Memo

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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

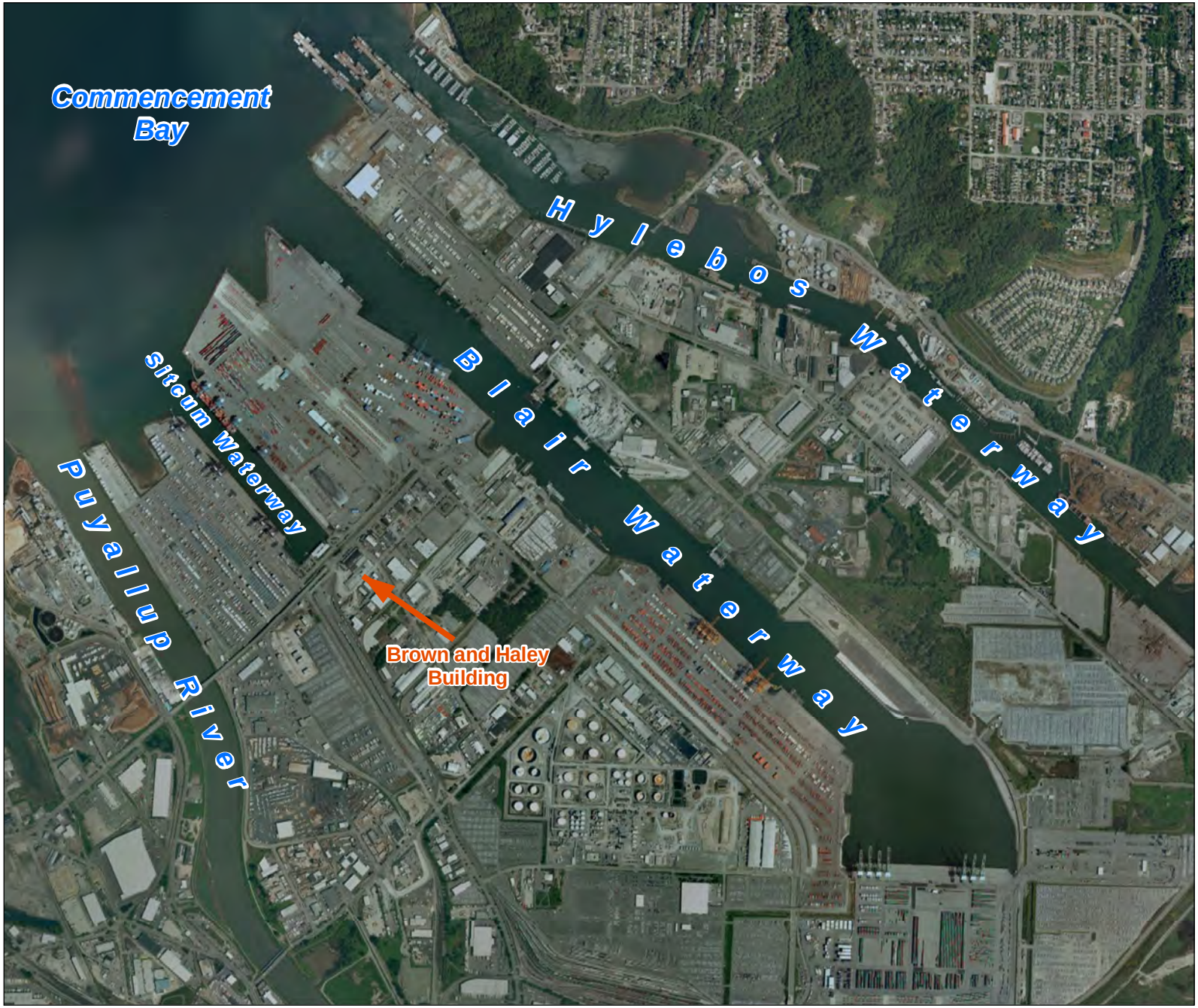
Table 3: Sampling Objective #3 – Sample Details and Results

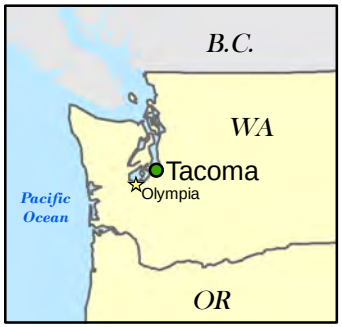
ATTACHMENTS:

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:	PROJECT:
SM	
DATE:	FIGURE NO.:
March 2012	1

BINDING EDGE

POURED CONCRETE WALL

WOOD WALL

OB2-10

AREA 4

OB2-3 (PART 4)

OB2-2 (PART 2)

ELEC. PANEL

POURED CONCRETE WALL & CEILING

BLOCK WALL

BLOCK WALL

20' CONTAINER

CONCRETE CEILING ABOVE

BLOCK WALL

OB2-6

AREA 5

ELEC. PANELS

COMBINATION, POURED CONCRETE AND BLOCK WALL

BOILER ROOM: CONC. WALL

OB3-3

SUMP: 32x36x40" DEEP, FILL W/ GRAVEL AND 6" CONCRETE SLAB

OB2-5

TRUSS ABOVE

FIRE RISER

BRICK CHIMNEY

TRUSS ABOVE

OB2-1 (PART 1)

A B C D E F

ELEC. PANEL

FIRE RISER ROOM

POURED CONCRETE WALL AND BLOCK INFILL

AREA 1

OB2-3 (PART 3)

MW

MONITORING WELL TO BE PROTECTED

G H J

FOUNDATION WALL TO BE REMOVED TO MATCH EXISTING EXTERIOR GRADE (APPROX. 16")

5' SQUARE BRICK CHIMNEY

OB2-8

POURED CONCRETE WALL

BOILERS

BOILER ROOM: POURED CONCRETE WALL, CMU ABOVE FLOOR

ELEC PANELS

XFMR ROOM: BLOCK WALL

RECESSED BOILER ROOM TO BE FILLED WITH 1-1/4" MINUS ROCK AND TOPPED WITH 6" ACP SURFACE TO MATCH ADJACENT EXTERIOR GRADE

TRUSS ABOVE TRUSS ABOVE

G H J

OB2-9

ELEC PANELS

OB2-3 (PART 2)

XFMR ROOM: POURED CONCRETE WALLS AND CEILING

OB3-1

OB2-7

OB3-4

OB3-2

OB2-2 (PART 1)

OB2-3 (PART 1)

OB2-1 (PART 2)

POURED CONCRETE WALL

WOOD WALL

AREA 2

POURED CONCRETE WALL

POURED CONCRETE WALL

TRUSS ABOVE TRUSS ABOVE

G H J

GENERAL NOTES:

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

Objective #1 Sampling Areas

Objective #2 Sampling Locations

Objective #3 Sampling Locations

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

N

4' 0' 4' 8' 12'

FILE: W:\505 Port of Tacoma\18 Auto Site Improvements E2741\Drawings\BH-D3-D4 (Floor Plan)

PORT OF TACOMA, PO BOX 1837, TACOMA, WA 98401 (253)383-5841

PORT OF TACOMA U.S.A.

DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET

BUILDING LAYOUT PLAN

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

PRINTED BY:	DATE:
SR PM Dell Mar 05, 2012	

PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

SECTION:

RANGE:

TOWNSHIP:

VERT: MLLW 19.39' @ Tide 22 1933

DAT-HRZ: WARS-SF

PARCEL:

CONT/CONS: 069121

M. ID: 098028

PHASE: BID SET

CHECKED BY DATE

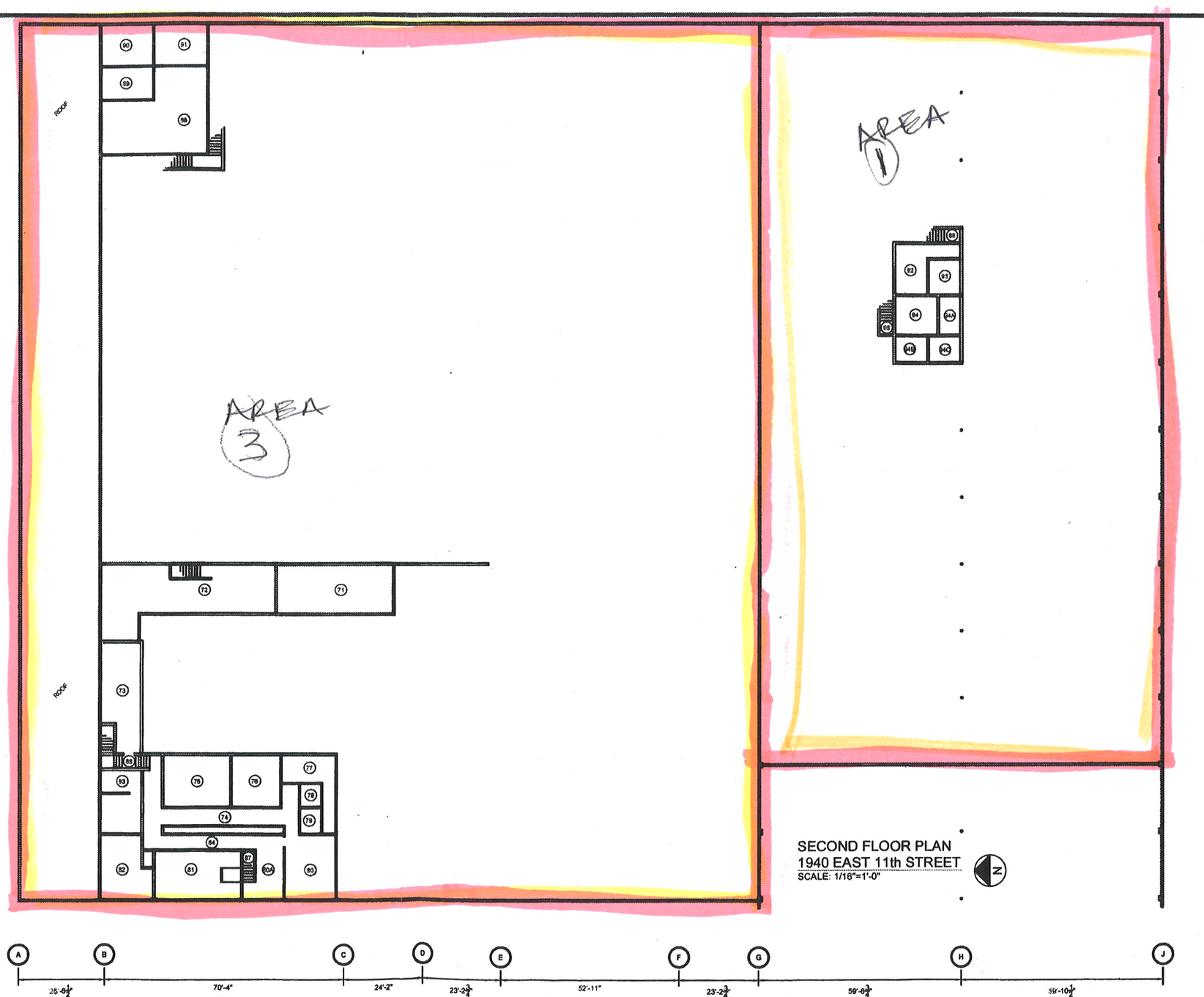
PROJ. ENGR DATE

2

BINDING EDGE

GENERAL NOTES:

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



PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

PORT of TACOMA U.S.A.

APPROVED:

SR PM: DATE:

CHECKED BY DATE

PRINTED BY: Dell Mar 05, 2012 PROJ. ENGR DATE

PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

TOWNSHIP: RANGE: SECTION:

VERT: MLLW 19.39' @ Tide 22 1933

DAT-HRZ: WA83-SF

PARCEL:

CONT/CONS: 069121

M. ID: 098028

PHASE: BID SET

DECONSTRUCTION OF STRUCTURE AT 1940 E. 11th STREET

BUILDING LAYOUT PLAN

3

FILE: W:\595 Port of Tacoma\18 Auto Site Improvements E27411\Drawings\BH-03-D4 (Floor Plan)

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: miligrams 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: miligrams 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: 7:30A Site Departure Time: 5:30P

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
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 67. COLLECTED GLASS MATERIAL FROM INSIDE ROOM 67F. AFTER REVIEWING ASBESTOS NOTES IDENTIED 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 67. ALL SAMPLES WERE COMBINED IN A GLASS 16 OZ JAR AND LABELED BH-OB1-2-~~03-21-12~~ 032112.

10:10 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. EAST SIDE OF BUILDING
ALL SAMPLES WERE COLLECTED IN A GLASS 16 OZ JAR AND LABELED BH-OB1-1-~~03-21-12~~ 032112.

10:50 IDENTIFIED OBJECTIVE 1, AREA #3 LOCATION. COLLECTED UNFINISHED WOOD SAMPLE ALONG EAST SIDE OF ROOM 77. COLLECTED DRYWALL INSIDE ROOM 80A. CARPET SAMPLE COLLECTED IN HALLWAY 84 AND ROOM 87.

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
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

NOTES ON WORK COMPLETED

CONTINUED.

GLASS SAMPLE COLLECTED FROM ROOM 33. 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~~ 032112.

TROY COLLECTED TWO PART COMPOSITE OF WALL CAULK AROUND HVAC THAT LOOKED POTENTIALLY SUSPECK. BH-OB2-1-032112. SEE MAP

TROY COLLECTED TWO PART COMPOSITE OF FLOOR CAULK AROUND 11:10A. BH-OB2-2 032112 LOCATION ID 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. COLLETED 3 CARPET SAMPLES OF DIFFERT 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 FRAM IN ROOM 2. ALL SAMPLES WERE COLLECTED INTO → 16 OZ JAR AND LABELED BH-OB1-5-032112

TROY COLLECTED COMPOSITE OF 4 LOCATIONS W/ 4 PAINT. SAMPLE TIME 12:30P. BH OB2-3-032112.

SIGNATURE: LISA GLASS DATE: 21-MAR-2012

PIONEER
DAILY FIELD REPORT

Date: 21-MAR-12 Site Location: _____ Site Arrival Time: _____ Site Departure Time : _____

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

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

CONTINUED

TB SELECTED PCB (OB2) SAMPLE LOCATION BASED ON PORT OF TACOMA ~~BEARING~~ DIRECTION AND REPRESENTATIVE VOLUME OF PAINTED CONCRETE.
WALL CAULK - DONE ~~; FLOOR~~ OB2-1
FLOOR CAULK - DONE, OB2-2
FLOOR PAINT - DONE, OB2-3
EXTERIOR YELLOW X 2, OB2-4 & OB2-5
EXTERIOR RED, OB2-6
INTERIOR GREEN, OB2-7
INTERIOR METALIC SILVER, OB2-8
INTERIOR WHITE ON BOTTOM OF WALLS, OB2-9
INTERIOR WHITE IN NE PART OF BUILDING, OB2-10

1:30P STARTED OBJECTIVE 2 - DEFINE AREAS TO SAMPLE COLLECTED ADDITIONAL SAMPLES: OB2-4 COLLECTED FROM SOUTH EXTERIOR WALL

2:00P OB2-5 COLLECTED FROM WEST EXTERIOR WALL.

2:20P OB2-6 COLLECTED FROM NORTH EXTERIOR WALL.

2:30P OB2-7 COLLECTED FROM SOUTH INTERIOR WALL.

2:40P OB2-8 COLLECTED FROM INTERIOR OF SOUTHERN BROILER ROOM

~~3:00~~P OB2-9 COLLECTED FROM EAST INTERIOR WALL.

3:20P OB2-10 COLLECTED FROM NORTHEAST INTERIOR WALL.

SIGNATURE: [signature] DATE: 21-MAR-2012

PIONEER
DAILY FIELD REPORT

Date: 21-MAR-12 Site Location: _____ Site Arrival Time: _____ Site Departure Time : _____

WEATHER

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

PEOPLE PRESENT ON-SITE

NAME	ASSOCIATION	TIME ON-SITE AND OFF-SITE

NOTES ON WORK COMPLETED

CONTINUED

4:00P ~~IDENTIFY~~ START 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 AR1 LAB.

SIGNATURE: [signature] 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 then 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: UN58	Turn-around Requested: NO LATER THAN Email RESULTS BY MONDAY 10 AM 3/26/12	Page: 1 of 2	
ARI Client Company: PORT OF TACOMA	Phone: 253-593-4563 / 360-570 1700	Date: 3/21/12	Ice Present? N
Client Contact: BILL EVANS (wevans@porttacoma.com) ↓ TROY BUSSEY		No. of Coolers: 1	Cooler Temps: 11.2
Client Project Name: BROWN & HANEY BLDG DEMO (PO# 53586)			
Client Project #: PO# 53586	Samplers: SM & LG PIONEER TECHNOLOGY 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: PCBs 8082	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	1:45		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 TROY BUSSEY AND BILL EVANS VIA EMAIL	Relinquished by: (Signature) LISA GRAVES	Received by: (Signature) Jennifer Millsap	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: LISA GRAVES	Printed Name: Jennifer Millsap	Printed Name:	Printed Name:
	Company: PTC	Company: ARI	Company:	Company:
	Date & Time: 3.22.12 8:18	Date & Time: 3/22/12 8:18	Date & Time:	Date & Time:

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

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UH58	Turn-around Requested: 1 of 1	Page: 2 of 2	
ARI Client Company: PAGE 1 of	Phone:	Date: 3.21.12	Ice Present? N
Client Contact: SEE	PORT OF TACOMA PO# 53586	No. of Coolers: 1	Cooler Temps: 11.2
Client Project Name:			
Client Project #:	Samplers:		

Sample ID	Date	Time	Matrix	No. Containers	Dissolved Lead 6010/6020	Notes/Comments
BH-OB3-1-032112	3.21.12	4:15	BUILDING MATERIAL	1	✓	
BH-OB3-2-032112	3.21.12	4:30	↓	1	✓	
BH-OB3-3-032112	3.21.12	5:00	↓	1	✓	

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
SEE PAGE 1 of 1	(Signature) ~~LISA GRAVES~~	(Signature)	(Signature)	(Signature)
	Printed Name: LISA GRAVES	Printed Name: Jennifer Millsap	Printed Name:	Printed Name:
	Company: PTC	Company: ARI	Company:	Company:
	Date & Time: 3.22.12 8:18	Date & Time: 3/22/12 818	Date & Time:	Date & Time:

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

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: UN58 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:		
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: _____

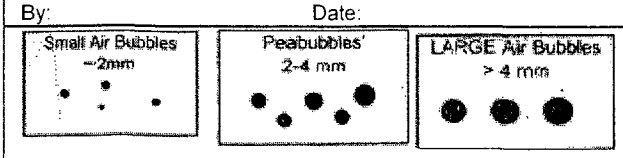
Samples Logged by: JM Date: 3/22/12 Time: 828

***** 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 → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

UN58

Cooler#: 1 Temperature(°C): 11.2

Sample ID	Bottle Count	Bottle Type
All samples associated with this job were received at a temp greater than 6°C.		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: JM Date: 3/22/12 Time: 828

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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:
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%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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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%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: BH_OB2_3_032112
SAMPLE

Lab Sample ID: UN58C
LIMS ID: 12-4976
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 21:02
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: 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

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: BH_OB2_4_032112
SAMPLE

Lab Sample ID: UN58D
LIMS ID: 12-4977
Matrix: Solid
Data Release Authorized: *B*
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 08:14
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: 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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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:
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%

ANALYTICAL RESOURCES INCORPORATED

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%

ANALYTICAL RESOURCES INCORPORATED

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%

ANALYTICAL RESOURCES INCORPORATED

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:
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%

ANALYTICAL RESOURCES INCORPORATED

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

Sample ID: BH_OB2_10_032112
SAMPLE

Lab Sample ID: UN58J
LIMS ID: 12-4983
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 15:15
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: No
Acid Cleanup: No
Florisil Cleanup: No

Sample 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%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082

Sample ID: MB-032212
METHOD BLANK

Lab Sample ID: MB-032212
LIMS ID: 12-4982
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: 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%

ANALYTICAL RESOURCES INCORPORATED

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:
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%

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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:
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

Date Analyzed LCS: 03/22/12 18:56
LCSD: 03/22/12 19:17
Instrument/Analyst LCS: ECD7/JGR
LCSD: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 1.00 g-as-rec
LCSD: 1.00 g-as-rec
Final Extract Volume LCS: 40.0 mL
LCSD: 40.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: No

Percent Moisture: NA

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

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

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%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **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

ARI Assigned Number: UN50	Turn-around Requested: NO LATER THAN EMAIL RESULTS BY MONDAY 10 AM 3/26/12	Page: 1 of 1	
ARI Client Company: PORT OF TACOMA	Phone: 253-593-4563 / 360-570-1700	Date: 3/21/12	Ice Present? N
Client Contact: BILL EVANS (wevans@portoftacoma.com)	TROY BUSSEY	No. of Coolers: 1	Cooler Temps: 11.0
Client Project Name: BROWN & HALEY BLDG DEMO (PO # 53586)			
Client Project #: PO #53586	Samplers: SM & LG PIONEER TECHNOLOGIES 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: TCLP LEAD 1311/6010/6020	Notes/Comments
BH_OB1_1_032112	3/21/12	1030	BUILDING MATERIAL	1	X	
BH_OB1_2_032112		945				
BH_OB1_3_032112		1115				
BH_OB1_4_032112		1228				
BH_OB1_5_032112		1250				

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
PLEASE SEND RESULTS TO BOTH TROY BUSSEY AND BILL EVANS VIA EMAIL	(Signature) Troy Bussey	(Signature)	(Signature)	(Signature)
	Printed Name: TROY BUSSEY SR	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: PIONEER TECHNOLOGIES	Company: ARI	Company:	Company:
	Date & Time: 3/21/12 1330	Date & Time: 3/21/12 1330	Date & Time:	Date & Time:

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

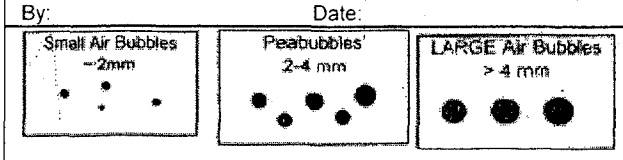
Samples Logged by: AV Date: 3/21/12 Time: 1346

***** 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 → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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%

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

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

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TCLP METALS
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