	< 8.0E6 Y
11097-69-1	Aroclor 1254	800,000	22,000,000 B
11096-82-5	Aroclor 1260	2.0E6	< 2.0E6 Y
11104-28-2	Aroclor 1221	800,000	< 800,000 U
11141-16-5	Aroclor 1232	800,000	< 800,000 U
37324-23-5	Aroclor 1262	800,000	< 800,000 U
11100-14-4	Aroclor 1268	800,000	< 800,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1


Sample ID: BH_OB2_5_032112

SAMPLE

Lab Sample ID: UN58E

LIMS ID: 12-4978

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/23/12 08:35

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.09 g-as-rec

Final Extract Volume: 400 mL

Dilution Factor: 100

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	730,000	< 730,000 U
53469-21-9	Aroclor 1242	730,000	< 730,000 U
12672-29-6	Aroclor 1248	7.3E6	< 7.3E6 Y
11097-69-1	Aroclor 1254	730,000	18,000,000 B
11096-82-5	Aroclor 1260	1.8E6	< 1.8E6 Y
11104-28-2	Aroclor 1221	730,000	< 730,000 U
11141-16-5	Aroclor 1232	730,000	< 730,000 U
37324-23-5	Aroclor 1262	730,000	< 730,000 U
11100-14-4	Aroclor 1268	730,000	< 730,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: BH_OB2_6_032112
SAMPLE

Lab Sample ID: UN58F
 LIMS ID: 12-4979
 Matrix: Solid
 Data Release Authorized: *RB*
 Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
 Project: Brown & Haley Bldg Demo (PO#53586)
 PO #53586
 Date Sampled: 03/21/12
 Date Received: 03/22/12

Date Extracted: 03/22/12
 Date Analyzed: 03/22/12 22:05
 Instrument/Analyst: ECD7/JGR
 GPC Cleanup: No
 Sulfur Cleanup: No
 Acid Cleanup: Yes
 Florisil Cleanup: No

Sample Amount: 1.01 g-as-rec
 Final Extract Volume: 40.0 mL
 Dilution Factor: 25.0
 Silica Gel: Yes
 Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20,000	< 20,000 U
53469-21-9	Aroclor 1242	20,000	< 20,000 U
12672-29-6	Aroclor 1248	300,000	< 300,000 Y
11097-69-1	Aroclor 1254	20,000	800,000 B
11096-82-5	Aroclor 1260	79,000	< 79,000 Y
11104-28-2	Aroclor 1221	20,000	< 20,000 U
11141-16-5	Aroclor 1232	20,000	< 20,000 U
37324-23-5	Aroclor 1262	20,000	< 20,000 U
11100-14-4	Aroclor 1268	20,000	< 20,000 U


Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.5%
Tetrachlorometaxylene	80.6%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: BH_OB2_7_032112
SAMPLE

Lab Sample ID: UN58G
LIMS ID: 12-4980
Matrix: Solid
Data Release Authorized: 
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12

Date Extracted: 03/22/12
Date Analyzed: 03/22/12 22:26
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: Yes
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,800	< 3,800 U
53469-21-9	Aroclor 1242	3,800	< 3,800 U
12672-29-6	Aroclor 1248	29,000	< 29,000 Y
11097-69-1	Aroclor 1254	3,800	47,000 B
11096-82-5	Aroclor 1260	3,800	31,000 P
11104-28-2	Aroclor 1221	3,800	< 3,800 U
11141-16-5	Aroclor 1232	3,800	< 3,800 U
37324-23-5	Aroclor 1262	3,800	< 3,800 U
11100-14-4	Aroclor 1268	3,800	< 3,800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	76.1%

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: BH_OB2_8_032112

SAMPLE

Lab Sample ID: UN58H

LIMS ID: 12-4981

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Date Extracted: 03/22/12

Date Analyzed: 03/22/12 22:47

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: No

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 1.02 g-as-rec

Final Extract Volume: 40.0 mL

Dilution Factor: 1.00

Silica Gel: Yes

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	780	< 780 U
53469-21-9	Aroclor 1242	780	< 780 U
12672-29-6	Aroclor 1248	5,900	< 5,900 Y
11097-69-1	Aroclor 1254	780	11,000 B
11096-82-5	Aroclor 1260	780	1,900
11104-28-2	Aroclor 1221	780	< 780 U
11141-16-5	Aroclor 1232	780	< 780 U
37324-23-5	Aroclor 1262	780	< 780 U
11100-14-4	Aroclor 1268	780	< 780 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.0%
Tetrachlorometaxylene	65.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: BH_OB2_9_032112
SAMPLE

Lab Sample ID: UN58I
LIMS ID: 12-4982
Matrix: Solid
Data Release Authorized: *MA*
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12

Date Extracted: 03/22/12
Date Analyzed: 03/23/12 14:54
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: No
Florisil Cleanup: No

Sample Amount: 1.04 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,800	< 3,800 U
53469-21-9	Aroclor 1242	3,800	< 3,800 U
12672-29-6	Aroclor 1248	3,800	18,000
11097-69-1	Aroclor 1254	3,800	12,000
11096-82-5	Aroclor 1260	3,800	< 3,800 U
11104-28-2	Aroclor 1221	3,800	< 3,800 U
11141-16-5	Aroclor 1232	3,800	< 3,800 U
37324-23-5	Aroclor 1262	3,800	< 3,800 U
11100-14-4	Aroclor 1268	5,800	< 5,800 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	NR
Tetrachlorometaxylene	98.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1Sample ID: BH_OB2_10_032112
SAMPLELab Sample ID: UN58J
LIMS ID: 12-4983
Matrix: Solid
Data Release Authorized: *AB*
Reported: 03/26/12QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: 03/21/12
Date Received: 03/22/12Date Extracted: 03/22/12
Date Analyzed: 03/23/12 15:15
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: No
Florisil Cleanup: NoSample Amount: 1.08 g-as-rec
Final Extract Volume: 40.0 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,700	< 3,700 U
53469-21-9	Aroclor 1242	3,700	< 3,700 U
12672-29-6	Aroclor 1248	4,600	< 4,600 Y
11097-69-1	Aroclor 1254	3,700	7,000
11096-82-5	Aroclor 1260	3,700	< 3,700 U
11104-28-2	Aroclor 1221	3,700	< 3,700 U
11141-16-5	Aroclor 1232	3,700	< 3,700 U
37324-23-5	Aroclor 1262	3,700	< 3,700 U
11100-14-4	Aroclor 1268	3,700	< 3,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	99.1%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
 Page 1 of 1

Sample ID: MB-032212
METHOD BLANK

Lab Sample ID: MB-032212
 LIMS ID: 12-4982
 Matrix: Solid
 Data Release Authorized: *[Signature]*
 Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
 Project: Brown & Haley Bldg Demo (PO#53586)
 PO #53586
 Date Sampled: NA
 Date Received: NA

Date Extracted: 03/22/12
 Date Analyzed: 03/23/12 15:36
 Instrument/Analyst: ECD7/JGR
 GPC Cleanup: No
 Sulfur Cleanup: No
 Acid Cleanup: No
 Florisil Cleanup: No

Sample Amount: 1.00 g
 Final Extract Volume: 40.0 mL
 Dilution Factor: 1.00
 Silica Gel: No
 Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	< 800 U
11097-69-1	Aroclor 1254	800	< 800 U
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	86.5%
Tetrachlorometaxylene	94.2%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-032212
METHOD BLANK

Lab Sample ID: MB-032212
LIMS ID: 12-4974
Matrix: Solid
Data Release Authorized: *AS*
Reported: 03/26/12

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586
Date Sampled: NA
Date Received: NA

Date Extracted: 03/22/12
Date Analyzed: 03/22/12 18:35
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 1.00 g
Final Extract Volume: 40.0 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	800	< 800 U
53469-21-9	Aroclor 1242	800	< 800 U
12672-29-6	Aroclor 1248	800	810
11097-69-1	Aroclor 1254	800	1,800
11096-82-5	Aroclor 1260	800	< 800 U
11104-28-2	Aroclor 1221	800	< 800 U
11141-16-5	Aroclor 1232	800	< 800 U
37324-23-5	Aroclor 1262	800	< 800 U
11100-14-4	Aroclor 1268	800	< 800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	72.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Solid

QC Report No: UN58-Port of Tacoma
Project: Brown & Haley Bldg Demo (PO#53586)
PO #53586

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-032212	77.8%	51-127	72.5%	30-160	0
LCS-032212	80.8%	51-127	78.0%	30-160	0
LCSD-032212	88.5%	51-127	81.5%	30-160	0
BH_OB2_1_032112	116%	30-160	110%	30-160	0
BH_OB2_2_032112	65.0%	30-160	67.8%	30-160	0
BH_OB2_3_032112	D	30-160	D	30-160	0
BH_OB2_4_032112	D	30-160	D	30-160	0
BH_OB2_5_032112	D	30-160	D	30-160	0
BH_OB2_6_032112	87.5%	30-160	80.6%	30-160	0
BH_OB2_7_032112	NR	30-160	76.1%	30-160	0
BH_OB2_8_032112	67.0%	30-160	65.0%	30-160	0
MB-032212	86.5%	51-127	94.2%	30-160	0
BH_OB2_9_032112	NR	30-160	98.2%	30-160	0
BH_OB2_10_032112	100%	30-160	99.1%	30-160	0

Medium Level Control Limits
Prep Method: SW3580A
Log Number Range: 12-4974 to 12-4983

ORGANICS ANALYSIS DATA SHEET

PCB by GC/ECD Method SW8082

Page 1 of 1

Sample ID: LCS-032212

LCS/LCSD

Lab Sample ID: LCS-032212

LIMS ID: 12-4974

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/26/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 03/22/12

Sample Amount LCS: 1.00 g-as-rec

LCSD: 1.00 g-as-rec

Date Analyzed LCS: 03/22/12 18:56

Final Extract Volume LCS: 40.0 mL

LCSD: 03/22/12 19:17

LCSD: 40.0 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	17700	20000	88.5%	19100	20000	95.5%	7.6%
Aroclor 1260	19100	20000	95.5%	21600	20000	108%	12.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	80.8%	88.5%
Tetrachlorometaxylene	78.0%	81.5%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

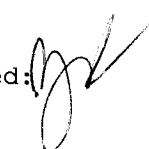
Page 1 of 1

Sample ID: BH_OB3_1_032112
SAMPLE

Lab Sample ID: UN58K

LIMS ID: 12-4984

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Percent Total Solids: Reported As-Received

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-as-rec Q
3050B	03/22/12	6010B	03/22/12	7439-92-1	Lead	5	29

U-Analyte undetected at given RL

RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: BH_OB3_2_032112
SAMPLE

Lab Sample ID: UN58L

LIMS ID: 12-4985

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Percent Total Solids: Reported As-Received

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-as-rec Q
3050B	03/22/12	6010B	03/22/12	7439-92-1	Lead	5	5

U-Analyte undetected at given RL
RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: BH_OB3_3_032112
SAMPLE

Lab Sample ID: UN58M

LIMS ID: 12-4986

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

Percent Total Solids: Reported As-Received

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-as-rec Q
3050B	03/22/12	6010B	03/22/12	7439-92-1	Lead	5	26

U-Analyte undetected at given RL

RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: BH_OB3_1_032112
DUPLICATE

Lab Sample ID: UN58K

LIMS ID: 12-4984

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	29	15	63.6%	+/- 5	L*

Reported in mg/kg-as-rec

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: BH_OB3_1_032112
MATRIX SPIKE

Lab Sample ID: UN58K

LIMS ID: 12-4984

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: 03/21/12

Date Received: 03/22/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	29	188	189	84.1%	

Reported in mg/kg-as-rec

N-Control Limit Not Met

H-% Recovery Not Applicable, Sample Concentration Too High

NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

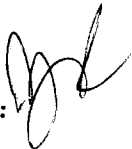
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: UN58LCS

LIMS ID: 12-4985

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: NA

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Lead	6010B	182	200	91.0%	

Reported in mg/kg-wet

N-Control limit not met

NA-Not Applicable, Analyte Not Spiked

Control Limits: 80-120%

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS


Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: UN58MB

LIMS ID: 12-4985

Matrix: Solid

Data Release Authorized: 

Reported: 03/23/12

QC Report No: UN58-Port of Tacoma

Project: Brown & Haley Bldg Demo (PO#53586)

PO #53586

Date Sampled: NA

Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-as-rec Q
3050B	03/22/12	6010B	03/22/12	7439-92-1	Lead	2	2 U

U-Analyte undetected at given RL

RL-Reporting Limit



Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 26, 2012

Chris Waldron
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG Demo
ARI Job No. UN50

Dear Chris:

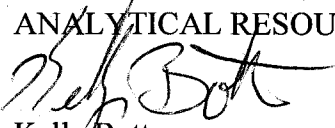
Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted five solid materials samples on March 21, 2012. There were no discrepancies in the paperwork.

The samples were analyzed for TCLP Lead, as requested on the COC.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.


Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Page: 1	of 1
Date: 3/21/12	Ice Present? N
No. of Coolers: 1	Cooler Temps: 11.0

ARI Assigned Number: UN50	Turn-around Requested: NO OTHER THAN FORME RESULTS BY MONDAY 10 AM 3/26/12
ARI Client Company: PART OF THOMA	Phone: 253-593-4563 / 360-570-1700
Client Contact: BIL ECKERS (weaving@partofthoma.com)	TRAY BUSSES
Client Project Name: BROWN & HALEY BLDG DEMO	(PO # 53586) ↓
Client Project #: PO # 53586	Samplers: 5m² LG PINEEN TECHNOLOGIES 360-570-1700

[illegible]

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

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

Sample ID Cross Reference Report



ARI Job No: UN50
Client: Port of Tacoma
Project Event: PO#53586
Project Name: Brown & Haley BLDG Demo

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. BH_OB1_1_032112	UN50A	12-4918	Solid	03/21/12 10:30	03/21/12 13:30
2. BH_OB1_2_032112	UN50B	12-4919	Solid	03/21/12 09:45	03/21/12 13:30
3. BH_OB1_3_032112	UN50C	12-4920	Solid	03/21/12 11:15	03/21/12 13:30
4. BH_OB1_4_032112	UN50D	12-4921	Solid	03/21/12 12:00	03/21/12 13:30
5. BH_OB1_5_032112	UN50E	12-4922	Solid	03/21/12 12:30	03/21/12 13:30



Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: Brown + Haley Bldg Demo

COC No(s): _____ (NA)

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

Assigned ARI Job No: UN50

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) _____

YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) _____ 11.0

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

Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 3/21/12 Time: 1330

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA ☒ YES ☐ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☐ NO ☒

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA ☒ YES ☐ NO ☐

Were all VOC vials free of air bubbles? _____

NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

NA ☒

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

Samples Logged by: AV Date: 3/21/12 Time: 1346

** Notify Project Manager of discrepancies or concerns **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" Peabubbles → "pb" Large → "lg" Headspace → "hs"
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INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: BH_OB1_1_032112
SAMPLE

Lab Sample ID: UN50A

LIMS ID: 12-4918

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.2	

U-Analyte undetected at given RL

RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

**Sample ID: BH OB1_1_032112
DUPLICATE**

Lab Sample ID: UN50A

LIMS ID: 12-4918

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010B	0.2	0.2	0.0%	+/- 0.1	L

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1


Sample ID: BH_OB1_1_032112

MATRIX SPIKE

Lab Sample ID: UN50A

LIMS ID: 12-4918

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010B	0.2	4.1	4.0	97.5%	

Reported in mg/L

N-Control Limit Not Met

H-% Recovery Not Applicable, Sample Concentration Too High

NA-Not Applicable, Analyte Not Spiked or diluted near or below detection limit

Percent Recovery Limits: 75-125%

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: BH_OB1_2_032112
SAMPLE

Lab Sample ID: UN50B

LIMS ID: 12-4919

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: BH_OB1_3_032112
SAMPLE

Lab Sample ID: UN50C

LIMS ID: 12-4920

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL
RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: BH_OB1_4_032112
SAMPLE

Lab Sample ID: UN50D

LIMS ID: 12-4921

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL

RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS


Page 1 of 1

Sample ID: BH_OB1_5_032112
SAMPLE

Lab Sample ID: UN50E

LIMS ID: 12-4922

Matrix: Solid

Data Release Authorized: 

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: 03/21/12

Date Received: 03/21/12

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.7	

U-Analyte undetected at given RL
RL-Reporting Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: UN50MB

LIMS ID: 12-4918

Matrix: Solid

Data Release Authorized:

Reported: 03/26/12

QC Report No: UN50-Port of Tacoma

Project: Brown & Haley BLDG Demo

PO#53586

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
1311	03/22/12	6010B	03/23/12	7439-92-1	Lead	0.1	0.1	U

U-Analyte undetected at given RL

RL-Reporting Limit

A3: 1940 East 11th Street Building Additional Soil Characterization Sampling

Memo



5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

Phone: 360.570.1700

Fax: 360.570.1777

www.uspioneer.com

to: Bill Evans (Port of Tacoma)
from: Stacy Munson
cc: Chris Waldron
date: August 22, 2012
subject: 1940 East 11th Street Building Additional Soil Characterization Sampling

Dear Mr. Evans:

Per your request, PIONEER Technologies Corporation (PIONEER) recently conducted a soil sampling event at the approximately 117,000-square foot, two-story, vacant building located at 1940 East 11th Street in Tacoma, Washington (the building) (see Figure 1). The last tenant of the building was the Brown & Haley Company, and several previous investigations referred to the building as the Brown & Haley building.

Surface and subsurface soil were sampled for polychlorinated biphenyls (PCBs) on July 19th and 20th, 2012. Previous soil investigations (PIONEER 2012b) partially characterized soil in drip lines around the building perimeter at shallow depths. The purpose of this memo is to present a summary of the July 2012 field operations and sampling results, and compare all PCB soil sampling results obtained to date to regulatory screening and cleanup levels.

SAMPLING OBJECTIVES AND FIELD OPERATIONS

Building materials were initially sampled by PIONEER in March 2012 (PIONEER 2012a), building materials and soil/sediment were sampled in April 2012 (PIONEER 2012b), and soil was sampled in July 2012; the three sampling events will henceforth be referred to as Phase 1, Phase 2, and Phase 3, respectively. The Phase 3 soil characterization sampling event was designed to supplement and enhance the Phase 2 soil investigations and address the three primary objectives discussed below. Phase 3 field operations were conducted on July 19th and 20th, 2012; samples were submitted to Analytical Resources Incorporated (ARI) in Tukwila, Washington on each of these days. Only the shallowest sample collected at each sampling location was analyzed, all other samples were held for future analysis. Upon receipt of the data, ARI was instructed to analyze an additional six samples at deeper depths. ARI also performed the analytical work on Phase 1 and Phase 2 samples. Phase 3 field notes are presented in Attachment 1.

- Objective #1: Collect surface and subsurface soil samples at *new locations* around the building to assess the impact of PCBs, if any, on surface and subsurface soil.

To achieve Objective #1, 26 samples were collected from surface and subsurface soil at 13 locations around the building and submitted to ARI for analysis of PCB Aroclors using Environmental Protection Agency (EPA) Method SW846-8082A. Based on guidance from Port personnel, the 13 new sample locations were selected and surface (0-6 inches below ground surface [bgs]) and intermediate subsurface (6-12 inches bgs) soil samples were collected at each location. Of the 13 new sample locations, all 13 surface samples were analyzed immediately, and one intermediate subsurface sample was analyzed at a later date.

Surface and subsurface soil samples were collected using a stainless steel hand trowel and/or a stainless steel hand auger. Samples were homogenized in a stainless-steel bowl before being placed into jars. Sampling equipment was decontaminated between each sampling interval and each sampling location. Figure 2 presents the Objective #1 sample locations and Figure 3 presents the Objective #1 sample locations with the total PCB result for each sample.



- Objective #2: Collect subsurface follow-up soil samples at *previously sampled surface locations within the driplines of the building with PCB impacts* to determine the impact of PCBs, if any, on subsurface soils.

To achieve Objective #2, 10 samples were collected from subsurface soil at five previously sampled locations (Phase 2, PIONEER 2012b) around the building and submitted to ARI for analysis of PCB Aroclors using EPA Method SW846-8082A. The five sample locations chosen by the Port to satisfy Objective #2 were based on the PCB concentration observed during previous investigation, and the proximity to the building. Ten samples were collected from intermediate subsurface (6-12 inches bgs) and deep subsurface (12-18 inches bgs) soil immediately adjacent to previous surface soil sampling locations (PIONEER 2012b). Of the ten samples, five intermediate subsurface samples were analyzed immediately and three deep subsurface samples were analyzed at a later date.

Surface and subsurface soil samples were collected using a stainless steel hand trowel and/or a stainless steel hand auger. Samples were homogenized in a stainless-steel bowl before being placed into jars. Sampling equipment was decontaminated between each sampling interval and each sampling location. Figure 2 presents the Objective #2 sample locations and Figure 3 presents the Objective #2 sample locations with the total PCBs result for each sample.

During sampling for Objective #2, the Port expressed an interest in determining whether or not asphalt is present beneath the soil in planters along the northwest site of the building. A shovel was used to dig into the planters near SL_15 and SL_30 to a depth of 3.5 feet bgs, and no asphalt was observed at either location.

- Objective #3: Collect surface and subsurface soil samples at *new locations beneath asphalt* near the building to asses for the impact of PCBs, if any, on surface and subsurface soil.

To achieve Objective #3, nine samples were collected from surface and subsurface soil at three locations along the northwest side of the building in areas where asphalt is present above surface soil. These samples were collected because the installation date of the asphalt is not known and there is a potential for PCBs to be detected in soil if it leached from the exterior coating prior to paving. Samples were submitted to ARI for analysis of PCB Aroclors using EPA Method SW846-8082A. At each of the three sample locations, surface (0-6 inches bgs), intermediate subsurface (6-12 inches bgs) and deep subsurface (12-18 inches bgs) soil was sampled. Of the three sample locations, all three surface samples were analyzed immediately and two intermediate subsurface samples were analyzed at a later date.

Samples locations were accessed by first removing the asphalt layer present above surface soil. A generator-powered electric jackhammer was used to break through asphalt so that standard hand tools could be used to sample soil. Surface and subsurface soil samples were collected using a stainless steel hand trowel and/or a stainless steel hand auger. Samples were homogenized in a stainless-steel bowl before being placed into jars. Sampling equipment was decontaminated between each sampling interval and each sampling location. Figure 2 presents the Objective #3 sample locations and Figure 3 presents the Objective #3 sample locations with the total PCB result for each sample.

SAMPLING RESULTS

Tables 1-3 present the analytical results for samples collected per Objectives #1 through #3, respectively. Complete Phase 3 analytical laboratory reports are presented in Attachment 2. Phase 3 sampling results are summarized below with a comparison to a regulatory screening level specified by the Port.

Figure 4 presents the Phase 2 and Phase 3 soil sample locations and their respective total PCB concentrations.



Objective #1: Table 1 presents the analytical results obtained from samples collected at new locations for individual PCB Aroclors in soil. Of the 14 surface and intermediate subsurface soil samples analyzed to satisfy Objective #1, two samples (14%), both of which are located at location SL-20, had total PCB concentrations greater than the Model Toxics Control Act (MTCA) Method A Unrestricted Land Use cleanup level of 1 mg/kg (WAC 173-340-740(2), Washington State Department of Ecology [Ecology] 2012).

Objective #2: Table 2 presents the analytical results obtained from samples collected as follow-up dripline subsurface samples for individual PCB Aroclors in soil. Of the eight intermediate subsurface and deep subsurface soil samples analyzed to satisfy Objective #2, five samples (63%) had total PCB concentrations greater than the MTCA Method A Unrestricted Land Use cleanup level of 1 mg/kg (Ecology 2012).

Objective #3: Table 3 presents the analytical results obtained from samples collected beneath asphalt for individual PCB Aroclors in soil. Of the five surfaces, intermediate subsurface and deep subsurface samples analyzed to satisfy Objective #3, three samples (60%) had total PCB concentrations greater than or equal to the MTCA Method A Unrestricted Land Use cleanup level of 1 mg/kg (Ecology 2012).

REFERENCES:

Ecology. 2012. Cleanup Levels and Risk Calculation database, queried on May 15, 2012.

PIONEER. 2012a. Brown & Haley Building Materials Characterization Sampling. Port of Tacoma, Washington. March 29.

PIONEER. 2012b. 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling. Port of Tacoma, Washington. June 6.

FIGURES:

Figure 1: Site Location

Figure 2: 1940 East 11th Street Building Phase 3 Soil Sample Locations

Figure 3: 1940 East 11th Street Building Phase 3 Soil Sample Locations and Data

Figure 4: 1940 East 11th Street Building Phase 2 and Phase 3 Soil Sample Locations and Data

TABLES:

Table 1: Sampling Objective #1 – New Shallow Soil Sample Locations – Sample Details and Results

Table 2: Sampling Objective #2 – Follow-Up Subsurface Soil Sample Locations – Sample Details and Results

Table 3: Sampling Objective #3 – New Sample Locations Beneath Asphalt – Sample Details and Results

ATTACHMENTS:

Attachments are provided on a disk with a hard copy of the text, tables, and figures.

Attachment 1: Field Notes

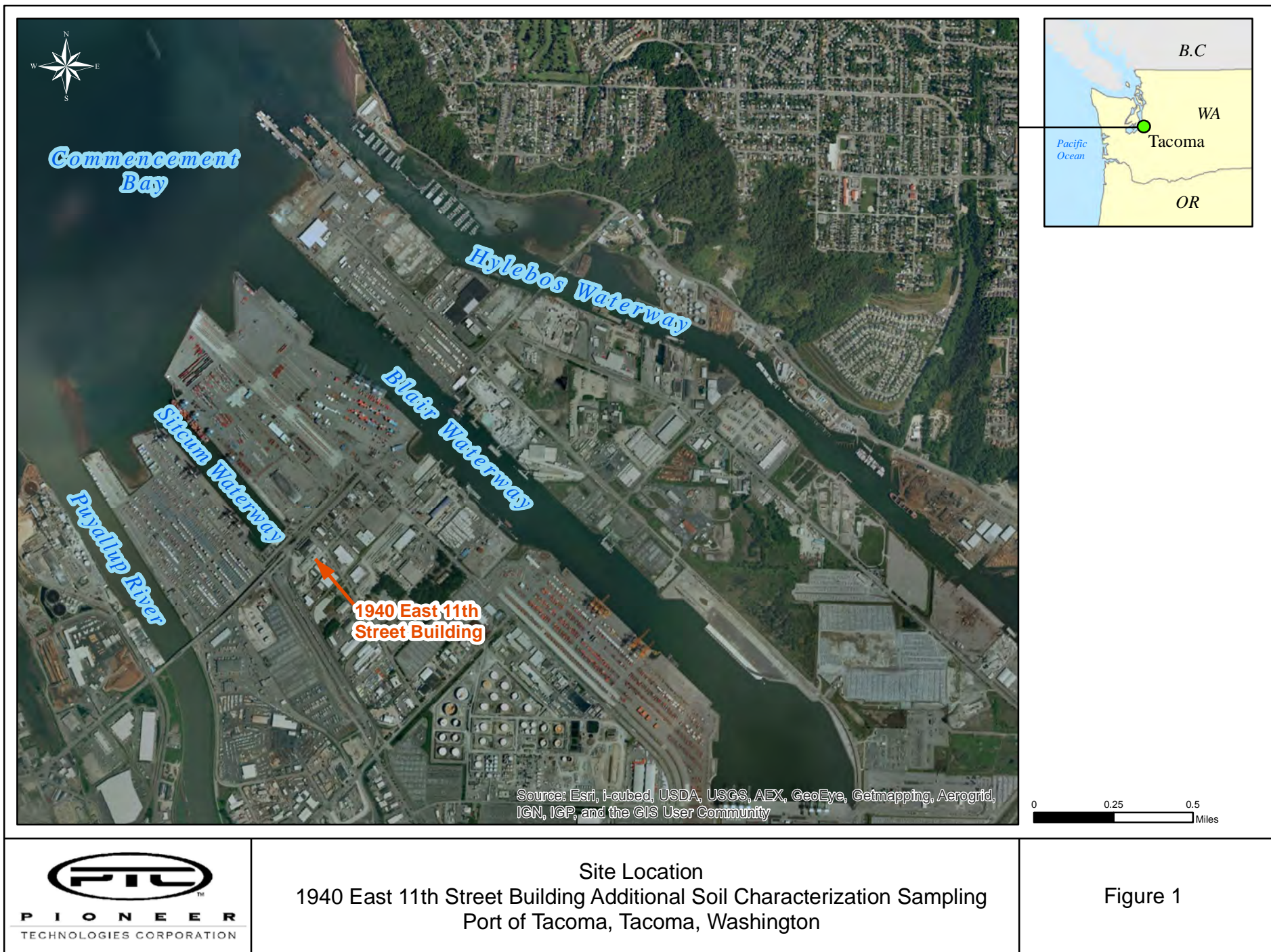
Attachment 2: Analytical Laboratory Reports

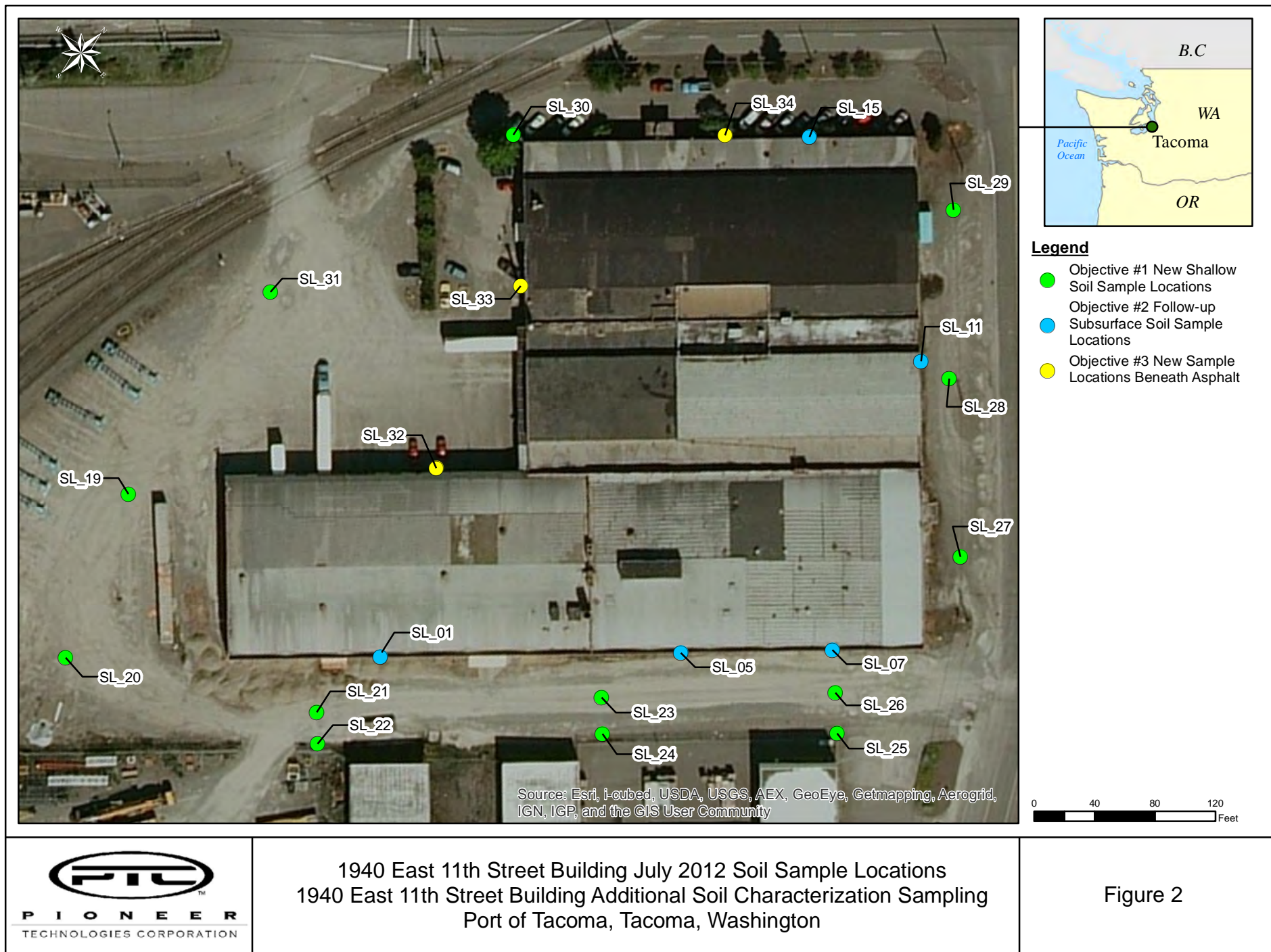
DOCUMENT PRODUCTION:

Submitted electronically, and two hard copies via US Mail



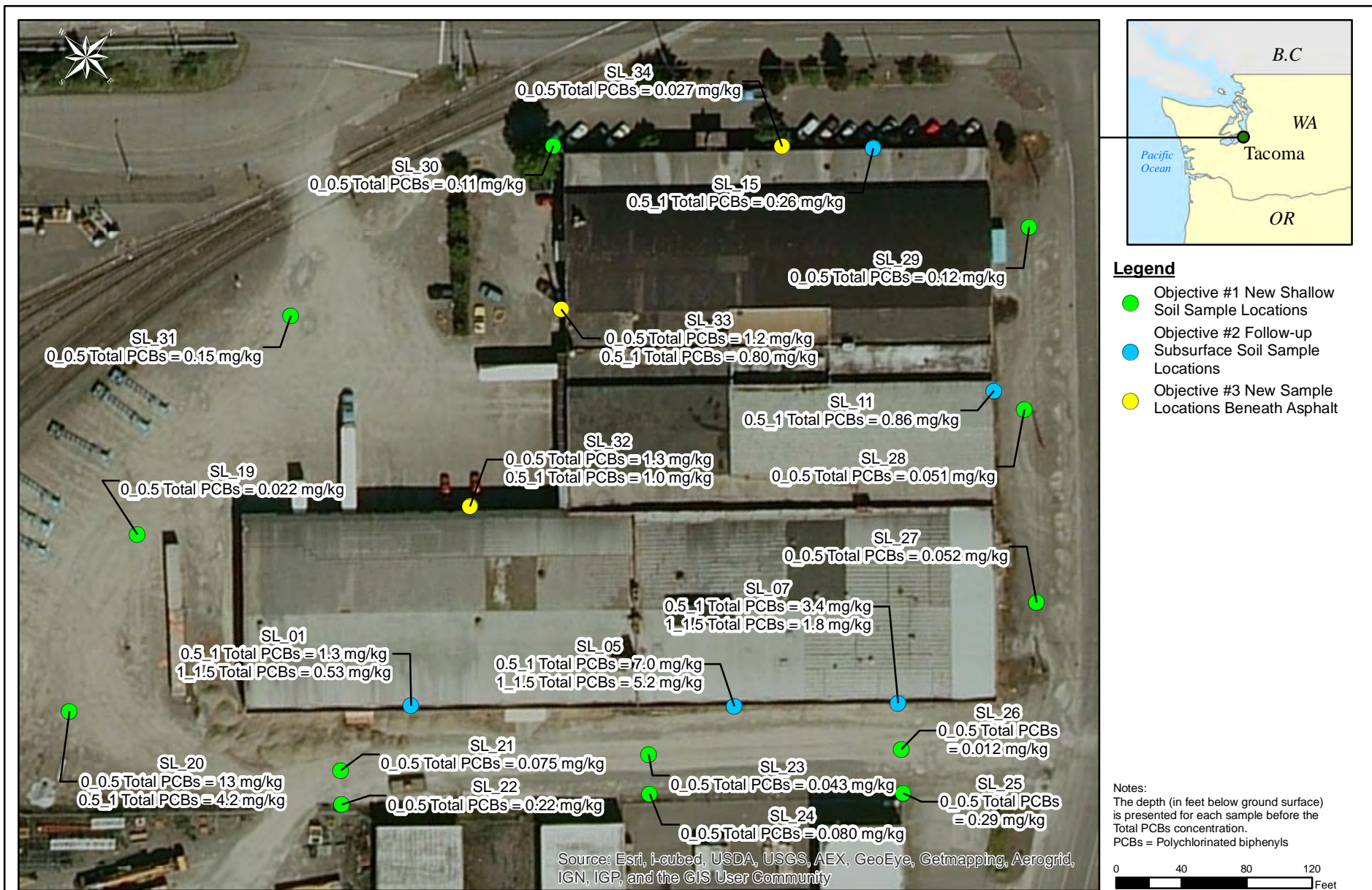
Figures





1940 East 11th Street Building July 2012 Soil Sample Locations
1940 East 11th Street Building Additional Soil Characterization Sampling
Port of Tacoma, Tacoma, Washington

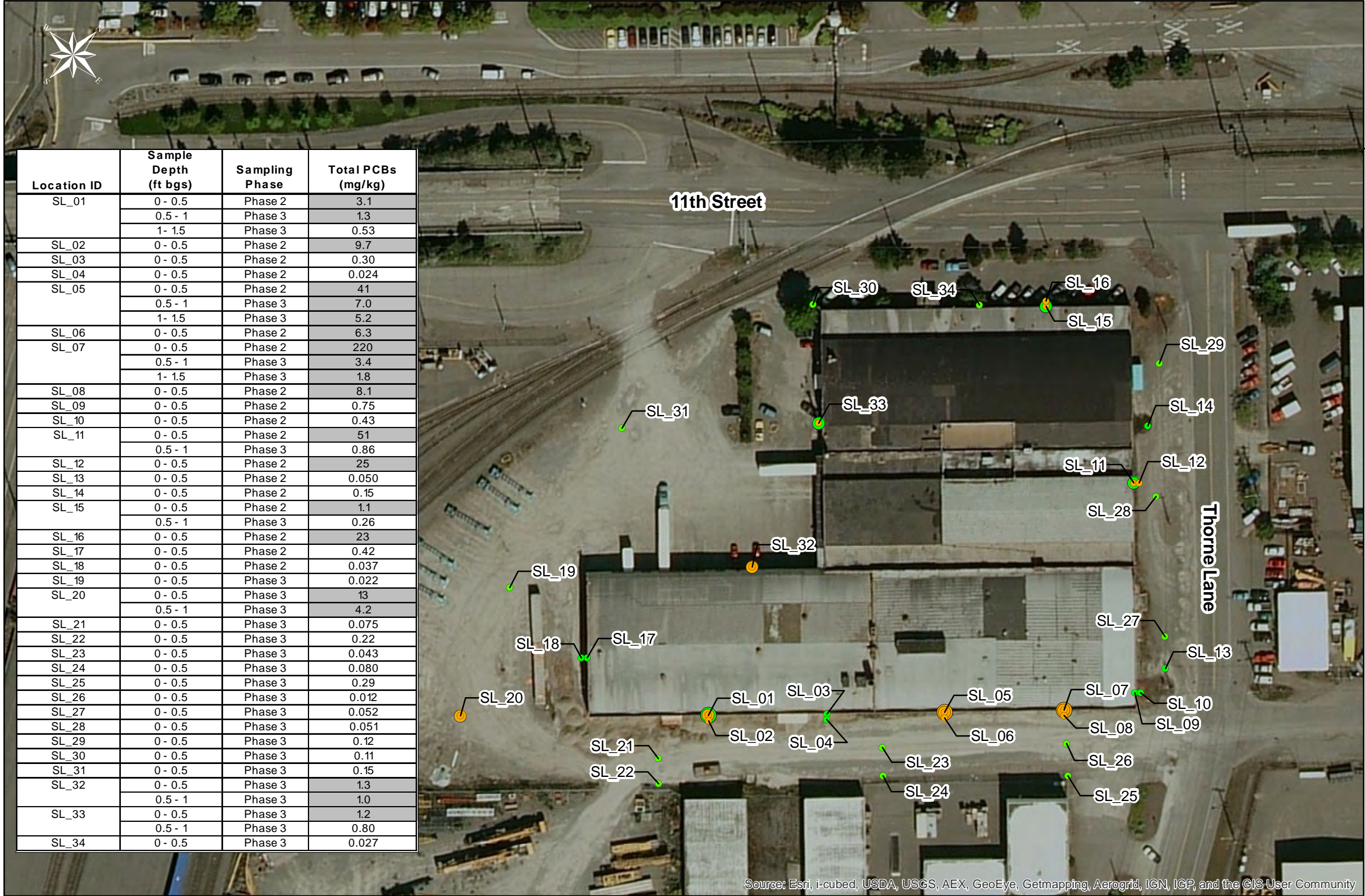
Figure 2



1940 East 11th Street Building July 2012 Soil Sample Locations and Data
 1940 East 11th Street Building Additional Soil Characterization Sampling
 Port of Tacoma, Tacoma, Washington

Figure 3

Document Path: G:\Projects\Port of Tacoma\Maps\August 2012\Fig4_BrownHaley_SoilSampling_July2012.mxd; Author: SIM; Date Saved: 8/14/2012



Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, ICP, and the GIS User Community



Legend

Surface Samples (0-0.5 ft bgs)

- Total PCBs < 1.0 mg/kg
- Total PCBs >= 1.0 mg/kg

Intermediate Subsurface Samples (0.5-1 ft bgs)

- Total PCBs < 1.0 mg/kg
- Total PCBs >= 1.0 mg/kg

Deep Subsurface Samples (1-1.5 ft bgs)

- Total PCBs < 1.0 mg/kg
- Total PCBs >= 1.0 mg/kg

Notes:
Highlighted cells denote those samples which had a Total PCB concentration greater than or equal to the MTCA Method A Soil Screening Level (1.0 mg/kg) (WAC 173-340-740(2))
ft bgs: feet below ground surface
PCBs: Polychlorinated biphenyls



PIONEER
TECHNOLOGIES CORPORATION

1940 East 11th Street Building Phase 2 and Phase 3 Soil Sample Locations and Data
1940 East 11th Street Building Additional Soil Characterization Sampling
Port of Tacoma, Tacoma, Washington

Figure 4

Tables

Table 1: Sampling Objective #1 – New Shallow Soil Sample Locations – Sample Details and Results

Sample	Sample Depth (ft bgs)	Sampling Phase	Date Collected	Sample Location	PCB Aroclor Results (mg/kg)										MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)
					Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_SL_19_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Southwest of shipping containers, in compacted, gravel area.	0.0084 U	0.0084 U	0.0084 U	0.022	0.0084 U	0.0084 U	0.0084 U	0.0084 U	0.0084 U	0.022	1.0
POT_BH_SL_20_0_0.5_071912	0-0.5	Phase 3	7/19/2012	South of shipping containers, in open gravel area.	1.6 U	1.6 U	2.4 Y	13	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	13	1.0
POT_BH_SL_20_0.5_1_071912	0.5-1	Phase 3	7/19/2012	South of shipping containers, in open gravel area.	0.43 U	0.43 U	1.5 Y	4.2	0.54 Y	0.43 U	0.43 U	0.43 U	0.43 U	4.2	1.0
POT_BH_SL_21_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Middle of gravel road along southeast side of building.	0.0081 U	0.0081 U	0.020 Y	0.062	0.013	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.075	1.0
POT_BH_SL_22_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Southeast side of building, across gravel road in a low depression.	0.0092 U	0.0092 U	0.12 Y	0.18	0.044	0.0092 U	0.0092 U	0.0092 U	0.0092 U	0.22	1.0
POT_BH_SL_23_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Middle of gravel road along southeast side of building (further NE of sample 21).	0.0085 U	0.0085 U	0.0085 U	0.020	0.023	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.043	1.0
POT_BH_SL_24_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Side of gravel road opposite of SE side of building - in line with sample 23.	0.043 U	0.043 U	0.043 U	0.080	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.080	1.0
POT_BH_SL_25_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Side of gravel road opposite of east side of building.	0.042 U	0.042 U	0.074 Y	0.24	0.050	0.042 U	0.042 U	0.042 U	0.042 U	0.29	1.0
POT_BH_SL_26_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Middle of gravel road near the east corner of building.	0.0077 U	0.0077 U	0.0077 U	0.012 P	0.0077 U	0.0077 U	0.0077 U	0.0077 U	0.0077 U	0.012	1.0
POT_BH_SL_27_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Gravelly, compacted soils on the NE side of building, approximately 50 feet from the east corner.	0.0081 U	0.0081 U	0.014 Y	0.041	0.011	0.0081 U	0.0081 U	0.0081 U	0.0081 U	0.052	1.0
POT_BH_SL_28_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Near the middle of the NE side of the building.	0.0085 U	0.0085 U	0.0085 U	0.038	0.013	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.051	1.0
POT_BH_SL_29_0_0.5_071912	0-0.5	Phase 3	7/19/2012	Gravelly, compacted soils on the NE side of building, close to the north corner of building.	0.0088 U	0.0088 U	0.0088 U	0.096	0.021	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.12	1.0
POT_BH_SL_30_0_0.5_071912	0-0.5	Phase 3	7/19/2012	From planter area on the NW side of the building corner.	0.0085 U	0.0085 U	0.0085 U	0.11	0.015 Y	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.11	1.0
POT_BH_SL_31_0_0.5_072012 ⁽²⁾	0-0.5	Phase 3	7/20/2012	Middle of large, gravelly area to the west of the building.	0.017 U	0.017 U	0.017 U	0.123	0.026	0.017 U	0.017 U	0.017 U	0.017 U	0.15	1.0

Notes:

ft bgs: feet below ground surface

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

⁽¹⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

⁽²⁾A field duplicate was collected for this sample. Results shown for each Aroclor are a combination of both sample and field duplicate. If both samples were non-detect, lower reporting limit is shown. If one sample was detected, detected value is shown. If both samples were detected, average is shown.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detect at the shown concentration, reporting limit is raised due to chromatograph interference.

P=analyte was detected on both chromatograph columns but the quantified relative percent difference was greater than 40%.

Table 2: Sampling Objective #2 – Follow-up Subsurface Soil Sample Locations – Sample Details and Results

Sample	Sample Depth (ft bgs)	Sampling Phase	Date Collected	Sample Location	PCB Aroclor Results (mg/kg)										MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)
					Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_SL_01_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the building (SE), same location as previous location 01.	0.080 U	0.080 U	0.32 Y	1.3	0.12 Y	0.080 U	0.080 U	0.080 U	0.080 U	1.3	1.0
POT_BH_SL_01_1_1.5_071912	1-1.5	Phase 3	7/19/2012	Immediately adjacent to the building (SE), same location as previous location 01.	0.018 U	0.018 U	0.18 Y	0.53	0.088 Y	0.018 U	0.018 U	0.018 U	0.018 U	0.53	1.0
POT_BH_SL_05_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the building, same location as previous location 05.	0.19 U	0.19 U	2.8 Y	7.0	0.74 Y	0.19 U	0.19 U	0.19 U	0.19 U	7.0	1.0
POT_BH_SL_05_1_1.5_071912	1-1.5	Phase 3	7/19/2012	Immediately adjacent to the building, same location as previous location 05.	0.45 U	0.45 U	2.8	2.4	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	5.2	1.0
POT_BH_SL_07_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the building (east corner), same location as previous location 07.	0.084 U	0.084 U	0.84 Y	3.4	0.29 Y	0.084 U	0.084 U	0.084 U	0.084 U	3.4	1.0
POT_BH_SL_07_1_1.5_071912	1-1.5	Phase 3	7/19/2012	Immediately adjacent to the building (east corner), same location as previous location 07.	0.045 U	0.045 U	0.68 Y	1.8	0.16 Y	0.045 U	0.045 U	0.045 U	0.045 U	1.8	1.0
POT_BH_SL_11_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the building (NE side), same location as previous location 11.	0.042 U	0.042 U	0.16 Y	0.86	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.86	1.0
POT_BH_SL_15_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the building (NW side), same location as previous location 15.	0.047 U	0.047 U	0.047 U	0.26	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.26	1.0

Notes:

ft bgs: feet below ground surface

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

MTCA: Model Toxics Control Act

⁽¹⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detect at the shown concentration, reporting limit is raised due to chromatograph interference.

Table 3: Sampling Objective #3 – New Sample Locations Beneath Asphalt - Sample Details and Results

Sample	Sample Depth (ft bgs)	Sampling Phase	Date Collected	Sample Location	PCB Aroclor Results (mg/kg)										MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)
					Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs	
POT_BH_SL_32_0_0.5_072012	0-0.5	Phase 3	7/20/2012	Immediately adjacent to the NW side of the center of the southwestern portion of the building.	0.045 U	0.045 U	0.11 Y	1.3	0.11 Y	0.045 U	0.045 U	0.045 U	0.045 U	1.3	1.0
POT_BH_SL_32_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the NW side of the center of the southwestern portion of the building.	0.21 U	0.21 U	0.32 Y	1.0	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.0	1.0
POT_BH_SL_33_0_0.5_072012	0-0.5	Phase 3	7/20/2012	Immediately adjacent to the west side of the building, near the loading docks.	0.045 U	0.045 U	0.11 Y	1.2	0.11 Y	0.045 U	0.045 U	0.045 U	0.045 U	1.2	1.0
POT_BH_SL_33_0.5_1_071912	0.5-1	Phase 3	7/19/2012	Immediately adjacent to the west side of the building, near the loading docks.	0.042 U	0.042 U	0.11 Y	0.80	0.085 Y	0.042 U	0.042 U	0.042 U	0.042 U	0.80	1.0
POT_BH_SL_34_0_0.5_072012	0-0.5	Phase 3	7/20/2012	Immediately adjacent to the NW side of the building, near the 11th St. main entrance.	0.0088 U	0.0088 U	0.0088 U	0.027	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.027	1.0

Notes:

ft bgs: feet below ground surface

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

⁽¹⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Non-bolded values denote non-detect Aroclors. Highlighted cells denote samples with total PCB concentration greater than screening level.

Complete analytical results are presented in Attachment 2.

Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration.

Y=analyte was non-detect at the shown concentration, reporting limit is raised due to chromatograph interference.

Attachment 1

PIONEER DAILY FIELD REPORT

Date: 7/19/12 Site Location: Brown + Haley Bldg Site Arrival Time: 7:00 Site Departure Time: 4:15

WEATHER
TEMPERATURE
WIND

Clear Sun 10-32 Calm	Overcast 32-50 Med.	Drizzle 50-70 Strong	Rain 70-85 Severe	Snow 85 Up
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PEOPLE PRESENT ON-SITE

Day 1
Page 1 of 3

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	PTC	7:00 - 4:15
Gretchen Mallori	PTC	7:00 - 4:15
Bill Evans	POT	7:00 - 7:30 a

NOTES ON WORK COMPLETED

7:00 Arrive on-site, meet w/ Bill Evans of POT. Walk site perimeter, and mark sample locations using white paint, where appropriate. Will sample for 3 different purposes:

- objective 1 - New soil sample locations (PCBs in soil analysis)
- objective 2 - Proposed follow-up sample locations (PCBs in soil)
- objective 3 - Proposed new sample locations beneath asphalt. (PCBs in soil)

8:00 Setup at location 19 near shipping containers near SW side of building, in open unpaved gravelly area.

Setup decon station buckets (rinse, detergent, rinse) - will decon all equipment between each sampling interval and location.

Will collect samples as follows:

- objective 1: (0-0.5 ft bgs) (0.5-1 ft bgs)
- objective 2: (0.5-1 ft bgs) (1-1.5 ft bgs)
- objective 3: (0-0.5 ft bgs) (0.5-1 ft bgs) (1-1.5 ft bgs)

① Collected samples 19-0-0.5 and 19-0.5-1 using hand trowel, and hand auger. Very hard, gravelly, compacted soils.

① Collected samples 20-0-0.5 and 20-0.5-1 using hand trowel, and hand auger. Location further south from shipping containers, more in open area towards large loading equipment.

9:00 ① Collected samples 21-0-0.5 and 21-0.5-1 from middle of gravel road along southeast side of building. Very hard, gravelly, compact soils.

SIGNATURE: _____

[Signature]

DATE: _____

7/19/12

PIONEER DAILY FIELD REPORT

Date: _____ Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 1
Page 2 of 3

NOTES ON WORK COMPLETED

① Collected samples 22-0-0.5 and 22-0.5-1 from southeast side of building, across gravel road, in low depression area. Appears as if area was a puddle during wet periods.

② Collected samples 01-0.5-1 and 01-1-1.5 from soils immediately adjacent to building from same location (offset by several inches) as previous location 01. Used shovel to remove soils from 0-0.5. Then sampled soils from 0.5-1 and 1-1.5 using hand trowel and hand auger.

① Collected samples 23-0-0.5 and 23-0.5-1 from middle of gravel road, along SE side of bldg, further NE of location 21.

① Collected samples 24-0-0.5 and 24-0.5-1 from gravelly area off side of road, in line with 23 from Bldg.

② Collected samples ~~05-0-0.5~~ and 05-0.5-1 and 05-1-1.5 from soils immediately adjacent to Bldg at former location 05. Samples collected in same manner as location 01.

[21b] ① Collected samples 25-0-0.5 and 25-0.5-1 from area across from road from Bldg, near E corner of Bldg.

① Collected samples 26-0-0.5 and 26-0.5-1 from middle of gravel road near E corner of Bldg. Hard, gravelly, compact soils observed.

② Collected samples 07-0.5-1 and 07-1-1.5 from soils immediately adj. to Bldg at former location 07. Collected in same manner as 01.

SIGNATURE: _____

Stacy Mann

DATE: 7/29/12

PIONEER DAILY FIELD REPORT

Date: _____ Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 1
page
3 of 3

NOTES ON WORK COMPLETED

12:55 Break for lunch

1:30 (1) Collected samples 27-0-0.5 and 27-0.5-1 from gravelly compacted soils on NE side of Bldg. oppo SW ft. from E corner of Bldg.

(1) Collected samples 28-0-0.5 and 28-0.5-1 from gravelly compacted soils near middle of NE side of Bldg. near turner location 11.

2:30 (2) Collected samples 11-0.5-1 and 11-1-1.5 from soil immediately ad. to Bldg. at former location 11. Collected in same manner as 01.

(1) Collected samples 29-0-0.5 and 29-0.5-1 from gravelly compacted soils along NE side of Bldg. closer to NW corner of Bldg.

3:00 (2) Collected samples 15-0.5-1 and 15-1-1.5 from planter area on NW side of Bldg. near former location 15. Soils sampled in same manner as location 01. Dig to 3' bgs. no concrete observed.

(1) Collected samples 30-0-0.5 and 30-0.5-1 from planter area at N/W building corner. Also dug to 3 ft. bgs. no concrete observed.

Finalizing all sample labels. and filling out COCs. Will run all shallow samples. and hold all deeper samples. Sample Pickup From ARI @ 4:00 p. Decon remaining equipment. offsite @ 4:15

SIGNATURE: _____

[Signature]

DATE: _____

7/19/12

PIONEER DAILY FIELD REPORT

Date: 7/20/12 Site Location: Brown + Haley Bldg Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	<u>Rain</u> / Thunder	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	<u>Med</u>	Strong	Severe	

PEOPLE PRESENT ON-SITE

Day 2
page 1 of 2

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	PTC	7:30 - 12:00
Gretchen Millari	PTC	7:30 - 12:00
Bill Evans	POT	8:00 - 8:30

NOTES ON WORK COMPLETED

7:30 Arrive onsite. Setup at location 31

① Collected samples 31-0-0.5 and 31-0.5-1 from very gravelly, very compact soils in middle of large open area to W of Bldg.

7:45 ③ Moved to location 32, which will require jackhammer to breach asphalt and reach soils beneath.

Jackhammered initial hole approx 1 ft. diameter 1.5 ft. from Bldg. on D side of Bldg. near loading docks. At 1 ft. bgs. encountered concrete (likely Bldg. Footing). Popped out approx 2 ft. to 3 ft. from Bldg. then jackhammered another hole. Encountered no concrete but did encounter utilities. Was able to work around utilities. Collected samples 32-0-0.5, 32-0.5-1, and 32-1-1.5 from final hole. Filled in hole and moved to next location.

9:30 ③ Moved to location 33, in loading docks area, but nearer to side door, along SW-facing wall. Used jackhammer to breach asphalt (4 in thick). Encountered concrete approx 1 ft. bgs. stepped out further to 4 ft from Bldg. Encountered no concrete. Collected samples 33-0-0.5, 33-0.5-1, and 33-1-1.5 from final hole.

SIGNATURE: _____

Stacy Munson

DATE: _____

7/20/12

PIONEER DAILY FIELD REPORT

Date: _____ Site Location: _____ Site Arrival Time: _____ Site Departure Time: _____

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
76-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME

ASSOCIATION

TIME ON-SITE AND OFF-SITE

Day 2
page
2 of 2

NOTES ON WORK COMPLETED

10:15 (3) Moved to location 34.

Used jackhammer to breach asphalt at location 34 along NW side of Bldg. near 14th St. Main entrance. Started on 4 ft out from Building. Asphalt shallower here, only 2 in. thick. Soils in top 10 ft consist mainly of 1/2 - 3/4 inch crushed gravel w/ fines. No utilities or concrete encountered. Collected samples 34-0-0.5, 34-0.5-1 and 34-1-1.5.

Decon all equipment, fill out logs and notes, prepare samples for shipment. Will instruct lab to run all shallow samples, and hold all deeper samples.

11:00 Sample pickup at 11:00

11:30 off site

SIGNATURE: _____

Stacy Mun

DATE: _____

7/20/12

Attachment 2



Analytical Resources, Incorporated
Analytical Chemists and Consultants

July 30, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Soil Sampling
ARI Job No. VC66

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted thirty four soil matrix samples on July 19, 2012. There were no discrepancies in the paperwork. Select samples have been placed on hold pending further instructions.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



ARI Assigned Number: VC66	Turn-around Requested: Std.	Page: 1 of 4
ARI Client Company: Dept of Tacoma	Phone: 253-593-4563	Date: 7/19/12 Ice Present? Yes
Client Contact: Bill Evans		No. of Coolers: 1 Cooler Temps: 41.1D

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested										Notes/Comments		
POT-BH-SL-19-0.0.5.071912	7/19/12	8:20	Soil	1													Run
POT-BH-SL-19-0.5.1.071912		8:30		1													Hold
POT-BH-SL-20-0.0.5.071912		8:40		1													Run
POT-BH-SL-20-0.5.1.071912		8:50		1													Hold
POT-BH-SL-21-0.0.5.071912		9:30		1													Run
POT-BH-SL-21-0.5.1.071912		9:40		1													Hold
POT-BH-SL-22-0.0.5.071912		9:50		1													Run
POT-BH-SL-22-0.5.1.071912		10:00		1													Hold
POT-BH-SL-01-0.5.1.071912		10:10		1													Run
POT-BH-SL-01-1.5.071912		10:20		1													Hold

Comments/Special Instructions Run samples marked "Run" Hold samples marked "Hold" "Hold" for future analysis	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>
	Printed Name: Steve Munson	Printed Name: Chris Howell
	Company: Pioneer Technologies Corp	Company: ARI
	Date & Time: 7/19/12 4:00	Date & Time: 7/19/12 1600

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

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

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



ARI Assigned Number: UC060	Turn-around Requested: Std.	Page: 2 of 4
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Ice Present? Yes
Client Contact: Bill Evans		Cooler Temps: 41.1D

Client Project Name: Brain & Haley Bldg - PCB Soil Sampling
Client Project #: 8882
Samplers: Gregg Munson & Gretchen Mellan

Sample ID	Date	Time	Matrix	No. Containers
POT-BH-SL-23-05-071912	7/19/12	10:40	Soil	1
POT-BH-SL-23-05-071912		10:50		1
POT-BH-SL-24-05-071912		11:10		1
POT-BH-SL-24-05-071912		11:20		1
POT-BH-SL-25-05-071912		11:30		1
POT-BH-SL-25-05-071912		11:40		1
POT-BH-SL-25-05-071912		12:00		1
POT-BH-SL-25-05-071912		12:10		1
POT-BH-SL-26-05-071912		12:20		1
POT-BH-SL-26-05-071912		12:30		1

Comments/Special Instructions Run samples marked "Run"	Relinquished by: Gregg Munson (Signature) Printed Name: Gregg Munson Company: ARI	Received by: Chris Howell (Signature) Printed Name: Chris Howell Company: ARI
Hold samples marked "Hold"		
"Hold" for future analysis		

Analysis Requested	Notes/Comments
8882	Run
8882	Hold
8882	Run
8882	Hold
8882	Run
8882	Hold
8882	Run
8882	Hold
8882	Run
8882	Hold

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Client Project Name: Brown + Haley Bldg - 68 Soil Sampling		Samplers: Ray Munson & Gretchen Mallari		Analysis Requested		Notes/Comments	
Client Project #:	Sample ID	Date	Time	Matrix	No. Containers		
	POT-BH-SL-07-0.5-1-071912	7/19/12	12:40	Soil	1		Run
	POT-BH-SL-07-1-1.5-071912		12:50		1		Hold
	POT-BH-SL-27-0.5-071912		1:40		1		Run
	POT-BH-SL-27-0.5-1-071912		1:50		1		Hold
	POT-BH-SL-28-0.5-071912		2:00		1		Run
	POT-BH-SL-28-0.5-1-071912		2:10		1		Hold
	POT-BH-SL-29-0.5-071912		2:20		1		Run
	POT-BH-SL-29-0.5-1-071912		2:30		1		Hold
	POT-BH-SL-11-0.5-1-071912		2:40		1		Run
	POT-BH-SL-11-1.5-071912		3:50	✓	1		Hold
Comments/Special Instructions	Run samples marked "Run"	Relinquished by: (Signature)	Received by: (Signature)				
	Hold samples marked "Hold"	Printed Name: Ray Munson	Printed Name: Charles Hall				
	"Hold" for future analysis	Company: Pioneers Technologies Corp	Company: AEC				
		Date & Time: 7/19/12 4:10	Date & Time: 7/19/12 1:00				

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

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



Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: Brown + Haley Bldg - RB Soil Sampling

COC No(s): _____ (NA)

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

Assigned ARI Job No: VCL66

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc.) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 4.1 8.1 1.0

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 2074619

Cooler Accepted by: CA Date: 7/19/12 Time: 1600

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? (YES) (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI... (NA)

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

Samples Logged by: JM Date: 7/20/12 Time: 739

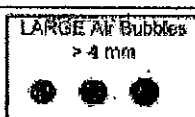
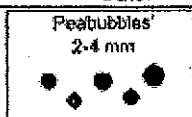
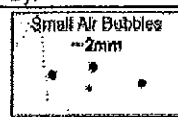
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____



Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

Sample ID Cross Reference Report




ARI Job No: VC66
 Client: Port of Tacoma
 Project Event: N/A
 Project Name: Brown & Haley Bldg-PCB Soil Samp

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SL_19_0_0.5_07191VC66A		12-13475	Soil	07/19/12 08:20	07/19/12 16:00
2. POT_BH_SL_20_0_0.5_07191VC66B		12-13476	Soil	07/19/12 08:40	07/19/12 16:00
3. POT_BH_SL_21_0_0.5_07191VC66C		12-13477	Soil	07/19/12 09:30	07/19/12 16:00
4. POT_BH_SL_22_0_0.5_07191VC66D		12-13478	Soil	07/19/12 09:50	07/19/12 16:00
5. POT_BH_SL_01_0.5_1_07191VC66E		12-13479	Soil	07/19/12 10:10	07/19/12 16:00
6. POT_BH_SL_23_0_0.5_07191VC66F		12-13480	Soil	07/19/12 10:40	07/19/12 16:00
7. POT_BH_SL_24_0_0.5_07191VC66G		12-13481	Soil	07/19/12 11:10	07/19/12 16:00
8. POT_BH_SL_05_0.5_1_07191VC66H		12-13482	Soil	07/19/12 11:30	07/19/12 16:00
9. POT_BH_SL_25_0_0.5_07191VC66I		12-13483	Soil	07/19/12 12:00	07/19/12 16:00
10. POT_BH_SL_26_0_0.5_07191VC66J		12-13484	Soil	07/19/12 12:20	07/19/12 16:00
11. POT_BH_SL_07_0.5_1_07191VC66K		12-13485	Soil	07/19/12 12:40	07/19/12 16:00
12. POT_BH_SL_27_0_0.5_07191VC66L		12-13486	Soil	07/19/12 13:40	07/19/12 16:00
13. POT_BH_SL_28_0_0.5_07191VC66M		12-13487	Soil	07/19/12 14:00	07/19/12 16:00
14. POT_BH_SL_29_0_0.5_07191VC66N		12-13488	Soil	07/19/12 14:20	07/19/12 16:00
15. POT_BH_SL_11_0.5_1_07191VC66O		12-13489	Soil	07/19/12 14:40	07/19/12 16:00
16. POT_BH_SL_15_0.5_1_07191VC66P		12-13490	Soil	07/19/12 15:00	07/19/12 16:00
17. POT_BH_SL_30_0_0.5_07191VC66Q		12-13491	Soil	07/19/12 15:20	07/19/12 16:00
18. POT_BH_SL_19_0.5_1_07191VC66R		12-13492	Soil	07/19/12 08:30	07/19/12 16:00
19. POT_BH_SL_20_0.5_1_07191VC66S		12-13493	Soil	07/19/12 08:50	07/19/12 16:00
20. POT_BH_SL_21_0.5_1_07191VC66T		12-13494	Soil	07/19/12 09:40	07/19/12 16:00
21. POT_BH_SL_22_0.5_1_07191VC66U		12-13495	Soil	07/19/12 10:00	07/19/12 16:00
22. POT_BH_SL_01_1_1.5_07191VC66V		12-13496	Soil	07/19/12 10:20	07/19/12 16:00
23. POT_BH_SL_23_0.5_1_07191VC66W		12-13497	Soil	07/19/12 10:50	07/19/12 16:00
24. POT_BH_SL_24_0.5_1_07191VC66X		12-13498	Soil	07/19/12 11:20	07/19/12 16:00
25. POT_BH_SL_05_1_1.5_07191VC66Y		12-13499	Soil	07/19/12 11:40	07/19/12 16:00
26. POT_BH_SL_25_0.5_1_07191VC66Z		12-13500	Soil	07/19/12 12:10	07/19/12 16:00
27. POT_BH_SL_26_0.5_1_07191VC66AA		12-13501	Soil	07/19/12 12:30	07/19/12 16:00
28. POT_BH_SL_07_1_1.5_07191VC66AB		12-13502	Soil	07/19/12 12:50	07/19/12 16:00
29. POT_BH_SL_27_0.5_1_07191VC66AC		12-13503	Soil	07/19/12 13:50	07/19/12 16:00
30. POT_BH_SL_28_0.5_1_07191VC66AD		12-13504	Soil	07/19/12 14:10	07/19/12 16:00
31. POT_BH_SL_29_0.5_1_07191VC66AE		12-13505	Soil	07/19/12 14:30	07/19/12 16:00
32. POT_BH_SL_11_1_1.5_07191VC66AF		12-13506	Soil	07/19/12 14:50	07/19/12 16:00
33. POT_BH_SL_15_1_1.5_07191VC66AG		12-13507	Soil	07/19/12 15:10	07/19/12 16:00
34. POT_BH_SL_30_0.5_1_07191VC66AH		12-13508	Soil	07/19/12 15:30	07/19/12 16:00

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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Sample ID: POT_BH_SL_19_0_0.5_071912
SAMPLE

Lab Sample ID: VC66A
 LIMS ID: 12-13475
 Matrix: Soil
 Data Release Authorized: 
 Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
 Project: Brown & Haley Bldg-PCB Soil Samp
 Date Sampled: 07/19/12
 Date Received: 07/19/12

Date Extracted: 07/24/12
 Date Analyzed: 07/26/12 14:41
 Instrument/Analyst: ECD5/JGR
 GPC Cleanup: No
 Sulfur Cleanup: Yes
 Acid Cleanup: Yes
 Florisil Cleanup: No

Sample Amount: 5.96 g-dry-wt
 Final Extract Volume: 2.50 mL
 Dilution Factor: 1.00
 Silica Gel: No
 Percent Moisture: 2.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.4	< 8.4 U
53469-21-9	Aroclor 1242	8.4	< 8.4 U
12672-29-6	Aroclor 1248	8.4	< 8.4 U
11097-69-1	Aroclor 1254	8.4	22
11096-82-5	Aroclor 1260	8.4	< 8.4 U
11104-28-2	Aroclor 1221	8.4	< 8.4 U
11141-16-5	Aroclor 1232	8.4	< 8.4 U
37324-23-5	Aroclor 1262	8.4	< 8.4 U
11100-14-4	Aroclor 1268	8.4	< 8.4 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	71.2%
Tetrachlorometaxylene	92.0%


ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL
RESOURCES



INCORPORATED

Sample ID: POT_BH_SL_20_0_0.5_071912
SAMPLE

Lab Sample ID: VC66B
LIMS ID: 12-13476
Matrix: Soil
Data Release Authorized: 
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/30/12 12:10
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 6.36 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 200
Silica Gel: No

Percent Moisture: 4.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,600	< 1,600 U
53469-21-9	Aroclor 1242	1,600	< 1,600 U
12672-29-6	Aroclor 1248	2,400	< 2,400 Y
11097-69-1	Aroclor 1254	1,600	13,000
11096-82-5	Aroclor 1260	1,600	< 1,600 U
11104-28-2	Aroclor 1221	1,600	< 1,600 U
11141-16-5	Aroclor 1232	1,600	< 1,600 U
37324-23-5	Aroclor 1262	1,600	< 1,600 U
11100-14-4	Aroclor 1268	1,600	< 1,600 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_21_0_0.5_071912
SAMPLE

Lab Sample ID: VC66C

LIMS ID: 12-13477

Matrix: Soil

Data Release Authorized: 

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 17:52

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisisil Cleanup: No

Sample Amount: 6.20 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 3.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.1	< 8.1 U
53469-21-9	Aroclor 1242	8.1	< 8.1 U
12672-29-6	Aroclor 1248	20	< 20 Y
11097-69-1	Aroclor 1254	8.1	62
11096-82-5	Aroclor 1260	8.1	13
11104-28-2	Aroclor 1221	8.1	< 8.1 U
11141-16-5	Aroclor 1232	8.1	< 8.1 U
37324-23-5	Aroclor 1262	8.1	< 8.1 U
11100-14-4	Aroclor 1268	8.1	< 8.1 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	70.8%
Tetrachlorometaxylene	86.8%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_22_O_0.5_071912
SAMPLE

Lab Sample ID: VC66D

LIMS ID: 12-13478

Matrix: Soil

Data Release Authorized: *B*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 18:11

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.41 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 10.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.2	< 9.2 U
53469-21-9	Aroclor 1242	9.2	< 9.2 U
12672-29-6	Aroclor 1248	120	< 120 Y
11097-69-1	Aroclor 1254	9.2	180
11096-82-5	Aroclor 1260	9.2	44
11104-28-2	Aroclor 1221	9.2	< 9.2 U
11141-16-5	Aroclor 1232	9.2	< 9.2 U
37324-23-5	Aroclor 1262	9.2	< 9.2 U
11100-14-4	Aroclor 1268	9.2	< 9.2 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	77.8%
Tetrachlorometaxylene	84.8%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL RESOURCES INCORPORATED
Sample ID: POT_BH_SL_01_0.5_1_071912
SAMPLE

Lab Sample ID: VC66E

LIMS ID: 12-13479

Matrix: Soil

Data Release Authorized: *AS*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 18:30

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 6.22 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 10.0

Silica Gel: No

Percent Moisture: 8.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	80	< 80 U
53469-21-9	Aroclor 1242	80	< 80 U
12672-29-6	Aroclor 1248	320	< 320 Y
11097-69-1	Aroclor 1254	80	1,300
11096-82-5	Aroclor 1260	120	< 120 Y
11104-28-2	Aroclor 1221	80	< 80 U
11141-16-5	Aroclor 1232	80	< 80 U
37324-23-5	Aroclor 1262	80	< 80 U
11100-14-4	Aroclor 1268	80	< 80 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	93.8%
Tetrachlorometaxylene	82.0%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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Sample ID: POT_BH_SL_23_0_0.5_071912
SAMPLE

Lab Sample ID: VC66F

LIMS ID: 12-13480

Matrix: Soil

Data Release Authorized: *BB*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 18:49

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.89 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 2.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.5	< 8.5 U
53469-21-9	Aroclor 1242	8.5	< 8.5 U
12672-29-6	Aroclor 1248	8.5	< 8.5 U
11097-69-1	Aroclor 1254	8.5	20
11096-82-5	Aroclor 1260	8.5	23
11104-28-2	Aroclor 1221	8.5	< 8.5 U
11141-16-5	Aroclor 1232	8.5	< 8.5 U
37324-23-5	Aroclor 1262	8.5	< 8.5 U
11100-14-4	Aroclor 1268	8.5	< 8.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.5%
Tetrachlorometaxylene	87.0%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_SL_24_0_0.5_071912
SAMPLE

Lab Sample ID: VC66G
LIMS ID: 12-13481
Matrix: Soil
Data Release Authorized: *AB*
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 19:09
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.84 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: 3.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	43	< 43 U
53469-21-9	Aroclor 1242	43	< 43 U
12672-29-6	Aroclor 1248	43	< 43 U
11097-69-1	Aroclor 1254	43	80
11096-82-5	Aroclor 1260	43	< 43 U
11104-28-2	Aroclor 1221	43	< 43 U
11141-16-5	Aroclor 1232	43	< 43 U
37324-23-5	Aroclor 1262	43	< 43 U
11100-14-4	Aroclor 1268	43	< 43 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.1%
Tetrachlorometaxylene	96.0%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_SL_05_0.5_1_071912
SAMPLE

Lab Sample ID: VC66H

LIMS ID: 12-13482

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 19:28

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.38 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 20.0

Silica Gel: No

Percent Moisture: 10.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	190	< 190 U
53469-21-9	Aroclor 1242	190	< 190 U
12672-29-6	Aroclor 1248	2,800	< 2,800 Y
11097-69-1	Aroclor 1254	190	7,000
11096-82-5	Aroclor 1260	740	< 740 Y
11104-28-2	Aroclor 1221	190	< 190 U
11141-16-5	Aroclor 1232	190	< 190 U
37324-23-5	Aroclor 1262	190	< 190 U
11100-14-4	Aroclor 1268	190	< 190 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	99.5%
Tetrachlorometaxylene	92.5%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_25_0_0.5_071912
SAMPLE

Lab Sample ID: VC66I

LIMS ID: 12-13483

Matrix: Soil

Data Release Authorized: *AB*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 19:47

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.90 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 2.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	42	< 42 U
53469-21-9	Aroclor 1242	42	< 42 U
12672-29-6	Aroclor 1248	74	< 74 Y
11097-69-1	Aroclor 1254	42	240
11096-82-5	Aroclor 1260	42	50
11104-28-2	Aroclor 1221	42	< 42 U
11141-16-5	Aroclor 1232	42	< 42 U
37324-23-5	Aroclor 1262	42	< 42 U
11100-14-4	Aroclor 1268	42	< 42 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	94.8%
Tetrachlorometaxylene	91.9%

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3546
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ANALYTICAL
RESOURCES



INCORPORATED

Sample ID: POT_BH_SL_26_0_0.5_071912
SAMPLE

Lab Sample ID: VC66J
LIMS ID: 12-13484
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 20:05
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 6.51 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 2.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	7.7	< 7.7 U
53469-21-9	Aroclor 1242	7.7	< 7.7 U
12672-29-6	Aroclor 1248	7.7	< 7.7 U
11097-69-1	Aroclor 1254	7.7	12 P
11096-82-5	Aroclor 1260	7.7	< 7.7 U
11104-28-2	Aroclor 1221	7.7	< 7.7 U
11141-16-5	Aroclor 1232	7.7	< 7.7 U
37324-23-5	Aroclor 1262	7.7	< 7.7 U
11100-14-4	Aroclor 1268	7.7	< 7.7 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	80.2%
Tetrachlorometaxylene	86.5%

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

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_07_0.5_1_071912
SAMPLE

Lab Sample ID: VC66K
LIMS ID: 12-13485
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp
Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 20:25
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.97 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 10.0
Silica Gel: No
Percent Moisture: 10.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	84	< 84 U
53469-21-9	Aroclor 1242	84	< 84 U
12672-29-6	Aroclor 1248	840	< 840 Y
11097-69-1	Aroclor 1254	84	3,400
11096-82-5	Aroclor 1260	290	< 290 Y
11104-28-2	Aroclor 1221	84	< 84 U
11141-16-5	Aroclor 1232	84	< 84 U
37324-23-5	Aroclor 1262	84	< 84 U
11100-14-4	Aroclor 1268	84	< 84 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	98.8%
Tetrachlorometaxylene	90.8%



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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Sample ID: POT_BH_SL_27_0_0.5_071912
SAMPLE

Lab Sample ID: VC66L

LIMS ID: 12-13486

Matrix: Soil

Data Release Authorized: 

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 21:22

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 6.19 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 3.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.1	< 8.1 U
53469-21-9	Aroclor 1242	8.1	< 8.1 U
12672-29-6	Aroclor 1248	14	< 14 Y
11097-69-1	Aroclor 1254	8.1	41
11096-82-5	Aroclor 1260	8.1	11
11104-28-2	Aroclor 1221	8.1	< 8.1 U
11141-16-5	Aroclor 1232	8.1	< 8.1 U
37324-23-5	Aroclor 1262	8.1	< 8.1 U
11100-14-4	Aroclor 1268	8.1	< 8.1 U

Reported in µg/kg (ppb)


PCB Surrogate Recovery

Decachlorobiphenyl	77.5%
Tetrachlorometaxylene	87.2%

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

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_28_0_0.5_071912
SAMPLE

Lab Sample ID: VC66M
LIMS ID: 12-13487
Matrix: Soil
Data Release Authorized: 
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 21:41
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.90 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: 3.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.5	< 8.5 U
53469-21-9	Aroclor 1242	8.5	< 8.5 U
12672-29-6	Aroclor 1248	8.5	< 8.5 U
11097-69-1	Aroclor 1254	8.5	38
11096-82-5	Aroclor 1260	8.5	13
11104-28-2	Aroclor 1221	8.5	< 8.5 U
11141-16-5	Aroclor 1232	8.5	< 8.5 U
37324-23-5	Aroclor 1262	8.5	< 8.5 U
11100-14-4	Aroclor 1268	8.5	< 8.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	81.0%
Tetrachlorometaxylene	86.2%

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

ANALYTICAL
RESOURCES



INCORPORATED

Sample ID: POT_BH_SL_28_0_0.5_071912
MATRIX SPIKE

Lab Sample ID: VC66M
LIMS ID: 12-13487
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 22:00
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 6.43 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 3.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	7.8	---
53469-21-9	Aroclor 1242	7.8	< 7.8 U
12672-29-6	Aroclor 1248	7.8	< 7.8 U
11097-69-1	Aroclor 1254	7.8	130
11096-82-5	Aroclor 1260	7.8	---
11104-28-2	Aroclor 1221	7.8	< 7.8 U
11141-16-5	Aroclor 1232	7.8	< 7.8 U
37324-23-5	Aroclor 1262	7.8	< 7.8 U
11100-14-4	Aroclor 1268	7.8	< 7.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	80.5%
Tetrachlorometaxylene	90.0%

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

ANALYTICAL
RESOURCES
INCORPORATED



Sample ID: POT_BH_SL_28_O_0.5_071912
MATRIX SPIKE DUP

Lab Sample ID: VC66M
LIMS ID: 12-13487
Matrix: Soil
Data Release Authorized: *AB*
Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12
Date Received: 07/19/12

Date Extracted: 07/24/12
Date Analyzed: 07/26/12 22:19
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 6.04 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: 3.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.3	---
53469-21-9	Aroclor 1242	8.3	< 8.3 U
12672-29-6	Aroclor 1248	8.3	< 8.3 U
11097-69-1	Aroclor 1254	8.3	120
11096-82-5	Aroclor 1260	8.3	---
11104-28-2	Aroclor 1221	8.3	< 8.3 U
11141-16-5	Aroclor 1232	8.3	< 8.3 U
37324-23-5	Aroclor 1262	8.3	< 8.3 U
11100-14-4	Aroclor 1268	8.3	< 8.3 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	81.2%
Tetrachlorometaxylene	95.2%



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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Sample ID: POT_BH_SL_29_0_0.5_071912
SAMPLE

Lab Sample ID: VC66N

LIMS ID: 12-13488

Matrix: Soil

Data Release Authorized: *AB*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 22:38

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.65 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 6.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.8	< 8.8 U
53469-21-9	Aroclor 1242	8.8	< 8.8 U
12672-29-6	Aroclor 1248	8.8	< 8.8 U
11097-69-1	Aroclor 1254	8.8	96
11096-82-5	Aroclor 1260	8.8	21
11104-28-2	Aroclor 1221	8.8	< 8.8 U
11141-16-5	Aroclor 1232	8.8	< 8.8 U
37324-23-5	Aroclor 1262	8.8	< 8.8 U
11100-14-4	Aroclor 1268	8.8	< 8.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	78.5%
Tetrachlorometaxylene	88.8%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_11_0.5_1_071912
SAMPLE

Lab Sample ID: VC660

LIMS ID: 12-13489

Matrix: Soil

Data Release Authorized: *BB*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 22:57

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.91 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 6.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	42	< 42 U
53469-21-9	Aroclor 1242	42	< 42 U
12672-29-6	Aroclor 1248	160	< 160 Y
11097-69-1	Aroclor 1254	42	860
11096-82-5	Aroclor 1260	42	< 42 U
11104-28-2	Aroclor 1221	42	< 42 U
11141-16-5	Aroclor 1232	42	< 42 U
37324-23-5	Aroclor 1262	42	< 42 U
11100-14-4	Aroclor 1268	42	< 42 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	95.6%
Tetrachlorometaxylene	85.8%


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

ANALYTICAL
RESOURCES
INCORPORATED
Sample ID: POT_BH_SL_15_0.5_1_071912
SAMPLE

Lab Sample ID: VC66P

LIMS ID: 12-13490

Matrix: Soil

Data Release Authorized: 

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 23:16

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.36 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 10.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	47	< 47 U
53469-21-9	Aroclor 1242	47	< 47 U
12672-29-6	Aroclor 1248	47	< 47 U
11097-69-1	Aroclor 1254	47	260
11096-82-5	Aroclor 1260	47	< 47 U
11104-28-2	Aroclor 1221	47	< 47 U
11141-16-5	Aroclor 1232	47	< 47 U
37324-23-5	Aroclor 1262	47	< 47 U
11100-14-4	Aroclor 1268	47	< 47 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.4%
Tetrachlorometaxylene	92.5%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_30_0_0.5_071912
SAMPLE

Lab Sample ID: VC66Q

LIMS ID: 12-13491

Matrix: Soil

Data Release Authorized: 

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/19/12

Date Received: 07/19/12

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 23:35

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.86 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 17.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.5	< 8.5 U
53469-21-9	Aroclor 1242	8.5	< 8.5 U
12672-29-6	Aroclor 1248	8.5	< 8.5 U
11097-69-1	Aroclor 1254	8.5	110
11096-82-5	Aroclor 1260	15	< 15 Y
11104-28-2	Aroclor 1221	8.5	< 8.5 U
11141-16-5	Aroclor 1232	8.5	< 8.5 U
37324-23-5	Aroclor 1262	8.5	< 8.5 U
11100-14-4	Aroclor 1268	8.5	< 8.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.8%
Tetrachlorometaxylene	78.2%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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Sample ID: MB-072412

METHOD BLANK

Lab Sample ID: MB-072412

LIMS ID: 12-13487

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: NA

Date Received: NA

Date Extracted: 07/24/12

Date Analyzed: 07/26/12 13:25

Instrument/Analyst: ECD5/VTs

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.00 g

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	76.8%
Tetrachlorometaxylene	90.0%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
POT_BH_SL_19_0_0.5_071912	71.2%	24-127	92.0%	34-109	0
POT_BH_SL_20_0_0.5_071912	D	24-127	D	34-109	0
POT_BH_SL_21_0_0.5_071912	70.8%	24-127	86.8%	34-109	0
POT_BH_SL_22_0_0.5_071912	77.8%	24-127	84.8%	34-109	0
POT_BH_SL_01_0.5_1_071912	93.8%	24-127	82.0%	34-109	0
POT_BH_SL_23_0_0.5_071912	76.5%	24-127	87.0%	34-109	0
POT_BH_SL_24_0_0.5_071912	87.1%	24-127	96.0%	34-109	0
POT_BH_SL_05_0.5_1_071912	99.5%	24-127	92.5%	34-109	0
POT_BH_SL_25_0_0.5_071912	94.8%	24-127	91.9%	34-109	0
POT_BH_SL_26_0_0.5_071912	80.2%	24-127	86.5%	34-109	0
POT_BH_SL_07_0.5_1_071912	98.8%	24-127	90.8%	34-109	0
POT_BH_SL_27_0_0.5_071912	77.5%	24-127	87.2%	34-109	0
MB-072412	76.8%	48-123	90.0%	43-107	0
LCS-072412	77.5%	48-123	90.2%	43-107	0
LCSD-072412	74.0%	48-123	85.8%	43-107	0
POT_BH_SL_28_0_0.5_071912	81.0%	24-127	86.2%	34-109	0
POT_BH_SL_28_0_0.5_071912 MS	80.5%	24-127	90.0%	34-109	0
POT_BH_SL_28_0_0.5_071912 MSD	81.2%	24-127	95.2%	34-109	0
POT_BH_SL_29_0_0.5_071912	78.5%	24-127	88.8%	34-109	0
POT_BH_SL_11_0.5_1_071912	95.6%	24-127	85.8%	34-109	0
POT_BH_SL_15_0.5_1_071912	92.4%	24-127	92.5%	34-109	0
POT_BH_SL_30_0_0.5_071912	72.8%	24-127	78.2%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-13475 to 12-13491

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

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Sample ID: LCS-072412

LCS/LCSD

Lab Sample ID: LCS-072412

LIMS ID: 12-13487

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 07/30/12

QC Report No: VC66-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 07/24/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 07/26/12 13:44

Final Extract Volume LCS: 2.50 mL

LCSD: 07/26/12 14:03

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD5/VT

Dilution Factor LCS: 1.00

LCSD: ECD5/VT

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike	LCS	LCSD	Spike	LCSD	RPD
		Added-LCS	Recovery		Added-LCSD	Recovery	
Aroclor 1016	240	252	95.2%	228	252	90.5%	5.1%
Aroclor 1260	200	252	79.4%	194	252	77.0%	3.0%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	77.5%	74.0%
Tetrachlorometaxylene	90.2%	85.8%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
 Page 1 of 1

Sample ID: POT_BH_SL_28_0_0.5_071912
MS/MSD

Lab Sample ID: VC66M
 LIMS ID: 12-13487
 Matrix: Soil
 Data Release Authorized: *[Signature]*
 Reported: 07/30/12

QC Report No: VC66-Port of Tacoma
 Project: Brown & Haley Bldg-PCB Soil Samp
 Date Sampled: 07/19/12
 Date Received: 07/19/12

Date Extracted MS/MSD: 07/24/12
 Date Analyzed MS: 07/26/12 22:00
 MSD: 07/26/12 22:19
 Instrument/Analyst MS: ECD5/JGR
 MSD: ECD5/JGR
 GPC Cleanup: No
 Sulfur Cleanup: Yes
 Acid Cleanup: Yes
 Florisil Cleanup: No

Sample Amount MS: 6.43 g-dry-wt
 MSD: 6.04 g-dry-wt
 Final Extract Volume MS: 2.5 mL
 MSD: 2.5 mL
 Dilution Factor MS: 1.00
 MSD: 1.00
 Silica Gel: No
 Percent Moisture: 3.4%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 8.5 U	179	196	91.3%	195	209	93.3%	8.6%
Aroclor 1260	13	179	196	84.7%	194	209	86.6%	8.0%

Results reported in µg/kg (ppb)
 RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

July 30, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Soil Sampling
ARI Job No. VD08

Dear Stacy:

Please find enclosed the original chain of custody records (COC) and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted twelve soil matrix samples on July 20, 2012. There were no discrepancies in the paperwork. Select samples have been placed on hold pending further instructions.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: VDO6	Turn-around Requested: Std.	Page: 1 of 2
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 7/20/12 Ice Present? Yes
Client Contact: Bill Evans		No. of Coolers: 1 Cooler Temps: 3.8

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments
POT-BH-SL-31-0.0.5.072012	7/20/12	8:00	Soil	1	X				Run
POT-BH-SL-31-0.0.5.072012-9		8:05		1	X				Run
POT-BH-SL-31-0.5.1.072012		8:10		1	X				Hold
POT-BH-SL-32-0.0.5.072012		9:10		1	X				Run
POT-BH-SL-32-0.5.1.072012		9:20		1	X				Hold
POT-BH-SL-32-1.1.5.072012		9:30		1	X				Hold
POT-BH-SL-33-0.0.5.072012		9:50		1	X				Run
POT-BH-SL-33-0.5.1.072012		10:00		1	X				Hold
POT-BH-SL-33-1.1.5.072012		10:16		1	X				Hold
POT-BH-SL-34-0.0.5.072012	7/20/12	10:30	✓	1	X				Run

Comments/Special Instructions Run samples marked "Run"	Relinquished by: (Signature) <i>Stacy Munson</i> Printed Name: Stacy Munson Company: Pioneer Technologies Corp	Received by: (Signature) <i>Chris Atwell</i> Printed Name: Chris Atwell Company: ARI
"Hold" for future analysis	Date & Time: 7/20/12 11:45	Date & Time: 7/20/12 11:45

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Received by: (Signature)
Printed Name:
Company:
Date & Time:

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



Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: Brown + Haley Bldg - PCB soil sample

COC No(s): _____ (NA)

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

Assigned ARI Job No: VD08

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? (YES) YES NO

Were custody papers properly filled out (ink, signed, etc.) (YES) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.8

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

Temp Gun ID#: 90941619

Cooler Accepted by: CA Date: 7/20/12 Time: 1145

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) YES NO

Were all bottles sealed in individual plastic bags? YES (NO) YES NO

Did all bottles arrive in good condition (unbroken)? (YES) YES NO

Were all bottle labels complete and legible? (YES) YES NO

Did the number of containers listed on COC match with the number of containers received? (YES) YES NO

Did all bottle labels and tags agree with custody papers? (YES) YES NO

Were all bottles used correct for the requested analyses? (YES) YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) YES NO

Date VOC Trip Blank was made at ARI: (NA)

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

Samples Logged by: JM Date: 7/23/12 Time: 840

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	<p>Small → "sm"</p> <p>Peabubbles → "pb"</p> <p>Large → "lg"</p> <p>Headspace → "hs"</p>
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Sample ID Cross Reference Report




ARI Job No: VD08
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg-PCB Soil Samp

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SL_31_0_0.5_07201VD08A		12-13665	Soil	07/20/12 08:00	07/20/12 11:45
2. POT_BH_SL_31_0_0.5_07201VD08B		12-13666	Soil	07/20/12 08:05	07/20/12 11:45
3. POT_BH_SL_32_0_0.5_07201VD08C		12-13667	Soil	07/20/12 09:10	07/20/12 11:45
4. POT_BH_SL_33_0_0.5_07201VD08D		12-13668	Soil	07/20/12 09:50	07/20/12 11:45
5. POT_BH_SL_34_0_0.5_07201VD08E		12-13669	Soil	07/20/12 10:30	07/20/12 11:45
6. POT_BH_SL_31_0.5_1_07201VD08F		12-13670	Soil	07/20/12 08:10	07/20/12 11:45
7. POT_BH_SL_32_0.5_1_07201VD08G		12-13671	Soil	07/20/12 09:20	07/20/12 11:45
8. POT_BH_SL_32_1_1.5_07201VD08H		12-13672	Soil	07/20/12 09:30	07/20/12 11:45
9. POT_BH_SL_33_0.5_1_07201VD08I		12-13673	Soil	07/20/12 10:00	07/20/12 11:45
10. POT_BH_SL_33_1_1.5_07201VD08J		12-13674	Soil	07/20/12 10:10	07/20/12 11:45
11. POT_BH_SL_34_0.5_1_07201VD08K		12-13675	Soil	07/20/12 10:40	07/20/12 11:45
12. POT_BH_SL_34_1_1.5_07201VD08L		12-13676	Soil	07/20/12 10:50	07/20/12 11:45

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

ANALYTICAL RESOURCES INCORPORATED
Sample ID: POT_BH_SL_31_0_0.5_072012
SAMPLE

Lab Sample ID: VD08A
LIMS ID: 12-13665
Matrix: Soil
Data Release Authorized: 
Reported: 07/30/12

QC Report No: VD08-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/20/12
Date Received: 07/20/12

Date Extracted: 07/25/12
Date Analyzed: 07/28/12 17:57
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 6.03 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 2.00
Silica Gel: No
Percent Moisture: 5.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	96
11096-82-5	Aroclor 1260	17	23
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U
37324-23-5	Aroclor 1262	17	< 17 U
11100-14-4	Aroclor 1268	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	79.0%
Tetrachlorometaxylene	87.5%

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



Sample ID: POT_BH_SL_31_0_0.5_072012_9
SAMPLE

Lab Sample ID: VD08B
LIMS ID: 12-13666
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 07/30/12

QC Report No: VD08-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp
Date Sampled: 07/20/12
Date Received: 07/20/12

Date Extracted: 07/25/12
Date Analyzed: 07/28/12 18:16
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.76 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 2.00
Silica Gel: No
Percent Moisture: 4.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	150
11096-82-5	Aroclor 1260	17	28
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U
37324-23-5	Aroclor 1262	17	< 17 U
11100-14-4	Aroclor 1268	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	82.5%
Tetrachlorometaxylene	91.5%

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

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SL_32_O_0.5_072012
SAMPLE

Lab Sample ID: VD08C
LIMS ID: 12-13667
Matrix: Soil
Data Release Authorized: *B*
Reported: 07/30/12

QC Report No: VD08-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/20/12
Date Received: 07/20/12

Date Extracted: 07/25/12
Date Analyzed: 07/28/12 18:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.57 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 5.00
Silica Gel: No
Percent Moisture: 11.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	45	< 45 U
53469-21-9	Aroclor 1242	45	< 45 U
12672-29-6	Aroclor 1248	110	< 110 Y
11097-69-1	Aroclor 1254	45	1,300
11096-82-5	Aroclor 1260	110	< 110 Y
11104-28-2	Aroclor 1221	45	< 45 U
11141-16-5	Aroclor 1232	45	< 45 U
37324-23-5	Aroclor 1262	45	< 45 U
11100-14-4	Aroclor 1268	45	< 45 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.8%
Tetrachlorometaxylene	81.1%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_33_0_0.5_072012
SAMPLE

Lab Sample ID: VD08D

LIMS ID: 12-13668

Matrix: Soil

Data Release Authorized: *BB*

Reported: 07/30/12

QC Report No: VD08-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/20/12

Date Received: 07/20/12

Date Extracted: 07/25/12

Date Analyzed: 07/28/12 18:54

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.60 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 11.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	45	< 45 U
53469-21-9	Aroclor 1242	45	< 45 U
12672-29-6	Aroclor 1248	110	< 110 Y
11097-69-1	Aroclor 1254	45	1,200
11096-82-5	Aroclor 1260	110	< 110 Y
11104-28-2	Aroclor 1221	45	< 45 U
11141-16-5	Aroclor 1232	45	< 45 U
37324-23-5	Aroclor 1262	45	< 45 U
11100-14-4	Aroclor 1268	45	< 45 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.5%
Tetrachlorometaxylene	85.9%

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

ANALYTICAL
RESOURCES




Sample ID: POT_BH_SL_34_0_0.5_072012
SAMPLE

Lab Sample ID: VD08E

LIMS ID: 12-13669

Matrix: Soil

Data Release Authorized: 

Reported: 07/30/12

QC Report No: VD08-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: 07/20/12

Date Received: 07/20/12

Date Extracted: 07/25/12

Date Analyzed: 07/28/12 19:13

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.66 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 8.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.8	< 8.8 U
53469-21-9	Aroclor 1242	8.8	< 8.8 U
12672-29-6	Aroclor 1248	8.8	< 8.8 U
11097-69-1	Aroclor 1254	8.8	27
11096-82-5	Aroclor 1260	8.8	< 8.8 U
11104-28-2	Aroclor 1221	8.8	< 8.8 U
11141-16-5	Aroclor 1232	8.8	< 8.8 U
37324-23-5	Aroclor 1262	8.8	< 8.8 U
11100-14-4	Aroclor 1268	8.8	< 8.8 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	72.0%
Tetrachlorometaxylene	90.8%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

Page 1 of 1

Sample ID: MB-072512

METHOD BLANK

Lab Sample ID: MB-072512

LIMS ID: 12-13665

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 07/30/12

QC Report No: VD08-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: NA

Date Received: NA

Date Extracted: 07/25/12

Date Analyzed: 07/28/12 16:41

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.00 g

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	79.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VD08-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-072512	75.5%	48-123	79.5%	43-107	0
LCS-072512	80.8%	48-123	85.5%	43-107	0
LCSD-072512	78.5%	48-123	87.2%	43-107	0
POT_BH_SL_31_0_0.5_072012	79.0%	24-127	87.5%	34-109	0
POT_BH_SL_31_0_0.5_072012	82.5%	24-127	91.5%	34-109	0
POT_BH_SL_32_0_0.5_072012	74.8%	24-127	81.1%	34-109	0
POT_BH_SL_33_0_0.5_072012	84.5%	24-127	85.9%	34-109	0
POT_BH_SL_34_0_0.5_072012	72.0%	24-127	90.8%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-13665 to 12-13669

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Page 1 of 1

Sample ID: LCS-072512
LCS/LCSD

Lab Sample ID: LCS-072512

LIMS ID: 12-13665

Matrix: Soil

Data Release Authorized: *[Signature]*

Reported: 07/30/12

QC Report No: VD08-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samp

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 07/25/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 07/28/12 17:00

Final Extract Volume LCS: 2.50 mL

LCSD: 07/28/12 17:19

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD5/JGR

Dilution Factor LCS: 1.00

LCSD: ECD5/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	232	252	92.1%	239	252	94.8%	3.0%
Aroclor 1260	230	252	91.3%	227	252	90.1%	1.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	80.8%	78.5%
Tetrachlorometaxylene	85.5%	87.2%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 6, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley BLDG- PCB Soil Sampling
ARI Job No. VE63

Dear Stacy:

Please find enclosed a copy of the original chain of custody records (COC), e-mail documentation and final results for the samples from the project referenced above. Analytical Resources, Inc. accepted several soil matrix samples on July 19, 2012 and July 20, 2012. There were no discrepancies in the paperwork. Select samples have been placed on frozen hold pending further instructions.


Select samples were originally analyzed for PCBs and reported under ARI SDGs VC66 and VD08, as requested on the COC.

At the request of The Port of Tacoma, select samples were removed from frozen hold and analyzed for PCBs.

The analysis proceeded without incident of note.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,


ANALYTICAL RESOURCES, INC.

Kelly Bottum
Client Services Manager
206/695-6211
kellyb@arilabs.com

Subject: 1940 E 11th, Brown and Haley Building

From: "Evans, William" <wevans@portoftacoma.com>

Date: 8/2/2012 3:26 PM

To: Kelly Bottem <kellyb@arilabs.com>

CC: Stacy Munson <munsons@uspioneer.com>, "Chris Waldron (waldronc@uspioneer.com)" <waldronc@uspioneer.com>, "Evans, William" <wevans@portoftacoma.com>

Kelly:

On July 19 and 20, 2012, Pioneer delivered COC's and soil samples for PCB analysis. The work was done under ARI Job No's VC66 and VD08; the Port's PO Number is 55192. The Port and Pioneer received the final analytical reports on July 30, 2012.

Several of the samples were placed on "hold" pending results from the initial testing. This email is a request that you pull the following soil samples and test them for PCBs using the same means and methods as the earlier work. The samples are:

1. POT_BH_SL_01_1_1.5_071912
2. POT_BH_SL_05_1_1.5_071912
3. POT_BH_SL_07_1_1.5_071912
4. POT_BH_SL_20_0.5_1_071912
5. POT_BH_SL_32_0.5_1_072012
6. POT_BH_SL_33_0.5_1_072012

If possible, please meet a one week turnaround time – charging the Port appropriately.

Stacy/Chris: Please forward this email on to Gretchen – I understand she is working on the report and I don't have her email address.

Thanks to all involved, and be sure to call or email if there are any questions or concerns.

William Evans, LG
Environmental Project Manager
desk: 253-593-4563
cel: 253-307-6591
wevans@portoftacoma.com



All e-mail communications with the Port of Tacoma are subject to disclosure under the Public Records Act and should be presumed to be public.

8/6/2012 2:32 PM

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: VC66	Turn-around Requested: Std.	Page: 1 of 4
ARI Client Company: Cost of Towing	Phone: 253-593-4563	Date: 7/19/12 Ice Present? Yes
Client Contact: Bill Evans		No. of Coolers: 1 Cooler Temps: 41.1D
Client Project Name: Brian + Haley Bldg - PDS Soil Sampling		
Client Project #:	Sample: Gray Munson + Gretchen Mallari	

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested	Notes/Comments
POT-BH-SL-19-0.0.5.07M12	7/19/12	8:20	Soil	1	X	Rm
POT-BH-SL-19-0.5.1.07M12		8:30		1	X	Hold
POT-BH-SL-20-0.0.5.07M12		8:40		1	X	Rm
POT-BH-SL-20-0.5.1.07M12		8:50		1	X	Hold
POT-BH-SL-21-0.0.5.07M12		9:30		1	X	Rm
POT-BH-SL-21-0.5.1.07M12		9:40		1	X	Hold
POT-BH-SL-22-0.0.5.07M12		9:50		1	X	Rm
POT-BH-SL-22-0.5.1.07M12		10:00		1	X	Hold
POT-BH-SL-01-0.5.1.07M12		10:10		1	X	Rm
POT-BH-SL-01-1.1.5.07M12		10:20	↓	1	X	Hold

Comments/Special Instructions Rm samples noted	Relinquished by (Signature) <i>Gray Munson</i>	Received by (Signature) <i>Chris Howell</i>
Printed Name: Gray Munson	Printed Name: Chris Howell	
Company: Forest Technologies Corp	Company: ARI	
Date & Time: 7/19/12 4:00	Date & Time: 7/19/12 1600	

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



VC66: 00002

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number: VC100		Turn-around Requested: Std.		
ARI Client Company: Port of Tacoma		Phone: 253-593-4563		
Client Contact: Bill Evans				
Client Project Name: Grain & Hay Billy - PCB Soil Sampling				
Client Project #:		Samplers: Stacy Munson & Gretchen Mellari		
Sample ID	Date	Time	Matrix	No Containers
POT-BH-SL-23-0-0.5-071912	7/19/12	10:40	Soil	1
POT-BH-SL-23-0.5-1-071912		10:50		1
POT-BH-SL-24-0-0.5-071912		11:10		1
POT-BH-SL-24-0.5-1-071912		11:20		1
POT-BH-SL-05-0.5-1-071912		11:30		1
POT-BH-SL-05-1-1.5-071912		11:40		1
POT-BH-SL-25-0-0.5-071912		12:00		1
POT-BH-SL-25-0.5-1-071912		12:10		1
POT-BH-SL-26-0-0.5-071912		12:20		1
POT-BH-SL-26-0.5-1-071912		12:30		1
Comments/Special Instructions		Relinquished by (Signature)	Received by (Signature)	
Run samples marked		<i>Stacy Munson</i>	<i>Stacy Munson</i>	
"Run"		Printed Name	Printed Name	
Hold samples marked		Company	Company	
"Hold" for future analysis		<i>Stacy Munson</i>	<i>Stacy Munson</i>	
Date & Time: 7/19/12 4:00		Date & Time: 7/19/12 4:00	Date & Time: 7/19/12 4:00	

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

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: VC660	Turn-around Requested: Std	Page: 3 of 4
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 7/14/12
Client Contact: Bill Evans		No. of Coolers: 1
		Cooler Temps: 4.1, 1.0

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No Containers	Analysis Requested				Notes/Comments
POT-BH-SL-07-05-1-071912	7/19/12	12:40	Soil	1					Run
POT-BH-SL-07-1-1-5-071912		12:50		1					Hold
POT-BH-SL-27-0-0-5-071912		1:40		1					Run
POT-BH-SL-27-0-5-1-071912		1:50		1					Hold
POT-BH-SL-28-0-0-5-071912		2:00		1					Run
POT-BH-SL-28-0-5-1-071912		2:10		1					Hold
POT-BH-SL-29-0-0-5-071912		2:20		1					Run
POT-BH-SL-29-0-5-1-071912		2:30		1					Hold
POT-BH-SL-11-0-5-1-071912		2:40		1					Run
POT-BH-SL-11-1-5-071912		2:50		1					Hold

Comments/Special Instructions Run samples marked "Run" Hold samples marked "Hold" for future analysis	Relinquished by (Signature) Shay Munson	Received by (Signature) Chris Hall
Printed Name Shay Munson	Printed Name Chris Hall	Printed Name
Company Port of Tacoma	Company	Company
Date & Time 7/19/12 4:00	Date & Time 7/19/12 16:00	Date & Time

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

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

VC66: 00004

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: VD06	Turn-around Requested: Std.	Page: 1 of 2
ARI Client Company: Port of Tacoma	Phone: 253-593-4563	Date: 7/20/12 Yes
Client Contact: Bill Evans		No. of Coolers: 1 Cooler Temps: 3.8

Client Project Name: Boat + Holey Bay - PCB Soil Sampling
Client Project #: 8882
Samples: Stacy Munson + Gretchen Malloni

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested	Notes/Comments
POT-BH-SL-31-0.5-0.5-072012	7/20/12	8:00	Soil	1	X	Run
POT-BH-SL-31-0.5-0.5-072012		8:05		1	X	Run
POT-BH-SL-31-0.5-0.5-072012		8:10		1	X	Hold
POT-BH-SL-32-0.5-0.5-072012		9:10		1	X	Run
POT-BH-SL-32-0.5-0.5-072012		9:20		1	X	Hold
POT-BH-SL-32-1.1-0.5-072012		9:30		1	X	Hold
POT-BH-SL-33-0.5-0.5-072012		9:50		1	X	Run
POT-BH-SL-33-0.5-0.5-072012		10:00		1	X	Hold
POT-BH-SL-33-1.1-0.5-072012		10:10		1	X	Hold
POT-BH-SL-34-0.5-0.5-072012		10:30	↓	1	X	Run

Comments/Special Instructions: Run samples marked "Run"	Relinquished by: Stacy Munson	Received by: Chris Atwell
Hold samples marked "Hold" for future analysis	Printed Name: Stacy Munson	Printed Name: Chris Atwell
	Company: Furber Technologies Corp	Company: ARI
	Date & Time: 7/20/12 11:45	Date & Time: 7/20/12 11:45

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

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)



Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

[illegible]

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

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

Sample ID Cross Reference Report



ARI Job No: VE63

Client: Port of Tacoma

Project Event: N/A

Project Name: Brown & Haley Bldg-PCB Soil Samplin

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SL_20_0.5_1_07191VE63A		12-14712	Soil	07/19/12 08:50	07/20/12 11:45
2. POT_BH_SL_01_1_1.5_07191VE63B		12-14713	Soil	07/19/12 10:20	07/20/12 11:45
3. POT_BH_SL_05_1_1.5_07191VE63C		12-14714	Soil	07/19/12 11:40	07/20/12 11:45
4. POT_BH_SL_07_1_1.5_07191VE63D		12-14715	Soil	07/19/12 12:50	07/20/12 11:45
5. POT_BH_SL_32_0.5_1_07191VE63E		12-14716	Soil	07/20/12 09:20	07/20/12 11:45
6. POT_BH_SL_33_0.5_1_07191VE63F		12-14717	Soil	07/20/12 10:00	07/20/12 11:45



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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Sample ID: POT_BH_SL_20_0.5_1_071912

SAMPLE

Lab Sample ID: VE63A

LIMS ID: 12-14712

Matrix: Soil

Data Release Authorized: 

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/19/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/06/12 11:31

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.81 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: No

Percent Moisture: 4.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	430	< 430 U
53469-21-9	Aroclor 1242	430	< 430 U
12672-29-6	Aroclor 1248	1,500	< 1,500 Y
11097-69-1	Aroclor 1254	430	4,200
11096-82-5	Aroclor 1260	540	< 540 Y
11104-28-2	Aroclor 1221	430	< 430 U
11141-16-5	Aroclor 1232	430	< 430 U
37324-23-5	Aroclor 1262	430	< 430 U
11100-14-4	Aroclor 1268	430	< 430 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

Page 1 of 1

Sample ID: POT_BH_SL_01_1_1.5_071912
SAMPLE

Lab Sample ID: VE63B

LIMS ID: 12-14713

Matrix: Soil

Data Release Authorized: *AB*

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/19/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/04/12 12:28

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.68 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 2.00

Silica Gel: No

Percent Moisture: 9.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	18	< 18 U
53469-21-9	Aroclor 1242	18	< 18 U
12672-29-6	Aroclor 1248	180	< 180 Y
11097-69-1	Aroclor 1254	18	530
11096-82-5	Aroclor 1260	88	< 88 Y
11104-28-2	Aroclor 1221	18	< 18 U
11141-16-5	Aroclor 1232	18	< 18 U
37324-23-5	Aroclor 1262	18	< 18 U
11100-14-4	Aroclor 1268	18	< 18 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	88.0%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_05_1_1.5_071912
SAMPLE

Lab Sample ID: VE63C

LIMS ID: 12-14714

Matrix: Soil

Data Release Authorized: *AB*

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/19/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/06/12 11:52

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.60 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 50.0

Silica Gel: No

Percent Moisture: 8.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	450	< 450 U
53469-21-9	Aroclor 1242	450	< 450 U
12672-29-6	Aroclor 1248	450	2,800
11097-69-1	Aroclor 1254	450	2,400
11096-82-5	Aroclor 1260	450	< 450 U
11104-28-2	Aroclor 1221	450	< 450 U
11141-16-5	Aroclor 1232	450	< 450 U
37324-23-5	Aroclor 1262	450	< 450 U
11100-14-4	Aroclor 1268	450	< 450 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	D
Tetrachlorometaxylene	D



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

Page 1 of 1

Sample ID: POT_BH_SL_07_1_1.5_071912
SAMPLE

Lab Sample ID: VE63D

LIMS ID: 12-14715

Matrix: Soil

Data Release Authorized: *RA*

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/19/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/04/12 13:10

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.51 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 9.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	45	< 45 U
53469-21-9	Aroclor 1242	45	< 45 U
12672-29-6	Aroclor 1248	680	< 680 Y
11097-69-1	Aroclor 1254	45	1,800
11096-82-5	Aroclor 1260	160	< 160 Y
11104-28-2	Aroclor 1221	45	< 45 U
11141-16-5	Aroclor 1232	45	< 45 U
37324-23-5	Aroclor 1262	45	< 45 U
11100-14-4	Aroclor 1268	45	< 45 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	106%
Tetrachlorometaxylene	84.2%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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Sample ID: POT_BH_SL_32_0.5_1_071912
SAMPLE

Lab Sample ID: VE63E

LIMS ID: 12-14716

Matrix: Soil

Data Release Authorized: 

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/20/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/04/12 13:31

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 2.37 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 10.0

Silica Gel: No

Percent Moisture: 6.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	210	< 210 U
53469-21-9	Aroclor 1242	210	< 210 U
12672-29-6	Aroclor 1248	320	< 320 Y
11097-69-1	Aroclor 1254	210	1,000
11096-82-5	Aroclor 1260	210	< 210 U
11104-28-2	Aroclor 1221	210	< 210 U
11141-16-5	Aroclor 1232	210	< 210 U
37324-23-5	Aroclor 1262	210	< 210 U
11100-14-4	Aroclor 1268	210	< 210 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	118%
Tetrachlorometaxylene	101%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: POT_BH_SL_33_0.5_1_071912
SAMPLE

Lab Sample ID: VE63F

LIMS ID: 12-14717

Matrix: Soil

Data Release Authorized: 

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: 07/20/12

Date Received: 07/20/12

Date Extracted: 08/03/12

Date Analyzed: 08/04/12 13:52

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.89 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 7.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	42	< 42 U
53469-21-9	Aroclor 1242	42	< 42 U
12672-29-6	Aroclor 1248	110	< 110 Y
11097-69-1	Aroclor 1254	42	800
11096-82-5	Aroclor 1260	85	< 85 Y
11104-28-2	Aroclor 1221	42	< 42 U
11141-16-5	Aroclor 1232	42	< 42 U
37324-23-5	Aroclor 1262	42	< 42 U
11100-14-4	Aroclor 1268	42	< 42 U


Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	113%
Tetrachlorometaxylene	93.6%

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

Sample ID: MB-080312
METHOD BLANK

Lab Sample ID: MB-080312
LIMS ID: 12-14712
Matrix: Soil
Data Release Authorized: 
Reported: 08/06/12

QC Report No: VE63-Port of Tacoma
Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: NA
Date Received: NA

Date Extracted: 08/03/12
Date Analyzed: 08/04/12 11:05
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	81.5%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Client ID	DCBP	DCBP	TCMX	TCMX	TOT	OUT
	% REC	LCL-UCL	% REC	LCL-UCL		
MB-080312	96.0%	48-123	81.5%	43-107	0	
LCS-080312	105%	48-123	92.8%	43-107	0	
LCSD-080312	102%	48-123	91.0%	43-107	0	
POT_BH_SL_20_0.5_1_071912	D	24-127	D	34-109	0	
POT_BH_SL_01_1_1.5_071912	101%	24-127	88.0%	34-109	0	
POT_BH_SL_05_1_1.5_071912	D	24-127	D	34-109	0	
POT_BH_SL_07_1_1.5_071912	106%	24-127	84.2%	34-109	0	
POT_BH_SL_32_0.5_1_071912	118%	24-127	101%	34-109	0	
POT_BH_SL_33_0.5_1_071912	113%	24-127	93.6%	34-109	0	

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-14712 to 12-14717

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Page 1 of 1


Sample ID: LCS-080312

LCS/LCSD

Lab Sample ID: LCS-080312

LIMS ID: 12-14712

Matrix: Soil

Data Release Authorized: 

Reported: 08/06/12

QC Report No: VE63-Port of Tacoma

Project: Brown & Haley Bldg-PCB Soil Samplin

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 08/03/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 08/04/12 11:26

Final Extract Volume LCS: 2.50 mL

LCSD: 08/04/12 11:46

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	Spike		LCS	Spike		LCS	RPD
	LCS	Added-LCS	Recovery	LCSD	Added-LCSD	Recovery	
Aroclor 1016	246	252	97.6%	259	252	103%	5.1%
Aroclor 1260	276	252	110%	270	252	107%	2.2%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	105%	102%
Tetrachlorometaxylene	92.8%	91.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

A4: Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling

Memo



5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

Phone: 360.570.1700

Fax: 360.570.1777

www.uspioneer.com

to: Bill Evans (Port of Tacoma)
from: Stacy Munson
cc: Chris Waldron
date: April 19, 2013
subject: Port of Tacoma, 1940 East 11th Street Building Direct-Push PCB Groundwater Sampling

Per your request, PIONEER Technologies Corporation (PIONEER) conducted a groundwater sampling event at the approximately 117,000-square foot, two-story, vacant building located at 1940 East 11th Street in Tacoma, Washington (the building) (see Figure 1). The last tenant of the building was the Brown & Haley Company, and several previous investigations referred to the building as the Brown & Haley Building.

Groundwater samples were collected at four locations from temporary well screens advanced using a direct-push drill rig. Samples were collected on March 29th, 2013, and were analyzed for polychlorinated biphenyls (PCBs). Previous investigations at the site characterized soil around the building perimeter at shallow depths (PIONEER 2012). The purpose of this memo is to present a summary of the March 2013 field operations and sampling results, and compare PCB groundwater sample results to regulatory cleanup levels.

BACKGROUND – PREVIOUS INVESTIGATIONS

PIONEER has conducted several soil sampling events at the building between April 2012 and August 2012. Sampling events showed concentrations of PCBs in soil which exceeded the Model Toxics Control Act (MTCA) Method A Unrestricted Land Use soil cleanup level (CUL) of 1.0 mg/kg (WAC 173-340-740(2)) (PIONEER 2012). Exceedances in shallow soil are located adjacent to the building, with the exception of one location at the southwest end of the building in an open gravel area. Excavation activities were conducted in August 2012 in the open gravel area to remediate the exceedances observed in that area (PIONEER 2012). All remaining soil exceedances are located adjacent to the building.

The four groundwater sample locations adjacent to the building were identified based on the previous soil sampling results.

SAMPLING OBJECTIVE AND FIELD OPERATIONS

Sampling Objective: Collect four PCB groundwater samples from temporarily-screened direct-push boring locations surrounding the building to determine if PCBs in soil have potentially impacted shallow groundwater.

To achieve the sampling objective, a direct-push drill rig operated by ESN Northwest was contracted to advance borings at the four locations which had soil concentrations greater than MTCA soil CULs identified by the Port of Tacoma (Port) (see Figure 2). Borings were advanced using direct-push technology, to the depth where groundwater was first encountered. Groundwater was encountered between 8-12 feet below ground surface. Temporary well screens were inserted into each boring and groundwater was purged from the boring using a peristaltic pump and dedicated tubing until either, a) the groundwater appeared clear, or b) the volume of the temporary screen was purged (approximately 2-3 gallons), whichever occurred first. Upon completion of purging, a sample was collected from the dedicated tubing. Samples were collected into two 1-liter amber jars and submitted to ARI in Tukwila, Washington for analysis of PCB Aroclors using EPA Method SW846-8082 (low



level) under industry-standard chain of custody procedures. A photographic log of the sampling activities is presented in Attachment 1 and field notes are presented in Attachment 2.

SAMPLING RESULTS

Sampling results are summarized below and in Table 1 with a comparison to a regulatory screening level specified by the Port. A complete analytical laboratory report for the groundwater samples is presented in Attachment 3.

Table 1 presents the analytical results obtained from the groundwater samples collected around the building for individual PCB Aroclors in groundwater. One sample (GW-SL-15-032913) was non-detect for all PCB Aroclors. Two samples (GW-SL-11-032913 and GW-SL-01-032913) had a total PCB concentration less than the MTCA Method A Groundwater CUL of 0.10 ug/L (WAC 173-340-720(3), Washington State Department of Ecology [Ecology] 2013). One sample (GW-SL-07-032913) had a total PCB concentration greater than the MTCA Method A Groundwater CUL of 0.10 ug/L (at 0.42 ug/L).

REFERENCES

Ecology. 2013. Cleanup Levels and Risk Calculation database, queried on April 9, 2013.

PIONEER. 2012. 1940 East 11th Street Building Soil Excavation Sampling and Documentation. Port of Tacoma, Washington. September 13.

ENCLOSURES

Figure 1: Building Location

Figure 2: PCB Groundwater Sample Locations and Data

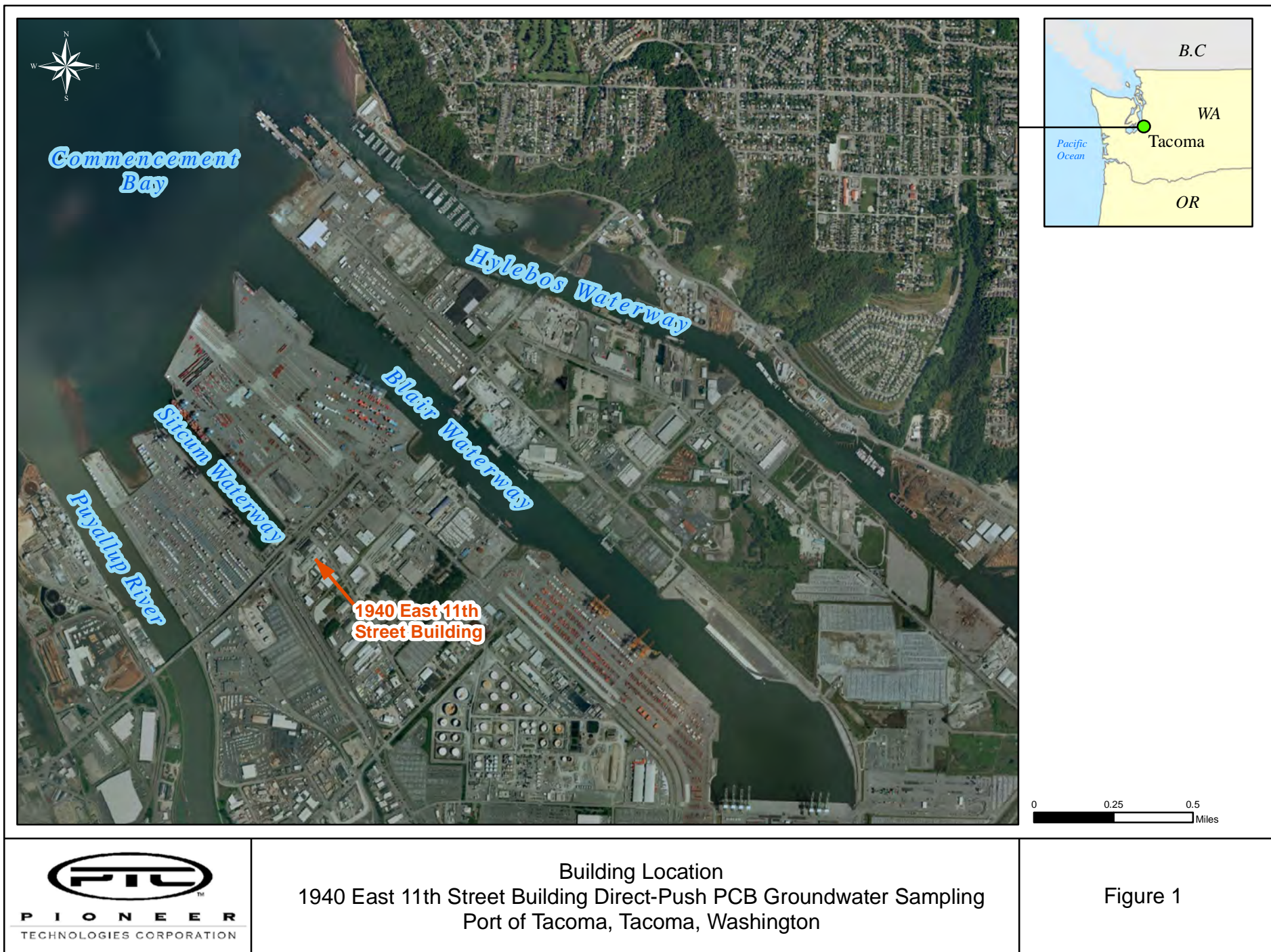
Table 1: PCB Groundwater Sample Results

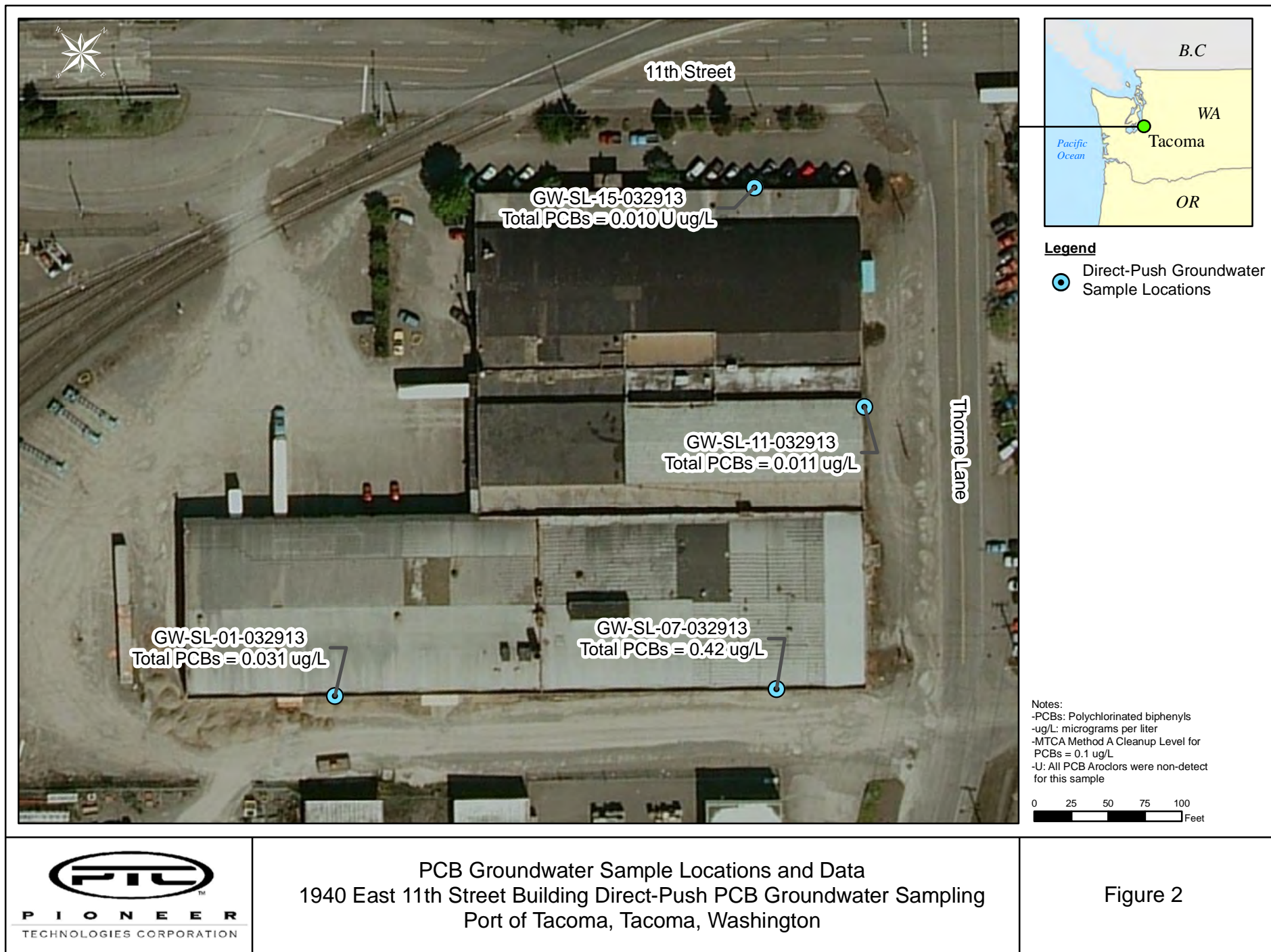
Attachment 1: Photographic Log

Attachment 2: Field Notes

Attachment 3: Analytical Laboratory Reports

Figures





PCB Groundwater Sample Locations and Data
1940 East 11th Street Building Direct-Push PCB Groundwater Sampling
Port of Tacoma, Tacoma, Washington

Tables

Table 1: PCB Groundwater Sample Results

Sample	Date Collected	Temporary Well Screen Interval	Corresponding Soil Sample Location ⁽¹⁾	MTCA Method A Groundwater PCB Cleanup Level ⁽²⁾ (ug/L)	PCB Aroclor Results (ug/L)									
					Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1262	Aroclor 1268	Total PCBs
GW-SL-15-032913	3/29/2013	9-12 ft bgs	SL-15	0.10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
GW-SL-11-032913	3/29/2013	9-12 ft bgs	SL-11	0.10	0.010 U	0.010 U	0.010 U	0.011	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.011
GW-SL-07-032913	3/29/2013	10-13 ft bgs	SL-07	0.10	0.010 U	0.010 U	0.26	0.16	0.015 Y	0.010 U	0.010 U	0.010 U	0.010 U	0.42
GW-SL-01-032913	3/29/2013	9-14 ft bgs	SL-01	0.10	0.010 U	0.010 U	0.015 Y	0.031	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.031

Notes:

ft bgs: feet below ground surface

ug/L: micrograms per liter

PCBs: Polychlorinated biphenyls

⁽¹⁾ PIONEER Technologies Corporation, 2012. Port of Tacoma: 1940 East 11th Street Building Soil Excavation Sampling and Documentation.

⁽²⁾ Model Toxics Control Act (MTCA) Method A PCB Groundwater Cleanup Level. See Washington Administrative Code (WAC) 173-340-720(3). Value is presented in MTCA Cleanup Regulation Table 720-1.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Shaded cells denote samples with a total PCB concentration greater than the MTCA Method A cleanup level.

Laboratory analytical results are presented in Attachment 3.

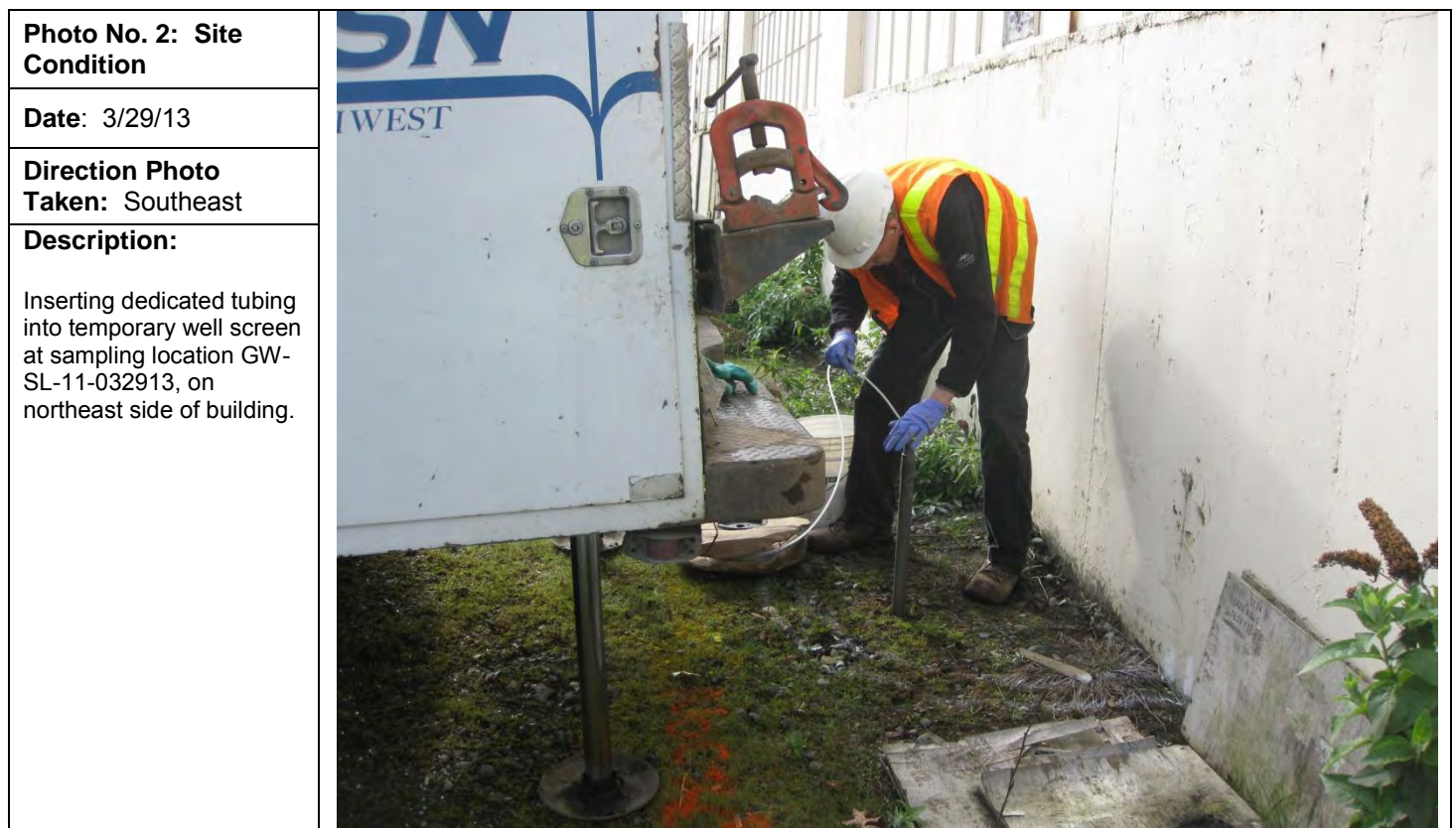
Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyte was non-detect at the shown concentration

Y=analyte was non-detect at the shown concentration, reporting limit is raised due to chromatograph interference.

Attachment 1

Attachment 1: Photographic Log



Attachment 1: Photographic Log



Attachment 2

PIONEER TECHNOLOGIES CORPORATION (PTC)

DAILY FIELD REPORT

Date: 3/29/13 Site Location: 1940 E 11th St. Bldg Site Arrival Time: 7:30 Site Departure Time: 2:00

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
To 32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	Pioneer	7:30 - 2:00
Cathy Newman	ESN	7:30 - 2:00
Bill Evans	POT	8:30 - 9:00

NOTES ON WORK COMPLETED

7:30am arrive on-site, quick tailgate safety meeting

Courier ARI
206-695-6220

Casey 360-791-5818 ESN

Tailgate Safety Mtg.		
Name	Sign	Date/Time
Stacy Munson	<i>[Signature]</i>	3/29/13 7:45a
Cathy Newman	<i>[Signature]</i>	3/29/13 7:45a

7:50 Setup on SL-15 at North end of building in area with large equipment. Opened gate using cable from Bill Evans and setup to begin drilling. Will likely set screen from 6-9 ft bgs once GW is encountered. Begin labeling jars. Set screen from 7-10 ft bgs. Reset screen from 9-12 ft. Began purging water. Once clear, collected sample GW-SL-15-032913 at 8:30 am. Chat w/ Bill Evans.

9:00 Setup on SL-11 on Thorne Lane (NE) side of building. No nearby utilities. Begin drilling. Set screen from 9-12 ft bgs. Began purging water. Flow became intermittent, pulled up screen cup to clear, then reset from 9-12. Began purging water. Clogged again. Reset screen using PVC section at 9-14 ft bgs. Steady volume now purging. Sample GW-SL-11-032913 @ 9:45a

10:30 Setup on SL-07 on backside of building. No nearby utilities. Begin drilling. Set screen from 10-13 ft bgs. Reset screen from 10-15 ft bgs and began purging water. Very silty at start of purging. Sample GW-SL-07-032913 at 11:00

12:00 Setup on SL-01 on backside of building. No nearby utilities. Begin drilling. PVC push screen won't work, since it just caves into the boring material upon being inserted. Changing over to standard casing size and temporary MW construction. Began purging water. Sample GW-SL-01-032913 @ 12:30 pm

2:00 Meet courier from ARI @ site, transfer custody of samples. Off-site

SIGNATURE: _____

[Signature]

DATE: _____

3/29/13

Attachment 3



Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 9, 2013

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: 1940 E. 11th St. Bldg PCB GW Sampling
ARI Job No. WJ63

Dear Stacy:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted four water samples on March 29, 2013. There were no discrepancies in the paperwork. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

An electronic copy of this report and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

ARI Assigned Number: <i>W363</i>	Turn-around Requested: <i>Std.</i>
----------------------------------	------------------------------------

ARI Client Company: Port of Tacoma Phone: 360-570-1700

Client Contact: Stacy Munson (Pioneer)

Client Project Name: 1940 E 11th St. Bldg PCB GW Sampling

Client Project #:	Samplers: <i>Stacy Munson</i>
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Page: 1 of 1

Date: 3/29/13	Ice Present?
---------------	--------------

No. of Coolers:	Cooler Temps:
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Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	8082 1015								
GW-SL-15-032913	3/29/13	8:30a	GW	2	X								
GW-SL-11-032913	↓	9:45a	GW	2	X								
GW-SL-07-032913		11:00a	GW	2	X								
GW-SL-01-032913		12:30p	GW	2	X								
Comments/Special Instructions Report results to Bill Evans and Stacy Munson	Relinquished by: (Signature) 			Received by: (Signature) 			Relinquished by: (Signature)			Received by: (Signature)			
	Printed Name: Stacy Munson			Printed Name: Rich Hudson			Printed Name:			Printed Name:			
	Company: Pioneer Technologies Corp.			Company: ARI			Company:			Company:			
	Date & Time: 3/29/13 1:50p			Date & Time: 3/29/13 1350			Date & Time:			Date & Time:			

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

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



Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: _____

COC No(s): _____ NA

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

Assigned ARI Job No: W563

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) _____

4.9

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

Temp Gun ID#: 90877952

Cooler Accepted by: [Signature] Date: 3/29/13 Time: 1350

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

Were all bottles sealed in individual plastic bags? _____

YES NO

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI: _____

NA

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

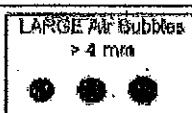
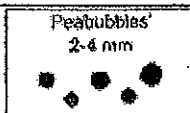
Samples Logged by: TJ Date: 3-29-13 Time: 1525

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Small → "sm"

Pea bubbles → "pb"

Large → "lg"

Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: WJ63
Client: Pioneer Technologies Corporation
Project Event: N/A
Project Name: 1940 E 11th St.Bldg PCB GW Sampling

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. GW-SL-15-032913	WJ63A	13-6630	Water	03/29/13 08:30	03/29/13 13:50
2. GW-SL-11-032913	WJ63B	13-6631	Water	03/29/13 09:45	03/29/13 13:50
3. GW-SL-07-032913	WJ63C	13-6632	Water	03/29/13 11:00	03/29/13 13:50
4. GW-SL-01-032913	WJ63D	13-6633	Water	03/29/13 12:30	03/29/13 13:50

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GW-SL-15-032913
SAMPLE

Lab Sample ID: WJ63A
LIMS ID: 13-6630
Matrix: Water
Data Release Authorized: *mm*
Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St. Bldg PCB GW Sampling

Date Sampled: 03/29/13
Date Received: 03/29/13

Date Extracted: 04/04/13
Date Analyzed: 04/05/13 15:12
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	67.2%
Tetrachlorometaxylene	74.0%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GW-SL-11-032913
SAMPLE

Lab Sample ID: WJ63B
LIMS ID: 13-6631
Matrix: Water
Data Release Authorized: *YMW*
Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St. Bldg PCB GW Sampling

Date Sampled: 03/29/13
Date Received: 03/29/13

Date Extracted: 04/04/13
Date Analyzed: 04/05/13 15:32
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	0.011
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	73.5%
Tetrachlorometaxylene	70.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GW-SL-07-032913
SAMPLE

ANALYTICAL
RESOURCES
INCORPORATED 

Lab Sample ID: WJ63C

LIMS ID: 13-6632

Matrix: Water

Data Release Authorized: *mm*

Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St. Bldg PCB GW Sampling

Date Sampled: 03/29/13

Date Received: 03/29/13

Date Extracted: 04/04/13

Date Analyzed: 04/05/13 15:52

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Sample Amount: 1000 mL

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Silica Gel: Yes

Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	0.26
11097-69-1	Aroclor 1254	0.010	0.16
11096-82-5	Aroclor 1260	0.015	< 0.015 Y
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.8%
Tetrachlorometaxylene	71.8%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: GW-SL-01-032913
SAMPLE

Lab Sample ID: WJ63D
LIMS ID: 13-6633
Matrix: Water
Data Release Authorized: *TWW*
Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St. Bldg PCB GW Sampling

Date Sampled: 03/29/13
Date Received: 03/29/13

Date Extracted: 04/04/13
Date Analyzed: 04/05/13 16:12
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.015	< 0.015 Y
11097-69-1	Aroclor 1254	0.010	0.031
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	74.5%
Tetrachlorometaxylene	68.5%

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-040413
METHOD BLANK

Lab Sample ID: MB-040413
LIMS ID: 13-6630
Matrix: Water
Data Release Authorized: *MW*
Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St.Bldg PCB GW Sampling

Date Sampled: NA
Date Received: NA

Date Extracted: 04/04/13
Date Analyzed: 04/05/13 13:50
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes

Sample Amount: 1000 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Silica Gel: Yes
Acid Cleanup: Yes

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	0.010	< 0.010 U
53469-21-9	Aroclor 1242	0.010	< 0.010 U
12672-29-6	Aroclor 1248	0.010	< 0.010 U
11097-69-1	Aroclor 1254	0.010	< 0.010 U
11096-82-5	Aroclor 1260	0.010	< 0.010 U
11104-28-2	Aroclor 1221	0.010	< 0.010 U
11141-16-5	Aroclor 1232	0.010	< 0.010 U
37324-23-5	Aroclor 1262	0.010	< 0.010 U
11100-14-4	Aroclor 1268	0.010	< 0.010 U

Reported in µg/L (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	61.8%
Tetrachlorometaxylene	66.0%

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: WJ63-Pioneer Technologies Corporation
Project: 1940 E 11th St.Bldg PCB GW Sampling

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-040413	61.8%	32-108	66.0%	31-100	0
LCS-040413	64.0%	32-108	65.5%	31-100	0
LCSD-040413	65.8%	32-108	68.0%	31-100	0
GW-SL-15-032913	67.2%	19-111	74.0%	21-100	0
GW-SL-11-032913	73.5%	19-111	70.5%	21-100	0
GW-SL-07-032913	74.8%	19-111	71.8%	21-100	0
GW-SL-01-032913	74.5%	19-111	68.5%	21-100	0

Prep Method: SW3510C
Log Number Range: 13-6630 to 13-6633

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

Sample ID: LCS-040413
LCS/LCSD

Lab Sample ID: LCS-040413

LIMS ID: 13-6630

Matrix: Water

Data Release Authorized: *mmw*

Reported: 04/08/13

QC Report No: WJ63-Pioneer Technologies Corporation

Project: 1940 E 11th St. Bldg PCB GW Sampling

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 04/04/13

Sample Amount LCS: 1000 mL

LCSD: 1000 mL

Date Analyzed LCS: 04/05/13 14:11

Final Extract Volume LCS: 0.50 mL

LCSD: 04/05/13 14:31

LCSD: 0.50 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: Yes

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	0.043	0.050	86.0%	0.046	0.050	92.0%	6.7%
Aroclor 1260	0.048	0.050	96.0%	0.053	0.050	106%	9.9%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	64.0%	65.8%
Tetrachlorometaxylene	65.5%	68.0%

Results reported in µg/L

RPD calculated using sample concentrations per SW846.

A5: 1940 East 11th Street Building Soil Excavation Sampling and Documentation

Memo



5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901
Phone: 360.570.1700
Fax: 360.570.1777
www.uspioneer.com

to: Bill Evans (Port of Tacoma)

from: Stacy Munson

cc: Chris Waldron

date: September 13, 2012

subject: Port of Tacoma: 1940 East 11th Street Building Soil Excavation Sampling and Documentation

Per your request, PIONEER Technologies Corporation (PIONEER) provided field support during a limited soil excavation event that was conducted in August 2012, near the approximately 117,000-square foot, two-story, vacant building located at 1940 East 11th Street in Tacoma, Washington (see Figure 1)¹. Three rounds of excavation activities were conducted by the Port of Tacoma's (the Port's) maintenance department personnel. Round one was conducted on August 15, 2012, round two was conducted on August 21, 2012, and round three was conducted on August 28, 2012. PIONEER documented the excavation activities in photographs and field notes, and collected soil confirmation samples for polychlorinated biphenyls (PCBs) following each round of excavation. In addition, PIONEER participated in several infrastructure maintenance and improvement activities near the building. This memorandum presents a summary of the excavation activities, confirmation sampling results, and the miscellaneous maintenance and improvement activities.

BACKGROUND – PREVIOUS INVESTIGATIONS

PIONEER conducted a soil characterization event at the building in July 2012 (PIONEER 2012a). Results of that characterization event showed concentrations of PCBs in soil which exceeded the Model Toxics Control Act (MTCA) Method A Unrestricted Land Use soil cleanup level (CUL) of 1 mg/kg (WAC 173-340-740(2)) (Washington State Department of Ecology [Ecology] 2012). Exceedances in soil were located adjacent to the building, and in one location at the south end of the building in an open gravel area (SL_20) (see Figure 2). The excavation activities described in this memo were initiated to remediate the soil exceedances located in the open gravel area only. Other soil exceedances will be remediated during future building demolition and cleanup activities.

EXCAVATION ACTIVITIES AND CONFIRMATION SAMPLING RESULTS

A photographic log of the excavation and sampling activities is presented in Attachment 1. Field notes are presented in Attachment 2.

- Excavation Round 1

A 400-square foot area (20 ft x 20 ft) surrounding the sample location with the exceedance identified during the soil characterization event (SL_20) was excavated on August 15th, 2012 (see Photos 1 & 2 and Figure 3). The excavation was advanced to a depth of one foot. A small section of buried concrete was encountered along the northeast side of the excavation footprint, though it did not run the entire length of the sidewall. Approximately 15 cubic yards of soil was excavated and stockpiled beneath 6-mil black plastic near the loading docks (see Photo 8 and Figure 4).

Following the excavation, PIONEER collected four discrete sidewall confirmation soil samples and two discrete bottom confirmation soil samples. Soil samples were collected using a stainless steel hand trowel and homogenized in a stainless steel bowl before being placed into jars. Sampling equipment was decontaminated between each sampling location. Samples were submitted under industry-standard chain-of-custody

¹ The Brown & Haley Company was last building tenant; therefore, several previous investigations refer to the building as the Brown & Haley building.



procedures to ARI in Tukwila, Washington for analysis of PCB aroclors using United States Environmental Protection Agency (USEPA) Method SW846-8082A. Table 1 and Figure 3 present the total PCB concentrations and sample locations for each confirmation sample, respectively. Attachment 3 presents the analytical laboratory reports for all samples.

One sample collected from the northwest excavation sidewall (SW3) had a concentration greater than the MTCA Method A CUL of 1 mg/kg (see Table 1). Based on the results of this sample, a second excavation was conducted to remove the soil which exceeded the CUL.

- Excavation Round 2

Round 2 excavation activities commenced on August 21st, 2012 on the northwest excavation sidewall (see Photos 3 & 4 and Figure 3). The approximately 5 x 20 foot excavation was advanced to one foot, extending northwest of the existing excavation sidewall. Approximately four cubic yards of soil were excavated and added to the existing soil stockpile near the loading docks (see Photo 8 and Figure 4).

Following the excavation, PIONEER collected one discrete sidewall confirmation soil sample on the newly-extended northwest excavation sidewall (SW3_1.0_082112). The soil sample was collected using a stainless steel hand trowel and homogenized in a stainless steel bowl before being placed into jars. The sample was submitted under industry-standard chain-of-custody procedures to ARI for analysis of PCB aroclors using USEPA Method SW846-8082A.

The total PCB concentration from sample SW3_1.0_082112 was greater than the MTCA Method A CUL. Based on the results of this sample, a third excavation was conducted to remove the soil which exceeded the CUL.

- Excavation Round 3

Round 3 excavation activities commenced on August 28th, 2012 on the northwest excavation sidewall (see Photos 5 & 6 and Figure 3). The approximately 5 x 20 foot excavation was advanced to one foot, extending northwest of the existing excavation sidewall. Approximately four cubic yards of soil were excavated and added to the existing soil stockpile near the loading docks (see Photo 8 and Figure 4).

Following the excavation, PIONEER collected two discrete sidewall confirmation soil samples on the newly-extended northwest excavation sidewall. Soil samples were collected using a stainless steel hand trowel and homogenized in a stainless steel bowl before being placed into jars. Sampling equipment was decontaminated between each sample. Samples were submitted under industry-standard chain-of-custody procedures to ARI for analysis of PCB Aroclors using USEPA Method SW846-8082A. One of the samples (SW3_1.0_082812) was analyzed and the other was held for possible future analysis. The sample that was held was later discarded.

The total PCB concentration from sample SW3_1.0_082812 was lower than the MTCA Method A CUL. Based on the results of this sample, no further excavations were necessary. The open excavation footprint was backfilled with clean gravel, and returned to the original grade.

SUPPLEMENTAL CATCH-BASIN DOCUMENTATION

In addition to the excavation activities described above, PIONEER participated in several infrastructure maintenance and improvement activities recently conducted at the building:

- Nine sediment catch basins, located to the west and north of the building, were cleaned out on August 14th, 2012 using a vacuum truck. Sediments from eight of the nine catch basins were sampled by PIONEER in April 2012 and of the eight catch basins, two had concentrations of PCBs above the MTCA Method A CUL (PIONEER 2012b). On August 15th 2012, in between excavation activities, PIONEER confirmed that each catch basin had been sufficiently cleaned (see Photo 9). Less than one cubic yard of sediment was removed from the catch basins and stockpiled near the loading docks (i.e., this soil was the bottom layer of the excavation soil stockpile

[see Photo 7]). The soil stockpile will be disposed of in accordance with all applicable state and federal waste disposal regulations.

- PIONEER also documented the current structural state of each catch basin, and recommended that the concrete seal around the southernmost catch basin be repaired. Following the August 28th, 2012 excavation activities, PIONEER confirmed that the catch basin (CB_01) had been repaired as recommended (see Photo 10 and Figure 4).

REFERENCES:

Ecology. 2012. Cleanup Levels and Risk Calculation database, queried on May 15, 2012.

PIONEER. 2012a. 1940 East 11th Street Building Additional Soil Characterization Sampling. Port of Tacoma, Washington. August 22.

PIONEER. 2012b. 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling. Port of Tacoma, Washington. June 6.

ENCLOSURES

Figure 1: Building Location

Figure 2: July 2012 Soil Characterization Event Sample Locations and Results

Figure 3: Soil Excavation Area and Confirmation Sample Results

Figure 4: Excavation, Stockpile, and Catch Basin Locations

Table 1: Soil Excavation Confirmation Sample Results

Attachment 1: Photographic Log

Attachment 2: Field Notes

Attachment 3: Analytical Laboratory Reports

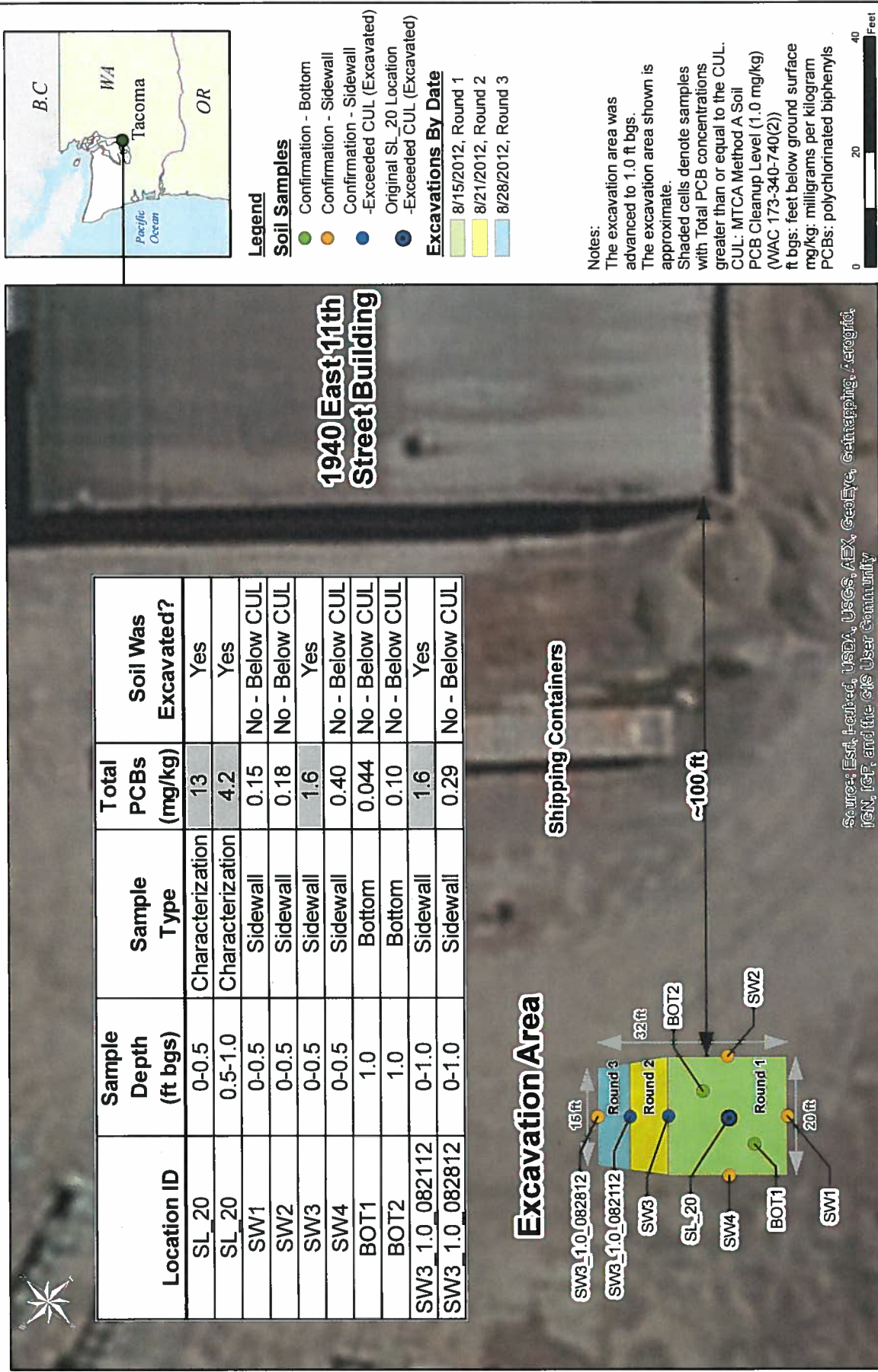
Figures



Building Location
1940 East 11th Street Building Soil Excavation Sampling and Documentation
Port of Tacoma, Tacoma, Washington

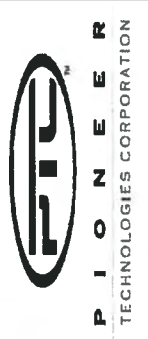
Figure 1





Soil Excavation Area and Confirmation Sample Results
1940 East 11th Street Building Soil Excavation Sampling and Documentation
Port of Tacoma, Tacoma, Washington

Figure 3



Excavation, Stockpile, and Catch Basin Locations
1940 East 11th Street Building Soil Excavation Sampling and Documentation
Port of Tacoma, Tacoma, Washington

Figure 4

Tables

Table 1: Soil Excavation Confirmation Sample Results

Sample	Sample Depth (ft bgs)	Date Collected	Excavation Round	Sample Location	MTCA Method A Unrestricted ⁽¹⁾ Soil PCB Cleanup Level (mg/kg)	PCB Aroclor Results (mg/kg)										Soil Was Excavated ?
						Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1221	Aroclor 1232	Aroclor 1252	Aroclor 1268	Total PCBs	
PoT_BH_SW1_0_0_5_081512	0-0.5	8/15/2012	Round 1	Sidewall 1 (southeast sidewalk)	1.0	0.0086 U	0.0086 U	0.054 Y	0.12	0.030	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.15	-
PoT_BH_SW2_0_0_5_081512	0-0.5	8/15/2012		Sidewall 2 (northeast sidewalk)	1.0	0.0086 U	0.0086 U	0.034 Y	0.094	0.024	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.18	-
PoT_BH_SW3_0_0_5_081512	0-0.5	8/15/2012		Sidewall 3 (northwest sidewalk)	1.0	0.086 U	0.086 U	0.43 Y	1.4	0.22	0.086 U	0.086 U	0.086 U	0.086 U	1.6	Yes (During Round 2)
PoT_BH_SW4_0_0_5_081512	0-0.5	8/15/2012		Sidewall 4 (southwest sidewalk)	1.0	0.0087 U	0.0087 U	0.087 Y	0.29	0.11	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.40	-
PoT_BH_BOT1_1_0_081512	1	8/15/2012		Bottom 1 (south side of excavation)	1.0	0.0086 U	0.0086 U	0.013 Y	0.032	0.012	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.044	-
PoT_BH_BOT2_1_0_081512	1	8/15/2012		Bottom 2 (north side of excavation)	1.0	0.0086 U	0.0086 U	0.013 Y	0.068	0.033	0.0086 U	0.0086 U	0.0086 U	0.0086 U	0.10	-
PoT_BH_SW3_0_1_0_082112	0-1.0	8/21/2012	Round 2	Extended Sidewall 3 (northwest sidewalk)	1.0	0.085 U	0.085 U	0.43 Y	1.6	0.17 Y	0.085 U	0.085 U	0.085 U	0.085 U	1.6	Yes (During Round 3)
PoT_BH_SW3_0_1_0_082812	0-1.0	8/28/2012	Round 3	Extended Sidewall 3 (northwest sidewalk)	1.0	0.041 U	0.041 U	0.052 Y	0.29	0.052 Y	0.041 U	0.041 U	0.041 U	0.041 U	0.29	-

Notes:

ft bgs: feet below ground surface

mg/kg: milligrams per kilogram

PCBs: Polychlorinated biphenyls

⁽¹⁾Model Toxics Control Act (MTCA) Method A Unrestricted Land Use PCB Soil Cleanup Level. See Washington Administrative Code (WAC) 173-340-740(2). Value is presented in MTCA Cleanup Regulation Table 740-1.

Results are shown as two significant figures, unless result is greater than 100.

Bolded values denote detected Aroclors. Shaded cells denote samples with a total PCB concentration greater than the MTCA Method A cleanup level.

Laboratory analytical results are presented in Attachment 3.

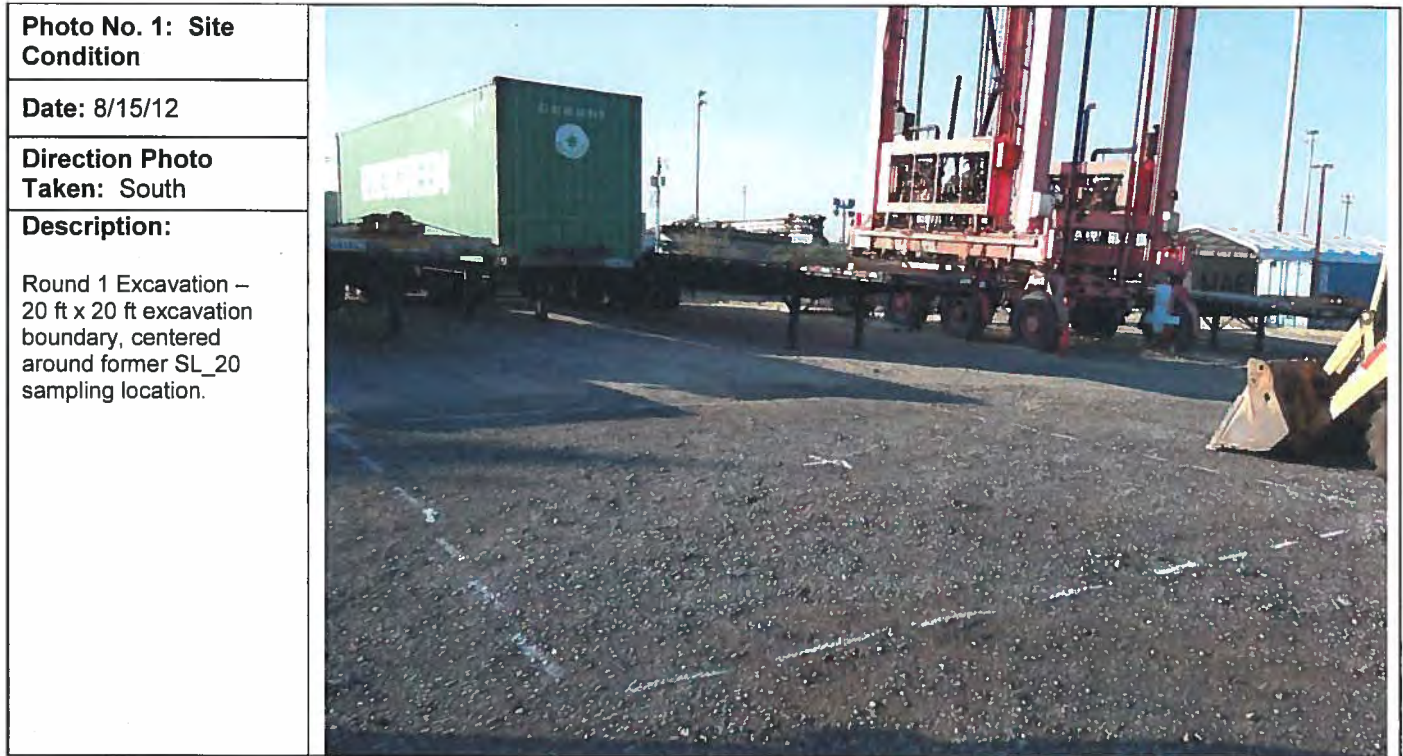
Screening level(s) presented in this table were included for comparison purposes only and may or may not be directly applicable to the analytical data presented in this memo.

Qualifiers: U=analyze was non-detected at the shown concentration

Y=analyze was non-detected at the shown concentration, reporting limit is raised due to chromatograph interference


Attachment 1

Attachment 1: Photographic Log




Attachment 1: Photographic Log

Photo No. 3: Site Condition	
Date: 8/21/12	
Direction Photo Taken: North	
Description: Round 2 Excavation – Excavation limits following northwest sidewall extension, and collection of sample SW3_1.0_082112.	

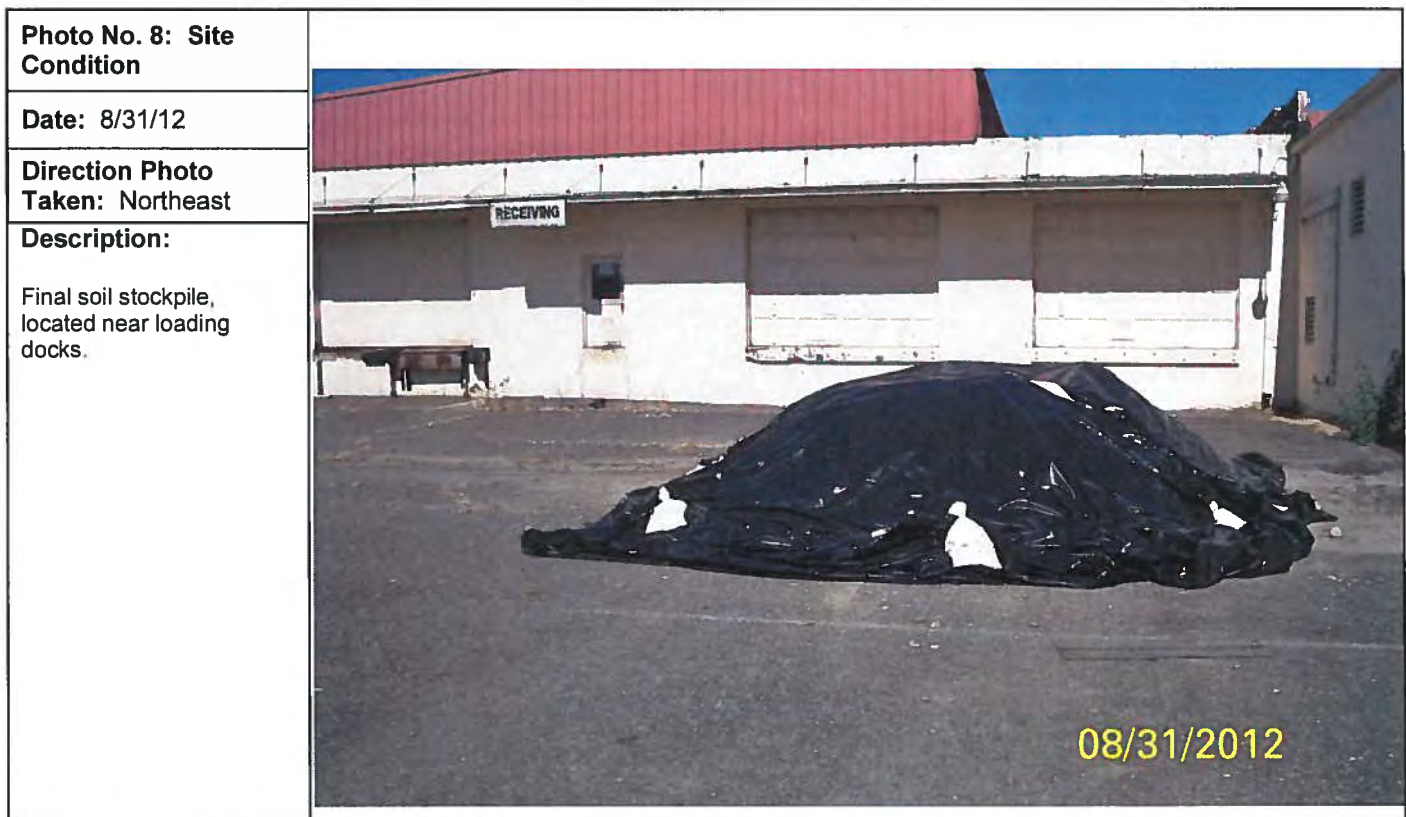
Photo No. 4: Site Condition	
Date: 8/21/12	
Direction Photo Taken: North	
Description: Round 2 Excavation – Newly-extended northwest sidewall, and SW3_1.0_082112 sample location.	

Attachment 1: Photographic Log

Photo No. 5: Site Condition	
Date: 8/28/12	
Direction Photo Taken: West	
Description: Round 3 Excavation – Orange paint shows final northwest sidewall extension area.	

Photo No. 6: Site Condition	
Date: 8/28/12	
Direction Photo Taken: North	
Description: Round 3 Excavation – Final excavation extent. Excavation area is 1 ft deep.	

Attachment 1: Photographic Log



Attachment 1: Photographic Log

Photo No. 9: Site Condition	
Date: 8/15/12	
Direction Photo Taken: N/A	
Description: An example catch basin located outside the building. Note that the catch basin is completely devoid of sediment.	

Photo No. 10: Site Condition	
Date: 8/28/12	
Direction Photo Taken: N/A	
Description: Southernmost catch basin (CB_01) (PIONEER 2012b) with newly-repaired concrete footing.	

Attachment 2

PIONEER DAILY FIELD REPORT

Date: 8/15/12 Site Location: Brown & Haley Bldg Site Arrival Time: 7:45 Site Departure Time: 11:45

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	PTC	
3x Pitt Maldama	POT	
Bill Evans	POT	

NOTES ON WORK COMPLETED

7:45 Meet Bill on site, quick Health & Safety discussion.

8:00 Post Maintenance personnel arrive. Bill talks H+S with them.
Marked out 20' x 20' excavation footprint.

8:15 Quick logistics talk with everyone. go over excavation area, and stockpile area.

9:30 Begin Excavating in footprint. Soils directly loaded into dump for transport to stockpile.

9:30 Finish excavating, squaring off sidewalls and corners. Final excavation has rough concrete present on side nearest to B+H Building. Concrete extends the length of the excavation.

10:00 Finish collecting samples, as shown at right. Sidewalls, and 2 bottom samples. Label and log samples on CAC, prep for pickup. Pickup @ 11:30

10:15 Begin documenting catch basin clean out activities from yesterday. All catch basins appear cleaned out. At each removed grate, and took photo.

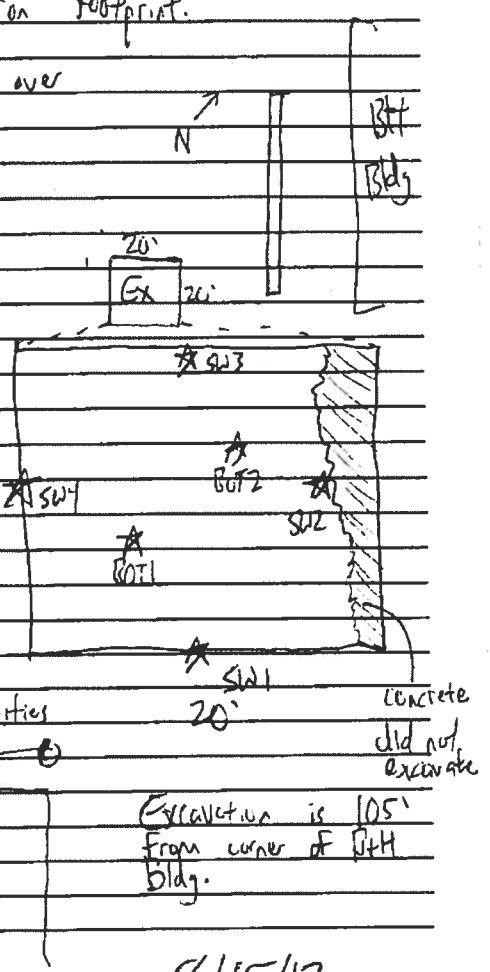
11:45

B+H Bldg

Excavation is 105' from corner of B+H Bldg.

SIGNATURE: [Signature]

DATE: 8/15/12



PIONEER DAILY FIELD REPORT

Date: 8/21/12 Site Location: Brown + Haby Ddy Site Arrival Time: 2:00 Site Departure Time: 3:00

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	PTC	2:00 - 3:00

NOTES ON WORK COMPLETED

2:00 Arrive on-site, quick Health + Safety review.

Setup decon station for sample equipment, and don Level D PPE

2:15 Used shovel to clear off NW sidewall of newly excavated portion of excavation (sidewall 3) to reach undisturbed soil.

2:45 collected sample (soil) from new sidewall 3, to be analyzed for PCBs by 8082.

Sample collected at 1.0 ft bgs.

Transferred sample carefully to Bill Evans at P.T. then decontaminated sampling equipment and packed up other gear.

New
Sidewall 3
Sample

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

20 ft.

3:00 Off-site.

Initial

Excavation

0

0

0

0

0

0

0

0

0

6 ft.

* = new sample
o = prev. sample

20 ft.

Excavation is 1.0 ft deep at all points.

SIGNATURE: _____

Stacy Munson

DATE: _____

8/21/12

PIONEER DAILY FIELD REPORT

Date: 8/28/12 Site Location: Brown + Haley Bldg Site Arrival Time: 12:00 Site Departure Time: 1:45

WEATHER
TEMPERATURE
WIND

Clear Sun	Overcast	Drizzle	Rain	Snow
10-32	32-50	50-70	70-85	85 Up
Calm	Med.	Strong	Severe	

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE
Stacy Munson	PTC	12:00 - 1:45
Bill Evans	POT	12:00 - 1:00
POT Maint. Staff	POT	12:00 - 1:15

NOTES ON WORK COMPLETED

12:00 Arrive on-site, meet with Bill Evans

POT maint staff marks out excavation boundary, additional 5 ft section, NW side of excavation, on SW3.

12:30 Documenting excavation with photos, and discussing sampling plan with Bill Evans. Will collect 2 samples, one of entire sidewall (1 ft), and one of sidewall bottom (6.5 in - 12 in), for future analysis.

1:00 Excavation complete, collected 2 sidewall soil samples using stainless steel dedicated sampling equipment.

1:15 Documented Catch Basin 1 repairs (newly poured concrete), and measured final excavation boundary using tape.

1:30 Meet sample courier from AKI Lab, transfer COC.

1:45 Off-site.

SIGNATURE: Stacy Munson

DATE: 8/28/12

Attachment 3



Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 17, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley Bldg - Soil Excavation
ARI Job No.: VF99

Dear Stacy:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted six soil samples on August 15, 2012. There were no discrepancies in the paperwork. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

An electronic copy of this report and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
-For-
Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Page: 1	of 1
Date: 8/15/12	Ice Present?
No. of Coolers:	Cooler Temps:

ARI Assigned Number: VF99	Turn-around Requested: 2 day
ARI Client Company: Port of Tacoma	Phone: 253-593-4563
Client Contact: Bill Evans	
Client Project Name: Brown + Hilkey Dike - Soil Excavation	
Client Project #:	Samplers: Steve Munson (PTC)

[illegible]

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

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

VF99:00002



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Port of Tacoma

Project Name: Brent Haley Blvd - Soil Excavation

COC No(s): _____ (NA)

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

Assigned ARI Job No: VF99

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 9.9

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

Temp Gun ID#: 9041617

Cooler Accepted by: CA Date: 8/15/12 Time: 1130

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

Were all bottles sealed in individual plastic bags? _____

YES NO

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI.....

NA

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

Samples Logged by: AV Date: 8/15/12 Time: 1330

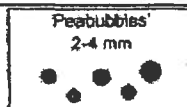
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____



Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

0016F
3/2/10

Cooler Receipt Form

Revision 014

VF99 : 000003

Sample ID Cross Reference Report



ARI Job No: VF99
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg-Soil Excavation

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SW1_0_0.5_081512	VF99A	12-15417	Soil	08/15/12 10:00	08/15/12 11:30
2. POT_BH_SW2_0_0.5_081512	VF99B	12-15418	Soil	08/15/12 10:05	08/15/12 11:30
3. POT_BH_SW3_0_0.5_081512	VF99C	12-15419	Soil	08/15/12 10:10	08/15/12 11:30
4. POT_BH_SW4_0_0.5_081512	VF99D	12-15420	Soil	08/15/12 10:15	08/15/12 11:30
5. POT_BH_BOT1_1.0_081512	VF99E	12-15421	Soil	08/15/12 10:20	08/15/12 11:30
6. POT_BH_BOT2_1.0_081512	VF99F	12-15422	Soil	08/15/12 10:25	08/15/12 11:30



Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

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

Organic Data

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



- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Geotechnical Data

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



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

Page 1 of 1

Sample ID: POT_BH_SW1_0_0.5_081512
SAMPLE

Lab Sample ID: VF99A

LIMS ID: 12-15417

Matrix: Soil

Data Release Authorized: *AB*

Reported: 08/16/12

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: 08/15/12

Date Received: 08/15/12

Date Extracted: 08/15/12

Date Analyzed: 08/16/12 12:55

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.84 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 3.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.6	< 8.6 U
53469-21-9	Aroclor 1242	8.6	< 8.6 U
12672-29-6	Aroclor 1248	54	< 54 Y
11097-69-1	Aroclor 1254	8.6	120
11096-82-5	Aroclor 1260	8.6	30
11104-28-2	Aroclor 1221	8.6	< 8.6 U
11141-16-5	Aroclor 1232	8.6	< 8.6 U
37324-23-5	Aroclor 1262	8.6	< 8.6 U
11100-14-4	Aroclor 1268	8.6	< 8.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	102%
Tetrachlorometaxylene	98.5%

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

ANALYTICAL
RESOURCES
INCORPORATED
Sample ID: POT_BH_SW2_0_0.5_081512
SAMPLE

Lab Sample ID: VF99B

LIMS ID: 12-15418

Matrix: Soil

Data Release Authorized: *AS*

Reported: 08/16/12

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: 08/15/12

Date Received: 08/15/12

Date Extracted: 08/15/12

Date Analyzed: 08/16/12 13:16

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.79 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 3.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.6	< 8.6 U
53469-21-9	Aroclor 1242	8.6	< 8.6 U
12672-29-6	Aroclor 1248	34	< 34 Y
11097-69-1	Aroclor 1254	8.6	94
11096-82-5	Aroclor 1260	8.6	24
11104-28-2	Aroclor 1221	8.6	< 8.6 U
11141-16-5	Aroclor 1232	8.6	< 8.6 U
37324-23-5	Aroclor 1262	8.6	< 8.6 U
11100-14-4	Aroclor 1268	8.6	< 8.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	96.0%

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

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SW3_0_0.5_081512
SAMPLE

Lab Sample ID: VF99C
LIMS ID: 12-15419
Matrix: Soil
Data Release Authorized: *AB*
Reported: 08/16/12

QC Report No: VF99-Port of Tacoma
Project: Brown & Haley Bldg-Soil Excavation
Date Sampled: 08/15/12
Date Received: 08/15/12

Date Extracted: 08/15/12
Date Analyzed: 08/16/12 13:36
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.79 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: 4.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.6	< 8.6 U
53469-21-9	Aroclor 1242	8.6	< 8.6 U
12672-29-6	Aroclor 1248	340	< 340 Y
11097-69-1	Aroclor 1254	8.6	1,300 E
11096-82-5	Aroclor 1260	8.6	160
11104-28-2	Aroclor 1221	8.6	< 8.6 U
11141-16-5	Aroclor 1232	8.6	< 8.6 U
37324-23-5	Aroclor 1262	8.6	< 8.6 U
11100-14-4	Aroclor 1268	8.6	< 8.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	104%
Tetrachlorometaxylene	96.8%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546

Page 1 of 1

Sample ID: POT_BH_SW3_0_0.5_081512
DILUTION

Lab Sample ID: VF99C

LIMS ID: 12-15419

Matrix: Soil

Data Release Authorized: *W*

Reported: 08/17/12

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: 08/15/12

Date Received: 08/15/12

Date Extracted: 08/15/12

Date Analyzed: 08/16/12 15:00

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.79 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 10.0

Silica Gel: No

Percent Moisture: 4.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	86	< 86 U
53469-21-9	Aroclor 1242	86	< 86 U
12672-29-6	Aroclor 1248	430	< 430 Y
11097-69-1	Aroclor 1254	86	1,400
11096-82-5	Aroclor 1260	86	220
11104-28-2	Aroclor 1221	86	< 86 U
11141-16-5	Aroclor 1232	86	< 86 U
37324-23-5	Aroclor 1262	86	< 86 U
11100-14-4	Aroclor 1268	86	< 86 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	123%
Tetrachlorometaxylene	100%

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

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SW4_0_0.5_081512
SAMPLE

Lab Sample ID: VF99D
LIMS ID: 12-15420
Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 08/16/12

QC Report No: VF99-Port of Tacoma
Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: 08/15/12
Date Received: 08/15/12

Date Extracted: 08/15/12
Date Analyzed: 08/16/12 13:57
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.73 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 4.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.7	< 8.7 U
53469-21-9	Aroclor 1242	8.7	< 8.7 U
12672-29-6	Aroclor 1248	87	< 87 Y
11097-69-1	Aroclor 1254	8.7	290
11096-82-5	Aroclor 1260	8.7	110
11104-28-2	Aroclor 1221	8.7	< 8.7 U
11141-16-5	Aroclor 1232	8.7	< 8.7 U
37324-23-5	Aroclor 1262	8.7	< 8.7 U
11100-14-4	Aroclor 1268	8.7	< 8.7 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	121%
Tetrachlorometaxylene	102%

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

ANALYTICAL
RESOURCES
INCORPORATED
Sample ID: POT_BH_BOT1_1.0_081512
SAMPLE

Lab Sample ID: VF99E
LIMS ID: 12-15421
Matrix: Soil
Data Release Authorized: *AB*
Reported: 08/16/12

QC Report No: VF99-Port of Tacoma
Project: Brown & Haley Bldg-Soil Excavation
Date Sampled: 08/15/12
Date Received: 08/15/12

Date Extracted: 08/15/12
Date Analyzed: 08/16/12 14:18
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.80 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: 3.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.6	< 8.6 U
53469-21-9	Aroclor 1242	8.6	< 8.6 U
12672-29-6	Aroclor 1248	13	< 13 Y
11097-69-1	Aroclor 1254	8.6	32
11096-82-5	Aroclor 1260	8.6	12
11104-28-2	Aroclor 1221	8.6	< 8.6 U
11141-16-5	Aroclor 1232	8.6	< 8.6 U
37324-23-5	Aroclor 1262	8.6	< 8.6 U
11100-14-4	Aroclor 1268	8.6	< 8.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	102%
Tetrachlorometaxylene	92.0%



ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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Sample ID: POT_BH_BOT2_1.0_081512
SAMPLE

Lab Sample ID: VF99F

LIMS ID: 12-15422

Matrix: Soil

Data Release Authorized: 

Reported: 08/16/12

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: 08/15/12

Date Received: 08/15/12

Date Extracted: 08/15/12

Date Analyzed: 08/16/12 14:39

Instrument/Analyst: ECD7/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.79 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 4.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.6	< 8.6 U
53469-21-9	Aroclor 1242	8.6	< 8.6 U
12672-29-6	Aroclor 1248	13	< 13 Y
11097-69-1	Aroclor 1254	8.6	68
11096-82-5	Aroclor 1260	8.6	33
11104-28-2	Aroclor 1221	8.6	< 8.6 U
11141-16-5	Aroclor 1232	8.6	< 8.6 U
37324-23-5	Aroclor 1262	8.6	< 8.6 U
11100-14-4	Aroclor 1268	8.6	< 8.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	103%
Tetrachlorometaxylene	91.8%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-081512	107%	48-123	91.5%	43-107	0
LCS-081512	93.2%	48-123	81.0%	43-107	0
LCSD-081512	105%	48-123	94.0%	43-107	0
POT_BH_SW1_0_0.5_081512	102%	24-127	98.5%	34-109	0
POT_BH_SW2_0_0.5_081512	100%	24-127	96.0%	34-109	0
POT_BH_SW3_0_0.5_081512	104%	24-127	96.8%	34-109	0
POT_BH_SW3_0_0.5_081512 DL	123%	24-127	100%	34-109	0
POT_BH_SW4_0_0.5_081512	121%	24-127	102%	34-109	0
POT_BH_BOT1_1.0_081512	102%	24-127	92.0%	34-109	0
POT_BH_BOT2_1.0_081512	103%	24-127	91.8%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-15417 to 12-15422

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Page 1 of 1

Sample ID: LCS-081512

LCS/LCSD

Lab Sample ID: LCS-081512

LIMS ID: 12-15417

Matrix: Soil

Data Release Authorized: *mw*

Reported: 08/17/12

QC Report No: VF99-Port of Tacoma

Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 08/15/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 08/16/12 15:42

Final Extract Volume LCS: 2.50 mL

LCSD: 08/16/12 16:03

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD7/JGR

Dilution Factor LCS: 1.00

LCSD: ECD7/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	204	252	81.0%	243	252	96.4%	17.4%
Aroclor 1260	225	252	89.3%	264	252	105%	16.0%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	93.2%	105%
Tetrachlorometaxylene	81.0%	94.0%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

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

Sample ID: MB-081512
METHOD BLANK

Lab Sample ID: MB-081512
LIMS ID: 12-15417
Matrix: Soil
Data Release Authorized: YWW
Reported: 08/17/12

QC Report No: VF99-Port of Tacoma
Project: Brown & Haley Bldg-Soil Excavation

Date Sampled: NA
Date Received: NA

Date Extracted: 08/15/12
Date Analyzed: 08/16/12 15:21
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	107%
Tetrachlorometaxylene	91.5%



Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 23, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley Bldg - Soil Excavation
ARI Job No.; VG69

Dear Stacy:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted one soil sample on August 22, 2012. There were no discrepancies in the paperwork. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The sample was analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

An electronic copy of this report and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

[illegible]

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

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



Cooler Receipt Form

ARI Client: Port of Tacoma
COC No(s): _____ (NA)
Assigned ARI Job No: VG69

Project Name: Brown + Haley Bldg - Soil Excavation
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)
Were custody papers included with the cooler? (YES) NO
Were custody papers properly filled out (ink, signed, etc.) (YES) NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 23
If cooler temperature is out of compliance fill out form 00070F
Cooler Accepted by: JM (for CA) Date: 8/22/12 Time: 1047 Temp Gun ID#: 98941619

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA (YES) NO
Were all bottles sealed in individual plastic bags? (YES) NO
Did all bottles arrive in good condition (unbroken)? (YES) NO
Were all bottle labels complete and legible? (YES) NO
Did the number of containers listed on COC match with the number of containers received? (YES) NO
Did all bottle labels and tags agree with custody papers? (YES) NO
Were all bottles used correct for the requested analyses? (YES) NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO
Were all VOC vials free of air bubbles? (NA) YES NO
Was sufficient amount of sample sent in each bottle? (YES) NO
Date VOC Trip Blank was made at ARI... (NA)
Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____




Samples Logged by: JM Date: 8/22/12 Time: 1203

** Notify Project Manager of discrepancies or concerns **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

			Small → "sm"
			Peabubbles → "pb"
			Large → "lg"
			Headspace → "hs"

Sample ID Cross Reference Report



ARI Job No: VG69
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg -Soil Excavation

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. POT_BH_SW3_1.0_082112	VG69A	12-15867	Soil	08/21/12 14:45	08/22/12 10:47

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3546


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Sample ID: POT_BH_SW3_1.0_082112
SAMPLE

Lab Sample ID: VG69A

LIMS ID: 12-15867

Matrix: Soil

Data Release Authorized: 

Reported: 08/23/12

QC Report No: VG69-Port of Tacoma

Project: Brown & Haley Bldg -Soil Excavation

Date Sampled: 08/21/12

Date Received: 08/22/12

Date Extracted: 08/22/12

Date Analyzed: 08/23/12 09:13

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.87 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: 3.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	8.5	< 8.5 U
53469-21-9	Aroclor 1242	8.5	< 8.5 U
12672-29-6	Aroclor 1248	170	< 170 Y
11097-69-1	Aroclor 1254	8.5	1,100 E
11096-82-5	Aroclor 1260	110	< 110 Y
11104-28-2	Aroclor 1221	8.5	< 8.5 U
11141-16-5	Aroclor 1232	8.5	< 8.5 U
37324-23-5	Aroclor 1262	8.5	< 8.5 U
11100-14-4	Aroclor 1268	8.5	< 8.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.5%
Tetrachlorometaxylene	82.0%

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

ANALYTICAL
RESOURCES
INCORPORATED
Sample ID: POT_BH_SW3_1.0_082112
DILUTION

Lab Sample ID: VG69A
LIMS ID: 12-15867
Matrix: Soil
Data Release Authorized: *MW*
Reported: 08/23/12

QC Report No: VG69-Port of Tacoma
Project: Brown & Haley Bldg -Soil Excavation

Date Sampled: 08/21/12
Date Received: 08/22/12

Date Extracted: 08/22/12
Date Analyzed: 08/23/12 09:51
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.87 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 10.0
Silica Gel: No
Percent Moisture: 3.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	85	< 85 U
53469-21-9	Aroclor 1242	85	< 85 U
12672-29-6	Aroclor 1248	430	< 430 Y
11097-69-1	Aroclor 1254	85	1,600
11096-82-5	Aroclor 1260	170	< 170 Y
11104-28-2	Aroclor 1221	85	< 85 U
11141-16-5	Aroclor 1232	85	< 85 U
37324-23-5	Aroclor 1262	85	< 85 U
11100-14-4	Aroclor 1268	85	< 85 U


Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	98.0%
Tetrachlorometaxylene	91.0%

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

Sample ID: MB-082212
METHOD BLANK

Lab Sample ID: MB-082212
LIMS ID: 12-15867
Matrix: Soil
Data Release Authorized: 
Reported: 08/23/12

QC Report No: VG69-Port of Tacoma
Project: Brown & Haley Bldg -Soil Excavation

Date Sampled: NA
Date Received: NA

Date Extracted: 08/22/12
Date Analyzed: 08/23/12 08:35
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 5.00 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	83.2%
Tetrachlorometaxylene	80.2%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VG69-Port of Tacoma


Project: Brown & Haley Bldg -Soil Excavation

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-082212	83.2%	48-123	80.2%	43-107	0
LCS-082212	82.8%	48-123	79.2%	43-107	0
POT_BH_SW3_1.0_082112	75.5%	24-127	82.0%	34-109	0
POT_BH_SW3_1.0_082112 DL	98.0%	24-127	91.0%	34-109	0

Microwave (MARS) Control Limits PCBSMM

Prep Method: SW3546

Log Number Range: 12-15867 to 12-15867

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1Sample ID: LCS-082212
LAB CONTROLLab Sample ID: LCS-082212
LIMS ID: 12-15867
Matrix: Soil
Data Release Authorized: 
Reported: 08/23/12QC Report No: VG69-Port of Tacoma
Project: Brown & Haley Bldg -Soil ExcavationDate Sampled: NA
Date Received: NADate Extracted: 08/22/12
Date Analyzed: 08/23/12 08:54
Instrument/Analyst: ECD5/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: NoSample Amount: 5.00 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	211	252	83.7%
Aroclor 1260	218	252	86.5%

PCB Surrogate Recovery

Decachlorobiphenyl	82.8%
Tetrachlorometaxylene	79.2%

Results reported in µg/kg (ppb)



Analytical Resources, Incorporated
Analytical Chemists and Consultants

August 30, 2012

Stacy Munson
Pioneer Tech. Corp.
5205 Corporate Ctr. Ct. SE, Ste. A
Olympia, WA 98503-5901

RE: Project: Brown and Haley Bldg – Excavation Round 3
ARI Job No.VH30

Dear Stacy:

Please find enclosed the original Chain-of-Custody record (COC), sample receipt documentation, and final results for samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted two soil samples on August 28, 2012. There were no discrepancies in the paperwork. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form. One sample was placed on hold pending further instructions.

The sample was analyzed for PCBs, as requested on the COC.

The analysis proceeded without incident of note.

An electronic copy of this report and all associated raw data will remain on file at ARI. If you have any questions or require further information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
206/695-6211
kellyb@arilabs.com

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

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

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



Cooler Receipt Form

ARI Client Port of Tacoma
COC No(s) _____ (NA)
Assigned ARI Job No VH297/VH30

Project Name Brown & Haley Bldg - Excavation
Delivered by Fed-Ex UPS Courier Hand Delivered Other Round 3
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)
Were custody papers included with the cooler? (YES) NO
Were custody papers properly filled out (ink, signed, etc) (YES) NO
Temperature of Cooler(s) (°C) (recommended 2 0-6 0 °C for chemistry) 4.8
If cooler temperature is out of compliance fill out form 00070F
Cooler Accepted by JM Date 8/28/12 Time 1340 Temp Gun ID# 9087952

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)
What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA (YES) NO
Were all bottles sealed in individual plastic bags? YES (NO)
Did all bottles arrive in good condition (unbroken)? (YES) NO
Were all bottle labels complete and legible? (YES) NO
Did the number of containers listed on COC match with the number of containers received? (YES) NO
Did all bottle labels and tags agree with custody papers? (YES) NO
Were all bottles used correct for the requested analyses? (YES) NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) (NA) YES NO
Were all VOC vials free of air bubbles? (NA) YES NO
Was sufficient amount of sample sent in each bottle? (YES) NO
Date VOC Trip Blank was made at ARI: (NA)
Was Sample Split by ARI (NA) YES Date/Time: _____ Equipment _____ Split by: _____

Samples Logged by AV Date: 8/28/12 Time: 1440

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles -2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" Peabubbles → "pb" Large → "lg" Headspace → "hs"
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Sample ID Cross Reference Report



ARI Job No: VH30
Client: Port of Tacoma
Project Event: N/A
Project Name: Brown & Haley Bldg-Excavation Round

Sample ID	ARI		Matrix	Sample Date/Time	VTSR
	Lab ID	LIMS ID			
1. POT_BH_SW3_0_1.0_082812 VH30A		12-16314	Soil	08/28/12 13:00	08/28/12 13:40
2. POT_BH_SW3_0.5_1.0_08281VH30B		12-16315	Soil	08/28/12 13:15	08/28/12 13:40

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Extraction Method: SW3550C
Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: POT_BH_SW3_0_1.0_082812
SAMPLE

Lab Sample ID: VH30A

LIMS ID: 12-16314

Matrix: Soil

Data Release Authorized: *B*

Reported: 08/29/12

QC Report No: VH30-Port of Tacoma

Project: Brown & Haley Bldg-Excavation Round

Date Sampled: 08/28/12

Date Received: 08/28/12

Date Extracted: 08/29/12

Date Analyzed: 08/29/12 12:45

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 6.06 g-dry-wt

Final Extract Volume: 2.50 mL

Dilution Factor: 5.00

Silica Gel: No

Percent Moisture: 3.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	41	< 41 U
53469-21-9	Aroclor 1242	41	< 41 U
12672-29-6	Aroclor 1248	52	< 52 Y
11097-69-1	Aroclor 1254	41	290
11096-82-5	Aroclor 1260	52	< 52 Y
11104-28-2	Aroclor 1221	41	< 41 U
11141-16-5	Aroclor 1232	41	< 41 U
37324-23-5	Aroclor 1262	41	< 41 U
11100-14-4	Aroclor 1268	41	< 41 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	99.5%
Tetrachlorometaxylene	97.6%

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Extraction Method: SW3550C

Page 1 of 1

Sample ID: MB-082912

METHOD BLANK

Lab Sample ID: MB-082912

LIMS ID: 12-16314

Matrix: Soil

Data Release Authorized: *mw*

Reported: 08/30/12

QC Report No: VH30-Port of Tacoma

Project: Brown & Haley Bldg-Excavation Round

Date Sampled: NA

Date Received: NA

Date Extracted: 08/29/12

Date Analyzed: 08/29/12 13:42

Instrument/Analyst: ECD5/JGR

GPC Cleanup: No

Sulfur Cleanup: Yes

Acid Cleanup: Yes

Florisil Cleanup: No

Sample Amount: 5.00 g

Final Extract Volume: 2.50 mL

Dilution Factor: 1.00

Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	83.8%
Tetrachlorometaxylene	77.2%

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: VH30-Port of Tacoma

Project: Brown & Haley Bldg-Excavation Round

<u>Client ID</u>	<u>DCBP % REC</u>	<u>DCBP LCL-UCL</u>	<u>TCMX % REC</u>	<u>TCMX LCL-UCL</u>	<u>TOT OUT</u>
MB-082912	83.8%	49-126	77.2%	53-108	0
LCS-082912	85.2%	49-126	83.8%	53-108	0
LCSD-082912	84.2%	49-126	82.2%	53-108	0
POT_BH_SW3_0_1.0_082812	99.5%	31-140	97.6%	39-122	0

Standard Sonication Control Limits

Prep Method: SW3550C

Log Number Range: 12-16314 to 12-16314

ORGANICS ANALYSIS DATA SHEET

PSDDA PCB by GC/ECD

Page 1 of 1

Sample ID: LCS-082912

LCS/LCSD

Lab Sample ID: LCS-082912

LIMS ID: 12-16314

Matrix: Soil

Data Release Authorized: *mw*

Reported: 08/30/12

QC Report No: VH30-Port of Tacoma

Project: Brown & Haley Bldg-Excavation Round

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 08/29/12

Sample Amount LCS: 5.00 g-dry-wt

LCSD: 5.00 g-dry-wt

Date Analyzed LCS: 08/29/12 14:00

Final Extract Volume LCS: 2.50 mL

LCSD: 08/29/12 14:20

LCSD: 2.50 mL

Instrument/Analyst LCS: ECD5/JGR

Dilution Factor LCS: 1.00

LCSD: ECD5/JGR

LCSD: 1.00

GPC Cleanup: No

Silica Gel: No

Sulfur Cleanup: Yes

Percent Moisture: NA

Acid Cleanup: Yes

Florisil Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	253	252	100%	228	252	90.5%	10.4%
Aroclor 1260	216	252	85.7%	211	252	83.7%	2.3%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	85.2%	84.2%
Tetrachlorometaxylene	83.8%	82.2%

Results reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

**A6: 2005 Letter documenting Near Surface Soil
Investigation 1940 East 11th**



September 14, 2005

Mr. Robert Shea
633 North Mildred Street, F3
Tacoma, WA 98406

Re: Near Surface Soil Investigation
1940 East 11th
Tacoma, WA 98421

Dear Mr. Shea:

Environmental Management Services (EMS) is pleased to present this Surface Soil Investigation report for work completed at 1940 East 11th Street, Tacoma, Washington (Site). Our services were performed in general accordance with our July 2005 proposal. The general location of the Site is shown on Figure 1.

Project Summary

Environmental Management Services, (EMS) was hired to complete a near surface soil investigation, focusing on the exterior yard operation located at 1940 East 11th Street property (the Site). The area is approximately 400 feet square and used by Tacoma Transload for storage and maintenance of heavy lifting (straddle lift) equipment. The entire area is gravel covered with a slight grade to the west off site. During routine maintenance several areas throughout the Tacoma Transload leased yard were inadvertently impacted with hydraulic fluid from the straddle lifts. Tacoma Transload was directed to excavate each of the stained areas (Project Photographs – Attached) with the intent to remove any impacted gravel and soil. During the initial inspection and sampling event, completed July 26, 2005, EMS observed six shallow excavations that had been completed by Tacoma Transload. The excavated soil had been stockpiled on site. The largest excavation had a surface area of approximately 5 square yards and the smallest 1 square yard.

Environmental Management Services, LLC

Surface Soil Investigation Report
1940 East 11th
Tacoma, WA 98421

Soil Sampling & Analytical Results

Soil samples were collected, one from each excavated area. The samples were collected from between two and six inches beneath the surface of the remaining soil and gravel within the excavation. Each soil sample was delivered to Friedman and Bruya, a Washington State Department of Ecology accredited laboratory for chemical analysis.

Each sample was analyzed for Total Petroleum Hydrocarbon (TPH) by method NWTPH-HCID (Hydrocarbon Identification scan). This analytical method, required by the Washington Department of Ecology (Ecology), provides a definitive non-quantitative hydrocarbon identification differentiating between gasoline (carbons c6-c10), diesel (carbons c10-c24) and heavy oil (carbons c25-c36) range hydrocarbons. Each of the six samples was reported by the laboratory as positive (exceeding 100 mg/kg) for heavy soil range TPH (Table 2). EMS re-analyzed sample EX-3 to quantify the total petroleum hydrocarbons and assess the nature of the oil range contamination. Sample results reported the sample EX3 as containing 6000¹ mg/kg heavy oil range hydrocarbon, consistent with hydraulic oil. Additionally, the sample was reviewed by the laboratory for asphalt content. No asphalt was identified in the sample.

EMS directed Tacoma Transload to over excavate each of the test pits to remove any remaining impacted soil. This was completed on August 26th, 2005. EMS resampled each of the six test pits (samples TP1 through TP6). Each sample was analyzed for diesel and heavy oil range total petroleum hydrocarbons by method NWTPH-Dx. Sample TP4/5, was collected as a composite sample from test pits 4 and 5. Results from this sample diesel range hydrocarbon at 130 mg/kg and heavy oil range hydrocarbon at 730 mg/kg, below the Model Toxic Control Act Cleanup Limit (MTCA) of 2000 mg/kg. The remaining samples, TP1, TP2, TP3 & TP6 were reported below the laboratory reporting limits (Table 1).

EMS also collected soil samples from the stockpiled excavated material to assist in the characterization of the stockpile waste for disposal. One sample was collected on September 12, 2005. The sample was analyzed for Polychlorinated biphenyls (PCBs), volatile aromatic hydrocarbon (benzene, toluene, ethylbenzene, and xylene) and total metals, cadmium, chromium and lead. The sample analysis was required by Rabanco Regional Disposal. Chemical analysis identified low levels of lead (42 mg/kg) and chromium (3.9 mg/kg) in the

¹ Model Toxic Control Act (MTCA) Method "A" cleanup levels for heavy oil range hydrocarbons is 2000 mg/kg.

Surface Soil Investigation Report
1940 East 11th
Tacoma, WA 98421


sample. The remaining sample results for PCB's and volatile aromatic hydrocarbon were reported below laboratory reporting limits. The low level metals impact is not expected to interfere with the disposal of the soil.

Conclusions & Recommendations

Based on the soil sampling chemical analysis results completed on August 26, 2005, heavy oil impacted soil identified in the July 26, 2005 sampling event has been excavated, transported off site and disposed at a licensed sub-title D disposal facility. Future equipment maintenance should be completed using drop cloths or on an impermeable surface such as asphalt. In the event soil is impacted in the future, immediate action should be taken to properly remediate any impacted material.

Should you have any questions regarding this report or for any other reason, please feel free to contact me at your convenience.

Sincerely,
Environmental Management Services, LLC



Stephen Spencer
Principal Environmental Scientist

Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Topographic Map
- Figure 3 – Site Map
- Figure 4 – Confirmation Soil Sample Location Map

Tables

- Table 1 – Confirmation Soil Sample Results
- Table 2 – Performance Soil Sample Results

Attachments

- Attachment A – Laboratory Analytical Reports

Project Figures

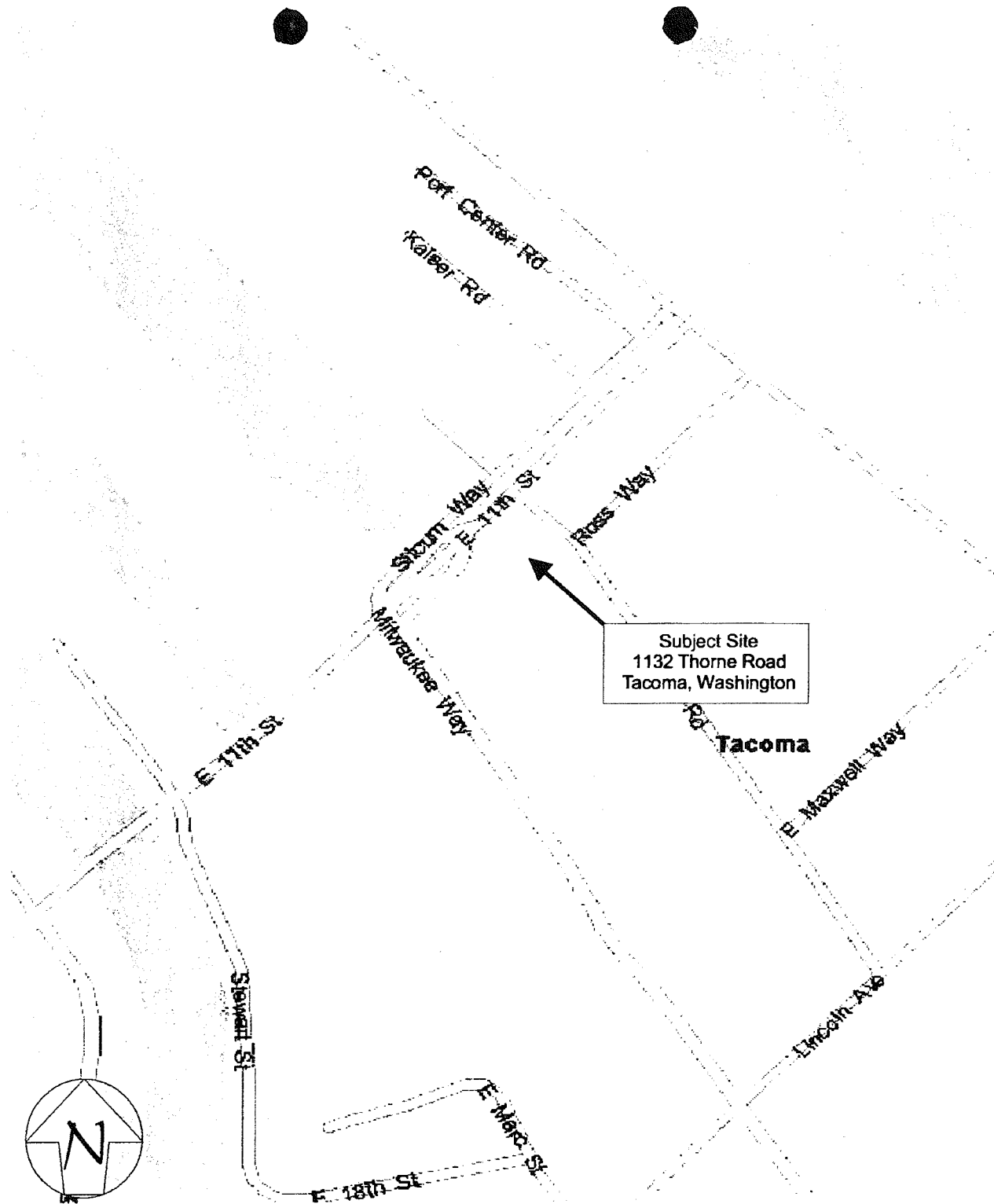
Figure 1 - Site Location Map


Figure 2 - Site Topographic Map

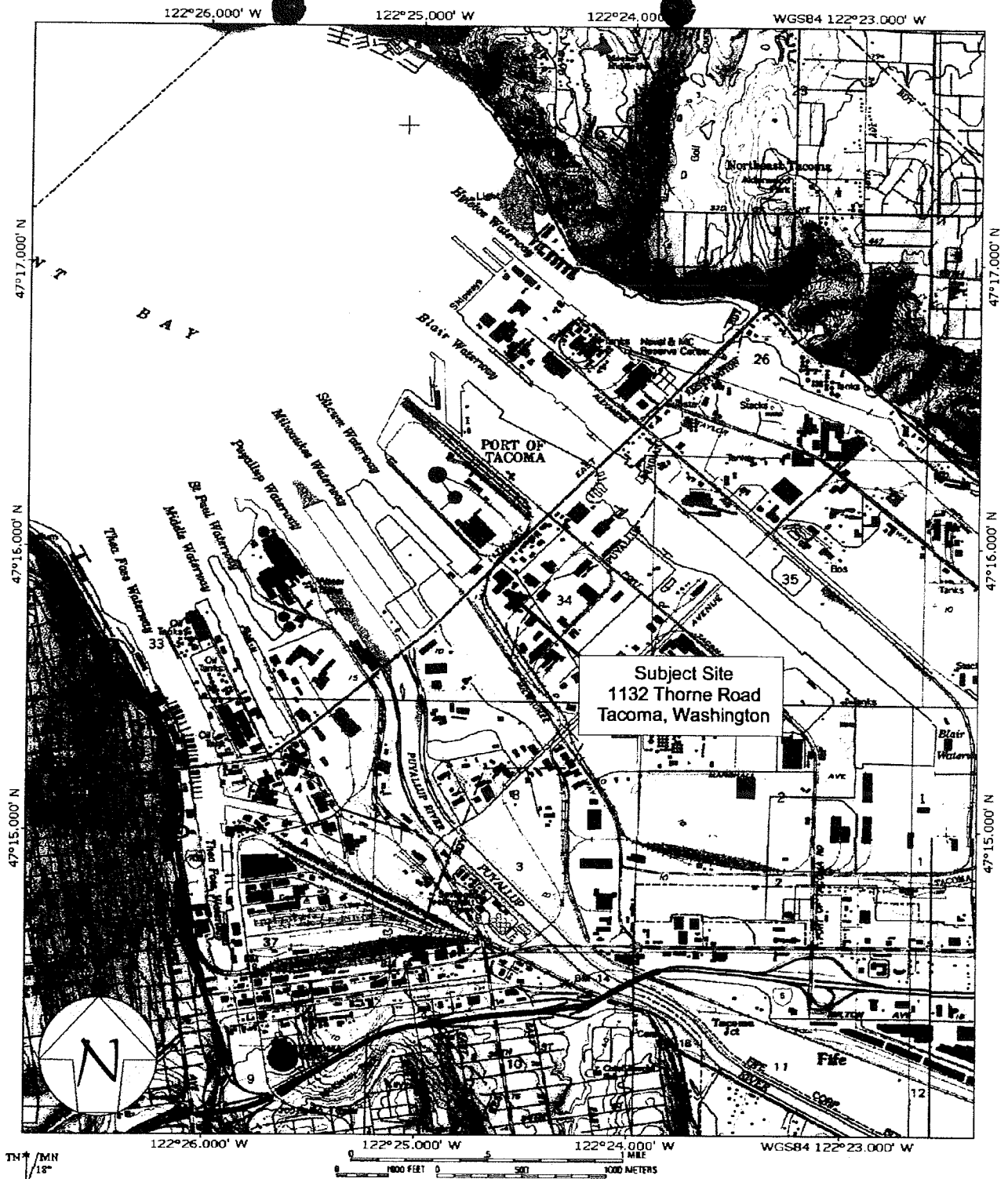
Figure 3 - Site Map

Figure 4 - Confirmation Soil Sample Location Map

Project Figures



 Environmental Services www.emsgrouppllc.com	Site Location Map Focused Surface Assessment 1940 East 11 th Tacoma, WA 98421	Project No./Name: Shea - Trans Date: September 9, 2005 Drawn / Created By: S.Spencer Checked By: S.Spencer	Figure No. 01
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Site Topographic Map
Focused Surface Assessment
1940 East 11th
Tacoma, WA 98421

Project No./Name: Shea - Trans

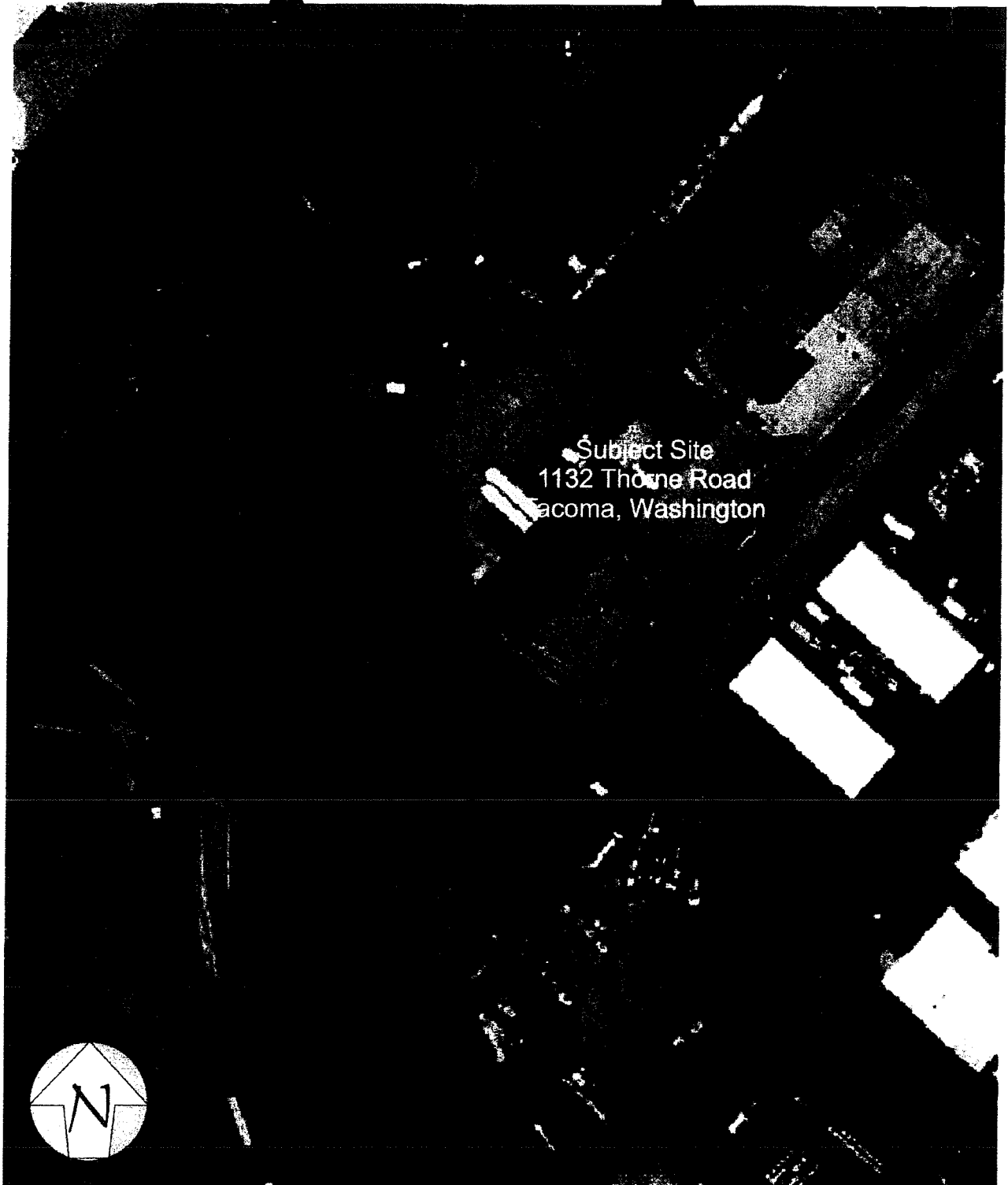
Figure No.


Date: September 9, 2005
Drawn / Created By: S.Spencer
Checked By: S.Spencer

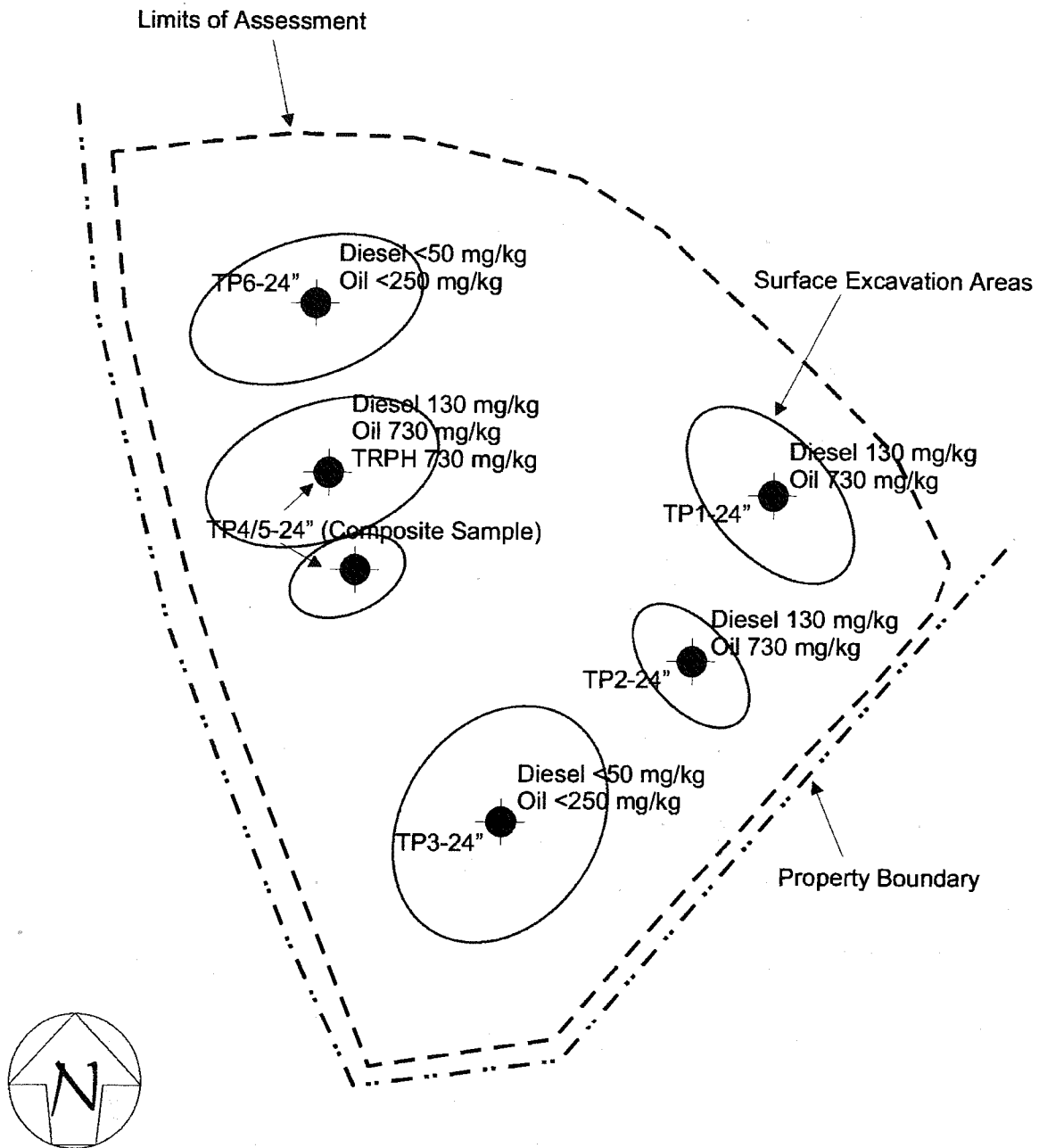
02

Environmental Management Services, LLC


Providing Practical Environmental Compliance Solutions



 Environmental Services www.emsgroupplc.com	<p>Site Map Focused Surface Assessment 1940 East 11th Tacoma, WA 98421</p>	<p>Project No./Name: Shea - Trans Date: September 9, 2005 Drawn / Created By: S.Spencer Checked By: S.Spencer</p>	<p>Figure No. 03</p>
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● Soil Sample Location & Sample Analytical Results

 Environmental Services www.emsgroupllc.com	Confirmation Soil Sample Location Map Focused Surface Assessment 1940 East 11th Tacoma, WA 98421	Project No./Name: Shea - Trans Date: September 9, 2005 Drawn / Created By: S.Spencer Checked By: S.Spencer	Figure No. <div style="font-size: 2em; font-weight: bold; text-align: center;">04</div>
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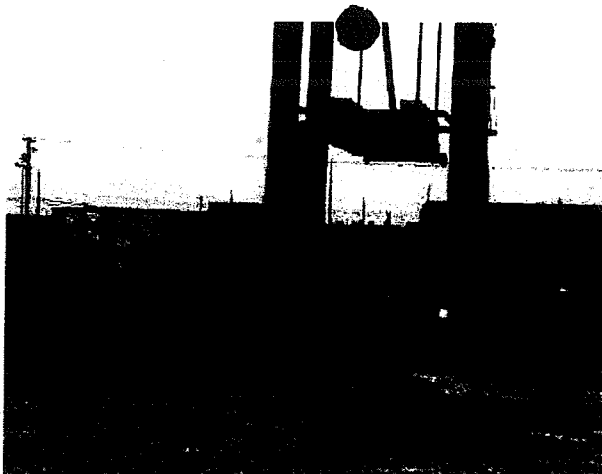
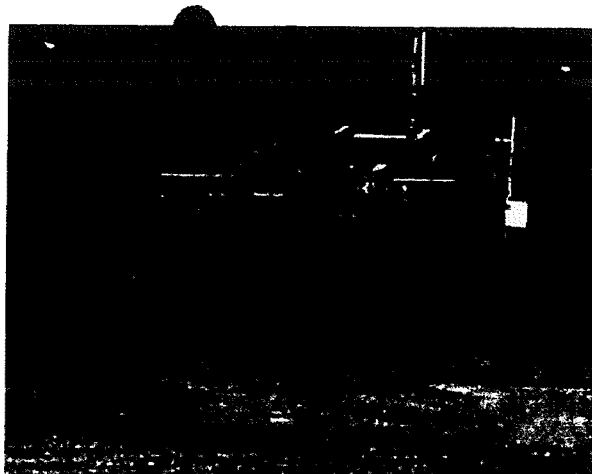


Photo 01 - Straddle lift with stained area below



Phot 02 - Straddle lift with stained area below

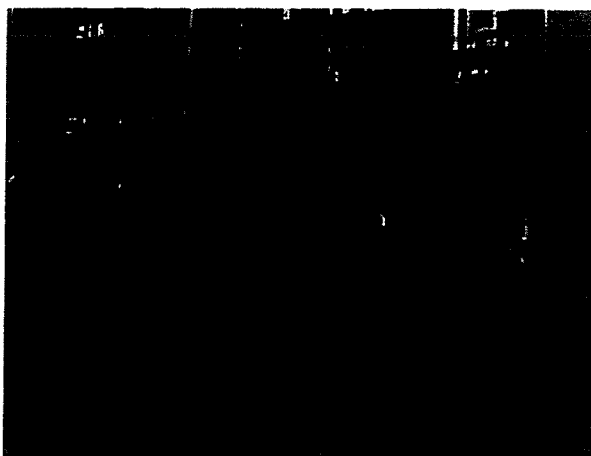


Photo 03 - Straddle lift with stained area below

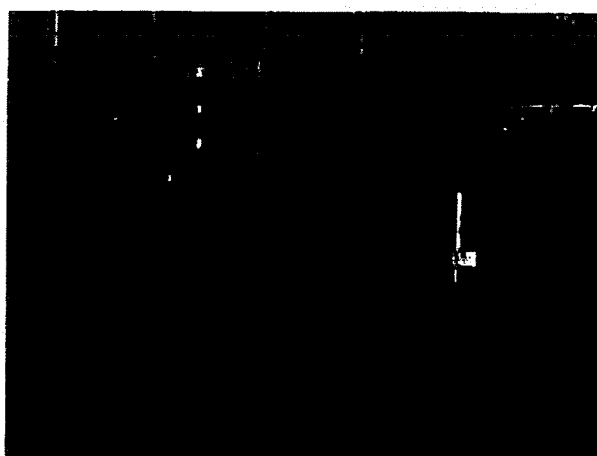


Photo 04 - Straddle lift with stained area below



Photo 05- Hydraulic oil stained gravel



Photo 06 - Hydraulic oil stained gravel



Environmental Management Services, LLC

Project Photographs
Focused Surface Assessment
1940 East 11th
Tacoma, WA 98421

Project No./Name: Shea - Trans

Date: September 9, 2005
Drawn / Created By: S.Spencer
Checked By: S.Spencer

Figure No.

05
Page 1 of 2

Providing Practical Environmental Compliance Solutions

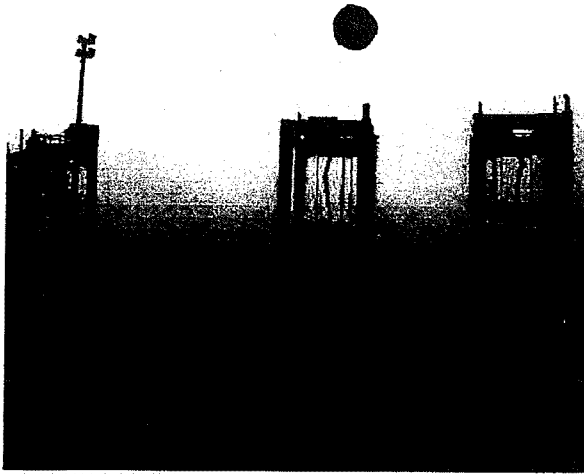


Photo 07 - Assessment Area - View to the west



Phot 08 - Excavation 01 final Sample Locations



Photo 09 - Excavation 02 final sample location



Photo 10 - Excavation 03 final sample location



Photo 11- Excavation 4 / 5 final sample location

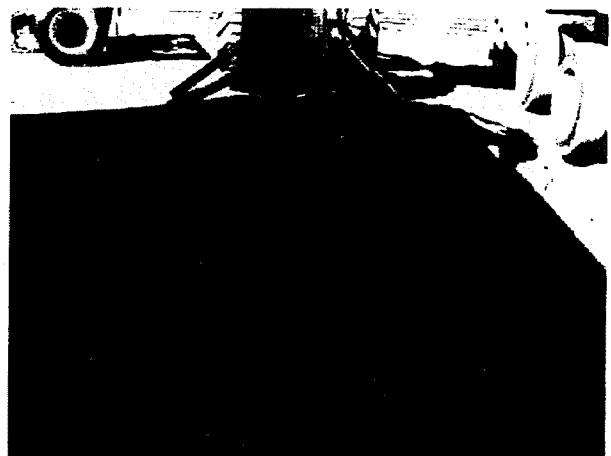



Photo 12 - Excavation 06 final sample location

 <p>Environmental Services www.emsgroupplc.com</p>	<p>Project Photographs Focused Surface Assessment 1940 East 11th Tacoma, WA 98421</p>	<p>Project No./Name: Shea - Trans Date: September 9, 2005 Drawn / Created By: S.Spencer Checked By: S.Spencer</p>	<p>Figure No. 05 Page 2 of 2</p>
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Tables

Table 1 - Confirmation Soil Sample Results
Table 2 - Performance Soil Sample Results

Tables



Table 1 - Confirmation Soil Sampling Results
 Surface Soil Investigation
 1940 East 11th
 Tacoma, Washington

Sample Number	Sample Location	Sample Depth	Sample Date	NWTPH-Dx (mg/kg)			TRPH (carbon c10-c36)
				Diesel Range (carbon c12-c24)	Oil Range (carbon c24-c36)		
TP1-24"	Test pit 1	24-30"	08/26/05	<50	NA		<250
TP2-24"	Test pit 2	24-30"	08/27/05	<50	NA		<250
TP3-24"	Test pit 3	24-30"	08/28/05	<50	NA		<250
TP4/5-24"	Test pit 4/5 Composit	24-30"	08/29/05	130	730		550
TP6-24"	Test pit 6	24-30"	08/30/05	<50	<5		<250
Laboratory Detection or Practical Quantitation Limit Soil							
Model Toxic Control Act (MTCA) Method A Cleanup Levels For Soil							
				50	100		250
				2000	2000		2000

BOLD/RED = Analyte above MTCA 2001 Method A Cleanup levels for unrestricted land uses.

Values are reported in milligrams per kilogram (mg/kg) soil or micrograms per liter (ug/L) groundwater.

< # (ND) = analyte not detected above the analytical method detection limit cited.

Diesel / Mineral Oil / Oil analytical method NWTPH-Dx

Groundwater: Diesel range petroleum hydrocarbon Method A Cleanup Levels for groundwater are 500 ug/L

Soil: Diesel range petroleum hydrocarbon Method A Cleanup Levels for soil are 2000 mg/kg Diesel & Oil, 4000 mg/kg Mineral Oil, 500 ug/L

Groundwater: Gasoline range petroleum hydrocarbon Method A Cleanup Levels for groundwater are 1000 ug/L unless Benzene is present then 800 ug/L cleanup levels

Soil: Gasoline range petroleum hydrocarbon Method A Cleanup Levels for soil are 100 mg/kg unless Benzene is present then 30 mg/kg cleanup levels

MTCA 2001 Method A Cleanup Levels for Soil from the Model Toxics Control Act (MTCA) amendment Table 740-1 WAC 173-340 -900 Tables.

bgs=below ground surface

NA=Not Applicable

September 12, 2005



Table 2 - Performance Soil Sampling Results
Surface Soil Investigation
 1940 East 11th
 Tacoma, Washington

Sample Number	Sample Location	Sample Depth	Sample Date	NWTPH-HCID (Hydrocarbon Identification Scan) mg/kg				September 12, 2005	
				Gasoline Range (carbon c4-c12)	Diesel Range (carbon c12-c24)	Heavy Oil Range (carbon c24-c36)	Oil Range (carbon c24-c36)	NWTPH-Dx mg/kg	TRPH (carbon c10-c36)
EX1	Test pit 1	12-18"	07/26/05	<20	<50	>100	NA	<250	
EX2	Test pit 2	12-18"	07/26/05	<20	<50	>100	NA	<250	
EX3	Test pit 3	12-18"	07/27/05	<20	<50	>100	6000	4200	
EX4	Test pit 4	12-18"	07/28/05	<20	<50	>100	NA	550	
EX5	Test Pit 5	12-18"	07/29/05	<20	<50	>100	NA	<250	
EX6	Test pit 6	12-18"	07/30/05	<20	<50	>100	NA	250	
Laboratory Detection or Practical Quantitation Limit Soil				20	50	100	100	100	100
Model Toxic Control Act (MTCA) Method A Cleanup Levels For Soil				100/30*	2000	2000	2000	2000	2000

BOLD/RED = Analyte above MTCA 2001 Method A Cleanup levels for unrestricted land uses.

Values are reported in milligrams per kilogram (mg/kg) soil or micrograms per liter (ug/L) groundwater.

< # (NO) = analyte not detected above the analytical method detection limit cited.

Diesel / Mineral Oil / Oil analytical method NWTPH-Dx

Groundwater: Diesel range petroleum hydrocarbon Method A Cleanup Levels for groundwater are 500 ug/L

Soil: Diesel range petroleum hydrocarbon Method A Cleanup Levels for soil are 2000 mg/kg Diesel & Oil, 4000 mg/kg Mineral Oil, 500 ug/L

Groundwater: Gasoline range petroleum hydrocarbon Method A Cleanup Levels for groundwater are 1000 ug/L unless Benzene is present then 800 ug/L cleanup levels

Soil: Gasoline range petroleum hydrocarbon Method A Cleanup Levels for soil are 100 mg/kg unless Benzene is present then 30 mg/kg cleanup levels

MTCA 2001 Method A Cleanup Levels for Soil from the Model Toxics Control Act (MTCA) amendment Table 740-1 WAC 173-340-900 Tables.

bgs=below ground surface

NA=Not Applicable

Attachment A

Laboratory Analytical Results
Laboratory Certification / Accreditation

Attachment A

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 283-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

August 4, 2005

Steve Spencer, Project Manager
Environmental Management Services, LLC
652 8th Avenue
Fox Island, WA 98333

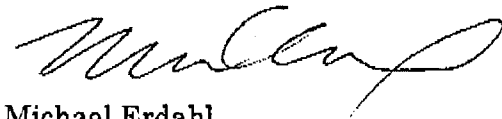
Dear Mr. Spencer:

Included are the results from the testing of material submitted on July 26, 2005 from the Shea Backyard, F&BI 507238 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
FAX: (253) 369-6228
EMS0804R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/04/05
Date Received: 07/26/05
Project: Shea Backyard, F&BI 507238
Date Extracted: 07/27/05
Date Analyzed: 07/27/05

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID**
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY
THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO
PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION
OF ANY MATERIAL PRESENT

<u>Sample ID</u> Laboratory ID	<u>Gasoline</u>	<u>Diesel</u>	<u>Heavy Oil</u>	<u>Surrogate</u> (% Recovery)
EX1 507238-01	ND	ND	D	112
EX2 507238-02	ND	ND	D	113
EX3 507238-03	ND	ND	D	110
EX4 507238-04	ND	ND	D	116
EX5 507238-05	ND	ND	D	105
EX6 507238-06	ND	ND	D	115
Method Blank	ND	ND	ND	100

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 100 mg/kg heavy oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/04/05
Date Received: 07/26/05
Project: Shea Backyard, F&BI 507238
Date Extracted: 07/28/05
Date Analyzed: 07/29/05

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL**

USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis

Results Reported as $\mu\text{g/g}$ (ppm)

<u>Sample ID</u> Laboratory ID	<u>Motor Oil Range</u> (C ₂₅ -C ₃₀)	<u>Surrogate</u> (% Recovery) (Limit 67-131)
EX3 507238-03	6,000	100
Method Blank	<50	112

FRIEDMAN & BRUYA, INC.**ENVIRONMENTAL CHEMISTS**

Date of Report: 08/04/05
Date Received: 07/26/05
Project: Shea Backyard, F&BI 507238
Date Extracted: 08/02/05
Date Analyzed: 08/03/05

**RESULTS FROM THE GRAVIMETRIC ANALYSIS OF THE
SOIL SAMPLES FOR TOTAL EXTRACTABLES ORGANICS
USING SM 5520B MOD**

Results Reported as $\mu\text{g/g}$ (ppm)

<u>Sample ID</u> Laboratory ID	<u>Total Extractables</u>
EX3 507238-03	4,200
Method Blank	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/04/05

Date Received: 07/26/05

Project: Shea Backyard, F&BI 507238

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED
USING METHOD NWTPH-D_x

Laboratory Code: 507263-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	µg/g (ppm)	5,000	<50	95	108	71-130	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	µg/g (ppm)	5,000	109	69-134

FRIEDMAN & BRUYA, INC.**ENVIRONMENTAL CHEMISTS**

Date of Report: 08/04/05

Date Received: 07/26/05

Project: Shea Backyard, F&BI 507238

**QUALITY ASSURANCE RESULTS FROM THE GRAVIMETRIC ANALYSIS OF
SOIL SAMPLES FOR TOTAL EXTRACTABLES
USING SM 5520B MOD**

Laboratory Code: 507238-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Total Extractables	µg/g (ppm)	4,200	4,000	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Total Extractables	µg/g (ppm)	25,000	118	50-150

507238

SAMPLE CHAIN OF CUSTODY

ME 07-26-05

804

Send Report To: Steve SpencerCompany: Env3Address: 4653 8th AveCity, State, ZIP: For IslandPhone # 263 981 7257 Fax # 263 369 1228SAMPLERS (Signature): Mary L. OffieldPROJECT NAME (NO): Env3

PO #

REMARKS: Spec. heat yardTURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	
Ex 1	01	7/26/05		Soil							HCID	
Ex 2	02											
Ex 3	03											
Ex 4	04											
Ex 5	05											
Ex 6	06											

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029Relinquished by: Mary L. OffieldRelinquished by: Mary L. OffieldRelinquished by: Mary L. OffieldRelinquished by: Mary L. OffieldRelinquished by: Mary L. Offield

Relinquished by:	<u>Mary L. Offield</u>	Relinquished by:	<u>Mary L. Offield</u>	Relinquished by:	<u>Mary L. Offield</u>	Relinquished by:	<u>Mary L. Offield</u>	Relinquished by:	<u>Mary L. Offield</u>
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Received by:

FORM 00000000000000000000

Date of Report: 08/30/05
Date Received: 08/29/05
Project: Shea-Backlot, F&BI 508257
Date Extracted: 08/30/05
Date Analyzed: 08/30/05

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
USING METHOD NWTPH-Dx**

Extended to Include Motor Oil Range Compounds

Results Reported on a Dry Weight Basis

Results Reported as µg/g (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>TRPH</u> (C ₁₀ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 67-131)
TP1-24" 508257-01	<50	<250	108
TP2-24" 508257-02	<50	<250	108
TP3-24" 508257-03	<50	<250	112
TP4/5-24" x 508257-04	130	550	108
TP6-24" 508257-05	<50	<250	107

DRAFT

Date of Report: 08/30/05
Date Received: 08/29/05
Project: Shea-Backlot, F&BI 508257
Date Extracted: 08/30/05
Date Analyzed: 08/30/05

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL**

USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis

Results Reported as $\mu\text{g/g}$ (ppm)

<u>Sample ID</u> Laboratory ID	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 67-131)
TP4/5-24" 508257-04	730	108

DRAFT

FRIEDMAN & BRUYA, INC.
ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 283-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 16, 2005

Steve Spencer, Project Manager
Environmental Management Services, LLC
652 8th Avenue
Fox Island, WA 98333

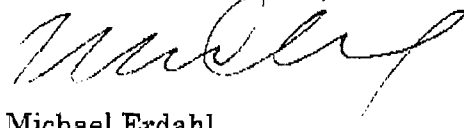
Dear Mr. Spencer:

Included are the results from the testing of material submitted on September 12, 2005 from the Shea Rear Lot 9/12, F&BI 509074 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

FAX: (253) 369-6228

FMS0916R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05
Date Received: 09/12/05
Project: Shea Rear Lot 9/12, F&BI 509074
Date Extracted: 09/13/05
Date Analyzed: 09/13/05

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE
FOR BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES
USING EPA METHOD 8021B

Results Reported on a Dry Weight Basis

Results Reported as $\mu\text{g/g}$ (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
SP 1 509074-01	<0.02	<0.02	<0.02	<0.06	102
Method Blank	<0.02	<0.02	<0.02	<0.06	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05

Date Received: 09/12/05

Project: Shea Rear Lot 9/12, F&BI 509074

Date Extracted: 09/12/05

Date Analyzed: 09/13/05

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR PCBs REPORTED AS AROCLORS
USING EPA METHOD 8082
Results Reported as $\mu\text{g/g}$ (ppm)

<u>Sample ID</u> Laboratory ID	Aroclor								Surrogate (% Rec.) (Limit 50-150)
	<u>1221</u>	<u>1232</u>	<u>1016</u>	<u>1242</u>	<u>1248</u>	<u>1254</u>	<u>1260</u>	<u>1262</u>	
SP 1 509074-01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	127
Method Blank	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05
Date Received: 09/12/05
Project: Shea Rear Lot 9/12, F&BI 509074
Date Extracted: 09/13/05
Date Analyzed: 09/13/05

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS
BY EPA METHOD 6010

Results Reported on a Dry Weight Basis
Results Reported as $\mu\text{g/g}$ (ppm)

Sample ID
Laboratory ID

CdCrPb

SP 1
509074-01

<1.0

3.9

42

Method Blank

<1.0

<1.0

<2.0

Cd Cadmium
Cr Chromium
Pb Lead

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05

Date Received: 09/12/05

Project: Shea Rear Lot 9/12, F&BI 509074

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLE
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING EPA METHOD 8021B**

Laboratory Code: 509074-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent
				Difference (Limit 20)
Benzene	µg/g (ppm)	<0.02	<0.02	nm
Toluene	µg/g (ppm)	<0.02	<0.02	nm
Ethylbenzene	µg/g (ppm)	<0.02	<0.02	nm
Xylenes	µg/g (ppm)	<0.06	<0.06	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Benzene	µg/g (ppm)	0.5	110	71-115
Toluene	µg/g (ppm)	0.5	108	62-124
Ethylbenzene	µg/g (ppm)	0.5	110	67-120
Xylenes	µg/g (ppm)	1.5	111	60-123

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05

Date Received: 09/12/05

Project: Shea Rear Lot 9/12, F&BI 509074

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082**

Laboratory Code: 509068-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Aroclor 1016	µg/g (ppm)	<0.1	<0.1	nm
Aroclor 1260	µg/g (ppm)	<0.1	<0.1	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	µg/g (ppm)	0.8	101	101	70-139	0
Aroclor 1260	µg/g (ppm)	0.8	128	125	83-144	2

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/16/05

Date Received: 09/12/05

Project: Shea Rear Lot 9/12, F&BI 509074

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS
BY EPA METHOD 6010**

Laboratory Code: 509049-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Cadmium	µg/g (ppm)	<1.0	<1.0	nm	0-20
Chromium	µg/g (ppm)	7.9	7.7	3	0-20
Lead	µg/g (ppm)	12	12	0	0-20

Laboratory Code: 509049-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Cadmium	µg/g (ppm)	25	<1.0	82	50-150
Chromium	µg/g (ppm)	25	7.9	73	50-150
Lead	µg/g (ppm)	50	12	70	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Cadmium	µg/g (ppm)	25	104	70-130
Chromium	µg/g (ppm)	25	106	70-130
Lead	µg/g (ppm)	50	106	70-130

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

Appendix B Standard Operating Procedures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

5 Post Office Square, Suite 100

Boston, MA 02109-3912



**STANDARD OPERATING PROCEDURE FOR SAMPLING POROUS
SURFACES FOR POLYCHLORINATED BIPHENYLS (PCBs)**

May 2011

**STANDARD OPERATING PROCEDURE
FOR SAMPLING POROUS SURFACES
FOR POLYCHLORINATED BIPHENYLS (PCBs)**

**The Office of Environmental Measurement and Evaluation
EPA New England – Region 1
11 Technology Dr.
North Chelmsford, MA 01863**

Prepared by: 
Dan Granz, Environmental Engineer


5/5/11
Date

Reviewed by: 
Kim Tisa, TSCA PCB Coordinator

5/5/11
Date

Reviewed by: 
Jerry Keefe – EIA Team Leader

05/23/11
Date

Approved by: 
Dan Boudreau, EIA Chemistry Team Leader

5/23/11
Date

Disclaimer: The controlled version of this document is the electronic version viewed on-line only. If this is a printed copy of the document, it is an uncontrolled version and may or may not be the version.

This document contains direction developed solely to provide internal guidance to U.S. Environmental Protection Agency (EPA) personnel. EPA retains the discretion to adopt approaches that differ from these procedures on a case by case basis. The procedures set forth do not create any rights, substantive or procedural, enforceable at law by a party to litigation with EPA or the United States.

[illegible]

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Attachments:

Example of Custody Seal and Sample Label
Example of Chain of Custody Form

1.0 Scope and Application

- 1.1 This Standard Operating Procedure (SOP) is suitable for collection of a porous matrix sample for analysis of Polychlorinated Biphenyls (PCBs).
- 1.2 This SOP describes sampling techniques for both hard and soft porous surfaces.
 - 1.2.1 Hard surfaces, and most soft surfaces, can be sampled using an impact hammer drill to generate a uniform, finely ground, powder to be extracted and analyzed for PCBs. This procedure is primarily geared at providing enough sample quantity for two analyses. Hard porous surfaces include concrete, brick, asphalt, cement, sandstone, limestone, unglazed ceramics, and other possible PCB suspected material. This procedure may also be used on other softer porous surfaces, such as wood.
 - 1.2.2 Soft surfaces can be sampled using a chisel or sharp knife to generate a representative sample to be extracted and analyzed for PCBs. Soft porous surfaces include wood, wall plasterboard, low density plastics, rubber, caulking, and other PCB suspected material.
- 1.3 This SOP provides for collection of surface samples (0 – 0.5 inches) and delineation of PCB contamination throughout the core of the porous surface. The procedure can be used to sample the porous surface at distinctly different depth zones.

2.0 Method Summary

A one-inch or other sized diameter carbide drill bit is used in a rotary impact hammer drill to generate a fine powder, or other representative sample, suitable for extraction and analysis of PCBs from porous surfaces. This method also allows the use of chisels or knives for the collection of samples from soft porous surfaces for PCB analysis.

3.0 Definitions

- 3.1 Field/Bottle Blank: A sample container of the same lot as the containers used for the environmental samples. This evaluates PCB contamination introduced from the sample container(s) from a common lot.
- 3.2 Equipment/Rinse/Rinsate Blanks: A sample that is collected by pouring hexane over the sample collection equipment after decontamination and before sample collection. The sample is collected in the appropriate sample container identical to the sample containers. This represents background contamination resulting from the field equipment, sampling procedure, sample container, and shipment.

- 3.3 Field Replicates/Duplicates: Two or more samples collected at the same sampling location. Field replicates should be samples collected side by side. Field replicates represent the precision of the whole method, site heterogeneity, field sampling, and the laboratory analysis.
- 3.4 Field Split Samples: Two or more representative subsamples taken from one environmental sample in the field. Prior to splitting, the environmental sample is homogenized to correct for sample heterogeneity that would adversely impact data comparability. Field split samples are usually analyzed by different laboratories (interlaboratory comparison) or by the same laboratory (intralaboratory comparison). Field splits are used to assess sample handling procedures from field to laboratory and laboratory comparability.
- 3.5 Laboratory Quality Samples: Additional samples that will be collected for the laboratory's quality control program: matrix spike, matrix spike duplicate, laboratory duplicates, etc.
- 3.6 Proficiency Testing (PT)/Performance Evaluation (PE) Sample: A sample, the composition of which is unknown to the laboratory or analyst, provided to the analyst or laboratory to assess the capability to produce results within acceptable criteria. This is optional depending on the data quality objectives. If possible, it is recommended that the PE sample be of similar matrix as the porous surface(s) being sampled.
- 3.7 Porous Surface: Any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low density plastics such as Styrofoam and low density polyethylene; coated (varnished or painted) or uncoated wood; painted or unpainted concrete or cement; plaster; plasterboard; wallboard; rubber; caulking; fiberboard; chipboard; asphalt; or tar paper.
- 3.8 Shipping Container Temperature Blank: A water sample that is transported to the laboratory to measure the temperature of the samples in the cooler.
- 4.0 Health and Safety**
- 4.1 Eye, respiratory, and hearing protection are required at all times during sample drilling. A properly fitted respirator is required for hard porous surface sampling. A respirator is recommended whenever there is a risk of inhalation of either particulate or volatilized PCBs during sampling.
- 4.2 All proper personal protection clothing and equipment must be worn.

4.3 When working with potentially hazardous materials or situations, follow EPA, OSHA, and specific health or safety procedures.

4.4 Care must be exercised when using an electrical drill and sharp cutting objects.

5.0 Interferences and Potential Problems

5.1 This sampling technique produces a finely ground uniform powder, which minimizes the physical matrix effects from variations in the sample consistency (i.e., particle size, uniformity, homogeneity, and surface condition). Matrix spike analysis of a sample is highly recommended to monitor for any matrix related interferences.

5.2 Nitrile gloves are recommended. Latex gloves must not be used due to possible phthalate contamination.

5.3 Interferences may result from using contaminated equipment, solvents, reagents, sample containers, or sampling in a disturbed area. The drill bit must be decontaminated between samples. (see Section 11.0.)

5.4 Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment.

6.0 Personnel Qualifications

6.1 All field samplers working at hazardous materials/waste sites are required to take a 40 hour health and safety training course prior to engaging in any field activities. Subsequently, an 8 hour refresher health and safety course is required annually.

6.2 The field sampler should be trained by an experienced sampler before initiating this procedure.

6.3 All personnel shall be responsible for complying with all quality assurance/quality control requirements that pertain to their organizational/technical function.

7.0 Equipment and Supplies

7.1 This list varies with the matrix and if depth profiling is required

- Rotary impact hammer variable speed drill
- 1-inch or other suitable (1/2, 3/4, etc.) diameter carbide tip drill bits
- Steel chisel or sharp cutting knife, and hammer
- Brush and cloths to clean area
- Stainless steel scoopulas

Aluminum foil to collect the powder sample
1 quart Cubitainer with the top cut out to collect the powder sample
Aluminum weighing pans to collect the powder sample
Cleaned glass container (2 oz or 40 mL) with Teflon lined cap
Decontamination supplies: hexane, two small buckets, a scrub brush, detergent, deionized water, hexane squirt bottle, and paper towels
Dedicated vacuum cleaner with a disposable filter or a vacuum pump with a dust filter
Polyethylene tubing and Pasteur pipettes
Sample tags/labels, custody seals, and Chain-of-Custody form

8.0 Sampling Design

- 8.1 A sufficient number of samples must be collected to meet the data quality objectives of the project. If the source of the PCB contamination is regulated under the federal TSCA PCB Regulations at 40 CFR Part 761, the sampler should insure that the sampling design is sufficient to meet any investigation or verification sampling requirements. At a minimum, the following is recommended:

- 8.1.1 Suspected stained area (s) should be sampled.
- 8.1.2 At each separate location, collect at least 3 samples of each type of porous surface, regardless of the amount of each type of porous surface present.
- 8.1.3 In areas where PCB equipment was used or where PCBs were stored, samples should be collected at a frequency of 1 sample/100 square feet (ft²).

9.0 Sample Collection

9.1 Hard Porous Surfaces

- 9.1.1 Lock a 1-inch or another size diameter carbide drill bit into the impact hammer drill and plug the drill into an appropriate power source. For easy identification, sample locations may be pre-marked using a marker or paint. (Note: the actual drilling point must not be marked.) Remove any debris with a clean brush or cloth prior to drilling. All sampling decisions of this nature should be noted in the sampling logbook.
- 9.1.2 Use a Cubitainer with the top cut off or aluminum foil to contain the powdered sample. Begin drilling in the designated location. Apply steady even pressure and let the drill do the work. Applying too much pressure will generate excessive heat and dull the drill bit prematurely. The drill will provide a finely ground powder that can be easily collected.

- 9.1.3 Samples should be collected at ½-inch depth intervals. Thus, the initial surface sample should be collected from 0 – 0.5 inches. A ½-inch deep hole generates about 10 grams (20 mL) of powder. Multiple holes located closely adjacent to each other, may be needed to generate sufficient sample volumes for a PCB determination. It is strongly recommended that the analytical laboratory be consulted on the minimum sample size needed for PCB extraction and analysis.
- 9.1.4 Wall and Ceiling Sampling: A team of two samplers will be required for wall and ceiling sampling. The second person will hold a clean catch surface (e.g. an aluminum pan) below the drill to collect the falling powder. Alternatively, use the chuck-end of the drill bit and punch a hole through the center of the collection pan. The drill bit is then mounted through the pan and into the drill. For ceilings, the drill may be held at an angle to collect the powder. Thus the driller can be drilling at an angle while the assistant steadies the pan to catch the falling powder. As a precaution, it may be advantageous to tape a piece of plastic around the drill, just below the chuck, to avoid dust contaminating the body of the drill and entering the drill's cooling vents. Caution must be taken to prevent obstruction of the drill's cooling vents.

9.2 Soft Porous Surfaces

- 9.2.1 The procedure for the hard porous surface may be used for certain soft porous surfaces, such as wood.
- 9.2.2 Samples should be collected at no more than ½-inch depth intervals using a metal chisel or sharp cutting knife. Thus, the initial surface sample should be collected from 0 – 0.5 inches. It is important to collect at least 10 grams for analysis.
- 9.2.3 For soft porous surfaces, such as caulking and rubber, a representative sample can be collected using a metal chisel or sharp cutting knife.

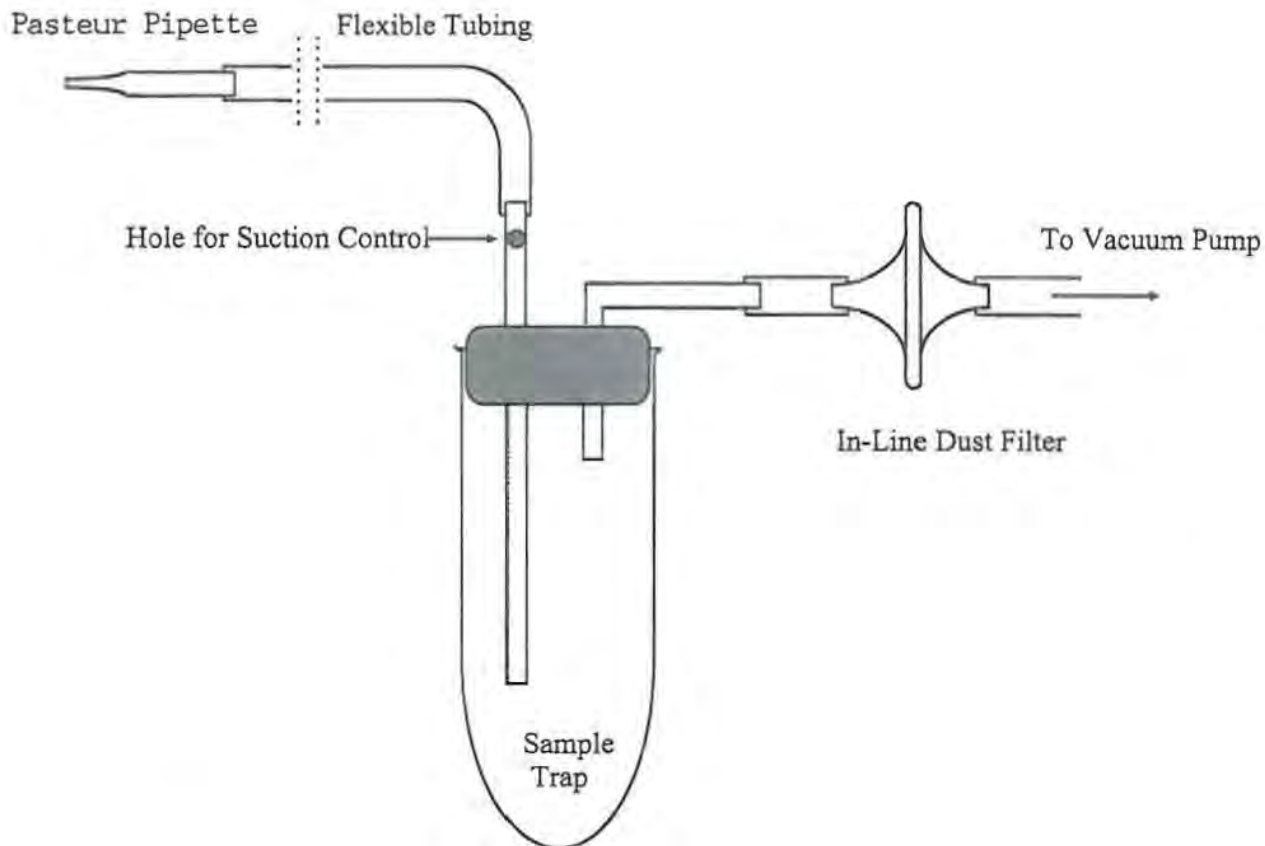
9.3 Multiple Depth Sampling

- 9.3.1 Multiple Depth Sampling may not be applicable to certain porous surfaces, such as caulking.
- 9.3.2 Collect the surface sample as outlined in Section 9.1 or 9.2.
- 9.3.3 Use the vacuum pump or cleaner to clean out the hole.
- 9.3.4 To collect multiple depths there are two options.

- 9.3.4.1 Option one: drill sequentially ½-inch increments with the 1 inch drill.
- 9.3.4.2 Option two: drill with the 1 inch bit and either make the hole larger or use a smaller bit to take the next ½- inch sample.
- 9.3.5 A stainless steel scoopula will make it easier to collect the sample from the bottom of the hole.

9.4 Vacuum Trap Design and Clean-out

The trap presented in Figure 1 is a convenient and thorough way for collecting and removing concrete powder from drilled holes. The trap system is designed to allow for control of the suction from the vacuum pump and easy trap clean-out between samples. Note, by placing a hole in the inlet tube (see Figure 1), a finger on the hand holding the trap can be used to control the suction at the sampling tip. Thus, when this hole is left completely open, there will be no suction, and the sampler can have complete control over where and what to sample. To change-out between samples the following steps should be taken: 1) the Pasteur pipette and piece of polyethylene tubing at the sample inlet should be replaced with new materials, 2) the portion of the rubber stopper and glass tubing that was in the trap should be wiped down with a clean damp paper towel (wetted with deionized water) and then dried with a fresh paper towel, 3) a clean pipe cleaner should be drawn through the glass inlet tube to remove any concrete dust present, and 4) the glass tube or flask used to collect the sample should be swapped out with a clean decontaminated sample trap. Having several clean tubes or flasks on hand will facilitate change-out between samples.

Figure 1

Note: the holes should be vacuumed thoroughly to minimize any cross-contamination between sample depths and the bits should be decontaminated between samples. (See Section 11.0)

10.0 Sample Handling, Preservation, and Storage

- 10.1 Samples must be collected in glass containers for PCB analyses. In general, a 2-ounce sample container with a Teflon-lined cap (wide-mouth jars are preferred) will hold sufficient mass for most analyses. A 2-ounce jar can hold roughly 90 grams of sample.
- 10.2 Samples are to be shipped refrigerated and maintained at $\leq 6^{\circ}\text{C}$ until the time of extraction and analysis.
- 10.3 The suggested holding time for PCB samples is 14 days to extraction.

11.0 Decontamination

- 11.1 Assemble two decontamination buckets. The first bucket contains a detergent and potable water solution, and the second bucket is for rinsate. Place all used drill bits, hose for the vacuum cleaner, and utensils in the detergent and water bucket. Scrub each piece thoroughly using the scrub brush. Note, the powder does cling to the metal surfaces, so care should be taken during this step, especially with the twists and curves of the drill bits. Next, rinse each piece with water and hexane. Place the rinsed pieces on clean paper towels and individually dry and inspect each piece. Note: all pieces should be dry prior to reuse.
- 11.2 Lightly contaminated drill bits and utensils may be wiped with a hexane soaked cloth and hexane rinsed for decontamination.

12.0 Data and Record Management

- 12.1 All data and information collection should follow a Field Data Management SOP or Quality Assurance Project Plan (QAPP).
- 12.2 Follow the chain of custody procedures to release the samples to the laboratory. A copy is kept with the sampling records.
- 12.3 The field data is stored for at least 3 years.

13.0 Quality Control and Quality Assurance

- 13.1 Representative samples are required. The sampler will evaluate the site specific conditions to assure the sample will be representative.
- 13.2 All sampling equipment must be decontaminated prior to use and between each discrete sample.
- 13.3 All field Quality Control (QC) sample requirements in a Sample and Analysis Plan (SAP) or QAPP must be followed. The SAP or QAPP may involve field blanks, equipment blanks, field duplicates and/or the collection of extra samples for the laboratory's quality control program.
- 13.4 Field duplicates should be collected at a minimum frequency of 1 per 20 samples or 1 per non-related porous matrix, whichever is greater.

14.0 Waste Management and Pollution Prevention


- 14.1 During field sampling events there may be PCB and/or hazardous waste produced from the sample collection. The waste must be handled and disposed of in accordance with federal, state, and local regulations. The dust filter, and tubing if a vacuum pump is used, is disposed after each site investigation. This waste will be treated as PCB waste if the samples are positive for PCBs. It may be possible to manage or dispose of the waste produced at the site where the work was performed. If the site does not meet regulatory requirements for these types of activities, the waste must be transported to a facility permitted to manage and/or dispose of the waste.

15.0 References

1. Guidance for the Preparation of Standard Operating Procedures for Quality-Related Operations, QA/G-6, EPA/600/R-96/027, November 1995.
2. 40 CFR Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution In Commerce, and Use Prohibitions
3. Sample Container and Holding Time: RCRA SW 846, Chapter 4, Table 4.1, Revision 4, February, 2007.

Example of Sample Label and Custody Seal

U.S. ENVIRONMENTAL PROTECTION AGENCY – REGION I BOSTON, MASS.	
LABEL	NAME OF UNIT AND ADDRESS ENVIRONMENTAL SERVICES DIVISION 60 WESTVIEW STREET LEXINGTON, MASSACHUSETTS 02173
	DATE: YR/MO/DAY
SAMPLE	TIME
	STATION NO.
	SAMPLE NO.
	SUB NO.
	PRESERVATIVE
	AMOUNT
SOURCE OF SAMPLE	
ANALYSIS	
SAMPLING CREW (FIRST, INITIAL, LAST NAME)	

 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY OFFICIAL SAMPLE SEAL	SAMPLE NO.	DATE
	SIGNATURE	
	PRINT NAME AND TITLE (Inspector, Analyst or Technician)	
SEAL BROKEN BY		DATE

EPA FORM 7500-2 (R7-75)



REGION 1

PROJ. NO.		PROJECT NAME						NO. OF CON- TAINERS										REMARKS	
SAMPLERS: (Signature)																			
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION														

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received by: (Signature)

Relinquished by: (Signature)

Date / Time

Received for Laboratory by:
(Signature)

Date / Time

Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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