



**REGULATED BUILDING MATERIALS
SUPPLEMENTAL SAMPLING AND PROJECT SUMMARY
TO SUPPORT DEMOLITION**

**PORT OF TACOMA
1940 EAST 11TH STREET
TACOMA, WASHINGTON**

April 8, 2014

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Analytical Results; NVL Laboratories; Supplemental Asbestos Samples

Analytical Results; Analytical Resources, Incorporated; Supplemental TCLP-Lead Samples; Supplemental TCLP-PCB Samples

1.0 Introduction

This document presents the results of an assessment of existing data for regulated building materials (RBMs) and supplemental sampling to support demolition of the Port of Tacoma (POT) building located at 1940 East 11th Street in Tacoma, Washington (subject building). EMB Consulting reviewed available RBM reports for the subject building for completeness and to verify quantities. Supplemental sampling was conducted for potential asbestos-containing materials (ACM) and leachable lead and polychlorinated biphenyls (PCBs) in bulk building materials. This document, along with available cited RBM inspection reports, provides a comprehensive summary of RBMs in the subject building to support demolition.

This assessment specifically excludes PCBs in paint and caulk. The management of PCBs in paint and caulk is addressed in the PCB Building Material Work Plan prepared by CRETE Consulting (CRETE, 2014).

2.0 Scope of Work

The scope of work for this project was performed in general accordance with the Regulated Building Materials Assessment Workplan prepared by EMB Consulting (EMB, 2014). The only modification to that workplan was the addition of testing of bulk building material samples for leachability of PCBs from building demolition debris.

The RBMs assessed for demolition planning and included in this report are ACM, leachable lead and PCBs in the building demolition debris, and other RBMs, to include mercury-containing fluorescent light tubes, PCB-containing fluorescent light ballasts, mercury-containing thermostat switches, and high-intensity discharge (HID) lamps. Work performed for this project consisted of the following tasks.

- EMB Consulting reviewed the following documents to verify that RBMs had been adequately characterized and quantified for the subject building in preparation for demolition.

Argus Pacific 2009, Asbestos Assessment, Brown & Haley Roof, 1940 East 11th Street, Port of Tacoma, March 25, 2009.

Argus Pacific 2010, Regulated Building Materials Assessment, Brown and Haley Building, 1940 East 11th Street, Port of Tacoma, March 15, 2010.

Pioneer Technologies Corporation (Pioneer) 2012a, Memo from Stacy Munson to Bill Evans (Port of Tacoma), Brown & Haley Building Materials Characterization Sampling, March 29, 2012.

Pioneer Technologies Corporation 2012b, Memo from Stacy Munson to Bill Evans (Port of Tacoma), 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling, June 6, 2012.

EMB Consulting used these results during site inspections to visually assess the presence, location, and quantity of materials reported. EMB Consulting is not aware of the presence of additional inspection reports or other information related to RBMs in the subject building.

- At completion of the document review and site inspections, EMB Consulting determined that the following supplemental sampling was necessary to complete the pre-demolition RBM characterization for the subject building.
 - EMB Consulting collected five samples of suspect ACM not represented in existing reports.
 - EMB Consulting collected six samples for Toxicity Characteristic Leaching Procedure (TCLP)-lead analysis from the building interior and exterior for demolition waste characterization from areas not represented in existing reports.
 - EMB Consulting collected six TCLP-PCB samples from the building interior and exterior to obtain information about leachable PCBs in building debris. The previous inspections did not include TCLP-PCB analyses.
- Following report review, inspections, and supplemental sampling, EMB Consulting prepared this summary of RBMs in the building and adjusted estimated quantities to support demolition. The results are summarized in the following tables.
 - Table 1 provides a summary of the confirmed ACM documented from all available survey reports for the subject building. Quantities were adjusted by EMB Consulting based on a materials review.
 - Table 2 provides the results of supplemental sampling for suspect ACMs conducted by EMB Consulting.
 - Tables 3 and 4 provide the results of 11 indoor and outdoor samples for leachable lead in building materials by Pioneer Technologies and EMB Consulting, respectively.
 - Table 5 provides the results of sampling for leachable PCBs in building materials conducted by EMB Consulting.
 - Table 6 provides the inventory of other RBMs provided by Argus Pacific. EMB Consulting field-verified quantities as part of this project.

3.0 Project Methods and Data Summary

3.1 Asbestos-Containing Materials

On February 20 and March 17, 2014, EMB Consulting conducted field verification of the identified ACM in the subject building and inspection for additional materials not previously characterized. Elisabeth Black of EMB Consulting is a building inspector

certified under the Asbestos Hazard and Emergency Response Act (AHERA), expiration date February 12, 2015.

The results of the field verification are provided in Table 1. The results are for materials confirmed by Argus Pacific in their 2009 and 2010 inspection reports. For this project, EMB Consulting adjusted estimated quantities for abatement and demolition, where needed.

Elisabeth Black also collected five additional samples of suspect building materials in accordance with the sampling procedures specified in EPA's AHERA regulations under 40 CFR 763.86. Sample identifiers were chosen to match the sampling scheme used by Argus Pacific for their 2010 inspection. Elisabeth Black collected two samples of drywall in an area that was not sampled by Argus Pacific. Those samples maintained the sample designator used by Argus Pacific for drywall of 6-xx. The drywall samples collected by Elisabeth Black were labeled 6-06 and 6-07 representing the sixth and seventh drywall samples for the subject building. Two new materials were identified by Elisabeth Black as suspect ACM. Countertop laminate was given the material identifier 104, with two samples collected as 104-01 and 104-02. Finally, cement board on the building northwest exterior was identified as suspect ACM type 105. One sample of that material was collected and designated 105-01.

Supplemental samples of suspect ACM were hand-delivered to NVL Laboratories, Incorporated in Seattle, Washington, where the samples were analyzed by polarized light microscopy (PLM, EPA Method 600/R93/116). NVL is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) to perform asbestos analysis.

The results of the supplemental bulk asbestos samples collected by EMB Consulting are presented in Table 2. Sample locations are indicated on Figure 1.

3.2 Lead in Building Materials - TCLP

In 2012, Pioneer collected and analyzed six samples of interior building materials for TCLP-lead. They did not characterize exterior building materials for leachable lead. Since exterior surfaces make up the greatest painted surface area for the building, EMB Consulting provided supplemental TCLP-lead sampling for this project.

On February 20, 2014, Elisabeth Black collected six bulk composite samples for TCLP-lead analysis from subject building surfaces using a hammer and chisel to extract building materials, to include painted surfaces and underlying substrate, or any other building material with the potential to contain lead. Elisabeth Black attempted to collect a sample quantity of at least 100 grams. One composite sample was collected from each exterior building face, for four exterior building TCLP-lead samples. An additional two samples were collected from interior surfaces.

Sample containers were labeled at the time of sample collection. Sample identifiers were created as follows. The samples were first identified as coming from an interior (Int) or exterior (Ext) location. Then, the type of sample was included (TCLP-Pb), followed by the sample number collected in sequence. The first exterior sample collected for TCLP-lead was identified as EXT-TCLP-PB-1.

The supplemental TCLP-lead samples and chain of custody were delivered to Analytical Resources, Inc. (ARI) in Tukwila, Washington for laboratory analysis. The samples were analyzed according to the TCLP methods for lead using EPA Method 1311/6010. Materials contain regulated concentrations of leachable lead if sample results indicate equal to, or greater than, 5 mg/L lead.

The results of Pioneer TCLP-lead samples are in Table 3. The Pioneer report should be relied upon for a full list of their materials sampled and sample locations. Supplemental TCLP-lead sample results are provided in Table 4.

3.3 PCBs in Building Materials - TCLP

On February 20, 2014, Elisabeth Black collected also collected six bulk composite samples for TCLP-PCB analysis from subject building surfaces using a hammer and chisel to extract building materials, to include painted surfaces and underlying substrate, or any other building material with the potential to contain PCBs. The samples were split samples from the TCLP-lead sampling described above. Elisabeth Black attempted to collect a sample quantity of at least 100 grams. One composite sample was collected from each exterior building face, for four exterior building TCLP-PCB samples. An additional two samples were collected from interior surfaces.

Sample containers were labeled at the time of sample collection. Sample identifiers were created as follows. The samples were first identified as coming from an interior (Int) or exterior (Ext) location. Then, the type of sample was included (TCLP-PCB), followed by the sample number collected in sequence. The first exterior sample collected for TCLP-PCB was identified as EXT-TCLP-PCB-1.

The TCLP-PCB samples and chain of custody were delivered to ARI in Tukwila, Washington for laboratory analysis. The samples were analyzed according to the TCLP methods for PCBs using EPA Method 1311/8082A. Some landfills in the United States use the TCLP-PCB test criteria to determine the potential for leaching of PCBs within their landfills¹. The criterion cited is 10 mg/L total PCBs.

TCLP-PCB sample results are provided in Table 5.

3.4 Other Regulated Building Materials

On March 17, 2014, EMB Consulting conducted field verification of other RBMs identified in the Argus Pacific 2010 report, to include mercury-containing fluorescent light tubes, PCB-containing fluorescent light ballasts, mercury-containing thermostat switches, and HID lamps. The other RBM inventory is provided as Table 5.

4.0 Inspection Results

4.1 Asbestos-Containing Materials

Table 1 provides a list of all ACM identified by Argus Pacific in their 2009 and 2010 RBM survey reports. Those reports should be relied upon for a full list of materials sampled

¹ Wasco County Landfill, Wasco, Oregon, Special Waste Acceptance Criteria

and sample locations. EMB Consulting field verified and adjusted identified quantities for abatement and demolition, as needed.

Table 2 provides the results of five additional samples identified as possible ACM by Elisabeth Black of EMB Consulting during site inspections. The additional materials included gypsum wallboard from drywall systems, counter laminate and mastic, and exterior cement board. None of the five supplemental materials sampled were found to be ACM.

4.2 Lead in Building Materials – TCLP

Tables 3 provides all interior TCLP-lead sample results from Pioneer in their 2012 investigation. Table 4 provides the supplemental sample results for exterior and interior samples for TCLP-lead provided by EMB Consulting.

Two of the Pioneer samples contained detectable concentrations of lead in leachate above the laboratory limit of detection. Lead was not detected in sample leachate from the remainder of Pioneer samples or in any of the samples collected by EMB Consulting. None of the samples contained regulated concentrations of lead as a leachate.

4.3 PCBs in Building Materials - TCLP

Table 4 provides the results of six samples collected and analyzed for leachable PCBs from exterior and interior locations by Elisabeth Black of EMB Consulting during site inspections. Leachable PCBs were not detected in any of the six samples at or above the laboratory limit of detection. The laboratory limit of detection is below the acceptance criteria used by landfills in the United States and an indicator that PCBs will not be released as a leachate.

4.4 Other Regulated Building Materials

EMB Consulting field-verified the results of the Argus Pacific report. Quantities were not adjusted in preparation for abatement. The results are provided in Table 5.

5.0 Summary Conclusions

This document and the referenced RBM inspection reports provide a summary of RBMs to facilitate planning, abatement, and execution of building demolition. The referenced RBM inspection reports should be relied upon to provide a greater level of detail on the location and extent of RBMs in the subject building.

- All confirmed and assumed ACM must be removed and disposed of by a Washington-certified asbestos abatement contractor prior to demolition. Non-friable roofing material may be brought down with the roof, but must be handled, segregated, and disposed of as ACM.
- None of the bulk building material samples collected for TCLP-lead analysis exceed the TCLP standard for lead, which would indicate that building demolition debris does not require disposal as dangerous waste in the State of Washington.

- EPA has determined that PCB bulk product waste can be safely disposed of in certain non-TSCA approved landfills as it showed that these wastes are unlikely to migrate into groundwater or soil. The results of the limited TCLP-PCB testing conducted for this project support that assumption.
- Other potential RBMs include mercury vapor-containing fluorescent tubes, potential PCB-containing light ballasts, mercury thermostat switches, and HID lamps. Identified RBMs should be removed and disposed of or recycled in accordance with applicable state and federal regulations.

6.0 Limitations

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities at the time the work was performed. It is intended for the exclusive use of CRETE and the Port of Tacoma and its contractors for specific application to the referenced structures. No other warranty, express or implied, is made.

7.0 References

Argus Pacific 2009, Asbestos Assessment, Brown & Haley Roof, 1940 East 11th Street, Port of Tacoma, March 25, 2009.

Argus Pacific 2010, Regulated Building Materials Assessment, Brown and Haley Building, 1940 East 11th Street, Port of Tacoma, March 15, 2010.

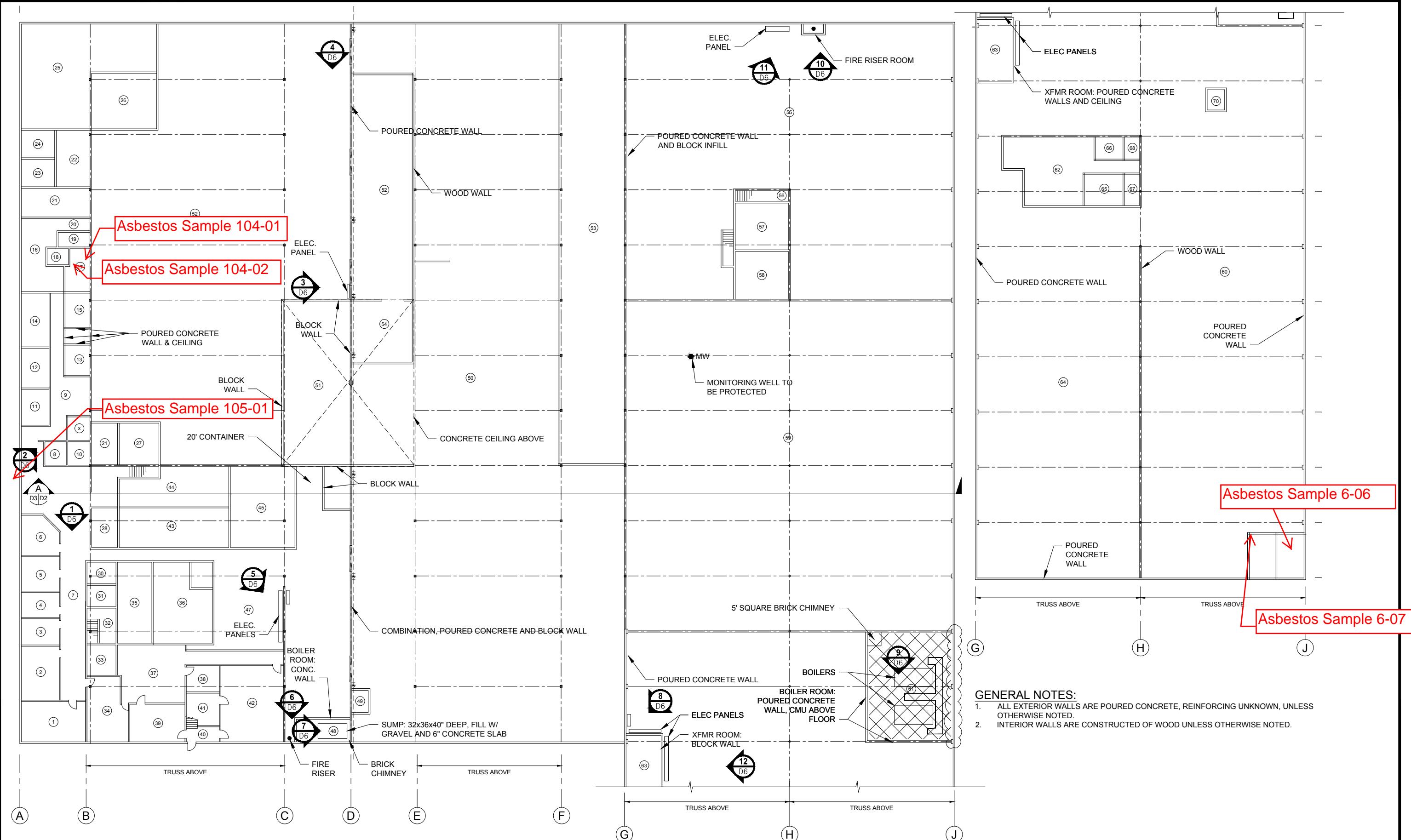
CRETE Consulting 2014, PCB Building Material Work Plan, Port of Tacoma, 1940 East 11th Street.

EMB Consulting, LLC 2014, Regulated Building Materials Assessment Workplan Excluding PCBs in Paint and Caulk, Port of Tacoma, 1940 East 11th Street, Tacoma, Washington.

Pioneer Technologies Corporation (Pioneer) 2012a, Memo from Stacy Munson to Bill Evans (Port of Tacoma), Brown & Haley Building Materials Characterization Sampling, March 29, 2012.

Pioneer Technologies Corporation 2012b, Memo from Stacy Munson to Bill Evans (Port of Tacoma), 1940 East 11th Street Building Materials and Soil/Sediment Characterization Sampling, June 6, 2012.

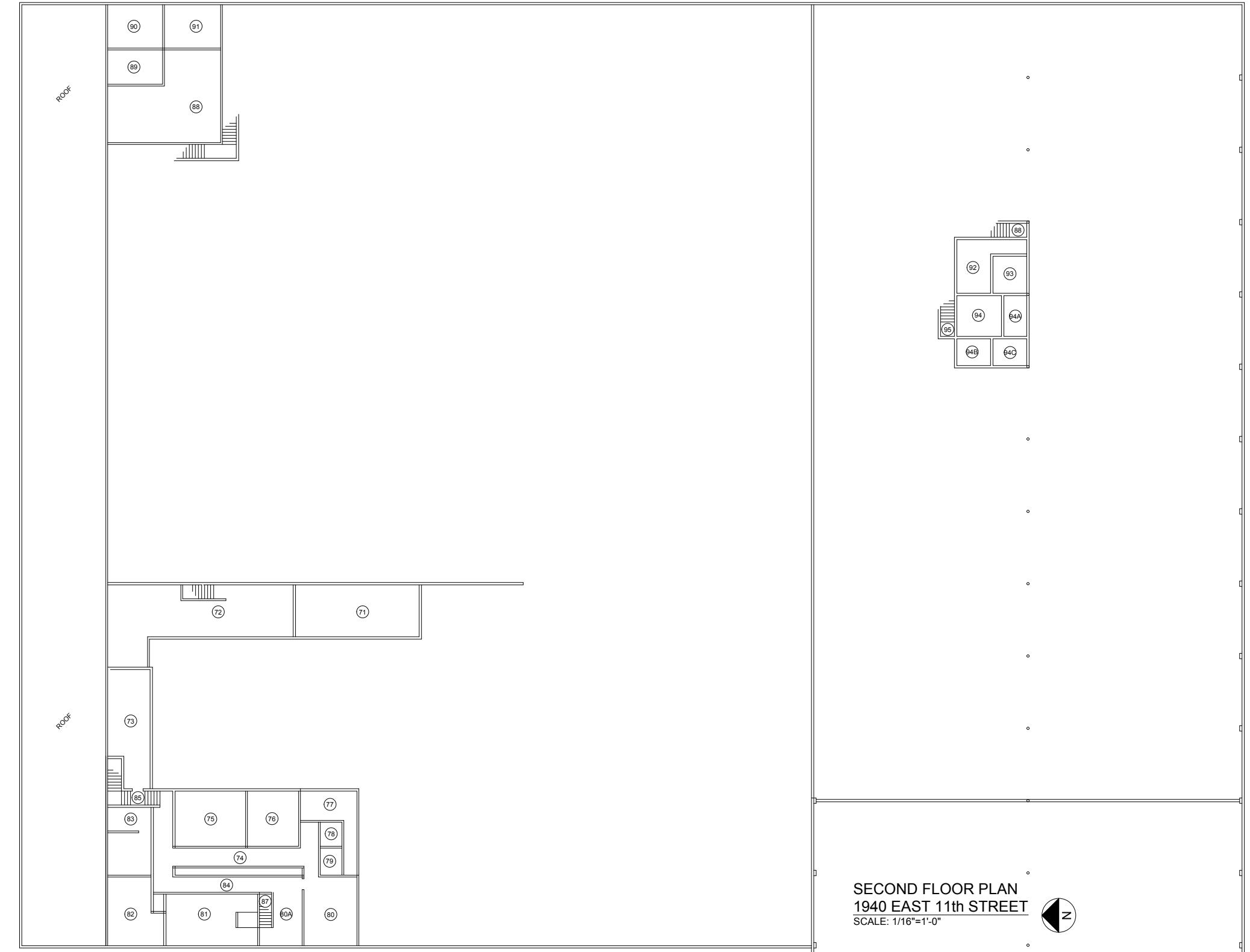
FIGURE



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

GENERAL NOTES:

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



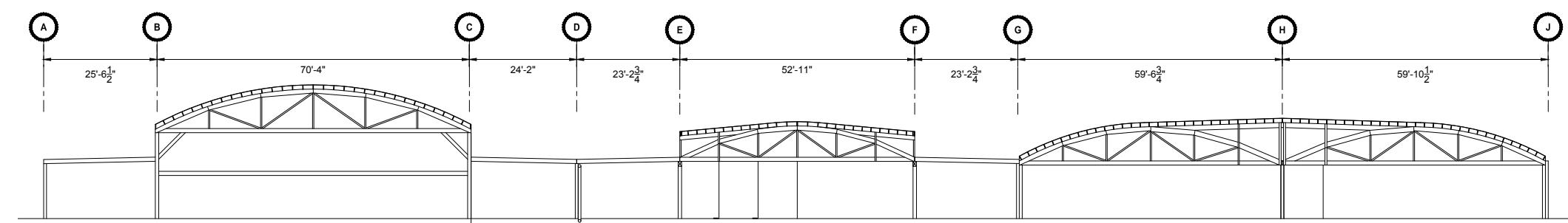
BUILDING LAYOUT PLAN

PORT OF TACOMA
1940 East 11th Street Building

DATE: 12/16/2013 DRAWN: BIS

D4

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



TABLES

Table 1- Asbestos-Containing Materials and Adjusted Estimated Quantities**(Argus Pacific, 2009 and 2010)****Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

ACM Material Description	ACM Material Location	Estimated Quantity
9"x9" tan vinyl floor tiles above non-ACM black mastic	SW mezzanine: flooring in rooms 73, 75, 76, and 83; SW offices: below carpet in rooms 2-6, 30-34, and 39; SW mezzanine: below carpet in 74, 80, 80A, 81, 82, and 84	5,000 ft ²
White/beige acoustical popcorn ceiling	SW offices: ceilings in rooms 37, 38, 39, and 41	1,500 ft ²
Black sink undercoating	SW office: sink in room 17	1 each
9"x9" green vinyl floor tiles above non-ACM black/brown mastic	SW offices: below carpet in rooms 9, 9A, 11, 14, 15, and west half of room 21; below 12"x12" floor tiles in rooms 12 and 16; SE offices: flooring in west section of room 62	1,550 ft ²
12"x12" white vinyl floor tiles above non-ACM yellow mastic	SW offices: flooring in room 12	120 ft ²
Grey caulking and silver caulking	At seams around exterior vents on south exterior of room 48 and west exterior of room 63	100 lf
Electrical panels	Throughout building	50 each
Large sliding metal-clad fire doors	Throughout building	15 each
12"x12" beige vinyl floor tiles with black splotches and black mastic	Flooring in room 57	400 ft ²
9"x9" tan vinyl floor tiles above non-ACM black mastic and asphaltic paper	East mezzanine: flooring in rooms 92, 94, 95, and 96 (steps and landings in stairways)	500 ft ²
White/grey hard block pipe insulation (4" to 7" OD piping)	Straight run pipe insulation on piping near ceiling throughout majority of building; straight run pipe insulation above ceiling throughout north half of SW offices; straight run pipe insulation above ceiling in rooms 71, 74, 76, 80, 80A, 84, and 87	4,000 lf
Valve gaskets	Throughout rooms 48 and 61; SE corner of room 47; north end of room 55; near ceiling at south end of room 55	200 each

**Table 1- Asbestos-Containing Materials and Adjusted Estimated Quantities
(Argus Pacific, 2009 and 2010)**

Port of Tacoma

1940 East 11th Street

Tacoma, Washington

ACM Material Description	ACM Material Location	Estimated Quantity
9"x9" white vinyl floor tiles and black/yellow mastic	SE offices: flooring in room 62 and below carpet in room 65	800 ft ²
Black/yellow mastic below non-ACM 12"x12" dark green vinyl floor tiles	SE offices: flooring in room 66	50 ft ²
Black/yellow mastic below non-ACM vinyl floor sheeting and leveling compound	SE offices: flooring in room 69	50 ft ²
Muddled insulation on pipe elbows, joints, and fittings (4" to 7" OD piping)	Piping near ceiling throughout majority of building; above ceiling throughout north half of SW offices; above ceiling rooms 80, 84, and 87	400 each
Grey corrugated paper pipe insulation (4" to 5" OD piping)	Straight run pipe insulation near ceiling in rooms 51 and 53; majority of ceiling pipe insulation in room 50; pipe insulation running along south wall (12' above floor) in room 55	1,000 lf
Grey mastic behind non-ACM brown wood wall paneling	SW offices: walls in room 16 and 20	900 ft ²
9"x9" grey/green vinyl floor tiles above non-ACM black mastic, vinyl floor sheeting, asphaltic paper, and leveling compound	SW mezzanine: checkerboard flooring in rooms 71 and 72	1,500 ft ²
9"x9" blue/green vinyl floor tiles, above non-ACM black mastic, vinyl floor sheeting, and asphaltic paper	SW mezzanine: checkerboard flooring in rooms 71 and 72	Included in the 1,500 ft ² above
9"x9" red vinyl floor tiles above non-ACM black mastic	SW offices: below carpet in room 1	350 ft ²
9"x9" dark brown vinyl floor tiles and black mastic	Flooring at north end of room 52; NW mezzanine: flooring in rooms 88-91	900 ft ²

**Table 1- Asbestos-Containing Materials and Adjusted Estimated Quantities
(Argus Pacific, 2009 and 2010)**

Port of Tacoma

1940 East 11th Street

Tacoma, Washington

ACM Material Description	ACM Material Location	Estimated Quantity
9"x9" grey/green vinyl floor tiles above non-ACM black mastic	SW offices: below carpet in 38 and majority of room 37	650 ft ²
9"x9" white vinyl floor tiles and black mastic	SW offices: below carpet in rooms 35 and 36	1,000 ft ²
Black asphaltic window glazing compound	SW mezzanine: interior windows in rooms 80, 80A, 81, and 82	20 each
Grey window glazing compound	SW mezzanine: interior partition wall windows in rooms 78, 79, and 83	2'x2.5': 4 Each
Black built-up roofing above non-ACM black felt; below non-ACM silver paint and black roll-down roofing	Roof	16,200 ft ²
Black built-up roofing above non-ACM black felt; below non-ACM black granulated roll-down roofing	Roof	13,720 ft ²
Black built-up roofing above non-ACM black felt; below non-ACM orange granulated black roll-down roofing	Roof	1,375 ft ²
Black built-up roofing above non-ACM black felt; below non-ACM white-granulated black roll-down roofing	Roof	14,200 ft ²
Black built-up roofing above non-ACM black felt; below non-ACM black granulated roll-down roofing	Roof	29,000 ft ²
Black asphaltic tar/mastic	Roof: coating inner parapet walls	830 ft ²
Black sealant and grey fibrous sealant	Roof	1,550 ft ²
Silver Paint	Roof	1,500 ft ²

Table 1- Asbestos-Containing Materials and Adjusted Estimated Quantities**(Argus Pacific, 2009 and 2010)****Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

ACM Material Description	ACM Material Location	Estimated Quantity
Grey brittle caulking and non-ACM white caulking	At exterior cracks in concrete walls on north and south building exteriors	100 lf
Hard mudded boiler tank insulation	Large boiler tanks in Room 61	11'x7'x8': 2 Each
Boiler tank interior materials	Large boiler tanks in Room 61	11'x7'x8': 2 Each
Hard mudded suspended tank insulation	Suspended tank near center of room 59	4' length; 14" OD: 1 Each
Brown mastic behind non-ACM wood wall paneling	East mezzanine: walls in room 94C	200 ft ²
Black mastic below non-ACM wood paneling	East mezzanine: floor at shower entry threshold in room 94C	5 ft ²
Brown compressed paper pipe insulation with canvas wrap (5" OD piping)	Small section of straight run pipe insulation in SE area of room 59	50 lf
White/grey mudded tank insulation	On raised tank at south end of room 61	10' length; 4" OD: 1 Each
White/grey mudded tank insulation	On suspended tanks at east end of room 61 (10 feet above floor)	20' length; 12" OD: 1 Each
		10' length; 12" OD: 1 Each
Fuse boxes	Throughout building	130 each
Hard block and mudded pipe insulation	Pipe straight runs, elbows, joints, and fittings throughout room 61	500 lf
9"x9" grey vinyl floor tiles and black mastic	Flooring at west end of room 64, west of SE offices	50 ft ²
Boiler tank interior materials	Boiler tank in room 48	8'x6'x4': 1 Each
Metal-clad fire doors	Doors in rooms 44, 48, 51, 54, 61, and west exit in room 64	12 each

Table 1- Asbestos-Containing Materials and Adjusted Estimated Quantities**(Argus Pacific, 2009 and 2010)****Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

ACM Material Description	ACM Material Location	Estimated Quantity
Beige caulking	At seam in north exterior wall of room 48; at seam around exterior door frame of room 48	50 lf

ACM = Asbestos-Containing Material

ft² = square feet

lf = linear feet

OD = outer diameter

Table 2 - Supplemental Asbestos Sample Results (EMB Consulting, 2014)**Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

Sample ID	Material Description	Material Location	Asbestos (in Percent)
6-06	Drywall System (white)	SW Corner of S Warehouse Ceiling of S Office Space	ND
6-07	Drywall System (white)	SW Corner of S Warehouse Wall of N Office Space	ND
104-01	Laminate - Counter Top L1: Laminate (brown) L2: Mastic (tan)	Room 17 S Countertop	L1: ND L2: ND
104-02	Laminate - Counter Top L1: Laminate (brown) L2: Mastic (tan)	Room 17 N Countertop	L1: ND L2: ND
105-01	Cement Board (Grey)	Exterior N side of building on porch front	ND

ND = Non-Detect

Table 3 - TCLP-Lead Sample Results (Pioneer Technologies, 2012)**Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

Sample ID	Material Description	Lead (in mg/L)	TCLP-Lead Regulatory Limit (in mg/L)
BH_OB1_1_032112	Interior - East Warehouse and Offices (Pioneer Area 1) 33% Unpainted Wood 33% Drywall 34% Other *Painted Wood *Ceramic/Porcelain *Metal Washer *Glass	0.2	5.0
BH_OB1_2_032112	Interior - S Warehouse Extension with Offices (Pioneer Area 2) 33% Wood 33% Drywall 34% Other *Painted Wood *Ceramic/Porcelain *Rubber *Glass	<0.1	5.0
BH_OB1_3_032112	Interior - Second Story Offices in W Corner (Pioneer Area 3) 50% Drywall 20% Painted Wood 20% Unpainted Wood 5% Carpet (2 types) 5% Glass	<0.1	5.0
BH_OB1_4_032112	Interior - N Warehouse and Offices (Pioneer Area 4) 33% White Wall Board 33% Brown Wall Board 34% Other *Carpet (2 types) *Drywall *Glass *Unpainted Wood	<0.1	5.0

Table 3 - TCLP-Lead Sample Results (Pioneer Technologies, 2012)

Port of Tacoma
1940 East 11th Street
Tacoma, Washington

Sample ID	Material Description	Lead (in mg/L)	TCLP-Lead Regulatory Limit (in mg/L)
BH_OB1_5_032112	Interior - First Story Offices in W Corner (Pioneer Area 5) 50% Drywall 20% Painted Wood 20% Unpainted Wood 5% Carpet (3 types) 5% Glass	0.7	5.0

mg/L = milligrams per liter

Table 4 - Supplemental TCLP-Lead Sample Results (EMB Consulting, 2014)**Port of Tacoma****1940 East 11th Street****Tacoma, Washington**

Sample ID	Material Description	Lead (in mg/L)	TCLP-Lead Regulatory Limit (in mg/L)
EXT-TCLP-PB1	Exterior - East Side * Painted Concrete Slab Siding (yellow) * Wood (yellow) * Caulk (yellow)	<0.1	5.0
EXT-TCLP-PB2	Exterior - North Side * Painted Concrete Slab Siding (yellow) * Caulk (yellow)	1.0	5.0
EXT-TCLP-PB3	Exterior - West Side * Painted Concrete Slab Siding (yellow and red) * Wood (red) * Concrete Board (red) * Patch Material (yellow and red)	0.7	5.0
EXT-TCLP-PB4	Exterior - South Side * Roofing Material (no paint) * Painted Concrete Slab Siding (yellow) * Wood (white)	<0.1	5.0
INT-TCLP-PB5	Interior (SE Offices and Warehouse areas) * Gypsum Wallboard (white) * Wood (pink, white) * Vinyl Tile (unpainted) * Concrete (unpainted)	<0.1	5.0
INT-TCLP-PB6	Interior (NW Offices and Warehouse Areas) * Gypsum Wallboard (white) * Wood (pink, white) * Vinyl Tile (unpainted) * Concrete (unpainted)	<0.1	5.0

mg/L = milligrams per liter

Table 5 - TCLP-PCB Sample Results (EMB Consulting, 2014)

Port of Tacoma
1940 East 11th Street
Tacoma, Washington

Sample ID	Material Description (paint color)	Total PCBs (in ug/L)	TCLP-PCB Landfill Acceptance Criteria (in mg/L)
EXT-TCLP-PCB1	Exterior - East Side * Painted Concrete Slab Siding (yellow) * Wood (yellow) * Caulk (yellow)	<10.0	10.0
EXT-TCLP-PCB2	Exterior - North Side * Painted Concrete Slab Siding (yellow) * Caulk (yellow)	<10.0	10.0
EXT-TCLP-PCB3	Exterior - West Side * Painted Concrete Slab Siding (yellow and red) * Wood (red) * Concrete Board (red) * Patch Material (yellow and red)	<10.0	10.0
EXT-TCLP-PCB4	Exterior - South Side * Roofing Material (no paint) * Painted Concrete Slab Siding (yellow) * Wood (white)	<10.0	10.0
INT-TCLP-PCB5	Interior (SE Offices and Warehouse areas) * Gypsum Wallboard (white) * Wood (pink, white) * Vinyl Tile (unpainted) * Concrete (unpainted)	<10.0	10.0
INT-TCLP-PCB6	Interior (NW Offices and Warehouse Areas) * Gypsum Wallboard (white) * Wood (pink, white) * Vinyl Tile (unpainted) * Concrete (unpainted)	<10.0	10.0

ug/L = micrograms per liter

mg/L = milligrams per liter

Table 6 - Inventory of Other Regulated Building Materials (Argus Pacific, 2010)

Port of Tacoma

1940 East 11th Street

Tacoma, Washington

Other Regulated Building Material Description	Approximate Quantity
Mercury-containing fluorescent light tubes	1,369 each
Mercury-containing thermostats	15 each
PCB-containing light ballasts	685 each
PCB-containing transformers	7 each
HID lamps	13 each

**ANALYTICAL RESULTS
NVL LABORATORIES
SUPPLEMENTAL ASBESTOS SAMPLES**



March 3, 2014

Elisabeth Black
EMB Consulting, LLC
PO Box 5171
Lynnwood, WA 98046

INDUSTRIAL
HYGIENE
SERVICES

Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis, NVL Batch # 1403063.00

Dear Ms. Black,

Enclosed please find test results for the bulk samples submitted to our laboratory for analysis. Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both U.S. EPA 600/M4-82-020, Interim Method for Determination of Asbestos in Bulk Insulation Samples, as found in 40 CFR, Part 763, Subpart E, Appendix E (formerly Subpart F, Appendix A), and U.S. EPA 600/R-93/116 (July 1993) Test Methods.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos. If you would like us to further refine the concentration estimates of asbestos in these samples using point counting, please let me know.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EMB Consulting, LLC

Batch #: 1403063.00

Address: PO Box 5171

Client Project #: 1152

Lynnwood, WA 98046

Date Received: 2/24/2014

Attention: Ms. Elisabeth Black

Samples Received: 5

Project Location: NA

Samples Analyzed: 5

Method: EPA/600/R-93/116
& EPA/600/M4-82-020**Lab ID: 14020718 Client Sample #: 6-06**

Location: NA

Layer 1 of 1	Description: White chalky material with paper, wood flakes, paint, and debris	Non-Fibrous Materials: Gypsum/Binder, Binder/Filler, Wood flakes Paint, Miscellaneous particles	Other Fibrous Materials: % Cellulose 22% Wood fibers 5%	Asbestos Type: % None Detected ND
---------------------	--	--	--	---

Lab ID: 14020719 Client Sample #: 6-07

Location: Hold Final

Layer 1 of 1	Description: White chalky material with paper, wood flakes, and layered paint	Non-Fibrous Materials: Gypsum/Binder, Binder/Filler, Wood flakes Paint, Miscellaneous particles	Other Fibrous Materials: % Cellulose 25% Wood fibers 4%	Asbestos Type: % None Detected ND
---------------------	--	--	--	---

Lab ID: 14020720 Client Sample #: 104-01

Location: Hold Final

Layer 1 of 2	Description: Brown brittle material with white/multicolored patterned laminate	Non-Fibrous Materials: Synthetic/Binder, Binder/Filler, Laminate/binder	Other Fibrous Materials: % Cellulose 38%	Asbestos Type: % None Detected ND
Layer 2 of 2	Description: Tan mastic	Non-Fibrous Materials: Mastic/Binder	Other Fibrous Materials: % Cellulose 2%	Asbestos Type: % None Detected ND

Lab ID: 14020721 Client Sample #: 104-02

Location: Hold Final

Layer 1 of 2	Description: Brown brittle material with light beige patterned laminate	Non-Fibrous Materials: Synthetic/Binder, Binder/Filler, Laminate/binder	Other Fibrous Materials: % Cellulose 33%	Asbestos Type: % None Detected ND
---------------------	--	---	--	---

Sampled by: Client

Analyzed by: Angele Zamarron

Date: 03/03/2014

Reviewed by: Nick Ly

Date: 03/03/2014


 Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%-0-3%, 5%-1-9%, 10%-5-15%, 20%-10-30%, 50%-40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: EMB Consulting, LLC

Batch #: 1403063.00

Address: PO Box 5171

Client Project #: 1152

Lynnwood, WA 98046

Date Received: 2/24/2014

Attention: Ms. Elisabeth Black

Samples Received: 5

Project Location: NA

Samples Analyzed: 5

Method: EPA/600/R-93/116
& EPA/600/M4-82-020**Layer 2 of 2 Description: Tan mastic**

Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Mastic/Binder	Cellulose 3%	None Detected ND

Lab ID: 14020722**Client Sample #: 105-01**

Location: Hold Final

Layer 1 of 1 Description: Gray brittle grainy material with layered paint

Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Calcareous binder, Mineral grains, Paint	Cellulose 2%	None Detected ND
Fine grains	Spider silk <1%	

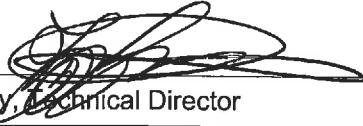
Sampled by: Client**Analyzed by:** Angele Zamarron

Date: 03/03/2014

Reviewed by: Nick Ly

Date: 03/03/2014

Nick Ly, Technical Director



Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%-0-3%, 5%-1-9%, 10%-5-15%, 20%-10-30%, 50%-40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASBESTOS CHAIN OF CUSTODY

Laboratory | Management | Training

Turn Around Time

<input type="checkbox"/> 1 Hour	<input type="checkbox"/> 24 Hours	<input type="checkbox"/> 4 Days
<input type="checkbox"/> 2 Hours	<input type="checkbox"/> 2 Days	<input checked="" type="checkbox"/> 5 Days
<input type="checkbox"/> 4 Hours	<input type="checkbox"/> 3 Days	<input type="checkbox"/> 10 Days

Please call for TAT less than 24 Hours

Company EMB Consulting
Address PO Box 5171
Lynnwood, WA 98046
Phone 206-915-2395

Project Manager Elisabeth Black
Cell (206) 915-2395
Email emblackconsult@gmail.com
Fax ()

Project Name/Number	Project Location
---------------------	------------------

PCM Air (NIOSH 7400) TEM (NIOSH 7402) TEM (AHERA) TEM (EPA Level II Modified)
 PLM (EPA 600/R-93-116) EPA 400 Points (600/R-93-116) EPA 1000 Points (600/R-93-116)
 PLM Gravimetry (600/R-93-116) Asbestos in Vermiculite (EPA 600/R-04/004) Asbestos in Sediment (EPA 1900 Points)
 Asbestos Friable/Non-Friable (EPA 600/R-93/116) Other _____

Reporting Instructions _____
 Call () - - - Fax () - - - Email emblackconsult@gmail.com

Total Number of Samples _____

	Sample ID	Description	A/R
1	<u>6-D6</u>		
2	<u>6-D7</u>		
3	<u>104-D1</u>		
4	<u>104-D2</u>		
5	<u>105-D1</u>		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	<u>Elisabeth Black</u>	<u>E. Black</u>	<u>EMB Consulting</u>	<u>02.24.14</u>	
Relinquish by	<u>E. Black</u>	<u>E. Black</u>	<u>EMB</u>	<u>02.24.14</u>	<u>12:00</u>

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	<u>MATILIA</u>	<u>STL</u>	<u>MR</u>	<u>2/24/14</u>	<u>1300</u>
Analyzed by	<u>Angela Zamarron</u>	<u>Angela</u>	<u>MR</u>	<u>3/3/14</u>	<u>1049</u>
Called by					
Faxed/Email by					

NVL Batch ID
1403063

**ANALYTICAL RESULTS
ANALYTICAL RESOURCES, INCORPORATED
SUPPLEMENTAL TCLP-LEAD SAMPLES
TCLP-PCB SAMPLES**



Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 7, 2014

Elisabeth Black, CIH
EMB Consulting, LLC.
PO Box 5171
Lynnwood, WA 98046

RE: Project: 1152
ARI Job No: YA39

Dear Elisabeth:

Please find enclosed the original Chain-of-Custody (COC), sample receipt documentation, and the final report for the sample from the project referenced above. Analytical Resources, Inc. (ARI) accepted six solid samples in good condition on February 24, 2014. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

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

There were no anomalies associated with the analyses of the samples.

An electronic copy of this package will be kept on file with ARI. Should you have any questions regarding these results, please feel free to contact me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Kelly Bottem".

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com
www.arilabs.com

cc: eFile YA39

Enclosures

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1039	Turn-around Requested: Standard	Page: 1 of 2		
ARI Client Company: ENR Consulting	Phone: 206-915-2395	Date: 02-24-14		
Client Contact: Elizabeth Black	No. of Coolers: 1	Ice Present? Yes		
Client Project Name: Elizabeth Black	Analysis Requested			
Client Project #: 1152	Samplers: Elizabeth Black	26 77 77		
Sample ID	Date	Time	Matrix	No Containers
Ext - TCLP-Pb1	02-20-14	bulk	1	✓
Ext - TCLP-Pb2	02-20-14		1	✓
Ext - TCLP-Pb3	02-20-14		1	✓
Ext - TCLP-Pb4	02-20-14		1	✓
Int - TCLP-Pb5	02-20-14		1	✓
Int - TCLP-Pb6	02-20-14		1	✓
Comments/Special Instructions				
Relinquished by (Signature) E. Black Printed Name Elizabeth Black Company ENR Consulting				
Received by (Signature) E. Black Printed Name Elizabeth Black Company ENR Consulting				
Relinquished by (Signature) E. Black Printed Name Elizabeth Black Company ENR Consulting				
Date & Time 2/24/14 1:55:27				

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



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, 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

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: YR440	Turn-around Requested: Standard	Page: 1 of 1		
ARI Client Company: Elisabeth Bloch Consulting	Phone:	Date: 02-24-14		
Client Contact: Elisabeth Bloch		Ice Present? N		
Client Project Name:		No. of Coolers: 1		
Analysis Requested				
Client Project #: 1152	Samplers: Elisabeth Bloch	2014-02-24		
Sample ID	Date	Time	Matrix	No Containers
<i>E14-TCLP-PCB1</i>	02.2014	bulk	1	✓
<i>E14-TCLP-PCB2</i>	"	"	1	✓
<i>E14-TCLP-PCB3</i>	"	"	1	✓
<i>E14-TCLP-PCB4</i>	"	"	1	✓
<i>Int-TCLP-PCB5</i>	"	"	1	✓
<i>Int-TCLP-PCB6</i>	"	"	1	✓
Comments/Special Instructions	Relinquished by (Signature) E. Bloch	Received by (Signature) D. Voldgaardson	Reinquished by (Signature) D. Voldgaardson	
	Printed Name Elisabeth Bloch Consulting	Printed Name Elisabeth Bloch Consulting	Printed Name Elisabeth Bloch Consulting	
	Company Elisabeth Bloch Consulting	Company Elisabeth Bloch Consulting	Company Elisabeth Bloch Consulting	
	Date & Time 02-24-14 @ 3:00	Date & Time 02-24-14 @ 3:00	Date & Time 02-24-14 @ 3:00	

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.

Sample ID Cross Reference Report



ARI Job No: YA39
Client: EMB Consulting LLC
Project Event: 1152
Project Name: N/A

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. EXT-TCLP-PB1/PCB1	YA39A	14-3069	Solid	02/20/14	02/24/14 14:55
2. EXT-TCLP-PB2/PCB2	YA39B	14-3070	Solid	02/20/14	02/24/14 14:55
3. EXT-TCLP-PB3/PCB3	YA39C	14-3071	Solid	02/20/14	02/24/14 14:55
4. EXT-TCLP-PB4/PCB4	YA39D	14-3072	Solid	02/20/14	02/24/14 14:55
5. INT-TCLP-PB5/PCB5	YA39E	14-3073	Solid	02/20/14	02/24/14 14:55
6. INT-TCLP-PB6/PCB6	YA39F	14-3074	Solid	02/20/14	02/24/14 14:55
7. EXT-TCLP-PB1/PCB1	YA39G	14-3120	TCLP Extrac	02/20/14	02/24/14 14:55
8. EXT-TCLP-PB2/PCB2	YA39H	14-3121	TCLP Extrac	02/20/14	02/24/14 14:55
9. EXT-TCLP-PB3/PCB3	YA39I	14-3122	TCLP Extrac	02/20/14	02/24/14 14:55
10. EXT-TCLP-PB4/PCB4	YA39J	14-3123	TCLP Extrac	02/20/14	02/24/14 14:55
11. INT-TCLP-PB5/PCB5	YA39K	14-3124	TCLP Extrac	02/20/14	02/24/14 14:55
12. INT-TCLP-PB6/PCB6	YA39L	14-3125	TCLP Extrac	02/20/14	02/24/14 14:55



Cooler Receipt Form

ARI Client EMB Consulting
COC No(s) _____ NA
Assigned ARI Job No: YA40

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time 14.55

19.1

Temp Gun ID# 90877952

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

Cooler Accepted by AN Date: 2/24/14 Time: 1455 AM 1500

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)? 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 PN Date: 2/24/14 Time: 1527

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

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

Additional Notes, Discrepancies, & Resolutions:

By:

Date:

Small Air Bubbles -2mm • • •	Peabubbles 2-4 mm • • •	LARGE Air Bubbles > 4 mm • • •	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Lab Sample ID: YA39A

LIMS ID: 14-3069

Matrix: Solid

Data Release Authorized:

Reported: 03/05/14

[Signature]

Sample ID: EXT-TCLP-PB1/PCB1
SAMPLE

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.1	U

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Lab Sample ID: YA39A

LIMS ID: 14-3069

Matrix: Solid

Data Release Authorized

Reported: 03/05/14



Sample ID: EXT-TCLP-PB1/PCB1
DUPLICATE

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Lead	6010C	0.1 U	0.1 U	0.0%	+/- 0.1	L

Reported in mg/L

*-Control Limit Not Met

L-RPD Invalid, Limit = Detection Limit

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Lab Sample ID: YA39A

LIMS ID: 14-3069

Matrix: Solid

Data Release Authorized: 

Reported: 03/05/14

Sample ID: EXT-TCLP-PB1/PCB1
MATRIX SPIKE

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Lead	6010C	0.1 U	4.2	4.0	105%	

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: EXT-TCLP-PB2/PCB2
SAMPLE

Lab Sample ID: YA39B

LIMS ID: 14-3070

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/05/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	1.0	

U-Analyte undetected at given LOQ

LOQ-Limit of Quantitation

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Sample ID: EXT-TCLP-PB3/PCB3
SAMPLE

Lab Sample ID: YA39C

LIMS ID: 14-3071

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/05/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.7	

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Lab Sample ID: YA39D

LIMS ID: 14-3072

Matrix: Solid

Data Release Authorized *[Signature]*

Reported: 03/05/14

Sample ID: EXT-TCLP-PB4/PCB4
SAMPLE

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.1	U

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Sample ID: INT-TCLP-PB5/PCB5
SAMPLE

Lab Sample ID: YA39E

LIMS ID: 14-3073

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/05/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.1	U

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Lab Sample ID: YA39F

LIMS ID: 14-3074

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/05/14

Sample ID: INT-TCLP-PB6/PCB6
SAMPLE

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.1	U

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

INORGANICS ANALYSIS DATA SHEET

TCLP METALS

Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: YA39MB

LIMS ID: 14-3069

Matrix: Solid

Data Release Authorized: *[Signature]*

Reported: 03/05/14

QC Report No: YA39-EMB Consulting LLC

Project: 1152

Date Sampled: NA

Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
1311	02/27/14	6010C	03/04/14	7439-92-1	Lead	0.1	0.1	U

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

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1



Sample ID: EXT-TCLP-PB1/PCB1
SAMPLE

Lab Sample ID: YA39G
LIMS ID: 14-3120
Matrix: TCLP Extract
Data Release Authorized: *MW*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 19:03
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	90.8%
Tetrachlorometaxylene	73.0%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Lab Sample ID: YA39H
LIMS ID: 14-3121
Matrix: TCLP Extract
Data Release Authorized: *MM*
Reported: 03/06/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 19:25
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	85.8%
Tetrachlorometaxylene	75.8%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: EXT-TCLP-PB3/PCB3
SAMPLE

Lab Sample ID: YA39I
LIMS ID: 14-3122
Matrix: TCLP Extract
Data Release Authorized: *MW*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 19:47
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	88.5%
Tetrachlorometaxylene	74.8%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: EXT-TCLP-PB4/PCB4
SAMPLE

Lab Sample ID: YA39J
LIMS ID: 14-3123
Matrix: TCLP Extract
Data Release Authorized: MW
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 20:53
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	93.5%
Tetrachlorometaxylene	77.8%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: INT-TCLP-PB5/PCB5
SAMPLE

Lab Sample ID: YA39K
LIMS ID: 14-3124
Matrix: TCLP Extract
Data Release Authorized: *MW*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 21:14
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	95.2%
Tetrachlorometaxylene	106%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: INT-TCLP-PB6/PCB6
SAMPLE

Lab Sample ID: YA39L
LIMS ID: 14-3125
Matrix: TCLP Extract
Data Release Authorized: *MW*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 21:36
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	99.5%
Tetrachlorometaxylene	76.2%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
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Sample ID: INT-TCLP-PB6/PCB6
MATRIX SPIKE

Lab Sample ID: YA39L
LIMS ID: 14-3125
Matrix: TCLP Extract
Data Release Authorized: MM
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 21:58
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	---
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	---
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U

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

PCB Surrogate Recovery

Decachlorobiphenyl	106%
Tetrachlorometaxylene	87.2%

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
Extraction Method: SW3510C
Page 1 of 1

Sample ID: MB-022714
METHOD BLANK

Lab Sample ID: MB-022714
LIMS ID: 14-3125
Matrix: TCLP Extract
Data Release Authorized: *MM*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: NA
Date Received: NA

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 17:57
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

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

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

PCB Surrogate Recovery

Decachlorobiphenyl	97.5%
Tetrachlorometaxylene	71.8%

SW8082/PCB WATER SURROGATE RECOVERY SUMMARY

Matrix: TCLP Extract

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Client ID	DCBP	DCBP	TCMX	TCMX	TOT	OUT
	% REC	LCL-UCL	% REC	LCL-UCL		
EXT-TCLP-PB1/PCB1	90.8%	29-118	73.0%	38-118	0	
EXT-TCLP-PB2/PCB2	85.8%	29-118	75.8%	38-118	0	
EXT-TCLP-PB3/PCB3	88.5%	29-118	74.8%	38-118	0	
EXT-TCLP-PB4/PCB4	93.5%	29-118	77.8%	38-118	0	
INT-TCLP-PB5/PCB5	95.2%	29-118	106%	38-118	0	
MB-022714	97.5%	41-111	71.8%	40-118	0	
LCS-022714	93.5%	41-111	76.8%	40-118	0	
LCSD-022714	94.5%	41-111	81.0%	40-118	0	
INT-TCLP-PB6/PCB6	99.5%	29-118	76.2%	38-118	0	
INT-TCLP-PB6/PCB6 MS	106%	29-118	87.2%	38-118	0	

Prep Method: SW3510C
Log Number Range: 14-3120 to 14-3125

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
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Sample ID: INT-TCLP-PB6/PCB6
MATRIX SPIKE

Lab Sample ID: YA39L
LIMS ID: 14-3125
Matrix: TCLP Extract
Data Release Authorized: *WW*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: 02/20/14
Date Received: 02/24/14

Date Extracted: 02/27/14
Date Analyzed: 03/04/14 21:58
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount: 100 mL
Final Extract Volume: 10 mL
Dilution Factor: 1.00
Silica Gel: No
Acid Cleanup: No

Analyte	Sample	Matrix Spike	Spike Added	Recovery
Aroclor 1016	< 10.0	38.5	50.0	77.0%
Aroclor 1260	< 10.0	38.9	50.0	77.8%

Results reported in $\mu\text{g/L}$

ORGANICS ANALYSIS DATA SHEET
TCLP PCB by GC/ECD Method SW8082A
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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: LCS-022714
LCS/LCSD

Lab Sample ID: LCS-022714
LIMS ID: 14-3125
Matrix: TCLP Extract
Data Release Authorized: *MM*
Reported: 03/06/14

QC Report No: YA39-EMB Consulting LLC
Project: 1152

Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 02/27/14
Date Analyzed LCS: 03/04/14 18:19
LCSD: 03/04/14 18:41
Instrument/Analyst LCS: ECD7/JGR
LCSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No

Sample Amount LCS: 100 mL
LCSD: 100 mL
Final Extract Volume LCS: 10 mL
LCSD: 10 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: No
Acid Cleanup: No

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Aroclor 1016	40.2	50.0	80.4%	43.3	50.0	86.6%	7.4%
Aroclor 1260	37.7	50.0	75.4%	39.8	50.0	79.6%	5.4%

PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	93.5%	94.5%
Tetrachlorometaxylene	76.8%	81.0%

Results reported in $\mu\text{g/L}$
RPD calculated using sample concentrations per SW846.