SoundEarth Strategies, Inc.
2811 Fairview Avenue East, Suite 2000
Seattle, Washington 98102

December 10, 2013

Mr. Miles Dyer
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, Washington 98108

SUBJECT: INTERIM ACTION REPORT
SB3/SB4 Upland Interim Action
Jorgensen Forge Corporation
8531 East Marginal Way South
Seattle, Washington
First Amendment to Agreed Order No. DE 4127

Dear Mr. Dyer:

On behalf of Jorgensen Forge Corporation (JFC), SoundEarth Strategies, Inc. (SoundEarth) has prepared this Interim Action Report (IAR) for upland interim action conducted in at the JFC Property, located at 8531 East Marginal Way South in Seattle, Washington (the Site; Figure 1). This IAR was prepared pursuant to Washington State Department of Ecology's (Ecology) First Amendment to Agreed Order No. DE 4127, effective July 8, 2013. The IAR was prepared in general accordance with the Washington State Model Toxics Control Act promulgated in the Washington Administrative Code Chapter 173-340-350 (WAC 173-340-430).

The upland interim action was performed in accordance with the Interim Action Work Plan (IAWP) in preparation for a planned shoreline bank removal action to be completed within the adjacent Lower Duwamish Waterway (LDW) Superfund Site (Figure 2). Ecology is the lead agency overseeing JFC's investigation and remediation of the upland environment. U.S. Environmental Protection Agency (EPA) is the lead agency overseeing the investigation and removal actions within the LDW Superfund Site. The Jorgensen Forge Property and a portion of the adjacent LDW are depicted on Figure 2.

The following sections of this IAR present the project background, purpose and scope, methodology, description of the work, sampling results, results of data validation, description of variations from the work plan, closure, and limitations. Attachments to this IAR include tabulated data, maps, and laboratory analytical reports.

BACKGROUND

Agreed Order No. DE 4127 (2007 Order) required JFC to conduct a source control evaluation to determine if the JFC Property is an ongoing source of contamination to sediments in the LDW. The resulting Source Control Evaluation Report (SCER) documented concentrations of polychlorinated biphenyls (PCBs) and metals in upland soil exceeding Washington State Sediment Management Standards (SMS) Sediment Quality Standards (SQS) criteria (WAC 173-204-320) within two upland areas

characterized by soil borings SB3 and SB4 (Farallon et. al. 2006; AQEA et. al. 2008). The First Amendment to the 2007 Order requires JFC to conduct an interim action to excavate and remove PCB-contaminated soils from the two upland areas defined by soil borings SB3 and SB4 and depicted in the maps attached to the IAWP (AQEA 2013b).

In 2013, the former owner and operator at the JFC Property, Earle M. Jorgensen Company, executed an Administrative Settlement Agreement and Order on Consent for Removal Action Implementation (EPA Region 10 Comprehensive Environmental Response, Compensation, and Liability Act CERCLA Docket No. 10-2013-0032) with EPA for the removal of contaminated sediments and associated bank soils in a portion of the LDW Superfund Site adjacent to the JFC Property. This shoreline bank removal project is referred to as the Jorgensen Forge Early Action Area (EAA), and it includes construction of a temporary access road. The scope of planned removal action and the temporary access road intersect laterally and vertically with the Site. The scope of the EAA project is described in the Bid Set design drawings (AQEA 2013a) and Final Basis of Design Report (BODR, AQEA 2013c). State plane coordinates that relate the lateral boundaries of the SB3/SB4 Upland Interim Action to the EAA are provided in Sheet C-1 of the Bid Set design drawings (AQEA 2013a) and are featured on Figures 2 and 3.

The primary objective of the shoreline bank removal action is to reduce chemical concentrations throughout the EPA-defined 0- to 1.5-foot vertical point of compliance (AQEA 2013b) within the removal action boundary (RAB) to below the SMS SQS criteria for PCBs, eight SMS total metals, and semi-volatile organic compounds (SVOCs). To achieve this objective, the EPA-approved remedy includes the complete removal of SMS SQS PCB criteria exceedances in bank materials due to their widespread lateral and vertical distribution (EPA 2008). The EPA-approved remedy also includes excavation of the shoreline bank to remove affected bank materials and overlying debris, followed by the placement of overlying clean fill, armor, and habitat-friendly materials. Reconfiguration of the shoreline bank will result in a shallower bank slope that extends further into the existing upland areas of the Site, and a new top of bank will be constructed approximately 10 feet further inland than the existing top of bank. The lateral shift of the top of bank will result in the vertical reduction of the existing depth of cover, thereby altering the frame of reference for vertical point of compliance and influencing the minimum required depth of the remedial excavation at the Site.

PURPOSE AND SCOPE

The purpose of the upland interim action is to remove upland soils with elevated PCB and metals concentrations that potentially could be exposed during access road construction and during the EAA shoreline bank removal action, and to minimize potential releases of soils containing elevated PCB concentrations into the LDW following completion of the shoreline bank removal action. The state plane coordinates provided in the IAWP define two irregular areas referred to as polygons; soil boring SB3 characterizes the northern polygon (SB3 Polygon) and soil boring SB4 characterizes the south polygon (SB4 Polygon). The prescribed scope of work required a 2-foot-deep excavation within the SB3 Polygon and a 6-foot-deep excavation within the SB4 Polygon. The scope of work for the upland interim action included the following tasks:

- Professionally survey corners of the prescribed polygon areas shown in the IAWP.
- Install erosion control measures in accordance with City of Tukwila Best Management Practices.

- Excavate and direct-load soils from the two polygon areas, and transport to Allied Waste's Seattle transfer station for disposal.
- Survey before excavation activities to mark the state plane coordinates defining the two areas slated for removal action, and afterward to document conformance to and variation from the excavation design criteria.
- Collect discrete confirmation soil samples from the excavation limits per the requirements and protocols outlined in the IAWP.
- Submit soil samples for analytical testing for the following:
  - PCBs by EPA Method 8080.
  - Lead, arsenic, cadmium, silver, chromium, copper, zinc by EPA Method 6010B/6020, and mercury by EPA Method 7471A.
  - Two selected soil samples from each excavation were also analyzed for SVOCs by EPA Method 8270.
- Compare sample analytical results to SMS SQS Criteria, and to SCER Screening Levels whenever those differed from SMS SQS Criteria.
- Review sampling field sampling protocols for completeness and validate analytical data.
- Produce figures, tabulate data, and complete this report.

METHODOLOGY

Methodology for the interim action described in this IAR is detailed in the IAWP. The IAWP further states that the documentation, sample handling, and chain-of-custody procedures will be consistent with the Sampling and Analysis Plan (SAP), which is appended to the BODR, Jorgensen Forge EAA (AQEA 2012). That BODR was revised and finalized after the date the IAWP was published; therefore, during implementing this interim action, SoundEarth referred to the SAP attached to the Final BODR (AQEA 2013c).

Site layout, excavation limits, and grade verification tasks were completed by Axis Surveying & Mapping (Axis) of Kirkland, Washington, a state-licensed surveying firm, relative to Washington State Plane, North American Datum 1988. Installation of erosion control measures and excavation work were performed by SoundEarth Strategies Construction LLC, of Seattle, Washington. Transport of excavated soils was completed by Silver Streak Trucking of Maple Valley, Washington, a licensed waste hauler.

Soil sampling activities were performed by a SoundEarth geologist. Soil sampling was completed in accordance with the IAWP and the BODR. Confirmation soil samples were collected as discrete samples from the specific base and sidewall locations described in the IAWP. Soil samples were collected using stainless steel hand tools and mixed in a stainless steel bowl. Samples were then collected in laboratory-prepared glassware, provided with a sample designation number, logged on a chain of custody form, and placed in a chilled cooler. All sampling equipment was subsequently cleaned with phosphorous-free detergent and triple-rinsed with laboratory-provided deionized water. All samples were delivered to the analytical laboratory at the end of each field day. One duplicate sample, two rinsate blanks, and two trip blanks were collected and analyzed in accordance with the IAWP.

EXCAVATION ACTIVITIES

Excavation of the SB3 and SB4 Polygons began after completion of the baseline survey and installation of erosion control measures. The SB3 Polygon was marked by locating and staking offsets for EAA Survey Control Points 102, 116, 103, 104, 105, and 106 (clockwise from the northwest corner of the SB3 Polygon). The SB4 Polygon was marked by locating and staking offsets for EAA Survey Control Points 107, 115, 114, 113, 112, 111, 109, and 108 (clockwise from the northwest corner of the SB4 Polygon). EAA Survey Control Points are shown on Figure 3.

Earthwork activities were performed on September 4, 5, and 9, 2013. Excavation of the two polygons encountered buried piling and concrete rubble (Photographs 4 and 5, Attachment A). Axis returned to the Site on September 5, 2013, and mapped the excavation. This survey confirmed that the excavation for the SB3 excavation had achieved the required depth of at least 2 feet below surrounding grades, with perimeter elevations ranging between 17.43 feet and 19.08 feet, and base elevations ranging between 15.52 feet and 16.30 feet. As described in the "Variations for the Plan" section of this IAR, further excavation to the west was precluded by the existing facility security fence, and the west sidewall is slated for excavation in connection with the EAA bank removal action; further excavation to the south was limited by the concrete structure separating the SB3 Polygon from the SB4 Polygon (Survey Control Points 105, 106, 107, and 115), which is also slated for removal in connection with the EAA bank removal action.

Axis' September 5, 2013, survey revealed that excavation for the SB4 Polygon had not achieved its required depth of 6 feet below surrounding ground surface (bsgs). The contractor subsequently completed additional excavation from the SB4 Polygon on September 9, 2013, and Axis resurveyed the SB4 Polygon later the same day. The final survey for the SB4 Polygon recorded perimeter elevations ranging between 17.14 feet and 19.05 feet, and base elevations ranging between 10.91 feet and 12.92 feet. As described in the "Variations for the Plan" section of this IAR, further excavation to the west was precluded by the existing facility security fence, and the west sidewall is slated for excavation in connection with the EAA bank removal action; further excavation to the south was limited by the concrete mass separating the SB3 Polygon from the SB4 Polygon (Survey Control Points 105, 106, 107, and 115), which is also slated for removal in connection with the EAA bank removal action.

A total of 1,155.78 tons of soil was exported to Allied Waste's transfer facility in Seattle on September 4, 5, and 9, 2013. Photographs taken during the excavation activities are provided in Attachment A. Allied Waste's tonnage report is included in Attachment B; the tonnage report for 1,480.54 tons includes 324.76 tons of stockpiled soil previously generated during the installation of subsurface piping for JFC's stormwater treatment system, which were transported and disposed of on September 6, 2013, but not part of the action described herein.

Axis returned to the Site on September 9, 2013, and resurveyed the excavation for the SB4 Polygon. The final excavation limits are depicted on Figure 3. After completion, the excavation was backfilled with a compacted, non-recycled sand aggregate (Type 17) to match surrounding, pre-existing grades and to prevent migration of residual PCB-impacted soils during subsequent Jorgensen Forge EAA bank removal action. The Type 17 backfill material was imported from City Transfer's sand and gravel pit in Sumner, Washington. Erosion control measures remained in place and were properly functioning throughout this phase of work.

Interim action excavation limits are graphically depicted on Figures 3, 4, and 5. Portions of the SB4 Polygon excavation did not extend to the prescribed depth/elevation of 6 feet bsgs in three locations, and the southern margin of the SB3 Polygon did not extend to its prescribed depth, as discussed in the "Variation from the Plan" section of this report. The western margins of the excavations nominally achieved design width and depth to the degree possible without damaging the Site security fence; the western sidewalls of both polygons will be reconfigured in connection with the EAA bank removal action. In each case, excavation was limited due to the presence of cemented aggregates mixed with metal debris, which the contractor was unable to penetrate using an excavator equipped with a jackhammer (Photograph 8, Attachment A).

SOIL SAMPLING RESULTS

Soil samples were submitted to Friedman & Bruya, Inc. (F&B) of Seattle, Washington for laboratory analysis. Soil sample analytical results are summarized on attached Tables 1, 2, 3, and 4. Analytical reports are included in Attachment C.

Sample locations are depicted on Figures 4 and 5. Soil samples collected from the north sidewall and base of the SB3 Polygon excavation and north sidewall and base of the SB4 Polygon excavation exhibited total PCB concentrations in excess of the SCER Screening Level and SMS Lowest Apparent Effects Threshold of 0.13 milligram per kilogram (mg/kg; AQEA et. al. 2008). The other seven samples collected from the final excavation limits did not exhibit PCB concentrations in excess of the laboratory detection limits.

Soil samples collected from the north sidewall of the SB3 Polygon excavation and south sidewall of the SB4 Polygon excavation (JF-SB3NSW-130906 and JF-SB4SSW-130909, respectively) exhibited total chromium concentrations of 561 mg/kg and 298 mg/kg, which exceed the SMQ SQS Chemical Criteria of 260 mg/kg. The other nine confirmation samples did not exhibit metals concentrations in excess of their respective SMS SQS Chemical Criteria (WAC 173-204-320).

The two soil samples from each polygon that exhibited the highest total PCB concentration in each polygon were further analyzed for SVOCs, including carcinogenic polycyclic aromatic hydrocarbons (cPAHs). SVOC and cPAH concentrations did not exceed their respective SCER Screening Levels (AQEA et. al. 2008). In order to compare PCB, SVOC, and cPAH concentrations to SMS SQS criteria, SoundEarth used 2004 total organic carbon results for samples collected from soil borings SB3 and SB4 (Farallon et.al. 2006), calculating an average value for each polygon. The calculated averages were higher than the total organic carbon values associated with samples collected from their respective excavation design depths, and therefore yield conservatively protective carbon-normalized PCB, SVOC, and cPAH concentrations for comparison with SMS SQS Chemical Criteria. The average organic carbon values calculated for the SB3 and SB4 polygons were 0.92 percent and 1.14 percent, respectively, and the organic carbon values associated with the 2- to 4-foot sample interval from soil boring SB3 and the 6- to 8-foot sample interval from soil boring SB4 were 0.71 percent and 0.87 percent, respectively. None of the carbon-normalized values for total PCBs or SVOCs exceeded their respective SMS SQS Chemical Criteria (Tables 1 and 3). Carbon-normalized concentrations of indeno (1,2,3, -cd) pyrene in the base and north sidewall samples collected from the SB4 Polygon exceed the SMS SQS Chemical Criteria (Table 4).

DATA VALIDATION AND DATA QUALITY

Pyron Environmental, Inc. (Pyron) of Olympia, Washington performed Stage 2B data validation on F&B's laboratory report nos. 309114 and 309117. Pyron's assessment concluded that the PCB, total metals, and SVOC data are of known quality and acceptable for use as qualified. A summary of data affected by anomalies is provided in Table 1 of Pyron's data validation report, which is included in this IAR as Appendix D.

F&B summarized laboratory data qualifications on the Case Narrative page of each laboratory report. Analytical results were flagged accordingly in the event that data quality was affected (e.g. sample matrix effects apparent from the SVOC matrix spike results). In the case where sample dilution increased SVOC analyte reporting limits (sample JF-SB3NSW-130906), the elevated reporting limit for each analyte remained below its respective SCER Screening Level.

One field duplicate sample was collected and analyzed for PCBs and metals (sample JF-SB3FD-130906). As stated in Pyron's report, criteria for field duplicate data evaluation do not exist. Two rinsate blanks (Rinsate-130906 and Rinsate Blank_2), and two trip blanks (Trip Blank and Trip Blank_2) were collected and analyzed for PCBs. PCBs were not detected in the two rinsate blanks or the two trip blanks analyzed in connection with this interim action. The rinsate blank quality is a measure of the potential for sample cross-contamination originating in the field, and the thoroughness of field equipment decontamination procedures. Trip blank quality is a measure of the potential for sources of sample cross-contamination originating from the laboratory.

VARIATIONS FROM THE PLAN

Variations from the scope of work and methodology described in the IAWP and the SAP in the BODR were as follows:

- The sample numbering nomenclature was modified from that given in Attachment 2, Section 3.7.2 of the BODR to more accurately reflect sampling locations. The BODR suggested using the "station" as the second character in the sample nomenclature. Instead, SoundEarth substituted the polygon name and location for the second character in the sample name.
- The very southern end of the SB3 Polygon and portions of the SB4 Polygon did not attain specified depths due to the presence of cemented fill with metal debris, which the contractor was unable to penetrate using a jackhammer. Enlarging the top-of-excavation limits, such as the areas surrounding Survey Control Points 108, 109, 110, 112, and 113, did not result in greater success with deepening the bottom of excavation. Descriptions of the four locations are provided below:
    - Less than 1 bank cubic yard of bank material remains at the south end of the SB3 Polygon between Survey Control Points 105 and 106, and is connected to the concrete structure that separates the SB3 Polygon and SB4 Polygon. This area is situated shoreward of the RAB and is subject to planned bank reconfiguration in connection with the EEA shoreline bank removal action within the area defined by Survey Control Points 105, 106, 107, and 115.
    - An estimated 1 bank cubic yard of cemented bank material remains at the north end of the SB4 Polygon between Survey Control Points 107 and 115. This area is

situated shoreward of the RAB and is subject to planned bank reconfiguration in connection with the EEA shoreline bank removal action within the area defined by Survey Control Points 105, 106, 107, and 115.

- An estimated 3 bank cubic yards of bank material remain at the south end of the SB4 Polygon between Survey Control Points 108 and 109. This area is situated shoreward of the RAB and is subject to planned bank reconfiguration in connection with the EEA shoreline bank removal action within the vicinity of Survey Control Points 108 and 109.
- An estimated 10 bank cubic yards of cemented upland soil remains in the northeastern margin of the SB4 Polygon between Survey Control Points 111, 112 and 113. Excavation and jackhammering methods achieved approximate depths of 4.5 to 5.5 feet below perimeter elevations inside this triangular area. Given that the eastern boundaries for each polygon were defined by limitations imposed by existing paved surfaces and proximity of structural improvements, rather than soil quality data, it follows that the toe of excavation may be limited by indurate, cemented fill material. This area is situated within the upland area outside of the RAB and currently covered with at least 3 feet of clean, compacted backfill. PCB and metals concentrations in confirmation soil samples collected within the area defined by Survey Control Points 110, 111, 112, and 113 are below their respective SMS SQS Chemical Criteria. Planned bank reconfiguration will not change the depth of cover or the framework for vertical point of compliance in this area.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We do not warrant and are not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the use of segregated portions of this report.

CLOSURE

SoundEarth appreciates the opportunity to be of service to JFC. If you have questions or require additional information, please contact the undersigned.

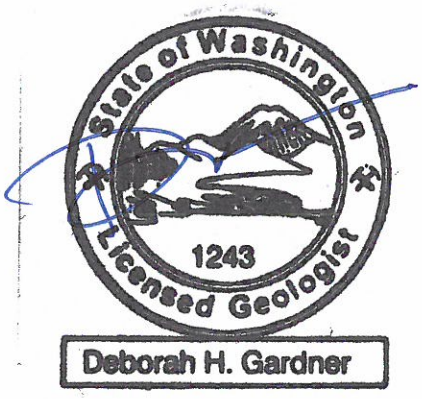
Respectfully,

SoundEarth Strategies, Inc.

Charles C. Cacek
Associate Geologist

Deborah H. Gardner, LG #1243
Associate Geologist

Ryan K. Bixby
President



Attachments:
Figure 1, Physiographic Setting
Figure 2, Property Features Map
Figure 3, Excavation Plan
Figure 4, Limits of Excavation and Sample Location Map
Figure 5, Cross Sections A–A' and B–B'
Table 1, Summary of Soil Analytical Results for PCBs
Table 2, Summary of Soil Analytical Results for Metals
Table 3, Summary of Soil Analytical Results for SVOCs
Table 4, Summary of Soil Analytical Results for cPAHs
A, Site Photographs
B, Allied Waste Disposal Receipts and Tonnage Report
C, Laboratory Analytical Reports
Friedman & Bruya, Inc. #309114 amended
Friedman & Bruya, Inc. #309117 additional
Friedman & Bruya, Inc. #309117 amended
D, Data Validation Report

cc: Maureen Sanchez, Washington Department of Ecology, Northwest Regional Office

CCC/DHG/RKB:amr

REFERENCES

Anchor QEA, LLC and Farallon Consulting, LLC (AQEA et al.). 2008. *Final Source Control Evaluation Report, Jorgensen Forge Facility, 8531 East Marginal Way South, Seattle, Washington.* May.

_____. 2012. *Basis of Design Report*. Prepared on behalf of Jorgensen Forge Corporation and Earle M. Jorgensen Company. Revised March 2013.

_____. 2013a. Bid Set [Drawings], Jorgensen Forge Early Action Area, Seattle, Washington. May.

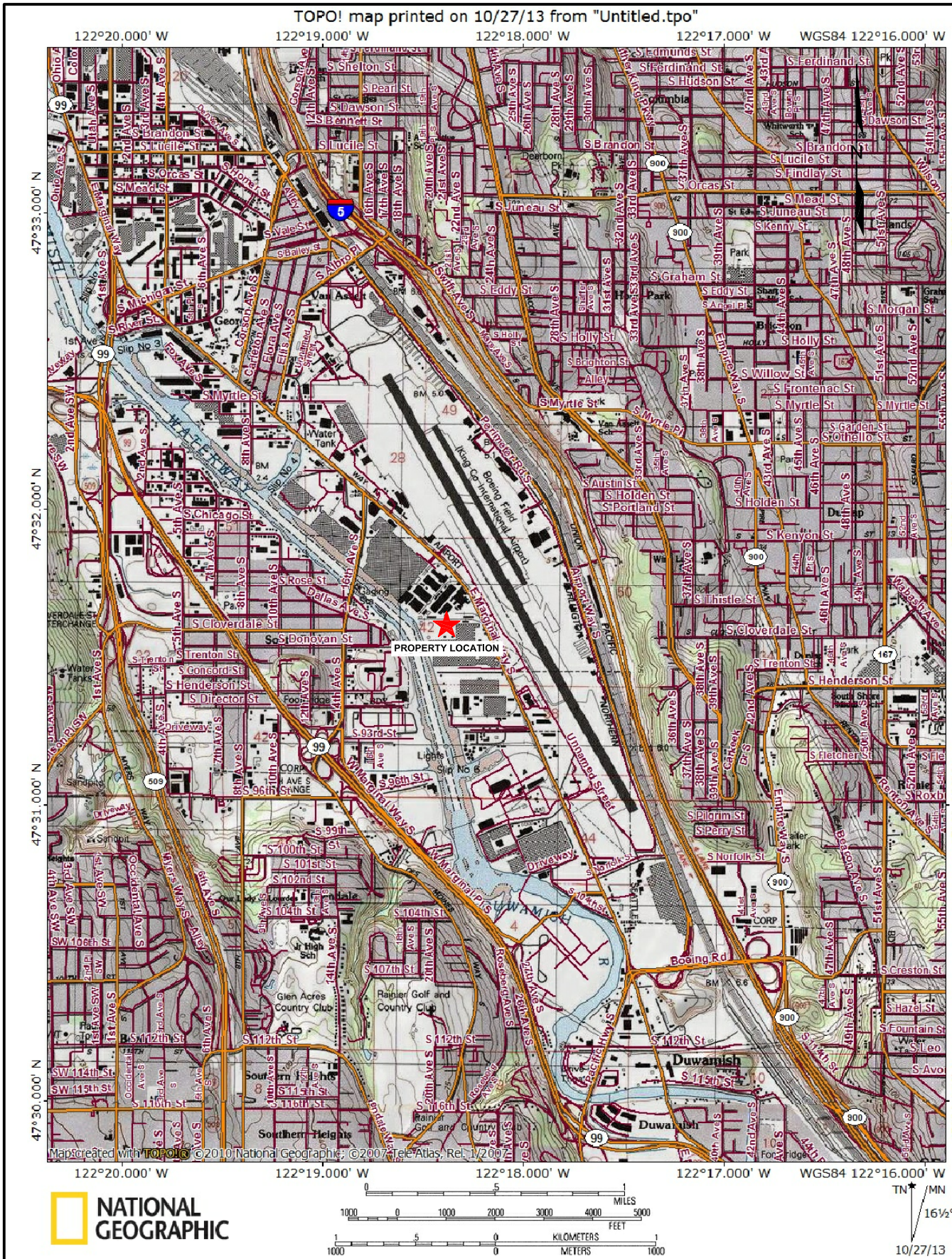
_____. 2013b. Memorandum Regarding Jorgensen Forge Amended Agreed Order, Interim Action Work Plan. June 4.

_____. 2013c. *Final Basis of Design Report, Jorgensen Forge Early Action Area*. August 4.

Farallon Consulting, LLC and Anchor QEA (Farallon et al.). 2006. *Final Investigation Data Summary Report, Jorgensen Forge Facility, 8531 East Marginal Way South, Seattle, Washington, U.S. EPA Docket No. CERCLA 10-2003-0111.* February 13.

FIGURES

P:\0995 JORGENSEN FORGE CORPORATION\TECHNICAL\CAD\SB3SB4\0995-001-03 2013 FIG1 F.DWG



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DATE: 10/28/13
DRAWN BY: JQC
CHECKED BY: DHG
CAD FILE: 0995-001-03_SB3SB4_FIG1

PROJECT NAME: JORGENSEN FORGE PROPERTY
PROJECT NUMBER: 0995-001-03
STREET ADDRESS: 8531 EAST MARGINAL WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

FIGURE 1
PHYSIOGRAPHIC SETTING

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11/20/2013

THE BOEING COMPANY
PLANT 2 FACILITY

MAIN OFFICE

SOUTH 86TH PLACE

BOEING FIELD/
KING COUNTY
INTERNATIONAL
AIRPORT

SB3/SB4 UPLAND
INTERIM ACTION
POLYGONS

JORGENSEN FORGE
PROPERTY

LOWER
DUWAMISH
WATERWAY

FORGE FACILITY

EAST MARGINAL WAY SOUTH

THE BOEING COMPANY
ISAACSON-THOMPSON PROPERTY

N

16
4
13
1
9
22
103
111
3283

LEGEND

PROPERTY BOUNDARY (PLS, 2003)

3286 — SURVEY CONTROL POINT (AQEA 2013; PLS 2003)

MLLW — MEAN LOWER LOW WATER

NOTES:

1. HORIZONTAL DATUM: WASHINGTON STATE PLANE NORTH ZONE, NAD 83 FEET
2. VERTICAL DATUM: MLLW

REFERENCES:

ANCHOR QEA, LLC (AQEA), 2013. BID SET DRAWINGS, JORGENSEN FORGE EARLY ACTION AREA, SEATTLE, WA. MAY.

GOOGLE EARTH, 2012. AERIAL MAP. JULY 5.

PROFESSIONAL LAND SURVEYORS, INC. (PLS), 2003. PROPERTY SURVEY. AUGUST 22.

SURVEY CONTROL POINTS (AQEA 2013; PLS 2003)

POINT NO.	NORTHING	EASTING	ELEVATION (MLLW)
1	195688.69	1277167.71	18.18
4	195719.17	1276650.21	18.36
9	194654.89	1276620.80	18.18
13	195689.79	1277162.27	18.22
16	195727.17	1276293.70	18.02
22	195609.06	1275931.45	18.32
103	195570.2	1275948.1	21.50
111	195432.7	1275997.7	20.92
3286	195378.09	1276003.93	18.79

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DATE: 11/20/13
DRAWN BY: BLR
CHECKED BY: DHG
CAD FILE: 0995-001-03_2013_F2_PROP

PROJECT NAME: SB3/SB4 UPLAND INTERIM ACTION
PROJECT NUMBER: 0995-001-03
STREET ADDRESS: 8531 EAST MARGINAL WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 30 60 120 240
APPROXIMATE SCALE IN FEET

FIGURE 2
PROPERTY FEATURES MAP

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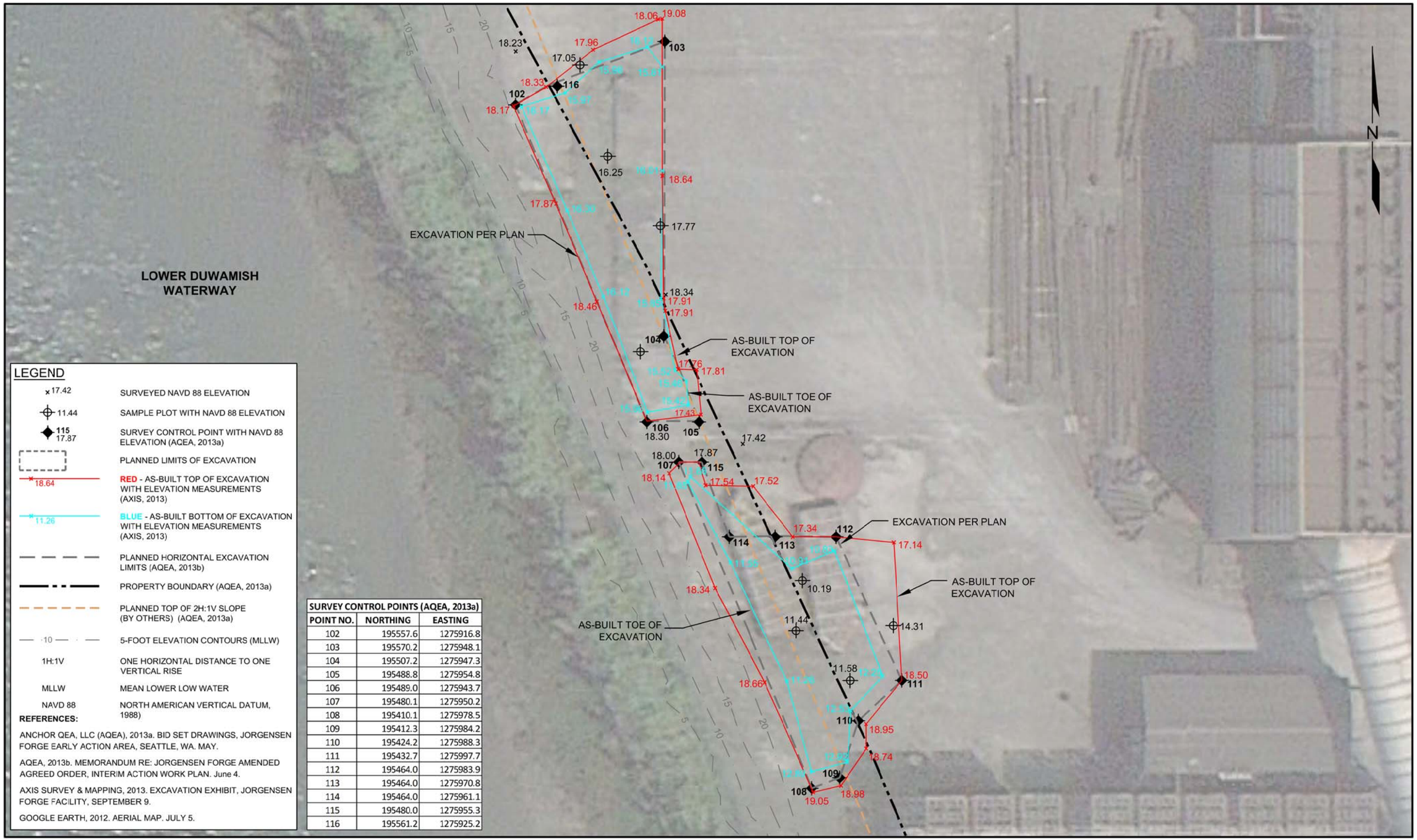
12/6/2013



LEGEND

×17.42	SURVEYED NAVD 88 ELEVATION
11.44	SAMPLE PLOT WITH NAVD 88 ELEVATION
115 17.87	SURVEY CONTROL POINT WITH NAVD 88 ELEVATION (ACEA, 2013a)
	PLANNED LIMITS OF EXCAVATION
18.64	**RED** - AS-BUILT TOP OF EXCAVATION WITH ELEVATION MEASUREMENTS (AXIS, 2013)
11.26	**BLUE** - AS-BUILT BOTTOM OF EXCAVATION WITH ELEVATION MEASUREMENTS (AXIS, 2013)
	PLANNED HORIZONTAL EXCAVATION LIMITS (AQEA, 2013b)
	PROPERTY BOUNDARY (AQEA, 2013a)
	PLANNED TOP OF 2H:1V SLOPE (BY OTHERS) (AQEA, 2013a)
10	5-FOOT ELEVATION CONTOURS (MLLW)
1H:1V	ONE HORIZONTAL DISTANCE TO ONE VERTICAL RISE
MLLW	MEAN LOWER LOW WATER
NAVD 88	NORTH AMERICAN VERTICAL DATUM, 1988)

REFERENCES:

ANCHOR QEA, LLC (AQEA), 2013a. BID SET DRAWINGS, JORGENSEN FORGE EARLY ACTION AREA, SEATTLE, WA. MAY.

AQEA, 2013b. MEMORANDUM RE: JORGENSEN FORGE AMENDED AGREED ORDER, INTERIM ACTION WORK PLAN. June 4.

AXIS SURVEY & MAPPING, 2013. EXCAVATION EXHIBIT, JORGENSEN FORGE FACILITY, SEPTEMBER 9.

GOOGLE EARTH, 2012. AERIAL MAP. JULY 5.

SURVEY CONTROL POINTS (AQEA, 2013a)

POINT NO.	NORTHING	EASTING
102	195557.6	1275916.8
103	195570.2	1275948.1
104	195507.2	1275947.3
105	195488.8	1275954.8
106	195489.0	1275943.7
107	195480.1	1275950.2
108	195410.1	1275978.5
109	195412.3	1275984.2
110	195424.2	1275988.3
111	195432.7	1275997.7
112	195464.0	1275983.9
113	195464.0	1275970.8
114	195464.0	1275961.1
115	195480.0	1275955.3
116	195561.2	1275925.2

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DATE: 12/06/13
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CAD FILE: 0995-001-03_2013_EXC

PROJECT NAME: SB3/SB4 UPLAND INTERIM ACTION
PROJECT NUMBER 0995-001-03
STREET ADDRESS: 8531 EAST MARGINAL WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 3
EXCAVATION PLAN

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12/6/2013

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB3NSW-130906	9/6/2013	1	**0.21**	**561**	**207**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB3BA2-130906	9/6/2013	2.5	<0.1	**8.01**	**1.63**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
082604-1100-15	8/26/2004	0-2	**17.77**	**282**	**1,530**
082604-1106-16	8/26/2004	2-4	**0.2063**	**1,170**	**95.4**
082604-1109-17	8/26/2004	4-6	**0.2274**	**765**	**180**
082604-1118-18	8/26/2004	6-8	**0.2585**	**772**	**179**
082604-1146-20	8/26/2004	8-10	**0.2255**	--	--

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB3ESW-130906	9/6/2013	1.5	<0.1	**25.3**	**29.1**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
082604-1305-21	8/26/2004	0-2	**6.834**	**507**	**1,130**
082604-1308-22	8/26/2004	2-4	**1.924**	**476**	**312.0**
082604-1312-23	8/26/2004	4-6	**11.33**	**666**	**732**
082604-1318-24	8/26/2004	6-8	**0.2585**	**691**	**460**
082604-1322-25	8/26/2004	8-10	**0.4350**	--	--
082604-1326-26	8/26/2004	10-12	**0.0221**	--	--
082604-1330-27	8/26/2004	12-14	**7.04**	--	--
082604-1345-29	8/26/2004	14-16	**1.56**	--	--

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB3BA1-130906	9/6/2013	2.5	**4.9**	**151**	**360**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4NSW-130909	9/9/2013	4	**4.5**	**116**	**355**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4BA2-130909	9/9/2013	6	**0.35**	**298**	**165**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4BA1-130909	9/9/2013	6	<0.1	**6.76**	**2.54**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4ESW-130909	9/9/2013	3	<0.1	**5.31**	**1.66**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4BA3-130909	9/9/2013	6	<0.1	**11.9**	**7.74**

Sample ID	Sample Date	Sample Depth	Total PCBs	Total Chromium	Total Lead
JF-SB4SSW-130909	9/9/2013	4	<0.1	**298**	**194**

195570.2 N
1275948.1 E
103
EDGE OF CONCRETE
JF-SB3NSW-130906
A'
JF-SB3BA2-130906
JF-SB3ESW-130906
SB3
LOWER DUWAMISH WATERWAY
A
JF-SB3BA1-130906
195464.0 N
1275983.9 E
112
JF-SB4NSW-130909
SB4
JF-SB4BA1-130909
B'
JF-SB4BA2-130909
JF-SB4ESW-130909
JF-SB4BA3-130909
JF-SB4SSW-130909
B
-10
-15
-20
-5

N

LEGEND

- SB4 — SOIL BORING LOCATION AND ID (FARALLON, ET. AL. 2006; AQEA ET. AL. 2008)
- 103 195570.2 N 1275948.1 E — SURVEY CONTROL POINT WITH NORTHING AND EASTING (AQEA, 2013)
- JF-SB4ESW-130909 — SOIL SAMPLE AND LOCATION ID
- PROPERTY BOUNDARY (AQEA, 2013)
- LIMITS OF EXCAVATION (AQEA, 2013)
- PLANNED TOP OF 2H:1V SLOPE (BY OTHERS)(AQEA, 2013)
- 10 — 5-FOOT ELEVATION CONTOURS (MLLW)
- B B' — CROSS SECTION LOCATION AND ID (REFER TO FIGURE 5)
- **BOLD** — DETECTION CONCENTRATION
- YELLOW SHADING INDICATES CONCENTRATION IS ABOVE ITS RESPECTIVE SMS SQS CRITERIA
- 1H:1V — ONE HORIZONTAL DISTANCE TO ONE VERTICAL RISE
- PCB — POLYCHRLORINATED BIPHENYL
- SMS — SEDIMENT MANAGEMENT STANDARDS (ECOLOGY, 2013)
- SQS — SEDIMENT QUALITY STANDARDS (ECOLOGY, 2013)

NOTES:

1. ALL DEPTHS IN FEET BELOW GROUND SURFACE
2. ALL RESULTS IN MILLIGRAMS PER KILOGRAM DRY WEIGHT

REFERENCES:

ANCHOR QEA, LLC (AQEA) AND FARALLON CONSULTING, L.L.C., 2008. FINAL SOURCE CONTROL EVALUATION REPORT [SCER], JORGENSEN FORGE FACILITY, 8531 EAST MARGINAL WAY SOUTH, SEATTLE, WASHINGTON. MAY.

ANCHOR QEA, LLC (AQEA), 2013. BID SET DRAWINGS, JORGENSEN FORGE EARLY ACTION AREA, SEATTLE, WA. MAY.

FARALLON CONSULTING, L.L.C. AND AQEA (FARALLON ET. AL.), 2006. FINAL INVESTIGATION DATA SUMMARY REPORT, JORGENSEN FORGE FACILITY, 8531 EAST MARGINAL WAY SOUTH, SEATTLE, WASHINGTON, U.S. EPA DOCKET NO. CERCLA 10-2003-0111. FEBRUARY 13.

WASHINGTON DEPARTMENT OF ECOLOGY (ECOLOGY), 2013. SEDIMENT MANAGEMENT STANDARDS, WASHINGTON ADMINISTRATIVE CODE 173-204. UPDATED FEBRUARY 13.

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 12/06/13
DRAWN BY: BLR
CHECKED BY: DHG
CAD FILE: 0995-001-03_2013_EL

PROJECT NAME: SB3/SB4 UPLAND INTERIM ACTION
PROJECT NUMBER 0995-001-03
STREET ADDRESS: 8531 EAST MARGINAL WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 10 20 40
APPROXIMATE SCALE IN FEET

FIGURE 4
LIMITS OF EXCAVATIOIN AND SAMPLE LOCATION MAP

P:\0995 JORGENSEN FORGE CORPORATION\TECHNICAL\CAD\SB3SB4\0995-001-03 2013 EL F.DWG

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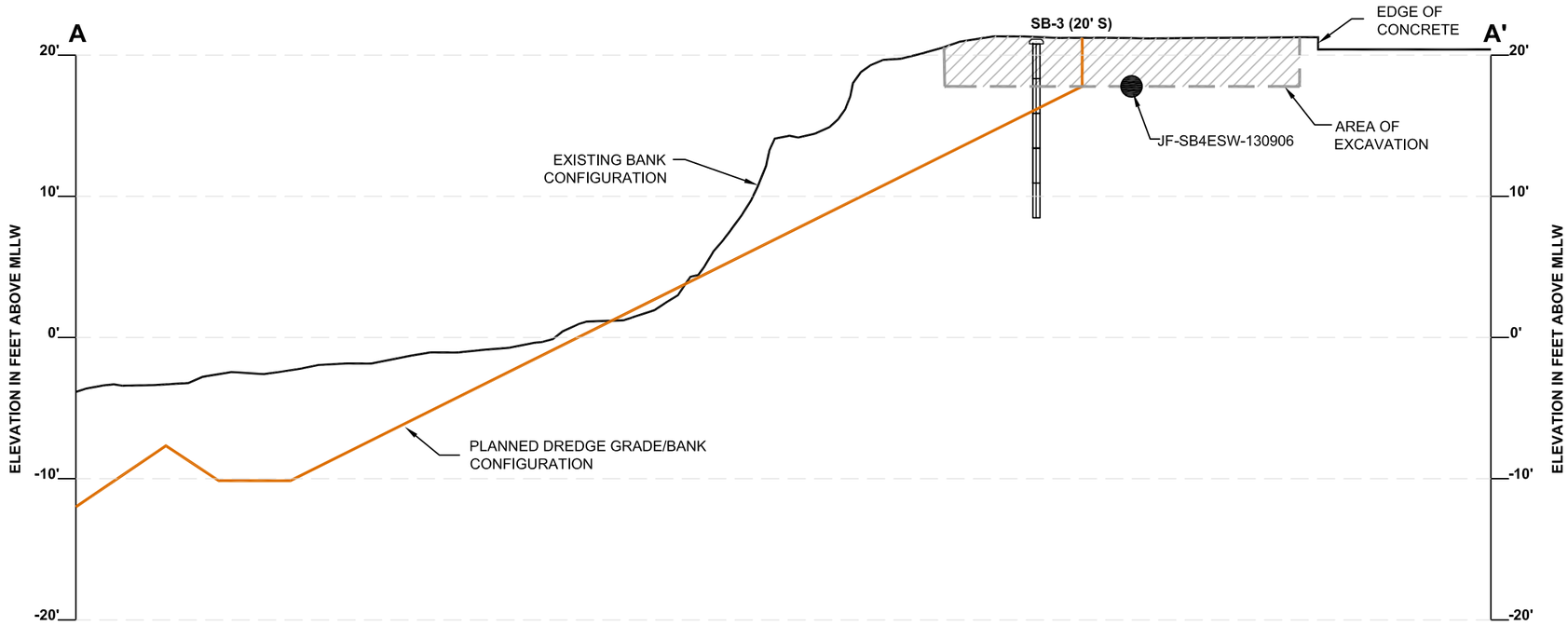
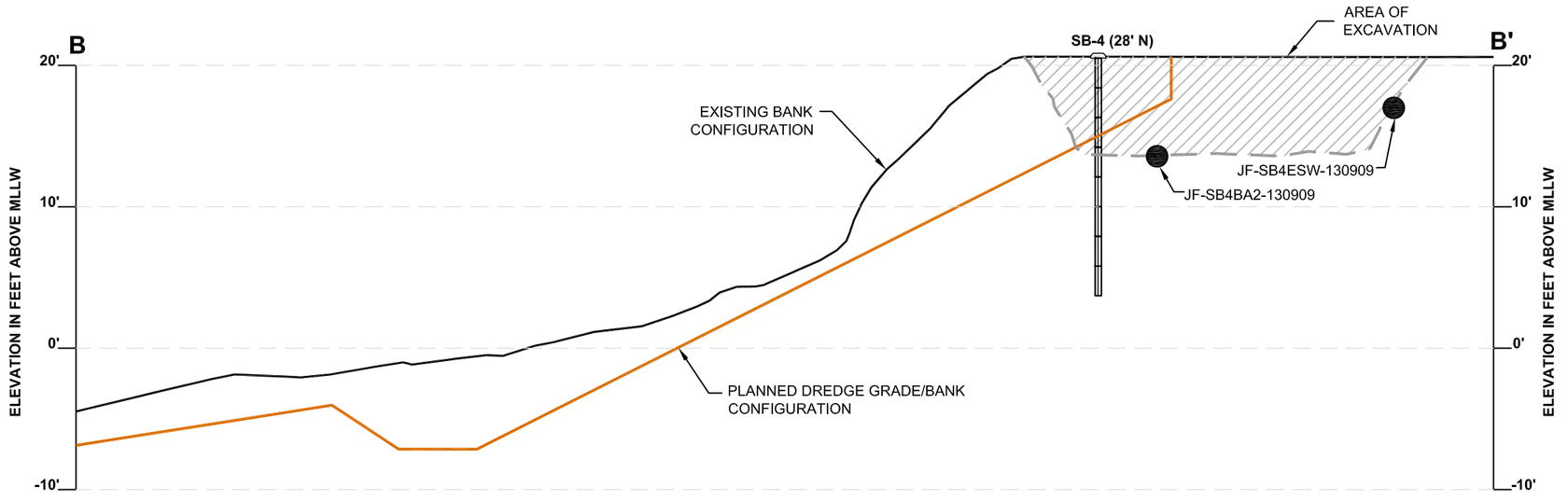
12/6/2013





LEGEND

- LIMITS OF INTERIM ACTION EXCAVATION
- EXISTING TOPOGRAPHY
- PLANNED 2H:1V SLOPE (AQEA, 2013)
- AREA OF EXCAVATION

SB-4 (28' N) BORING (TRANSPOSED 28' NORTH)

SAMPLE INTERVAL

AQEA ANCHOR QEA, LLC

NOTES:

1. VERTICAL DATUM: MEAN LOWER LOW WATER (MLLW).
2. EXISTING TOPOGRAPHY CREATED FROM A MERGE OF SURVEY DATA FROM AQEA INCLUDING UPLAND SURVEY BY PLS INC. (1/24/12). BATHYMETRIC SURVEY BY ETRAC (2/8/12), BANK SURVEY BY AEC CONSULTANTS INC. (2/21/12), AND ADDITIONAL BANK SURVEY BY DUANE HARTMAN & ASSOCIATES, INC. (10/25/12).

SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

DATE: 12/06/13
DRAWN BY: BLR
CHECKED BY: DHG
CAD FILE: 0995-001-03_2013_XS

PROJECT NAME: SB3/SB4 UPLAND INTERIM ACTION
PROJECT NUMBER 0995-001-03
STREET ADDRESS: 8531 EAST MARGINAL WAY SOUTH
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 5 10 20
APPROXIMATE SCALE IN FEET

FIGURE 5
CROSS SECTIONS A-A' AND B-B'

P:\0995 JORGENSEN FORGE CORPORATION\TECHNICAL\CAD\SB3SB4\0995-001-03 2013 XS F.DWG

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TABLES

Table 1
Summary of Soil Analytical Results for PCBs
Jorgensen Forge SB3/SB4 Upland Interim Action
Jorgensen Forge Property
8531 East Marginal Way South
Seattle, Washington

Area	Location	Sample ID	Sampled By	Sample Date	Sample Depth[1]	Total Organic Carbon[2] (mg TOC/kg dry weight)	Polychlorinated Biphenyls[3]										
							Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs[4]	Total PCBs (mg/kg OC)[5]
2004 Historical Data																	
SB3 Polygon (North)	SB3	082604-1100-15	Farallon	08/26/04	0-2	1.55	0.524U	0.524U	0.524U	0.524U	0.524U	**15.5C1**	**2.27C1**	NA	NA	**17.77**	**1146.45**
		082604-1106-16			2-4	0.71	0.00986U	0.00986U	0.00986U	0.00986U	0.00986U	**0.174C1**	**0.0323C1**	NA	NA	**0.2063**	**29.0563**
		NA[6]			4-6	0.33	0.0103U	0.0103U	0.0103U	0.0103U	0.0103U	**0.194C1**	**0.0334C1**	NA	NA	**0.2274**	**68.9091**
		082604-1118-18			6-8	1.02	0.0116U	0.0116U	0.0116U	0.0116U	0.0116U	**0.22C1**	**0.0385C1**	NA	NA	**0.2585**	**25.3431**
		082604-1146-20			8-10	0.99	0.0117U	0.0117U	0.0117U	0.0117U	0.0117U	**0.156C1**	**0.0695C1**	NA	NA	**0.2255**	**22.7778**
SB4 Polygon (South)	SB4	082604-1305-21	Farallon	08/26/04	0-2	1.20	0.202U	0.202U	0.202U	0.202U	0.202U	**5.93C1**	**0.904C1**	NA	NA	**6.834**	**569.500**
		082604-1308-22			2-4	1.86	0.0562U	0.0562U	0.0562U	0.0562U	0.0562U	**1.15C1**	**0.774C1**	NA	NA	**1.924**	**103.441**
		082604-1312-23			4-6	1.09	0.0587U	0.0587U	0.0587U	0.0587U	0.0587U	**9.86 C1**	**1.47C1**	NA	NA	**11.33**	**1039.45**
		082604-1318-24			6-8	0.87	0.0114U	0.0114U	0.0114U	0.0114U	0.0114U	**0.32C1**	**0.0768C1**	NA	NA	**0.3968**	**45.6092**
		082604-1322-25			8-10	0.81	0.0118U	0.0118U	0.0118U	0.0118U	0.0118U	**0.328C1**	**0.107C1**	NA	NA	**0.4350**	**53.7037**
		082604-1326-26			10-12	0.85	0.0124U	0.0124U	0.0124U	0.0124U	0.0124U	**0.0127C1**	**0.00935(J)(C1)**	NA	NA	**0.02205J**	**2.59412**
		082604-1330-27			12-14	1.11	0.22U	0.22U	0.22U	0.22U	0.22U	**6.01C1**	**1.03C1**	NA	NA	**7.04**	**6342.34**
		082604-1345-29			14-16	1.32	0.0118U	0.0118U	0.0118U	0.0118U	0.0118U	**1.37C1**	**0.19C1**	NA	NA	**1.56**	**1181.82**
2013 Upland Interim Action Data																	
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	**0.21**	<0.1	<0.1	<0.1	**0.21**	**22.83**
	East Sidewall	JF-SB3ESW-130906			1.5	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10.9
	Base	JF-SB3BA1-130906			2.5	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	**1.7**	<0.1	<0.1	**3.2**	**4.9**	**532.6**
	Base	JF-SB3BA2-130906			2.5	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10.9
	QA/QC	JF-SB3FD-130906			2.5	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10.9
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	**4.5**	<0.1	<0.1	<0.1	**4.5**	**394.7**
	Base	JF-SB4BA1-130909			6	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<9.09
	Base	JF-SB4BA2-130909			6	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	**0.35**	<0.1	<0.1	<0.1	**0.35**	**30.70**
	Base	JF-SB4BA3-130909			6	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<9.09
	South Sidewall	JF-SB4SSW-130909			4	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<9.09
	East Sidewall	JF-SB4ESW-130909			3	NA[7]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<9.09
SMS SQS Criteria[8]						--	--	--	--	--	--	--	--	--	--	**0.130**	**12**
QA/QC Samples, Water Media (milligrams/Liter)																	
SB3 Polygon (North)	QA/QC	Rinsate-130906	SoundEarth	09/06/13	NA	NA	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
		Trip Blank	Lab Supplied	NA	NA	NA	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
SB4 Polygon (South)	QA/QC	Rinsate Blank_2	SoundEarth	09/09/13	NA	NA	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
		Trip Blank_2	Lab Supplied	NA	NA	NA	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--

NOTES:

Yellow shading denotes concentration is above the SMS SQS Chemical Criteria.

Results in **bold** denote a detected concentration.

Results reported in mg/kg dry weight unless noted otherwise.

[1] Depth measured in feet below ground surface.

[2] Analyzed by EPA Method 9060 (Modified).

[3] Analyzed by EPA Method 8082.

[4] PCBs are calculated by summing the detected PCB concentrations.

[5] Organic carbon-normalized PCB values are calculated by dividing the total PCB value by percent TOC in dry weight.

[6] Page missing from STL Report 123233; PCB results copied from Table 5-2 in Anchor QEA, LLC and Farallon, 2008. SCER, Jorgensen Forge Facility, 8531 East Marginal Way south, Seattle, Washington. May.

[7] For the 2013 samples, OC-normalized PCB values were calculated using average 2004 TOC values of 0.92% for samples collected from the SB3 Polygon, and 1.14% for samples collected from the SB4 Polygon.

[8] Washington State Department of Ecology SMS, Section 320 of the WAC 173-204.

Laboratory Notes:

C1 Second column confirmation was performed. The relative percent difference between the two column results was below 40%.

J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

U No detectable concentrations above the listed laboratory practical quantitation limit.

-- = not applicable

< = analyte not detected at or above the reporting limit

EPA = U.S. Environmental Protection Agency

Farallon = Farallon Consulting, LLC

mg/kg = milligrams per kilogram dry weight

mg/kg OC = milligrams per kilogram, carbon-normalized

NA = not analyzed

PCB = polychlorinated biphenyl

QA/QC = quality assurance/quality control

SoundEarth = SoundEarth Strategies, Inc.

SCER = 2008 Source Control Evaluation Report

SMS = Sediment Management Standards

SQS = Sediment Quality Standards

TOC = total organic carbon

WAC = Washington Administrative Code

Table 2
Summary of Soil Analytical Results for Metals
SB3/SB4 Upland Interim Action
Jorgensen Forge Property
8531 East Marginal Way South
Seattle, Washington

Area	Location	Sample ID	Sampled By	Sample Date	Sample Depth[1]	Total Metals[2] (milligrams/kilogram dry weight)							
						Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc
2004 Historical Data													
North Polygon	SB3	082604-1100-15	Farallon	08/26/04	0-2	**20.3**	**2.2**	**282**	**156**^{B2}	**1,530**^{B2}	**0.0422**	**0.379**^{J}	**476**^{B2}
		082604-1106-16			2-4	**61.7**	1.02^{U}	**1,170**	**541**^{B2}	**95.4**^{B2}	0.0193^{U}	**0.171**^{J}	**118**^{B2}
South Polygon	SB4	082604-1305-21	Farallon	08/26/04	0-2	**14.1**	**0.584**^{J}	**507**	**216**^{B2}	**1,130**^{B2}	**0.694**	**0.381**^{J}	**319**^{B2}
		082604-1308-22			2-4	**9.17**	1.1^{U}	**476**	**72.9**^{B2}	**312**^{B2}	**0.123**	0.372^{J}	**230**^{B2}
2013 Upland Interim Action Data													
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	**7.25**	<1	**561**	**60.1**	**207**	<0.1	<1	**115**^{ca}
	East Sidewall	JF-SB3ESW-130906			1.5	**3.18**	<1	**25.3**	**18.7**	**29.1**	<0.1	<1	**100**^{ca}
	Base	JF-SB3BA1-130906			2.5	**10.4**	**1.35**	**151**	**52.7**	**360**	<0.1	<1	**136**^{ca}
	Base	JF-SB3BA2-130906			2.5	**2.12**	<1	**8.01**	**7.38**	**1.63**	<0.1	<1	**17.4**^{ca}
	QA/QC	JF-SB3FD-130906			2.5	**2.37**	<1	**7.82**	**7.29**	**1.52**	<0.1	<1	**16.4**^{ca}
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	**3.21**	<1	**116**	**31.9**	**355**	<0.1	<1	**67.0**
	Base	JF-SB4BA1-130909			6	**2.34**	<1	**6.76**	**8.06**	**2.54**	<0.1	<1	**16.2**
	Base	JF-SB4BA2-130909			6	**7.59**	<1	**298**	**42.8**	**165**	<0.1	<1	**96.7**
	Base	JF-SB4BA3-130909			6	**1.78**	<1	**11.9**	**6.49**	**7.74**	<0.1	<1	**22.1**
	South Sidewall	JF-SB4SSW-130909			4	**5.93**	<1	**298**	**35.2**	**194**	<0.1	<1	**109**
	East Sidewall	JF-SB4ESW-130909			3	**2.25**	<1	**5.31**	**8.73**	**1.66**	<0.1	<1	**17.4**
SMS SQS Criteria[3]						**57**	**5.1**	**260**	**390**	**450**	**0.41**	**6.1**	**410**

NOTES:

denotes concentration is above the SMS screening level.

Results in **bold** denote a detected concentration.

[1]Depth in feet below ground surface.

[2]Analyzed by EPA Method 6010B with total or TCLP extraction.

[3]Washington State Department of Ecology SMS, Section 320 of the WAC 173-204.

Laboratory Notes:

^{B2}(STL) The analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the method blank (greater than ten times the concentration reported in the method blank).

^{J}(F&B) The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

^{ca}(F&B) The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

EPA = U.S. Environmental Protection Agency
F&B = Friedman & Bruya, Inc.
Farallon = Farallon Consulting, LLC
QA/QC = quality assurance/quality control
SMS = Sediment Management Standards
SoundEarth = SoundEarth Strategies, Inc.
SQS = Sediment Quality Standards
STL = Severn Trent Laboratories LTD
TCLP = Toxics Characteristic Leaching Procedure
WAC = Washington Administrative Code

Table 3
Summary of Soil
Analytical Results for SVOCs
SB3/SB4 Upland Interim Action
Jorgensen Forge Property
8531 East Marginal Way South
Seattle, Washington

Area	Location	Sample ID	Sampled By	Sample Date	Sample Depth[1]	Semivolatile Organic Compounds[2] (milligrams/kilogram dry weight)																
						Naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo[g,h,i]perylene	bis(2-Ethylhexyl) phthalate	Butyl benzyl phthalate	Carbazole	Dibenzofuran	Di-n-butylphthalate	Flouranthene	Flourene	1-Methylnaphthalene	2-Methylnaphthalene	Pentachlorophenol	Phenanthrene	Pyrene
2013 Upland Interim Action Data																						
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	**0.0044**	<0.003	<0.003	<0.003	<0.003[J]	<0.096	<0.06	<0.06	<0.006	<0.06	0.0044	<0.003	<0.03[L]	<0.003	<0.06	**0.0052**	**0.0040**
	Base	JF-SB3BA1-130906	SoundEarth	09/06/13	2.5	<0.003	<0.003	<0.003	<0.003	**0.0087**[J]	<0.096	<0.06	<0.06	<0.006	<0.06	0.024	<0.003	<0.03[L]	<0.003	<0.06	**0.0063**	**0.025**
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	**0.0083**	**0.0044**[J]	**0.0032**[J]	**0.0099**[J]	**0.0048**[J]	<0.096[J]	<0.06[J]	<0.06[J]	<0.006[J]	<0.06[J]	**0.17**[J]	**0.0044**[J]	<0.03[L]	**0.0044**	<0.06[J]	**0.046**[J]	**0.20**[J]
	Base	JF-SB4BA2-130909	SoundEarth	09/09/13	6	<0.03	<0.03	<0.03	<0.03	**0.052**	<0.96	<0.6	<0.6	<0.06	<0.6	**0.18**	<0.03	<0.3[L]	<0.03	<0.6	**0.044**	**0.19**
SCER Screening Levels[3]						**2.1**	**0.5**	**1.3**	**0.96**	**0.67**	**1.3**	**0.063**	**--**	**0.54**	**1.4**	**1.7**	**0.54**	**--**	**0.67**	**0.36**	**1.5**	**2.6**
2013 Upland Interim Action, Carbon-Normalized Data[4]																						
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	**0.4783**	<0.326	<0.326	<0.326	<0.326[J]	<10.435	<6.52	<6.52	<0.652	<6.52	**0.4783**	<0.326	<3.26[L]	<0.326	<6.52	**0.5652**	**0.435**
	Base	JF-SB3BA1-130906	SoundEarth	09/06/13	2.5	<0.326	<0.326	<0.326	<0.326	**0.9457**[J]	<10.435	<6.52	<6.52	<0.652	<6.52	**2.826**	<0.326	<3.26[L]	<0.326	<6.52	**0.6848**	**2.717**
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	**0.7281**	**0.3421**[J]	**0.2456**[J]	**0.8684**[J]	**0.0326**[J]	<10.435[J]	<6.52[J]	<6.52[J]	<0.652[J]	<6.52[J]	**14.91**[J]	**0.386**[J]	<3.26[L]	**0.3860**	<6.52[J]	**4.129**[J]	**1754**[J]
	Base	JF-SB4BA2-130909	SoundEarth	09/09/13	6	<3.26	<3.26	<3.26	<3.26	**4.561**	<73.68	<65.2	<65.2	<6.52	<65.2	**15.79**	<3.26	<32.6[L]	<3.26	<65.2	**3.860**	**16.67**
SMS SQS Criteria[5]						**370 OC**	**16 OC**	**66 OC**	**220 OC**	**31 OC**	**47 OC**	**4.9**	**--**	**15 OC**	**220 OC**	**160 OC**	**23 OC**	**--**	**38 OC**	**360 OC**	**100 OC**	**1000 OC**

NOTES:

Results in **bold** denote a detected concentration.

[1]Depth measured in feet below ground surface.

[2]Analyzed by EPA Method 8270D SIM.

[3]From Anchor QEA, LLC and Farallon, 2008. Final Source Control Evaluation Report, Jorgensen Forge Facility, 8531 East Marginal Way South, Seattle, Washington. May.

[4]Organic carbon-normalized SVOC values are calculated by dividing the SVOC concentration by percent TOC in dry weight. For the 2013 samples, OC-normalized values were calculated using average 2004 TOC values of 0.92% for samples collected from the SB3 Polygon, and 1.14% for samples collected from the SB4 Polygon.

[5]Washington State Department of Ecology SMS, Section 320 of the WAC 173-204.

Laboratory Notes:

[J]The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

[L]The reported concentration was generated from a library search.

< = analyte not detected at or above the reporting limit
EPA = U.S. Environmental Protection Agency
Farallon = Farallon Consulting, LLC
NA = not analyzed
OC = organic carbon normalized
SCER = 2008 Source Control Evaluation Report
SoundEarth = SoundEarth Strategies, Inc.
SMS = Sediment Management Standards
SQS = Sediment Quality Standards
SVOC = semivolatile organic compound
TOC = total organic carbon
WAC = Washington Administrative Code

Table 4
Summary of Soil Analytical Results for cPAHs
SB3/SB4 Upland Interim Action
Jorgensen Forge Property
8531 East Marginal Way South
Seattle, Washington

Location	Area	Sample ID	Sampled By	Sample Date	Sample Depth[1]	Carcinogenic Polycyclic Aromatic Hydrocarbons[2] (milligrams per kilogram dry weight)								
						Benzo(a) pyrene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3,-cd) pyrene	Benzo(k) fluoranthene	Benzo(a) anthracene	Benzo(b) fluoranthene	Total Benzo fluoranthenes[3]	TEQ Concentration[4]
2013 Upland Interim Action Data														
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	<0.003 J	<0.003	<0.003 J	**0.0079** J	**0.0075** J	**0.0099**	**0.020** J	**0.028** J	**0.004**
	Base	JF-SB3BA1-130906	SoundEarth	09/06/13	2.5	**0.012** J	**0.014**	**0.0032** J	**0.0079** J	**0.0075** J	**0.0099**	**0.020** J	**0.028** J	**0.017**
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	**0.24** J	**0.41** J	**0.13** J	**0.48** J	**0.27** J	**0.22** J	**0.79** J	**1.06** J	**0.433**
	Base	JF-SB4BA2-130909	SoundEarth	09/09/13	6	**0.24**	**0.39**	**0.11**	**0.53**	**0.30**	**0.21**	**0.77**	**1.07**	**0.436**
cPAH Toxicity Equivalent Fraction						**1**	**0.01**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**--**
SCER Screening Levels[5]						**1.6**	**1.4**	**0.23**	**0.6**	**NE**	**1.3**	**NE**	**NE**	**--**
2013 Upland Interim Action, Carbon-Normalized Data[6]														
SB3 Polygon (North)	North Sidewall	JF-SB3NSW-130906	SoundEarth	09/06/13	1	<0.326 J	<0.326	<0.326 J	<0.326 J	<0.326 J	<0.326	<0.326 J	<0.326 J	**0.423**
	Base	JF-SB3BA1-130906	SoundEarth	09/06/13	2.5	**1.304** J	**1.522**	**0.3478** J	**0.8587** J	**0.8152** J	**1.0761**	**2.174** J	**2.99** J	**1.85**
SB4 Polygon (South)	North Sidewall	JF-SB4NSW-130909	SoundEarth	09/09/13	4	**21.05** J	**35.96** J	**11.40** J	**42.11** J	**23.68** J	**19.30** J	**69.30** J	**92.98**	**37.99**
	Base	JF-SB4BA2-130909	SoundEarth	09/09/13	6	**21.05**	**34.21**	**9.65**	**46.49**	**26.32**	**18.42**	**67.54**	**93.86**	**38.24**
cPAH Toxicity Equivalent Fraction						**1**	**0.01**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**--**
SMS SQS Criteria[7]						**99 OC**	**110 OC**	**12 OC**	**34 OC**	**NE**	**NE**	**NE**	**230 OC**	**--**

NOTES:

denotes concentration is above the SMS screening level.

Results in **bold** denote a detected concentration.

[1]Depth measured in feet below ground surface.

[2]Analyzed by EPA Method 8270D SIM.

[3]Total benzofluoranthenes is the sum of the B, J, and K isomers. Benzo (j) fluoranthene not reported.

[4] Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, half of the LRL is used for the calculation. Benzo(b) fluoranthene not reported.

[5]From Anchor QEA, LLC and Farallon Consulting LLC, 2008. Final Source Control Evaluation Report, Jorgensen Forge Facility, 8531 East Marginal Way South, Seattle, Washington. May.

[6]Organic carbon-normalized SVOC values are calculated by dividing the SVOC concentration by percent TOC in dry weight. For the 2013 samples, OC-normalized values were calculated using average 2004 TOC values of 0.92% for samples collected from the SB3 Polygon, and 1.14% for samples collected from the SB4 Polygon.

[7]Washington State Department of Ecology SMS, Section 320 of the WAC 173-204.

Laboratory Note:

J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

-- = not applicable
< = analyte not detected at or above the reporting limit
cPAH = carcinogenic polycyclic aromatic hydrocarbon
EPA = U.S. Environmental Protection Agency
LRL = laboratory reporting limit
NE = not established
OC = organic carbon normalized
SCER = 2008 Source Control Evaluation Report
SMS = Sediment Management Standards
SoundEarth = SoundEarth Strategies, Inc.
SQS = Sediment Quality Standards
SVOC = semivolatile organic compound
TEF = toxicity equivalency fraction
TEQ = toxicity equivalent
TOC = total organic carbon
WAC = Washington Administrative Code

ATTACHMENT A
SITE PHOTOGRAPHS

Photograph 1. Overview of the SB3/SB4 Upland Interim Action area. Photo viewing south.

Photograph 2. Overview of the SB3/SB4 Upland Interim Action area with survey control stakes. Photo viewing southeast.

Photograph 3. Overview the 2-foot-deep excavation for the SB3 Polygon. Photo viewing southeast.

Photograph 4. Overview of the 6-foot-deep excavation for the SB4 Polygon and west sidewall. Photo viewing southeast.

Photograph 5. Example of concrete rubble removed from SB3/SB4 excavation. Photo viewing southeast.

Photograph 6. South end of the 6-foot-deep excavation for the SB4 Polygon, in progress. Photo viewing southeast.

SoundEarth Strategies	Project No.: 0995-001-03 Date Range: September 4 – 9, 2013 Drawn By: DHG Checked By: RKB File ID: Project Photographs	**INTERIM ACTION PHOTOGRAPHS** SB3/SB4 Upland Interim Action Jorgensen Forge Property 8531 East Marginal Way South Seattle, Washington

Photograph 7. South end of the 6-foot-deep excavation for the SB4 Polygon. Photo viewing southeast.

Photograph 8. Jackhammer required to excavate through cemented rubble in excavation for the SB4 Polygon. Photo viewing southeast.

Photograph 9. North end of the 2-foot-deep excavation for the SB3 Polygon. Photo viewing west.

Photograph 10. View of bank material, concrete rubble, and piling exposed in west sidewall of the excavation for the SB4 Polygon.

SoundEarth Strategies	Project No.: 0995-001-03 Date Range: September 4 – 9, 2013 Drawn By: DHG Checked By: RKB File ID: Project Photographs	**INTERIM ACTION PHOTOGRAPHS** SB3/SB4 Upland Interim Action Jorgensen Forge Property 8531 East Marginal Way South Seattle, Washington

ATTACHMENT B
ALLIED WASTE DISPOSAL RECEIPTS AND TONNAGE REPORT

Activity By Job ID

Report period September 2013

REGIONAL DISPOSAL INTERMODAL

Job ID: **LW-13377** 16,510 **Jorgensen Forge Corporation**

Date	Ticket #	truck	Container		Material Code/Desc	Gross	Tare	Net	Tons	Origin
9/5/13 12:41 am	666,474	SOIL		74	SW-CONT SOIL	115,820	40,960	74,860	37.43	SEATTLE/KING
9/5/13 12:46 am	666,476	SOIL		74	SW-CONT SOIL	108,880	39,320	69,560	34.78	SEATTLE/KING
9/5/13 12:47 am	666,477	SOIL		74	SW-CONT SOIL	124,580	41,100	83,480	41.74	SEATTLE/KING
9/5/13 12:48 am	666,478	SOIL		74	SW-CONT SOIL	108,780	38,740	70,040	35.02	SEATTLE/KING
9/5/13 12:50 am	666,479	SOIL		74	SW-CONT SOIL	111,860	41,080	70,780	35.39	SEATTLE/KING
9/5/13 12:51 am	666,480	SOIL		74	SW-CONT SOIL	98,760	39,100	59,660	29.83	SEATTLE/KING
9/5/13 12:55 am	666,481	SOIL		74	SW-CONT SOIL	119,820	40,800	79,020	39.51	SEATTLE/KING
9/5/13 12:56 am	666,482	SOIL		74	SW-CONT SOIL	105,500	39,040	66,460	33.23	SEATTLE/KING
9/5/13 12:57 am	666,483	SOIL		74	SW-CONT SOIL	123,560	40,800	82,760	41.38	SEATTLE/KING
9/5/13 12:58 am	666,484	SOIL		74	SW-CONT SOIL	103,820	39,040	64,780	32.39	SEATTLE/KING
9/5/13 1:00 am	666,485	SOIL		74	SW-CONT SOIL	105,420	40,820	64,600	32.30	SEATTLE/KING
9/5/13 1:02 am	666,486	SOIL		74	SW-CONT SOIL	104,560	39,020	65,540	32.77	SEATTLE/KING
9/5/13 1:03 am	666,487	SOIL		74	SW-CONT SOIL	117,620	41,000	76,620	38.31	SEATTLE/KING
9/5/13 1:04 am	666,488	SOIL		74	SW-CONT SOIL	110,220	38,980	71,240	35.62	SEATTLE/KING
9/5/13 1:06 am	666,489	SOIL		74	SW-CONT SOIL	118,340	40,760	77,580	38.79	SEATTLE/KING
9/5/13 1:07 am	666,490	SOIL		74	SW-CONT SOIL	113,560	40,940	72,620	36.31	SEATTLE/KING
9/5/13 1:08 am	666,491	SOIL		74	SW-CONT SOIL	94,260	38,960	55,300	27.65	SEATTLE/KING
9/5/13 8:06 am	666,576	SOIL		74	SW-CONT SOIL	106,100	41,240	64,860	32.43	SEATTLE/KING
9/5/13 8:09 am	666,583	SOIL		74	SW-CONT SOIL	116,320	41,380	74,940	37.47	SEATTLE/KING
9/5/13 9:38 am	666,625	SOIL		74	SW-CONT SOIL	107,740	41,260	66,480	33.24	SEATTLE/KING
9/5/13 9:46 am	666,634	SOIL		74	SW-CONT SOIL	111,540	41,380	70,160	35.08	SEATTLE/KING
9/5/13 10:02 am	666,648	SOIL		74	SW-CONT SOIL	116,680	42,220	74,460	37.23	SEATTLE/KING
9/5/13 11:12 am	666,692	SOIL		74	SW-CONT SOIL	98,840	41,240	57,600	28.80	SEATTLE/KING
9/5/13 11:20 am	666,706	SOIL		74	SW-CONT SOIL	98,680	41,680	57,000	28.50	SEATTLE/KING
9/5/13 11:42 am	666,735	SOIL		74	SW-CONT SOIL	101,760	42,260	59,500	29.75	SEATTLE/KING
9/5/13 12:38 pm	666,768	SOIL		74	SW-CONT SOIL	97,640	41,240	56,400	28.20	SEATTLE/KING
9/5/13 12:54 pm	666,790	SOIL		74	SW-CONT SOIL	102,680	41,680	61,000	30.50	SEATTLE/KING

Activity By Job ID

Report period September 2013

REGIONAL DISPOSAL INTERMODAL

9/5/13	1:27 pm	666.803	SOIL	74	SW-CONT SOIL	116.860	42.18074.680	37.34	SEATTLE/KING
9/5/13	2:26 pm	666.824	SOIL	74	SW-CONT SOIL	104.060	41.18062.880	31.44	SEATTLE/KING
9/5/13	2:52 pm	666.827	SOIL	74	SW-CONT SOIL	104.360	41.66062.700	31.35	SEATTLE/KING
9/5/13	3:04 pm	666.836	SOIL	74	SW-CONT SOIL	102.360	42.44059.920	29.96	SEATTLE/KING
9/6/13	7:52 am	666.983	SOIL	74	SW-CONT SOIL	97.740	41.36056.380	28.19	SEATTLE/KING
9/6/13	8:01 am	666.988	SOIL	74	SW-CONT SOIL	93.800	41.60052.200	26.10	SEATTLE/KING
9/6/13	8:07 am	666.992	SOIL	74	SW-CONT SOIL	101.220	41.24059.980	29.99	SEATTLE/KING
9/6/13	9:12 am	667.009	SOIL	74	SW-CONT SOIL	97.880	41.34056.540	28.27	SEATTLE/KING
9/6/13	9:22 am	667.012	SOIL	74	SW-CONT SOIL	98.020	41.80056.220	28.11	SEATTLE/KING
9/6/13	9:25 am	667.014	SOIL	74	SW-CONT SOIL	101.260	41.26060.000	30.00	SEATTLE/KING
9/6/13	10:18 am	667.043	SOIL	74	SW-CONT SOIL	104.020	41.60062.420	31.21	SEATTLE/KING
9/6/13	10:20 am	667.046	SOIL	74	SW-CONT SOIL	99.420	41.98057.440	28.72	SEATTLE/KING
9/6/13	10:27 am	667.054	SOIL	74	SW-CONT SOIL	103.060	41.08061.980	30.99	SEATTLE/KING
9/6/13	11:22 am	667.087	SOIL	74	SW-CONT SOIL	100.100	41.68058.420	29.21	SEATTLE/KING
9/6/13	11:26 am	667.093	SOIL	74	SW-CONT SOIL	94.780	41.80052.980	26.49	SEATTLE/KING
9/6/13	11:41 am	667.107	SOIL	74	SW-CONT SOIL	109.740	41.84067.900	33.95	SEATTLE/KING
9/6/13	12:45 pm	667.160	SOIL	74	SW-CONT SOIL	41.800	40.740 1.060	0.53	SEATTLE/KING
9/9/13	9:04 am	667.571	SOIL	74	SW-CONT SOIL	111.500	40.72070.780	35.39	SEATTLE/KING
9/9/13	9:19 am	667.577	SOIL	74	SW-CONT SOIL	93.000	40.72052.280	26.14	SEATTLE/KING
9/9/13	11:47 am	667.689	SOIL	74	SW-CONT SOIL	52.580	25.56027.020	13.51	SEATTLE/KING

Total For Job **LW-13377** 47 Loads **1480.54** TN

Activity By Job ID

Report period September 2013

REGIONAL DISPOSAL INTERMODAL

Grand Total	47 Loads	1480.54 TN

ATTACHMENT C
LABORATORY ANALYTICAL REPORTS

Freidman & Bruya, Inc. #309114 amended

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

Niovember 5, 2013

Dee Gardner, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Gardner:

Included is the amended report from the testing of material submitted on September 6, 2013 from the SOU_0995_20130906, F&BI 309114 project. Per your request, 1-methylnaphthalene was added to the report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Chuck Cacek
SOU1004R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

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Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 4, 2013

Dee Gardner, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr. Gardner:

Included are the results from the testing of material submitted on September 6, 2013 from the SOU_0995_20130906, F&BI 309114 project. There are 29 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Chuck Cacek
SOU1004R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 6, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0995_20130906, F&BI 309114 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
309114 -01	JF-SB3NSW-130906
309114 -02	JF-SB3ESW-130906
309114 -03	JF-SB3BA1-130906
309114 -04	JF-SB3BA2-130906
309114 -05	JF-SB3FD-130906
309114 -06	Rinsate-130906
309114 -07	Trip Blank

A 6020A internal standard failed the acceptance criteria for sample JF-SB3NSW-130906 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

The 6020A calibration standard failed the acceptance criteria for zinc. The data were flagged accordingly.

An 8270D internal standard failed the acceptance criteria for samples JF-SB3NSW-130906 and JF-SB3BA1-130906 due to matrix interferences. The data were flagged accordingly.

The 8270D calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

Several 8270D compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

Several compounds in the 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3NSW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-01
Date Analyzed:	09/19/13	Data File:	309114-01.041
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	136 vo	70	130
Indium	98	70	130
Holmium	106	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	402 J
Copper	40.7 J
Zinc	87.1 J, ca
Arsenic	7.25
Silver	<1
Cadmium	<1
Lead	207

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3NSW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-01 x10
Date Analyzed:	09/19/13	Data File:	309114-01 x10.053
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	70	130
Indium	105	70	130
Holmium	114	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	561
Copper	60.1
Zinc	115 ca
Arsenic	<10
Silver	<10
Cadmium	<10
Lead	199

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3ESW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-02
Date Analyzed:	09/19/13	Data File:	309114-02.044
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	70	130
Indium	101	70	130
Holmium	114	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	25.3
Copper	18.7
Zinc	100 ca
Arsenic	3.18
Silver	<1
Cadmium	<1
Lead	29.1

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3BA1-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-03
Date Analyzed:	09/19/13	Data File:	309114-03.045
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	127	70	130
Indium	97	70	130
Holmium	108	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	151
Copper	52.7
Zinc	136 ca
Arsenic	10.4
Silver	<1
Cadmium	1.35
Lead	360

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3BA2-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-04
Date Analyzed:	09/19/13	Data File:	309114-04.046
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	106	70	130
Indium	105	70	130
Holmium	116	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	8.01
Copper	7.38
Zinc	17.4 ca
Arsenic	2.12
Silver	<1
Cadmium	<1
Lead	1.63

Analysis For Total Metals By EPA Method 6020A

Client ID:	JF-SB3FD-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	309114-05
Date Analyzed:	09/19/13	Data File:	309114-05.047
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	70	130
Indium	100	70	130
Holmium	112	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	7.82
Copper	7.29
Zinc	16.4 ca
Arsenic	2.37
Silver	<1
Cadmium	<1
Lead	1.52

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/17/13	Lab ID:	I3-584 mb
Date Analyzed:	09/19/13	Data File:	I3-584 mb.036
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	70	130
Indium	104	70	130
Holmium	112	70	130

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Copper	<1
Zinc	<1 ca
Arsenic	<1
Silver	<1
Cadmium	<1
Lead	<1

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114
Date Extracted: 09/17/13
Date Analyzed: 09/19/13

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL MERCURY
USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
JF-SB3NSW-130906 309114-01	<0.1
JF-SB3ESW-130906 309114-02	<0.1
JF-SB3BA1-130906 309114-03	<0.1
JF-SB3BA2-130906 309114-04	<0.1
JF-SB3FD-130906 309114-05	<0.1
Method Blank	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	JF-SB3NSW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/20/13	Lab ID:	309114-01
Date Analyzed:	09/22/13	Data File:	092222.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39 ip	56	115
Phenol-d6	81	54	113
Nitrobenzene-d5	97	31	164
2-Fluorobiphenyl	95	47	133
2,4,6-Tribromophenol	7 ip	35	141
Terphenyl-d14	120	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	<0.003
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	<0.006
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18
Benzyl alcohol	<0.06	Diethyl phthalate	0.0064
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	<0.003
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006
Isophorone	<0.006	Hexachlorobenzene	<0.006
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06
2,4-Dimethylphenol	<0.06	Phenanthrene	0.0052
Benzoic acid	<0.3 ca	Anthracene	<0.003
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	0.0044
Naphthalene	0.0044	Pyrene	0.0040
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06
4-Chloroaniline	<0.6	Benz(a)anthracene	<0.003
4-Chloro-3-methylphenol	<0.06	Chrysene	<0.003
2-Methylnaphthalene	<0.003	Bis(2-ethylhexyl) phthalate	<0.096
Hexachlorocyclopentadiene	<0.018	Di-n-octyl phthalate	<0.06 J
2,4,6-Trichlorophenol	<0.06	Benzo(a)pyrene	<0.003 J
2,4,5-Trichlorophenol	<0.06	Benzo(b)fluoranthene	<0.003 J
2-Chloronaphthalene	<0.006	Benzo(k)fluoranthene	<0.003 J
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	<0.003 J
Dimethyl phthalate	<0.006	Dibenz(a,h)anthracene	<0.003 J
Acenaphthylene	<0.003	Benzo(g,h,i)perylene	<0.003 J
2,6-Dinitrotoluene	<0.03	1-Methylnaphthalene	<0.03 L

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	JF-SB3BA1-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/20/13	Lab ID:	309114-03
Date Analyzed:	09/22/13	Data File:	092223.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	56	115
Phenol-d6	88	54	113
Nitrobenzene-d5	93	31	164
2-Fluorobiphenyl	89	47	133
2,4,6-Tribromophenol	62	35	141
Terphenyl-d14	99	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	<0.003
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	<0.006
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18
Benzyl alcohol	<0.06	Diethyl phthalate	0.0079
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	<0.003
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006
Isophorone	<0.006	Hexachlorobenzene	<0.006
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06
2,4-Dimethylphenol	<0.06	Phenanthrene	0.0063
Benzoic acid	<0.3 ca	Anthracene	<0.003
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	0.024
Naphthalene	<0.003	Pyrene	0.025
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06
4-Chloroaniline	<0.6	Benz(a)anthracene	0.0099
4-Chloro-3-methylphenol	<0.06	Chrysene	0.014
2-Methylnaphthalene	<0.003	Bis(2-ethylhexyl) phthalate	<0.096
Hexachlorocyclopentadiene	<0.018	Di-n-octyl phthalate	<0.06 J
2,4,6-Trichlorophenol	<0.06	Benzo(a)pyrene	0.012 J
2,4,5-Trichlorophenol	<0.06	Benzo(b)fluoranthene	0.020 J
2-Chloronaphthalene	<0.006	Benzo(k)fluoranthene	0.0075 J
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	0.0079 J
Dimethyl phthalate	<0.006	Dibenz(a,h)anthracene	0.0032 J
Acenaphthylene	<0.003	Benzo(g,h,i)perylene	0.0087 J
2,6-Dinitrotoluene	<0.03	1-Methylnaphthalene	<0.03 L

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/20/13	Lab ID:	03-1896 mb
Date Analyzed:	09/20/13	Data File:	092021.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	95	56	115
Phenol-d6	96	54	113
Nitrobenzene-d5	104	31	164
2-Fluorobiphenyl	98	47	133
2,4,6-Tribromophenol	98	35	141
Terphenyl-d14	104	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	<0.003
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	<0.006
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18 ca
Benzyl alcohol	<0.06	Diethyl phthalate	<0.006
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	<0.003
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006
Isophorone	<0.006	Hexachlorobenzene	<0.006
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06
2,4-Dimethylphenol	<0.06	Phenanthrene	<0.003
Benzoic acid	<0.3 ca	Anthracene	<0.003
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	<0.003
Naphthalene	<0.003	Pyrene	<0.003
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06
4-Chloroaniline	<0.6	Benz(a)anthracene	<0.003
4-Chloro-3-methylphenol	<0.06	Chrysene	<0.003
2-Methylnaphthalene	<0.003	Bis(2-ethylhexyl) phthalate	<0.096
Hexachlorocyclopentadiene	<0.018	Di-n-octyl phthalate	<0.06
2,4,6-Trichlorophenol	<0.06	Benzo(a)pyrene	<0.003
2,4,5-Trichlorophenol	<0.06	Benzo(b)fluoranthene	<0.003
2-Chloronaphthalene	<0.006	Benzo(k)fluoranthene	<0.003
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	<0.003
Dimethyl phthalate	<0.006	Dibenz(a,h)anthracene	<0.003
Acenaphthylene	<0.003	Benzo(g,h,i)perylene	<0.003
2,6-Dinitrotoluene	<0.03	1-Methylnaphthalene	<0.03 L

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3NSW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-01
Date Analyzed:	09/11/13	Data File:	10.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	102	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	0.21
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3ESW-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-02
Date Analyzed:	09/11/13	Data File:	12.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3BA1-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-03
Date Analyzed:	09/11/13	Data File:	14.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	1.7
Aroclor 1260	<0.1
Aroclor 1262	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3BA1-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-03 1/10
Date Analyzed:	09/13/13	Data File:	16.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	90	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<1
Aroclor 1232	<1
Aroclor 1016	<1
Aroclor 1242	<1
Aroclor 1248	<1
Aroclor 1254	1.5
Aroclor 1260	<1
Aroclor 1262	<1
Aroclor 1268	3.2

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3BA2-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-04
Date Analyzed:	09/11/13	Data File:	16.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB3FD-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	309114-05
Date Analyzed:	09/11/13	Data File:	18.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/10/13	Lab ID:	03-1787 mb
Date Analyzed:	09/10/13	Data File:	10.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	103	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Rinsate-130906	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/13/13	Lab ID:	309114-06
Date Analyzed:	09/13/13	Data File:	34.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	88	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Trip Blank	Client:	SoundEarth Strategies
Date Received:	09/06/13	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/13/13	Lab ID:	309114-07
Date Analyzed:	09/13/13	Data File:	36.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	98	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130906, F&BI 309114
Date Extracted:	09/13/13	Lab ID:	03-1818 mb
Date Analyzed:	09/13/13	Data File:	32.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 309114-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	466	0 b	0 b	57-128	0 b
Copper	mg/kg (ppm)	50	49.9	231 b	200 b	57-120	14 b
Zinc	mg/kg (ppm)	50	95.5	91 b	58 b	55-129	44 b
Arsenic	mg/kg (ppm)	10	<10	79	60 vo	70-118	27 vo
Silver	mg/kg (ppm)	10	<10	89	77	73-122	14
Cadmium	mg/kg (ppm)	10	<10	79 vo	66 vo	83-116	18
Lead	mg/kg (ppm)	50	165	0 b	0 b	59-148	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	94	78-121
Copper	mg/kg (ppm)	50	93	82-119
Zinc	mg/kg (ppm)	50	93	81-120
Arsenic	mg/kg (ppm)	10	92	83-113
Silver	mg/kg (ppm)	10	106	81-116
Cadmium	mg/kg (ppm)	10	98	54-114
Lead	mg/kg (ppm)	50	97	80-120

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 309114-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.1	109	116	62-140	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	99	63-131

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: 309117-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	<0.003	80	88	50-150	10
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.006	88	92	50-150	4
2-Chlorophenol	mg/kg (ppm)	0.33	<0.06	67	78	50-150	15
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	82	91	50-150	10
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	82	90	50-150	9
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	85	93	50-150	9
Benzyl alcohol	mg/kg (ppm)	0.33	<0.06	94	99	50-150	5
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	0.33	<0.006	89	94	50-150	5
2-Methylphenol	mg/kg (ppm)	0.33	<0.06	92	98	50-150	6
Hexachloroethane	mg/kg (ppm)	0.33	<0.006	85	93	50-150	9
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.006	90	98	50-150	9
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.12	94	100	50-150	6
Nitrobenzene	mg/kg (ppm)	0.33	<0.006	91	96	50-150	5
Isophorone	mg/kg (ppm)	0.33	<0.006	89	94	50-150	5
2-Nitrophenol	mg/kg (ppm)	0.33	<0.06	33 ip	52	50-150	45 ip
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.06	91	97	50-150	6
Benzoic acid	mg/kg (ppm)	0.5	<0.3 ca	137	144	50-150	5
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.006	87	90	50-150	3
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.06	53	71	50-150	29 ip
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.006	88	92	50-150	4
Naphthalene	mg/kg (ppm)	0.33	0.0070	88	101	50-150	14
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.006	87	92	50-150	6
4-Chloroaniline	mg/kg (ppm)	0.66	<0.6	65	67	50-150	3
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.06	95	106	50-150	11
2-Methylnaphthalene	mg/kg (ppm)	0.33	0.0037	94	104	50-150	10
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.018 J	79	88	50-150	11
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.06 J	5 ip	9 ip	50-150	57 ip
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.06 J	13 ip	24 ip	50-150	59 ip
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.006 J	90	94	50-150	4
2-Nitroaniline	mg/kg (ppm)	0.33	<0.03 J	98	107	50-150	9
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.006 J	89	94	50-150	5
Acenaphthylene	mg/kg (ppm)	0.33	0.0037 J	92	97	50-150	5
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.03 J	93	101	50-150	8
3-Nitroaniline	mg/kg (ppm)	0.66	<0.6 J	73	77	50-150	5
Acenaphthene	mg/kg (ppm)	0.33	0.0037 J	92	104	50-150	12
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.18 J ca	0 ip	0 ip	50-150	0
Dibenzofuran	mg/kg (ppm)	0.33	<0.006 J	93	104	50-150	11
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.03 J	82	91	50-150	10
4-Nitrophenol	mg/kg (ppm)	0.33	<0.18 J ca	9 ip	10 ip	50-150	11
Diethyl phthalate	mg/kg (ppm)	0.33	<0.006 J	93	95	50-150	2
Fluorene	mg/kg (ppm)	0.33	0.0037 J	98	118	50-150	19
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.006 J	94	97	50-150	3
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.006 J	92	97	50-150	5
4-Nitroaniline	mg/kg (ppm)	0.66	<0.6 J	68	70	50-150	3
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.18 J ca	0 ip	8 ip	50-150	80 ip
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.006 J	90	95	50-150	5
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.006 J	91	96	50-150	5
Pentachlorophenol	mg/kg (ppm)	0.33	<0.06 J	0 ip	0 ip	50-150	0
Phenanthrene	mg/kg (ppm)	0.33	0.038 J	98	180 vo	50-150	59 vo
Anthracene	mg/kg (ppm)	0.33	0.0083 J	94	110	50-150	16
Carbazole	mg/kg (ppm)	0.33	<0.06 J	91	100	50-150	9
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.06 J	105	104	50-150	1
Fluoranthene	mg/kg (ppm)	0.33	0.14 J	70	117	50-150	50 vo
Pyrene	mg/kg (ppm)	0.33	0.17 J	95	158 vo	50-150	50 vo
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.06 J	116	116	50-150	0
Benz(a)anthracene	mg/kg (ppm)	0.33	0.18 J	48 vo	72	50-150	40 vo
Chrysene	mg/kg (ppm)	0.33	0.34 J	7 vo	30 vo	50-150	124 vo
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.096 J	108	114	50-150	5
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.06 J	118	110	50-150	7
Benzo(a)pyrene	mg/kg (ppm)	0.33	0.20 J	51	62	50-150	19
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	0.66 J	0 vo	0 vo	50-150	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	0.23 J	35 vo	40 vo	50-150	13
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	0.40 J	0 vo	0 vo	50-150	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	0.11 J	47 vo	62 vo	50-150	28 vo
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	0.40 J	0 vo	0 vo	50-150	0

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	93	97	51-119	4
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	97	98	60-112	1
2-Chlorophenol	mg/kg (ppm)	0.33	100	100	59-114	0
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	93	94	62-113	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	92	93	61-114	1
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	95	95	61-113	0
Benzyl alcohol	mg/kg (ppm)	0.33	102	105	50-119	3
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	0.33	94	95	59-113	1
2-Methylphenol	mg/kg (ppm)	0.33	96	96	58-115	0
Hexachloroethane	mg/kg (ppm)	0.33	96	96	63-114	0
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	104	103	62-114	1
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	102	101	54-120	1
Nitrobenzene	mg/kg (ppm)	0.33	99	101	59-114	2
Isophorone	mg/kg (ppm)	0.33	98	100	61-113	2
2-Nitrophenol	mg/kg (ppm)	0.33	106	109	59-114	3
2,4-Dimethylphenol	mg/kg (ppm)	0.33	88	85	54-107	3
Benzoic acid	mg/kg (ppm)	0.5	122	125	43-150	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	92	94	60-114	2
2,4-Dichlorophenol	mg/kg (ppm)	0.33	104	106	57-118	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	92	93	56-112	1
Naphthalene	mg/kg (ppm)	0.33	93	94	61-113	1
Hexachlorobutadiene	mg/kg (ppm)	0.33	91	93	60-116	2
4-Chloroaniline	mg/kg (ppm)	0.66	67	61	10-126	9
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	110	111	59-115	1
2-Methylnaphthalene	mg/kg (ppm)	0.33	97	98	60-115	1
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	107	106	41-107	1
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	105	103	47-119	2
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	111	110	61-121	1
2-Chloronaphthalene	mg/kg (ppm)	0.33	95	95	58-114	0
2-Nitroaniline	mg/kg (ppm)	0.33	117	117	55-119	0
Dimethyl phthalate	mg/kg (ppm)	0.33	98	100	58-116	2
Acenaphthylene	mg/kg (ppm)	0.33	99	97	56-114	2
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	104	104	57-119	0
3-Nitroaniline	mg/kg (ppm)	0.66	83	82	10-143	1
Acenaphthene	mg/kg (ppm)	0.33	96	96	57-114	0
2,4-Dinitrophenol	mg/kg (ppm)	0.33	134 vo	137 vo	40-122	2
Dibenzofuran	mg/kg (ppm)	0.33	98	97	56-115	1
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	106	107	53-126	1
4-Nitrophenol	mg/kg (ppm)	0.33	113	107	40-124	5
Diethyl phthalate	mg/kg (ppm)	0.33	98	99	57-116	1
Fluorene	mg/kg (ppm)	0.33	98	97	57-118	1
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	95	96	54-119	1
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	93	93	54-113	0
4-Nitroaniline	mg/kg (ppm)	0.66	88	86	47-109	2
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	118 vo	125 vo	57-108	6
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	92	94	56-116	2
Hexachlorobenzene	mg/kg (ppm)	0.33	93	94	57-115	1
Pentachlorophenol	mg/kg (ppm)	0.33	107	108	45-123	1
Phenanthrene	mg/kg (ppm)	0.33	96	98	57-113	2
Anthracene	mg/kg (ppm)	0.33	94	94	60-118	0
Carbazole	mg/kg (ppm)	0.33	95	96	57-116	1
Di-n-butyl phthalate	mg/kg (ppm)	0.33	103	105	56-118	2
Fluoranthene	mg/kg (ppm)	0.33	102	103	58-117	1
Pyrene	mg/kg (ppm)	0.33	93	94	58-120	1
Benzyl butyl phthalate	mg/kg (ppm)	0.33	104	107	56-122	3
Benz(a)anthracene	mg/kg (ppm)	0.33	93	95	54-114	2
Chrysene	mg/kg (ppm)	0.33	94	95	57-119	1
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	101	102	56-125	1
Di-n-octyl phthalate	mg/kg (ppm)	0.33	104	106	58-120	2
Benzo(a)pyrene	mg/kg (ppm)	0.33	90	90	56-119	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	96	97	47-121	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	94	94	59-126	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	95	94	54-122	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	93	93	54-128	0
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	92	92	55-122	0

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 309117-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.8	<0.1	98	92	50-150	6
Aroclor 1260	mg/kg (ppm)	0.8	<0.1	512 ip	375 ip	50-150	31 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.8	80	70-130
Aroclor 1260	mg/kg (ppm)	0.8	79	70-130

Date of Report: 10/04/13
Date Received: 09/06/13
Project: SOU_0995_20130906, F&BI 309114

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	1.0	75	82	70-130	9
Aroclor 1260	ug/L (ppb)	1.0	86	86	70-130	0

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

309114

SAMPLE CHAIN OF CUSTODY

ME 09-06-13 BT2 / AE6

Page # 1 of 1

Send Report To C. Cacek
Company SoundEarth Strategies
Address 2811 Fairview Ave E Suite 2000
City, State, ZIP Seattle, WA 98102
Phone # 206.306.1900 Fax # 206.306.1907

SAMPLERS (signature)

PROJECT NAME/NO. JFC/0995

PO #

REMARKS

GEMS Y / N

TURNAROUND TIME
- ☒ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: PCBs by 8082 ~~NWTPH-Dx~~	Mercury by 7471A ~~NWTPH-Gx~~	BTEX by 8021B	VOC's by 8260	SVOC's by 8270	RCRA-8 Metals	Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc (including EDB) 6020		Notes
JF-SB3NSW-130906	SB3NSW	1	01AB	9/6/13	1510	Soil	2	X	X			☒		X		
JF-SB3ESW-130906	SB3ESW	1.5	02		1518	Soil	2	X	X					X		
JF-SB3BA1-130906	SB3BA	2.5	03		1532	Soil	2	X	X			☒		X		
JF-SB3BA2-130906	SB3BA	2.5	04		1537	Soil	2	X	X					X		
JF-SB3FD-130906	SB3FD	—	05		1540	Soil	2	X	X					X		
Rinsate-130906	Rinsate	—	06	↓	1555	H2O	1	X								
Trip Blank	—	—	07	—	—	H2O	1	X								Lab Provided

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

ORMS\COC\SESGEMSR1.DOC (Revision 1)

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	David Mendel	SES	9/6/13	1700
Received by:	Charles Cacek	SES	9/6/13	1700
Relinquished by:				
Received by:	Nhan Pham	FCBI	9/6/13	1730

Freidman & Bruya, Inc. #309117 amended

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 5, 2013

Dee Gardner, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Gardner:

Included is the amended report from the testing of material submitted on September 9, 2013 from the SOU_0995_20130909, F&BI 309117 project. Per your request, 1-methylnaphthalene was added to the report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Chuck Cacek
SOU1004R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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Michael Erdahl, B.S.
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Eric Young, B.S.

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October 4, 2013

Dee Gardner, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Gardner:

Included are the results from the testing of material submitted on September 9, 2013 from the SOU_0995_20130909, F&BI 309117 project. There are 31 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Chuck Cacek
SOU1004R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 9, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0995_20130909, F&BI 309117 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
309117 -01	JF-SB4NSW-130909
309117 -02	JF-SB4BA1-130909
309117 -03	JF-SB4BA2-130909
309117 -04	JF-SB4BA3-130909
309117 -05	JF-SB4SSW-130909
309117 -06	JF-SB4ESW-130909
309117 -07	Rinsate Blank_2
309117 -08	Trip Blank_2

An 8270D internal standard failed the acceptance criteria for samples JF-SB4NSW-130909 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

The 8270D calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

Several 8270D compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

Several compounds in the 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-01
Date Analyzed:	09/13/13	Data File:	309117-01.027
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	87	60	125
Holmium	88	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	116
Arsenic	3.21
Selenium	<1
Silver	<1
Cadmium	<1
Barium	36.9
Lead	355

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA1-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-02
Date Analyzed:	09/13/13	Data File:	309117-02.028
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	89	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	6.76
Arsenic	2.34
Selenium	<1
Silver	<1
Cadmium	<1
Barium	15.1
Lead	2.54

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA2-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-03
Date Analyzed:	09/13/13	Data File:	309117-03.030
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	113	60	125
Indium	80	60	125
Holmium	82	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	298
Arsenic	7.59
Selenium	<1
Silver	<1
Cadmium	<1
Barium	64.0
Lead	165

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA3-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-04
Date Analyzed:	09/13/13	Data File:	309117-04.031
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	82	60	125
Holmium	87	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	11.9
Arsenic	1.78
Selenium	<1
Silver	<1
Cadmium	<1
Barium	11.0
Lead	7.74

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4SSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-05
Date Analyzed:	09/13/13	Data File:	309117-05.032
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	71	60	125
Holmium	75	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	298
Arsenic	5.93
Selenium	<1
Silver	<1
Cadmium	<1
Barium	75.2
Lead	194

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4ESW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-06
Date Analyzed:	09/13/13	Data File:	309117-06.033
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	85	60	125
Indium	81	60	125
Holmium	85	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	5.31
Arsenic	2.25
Selenium	<1
Silver	<1
Cadmium	<1
Barium	14.8
Lead	1.66

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	I3-569 mb
Date Analyzed:	09/13/13	Data File:	I3-569 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	JS

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	99	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117
Date Extracted: 09/13/13
Date Analyzed: 09/17/13

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL MERCURY
USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
JF-SB4NSW-130909 309117-01	<0.1
JF-SB4BA1-130909 309117-02	<0.1
JF-SB4BA2-130909 309117-03	<0.1
JF-SB4BA3-130909 309117-04	<0.1
JF-SB4SSW-130909 309117-05	<0.1
JF-SB4ESW-130909 309117-06	<0.1
Method Blank	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/20/13	Lab ID:	309117-01
Date Analyzed:	09/20/13	Data File:	092022.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	51 ip	56	115
Phenol-d6	64	54	113
Nitrobenzene-d5	104	31	164
2-Fluorobiphenyl	104 J	47	133
2,4,6-Tribromophenol	6 ip J	35	141
Terphenyl-d14	106 J	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6 J
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	0.0044 J
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 J ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	<0.006 J
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03 J
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18 J ca
Benzyl alcohol	<0.06	Diethyl phthalate	<0.006 J
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	0.0044 J
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006 J
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006 J
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6 J
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 J ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006 J
Isophorone	<0.006	Hexachlorobenzene	<0.006 J
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06 J
2,4-Dimethylphenol	<0.06	Phenanthrene	0.046 J
Benzoic acid	<0.3 ca	Anthracene	0.0099 J
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06 J
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06 J
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	0.17 J
Naphthalene	0.0083	Pyrene	0.20 J
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06 J
4-Chloroaniline	<0.6	Benz(a)anthracene	0.22 J
4-Chloro-3-methylphenol	<0.06	Chrysene	0.41 J
2-Methylnaphthalene	0.0044	Bis(2-ethylhexyl) phthalate	<0.096 J
Hexachlorocyclopentadiene	<0.018 J	Di-n-octyl phthalate	<0.06 J
2,4,6-Trichlorophenol	<0.06 J	Benzo(a)pyrene	0.24 J
2,4,5-Trichlorophenol	<0.06 J	Benzo(b)fluoranthene	0.79 J
2-Chloronaphthalene	<0.006 J	Benzo(k)fluoranthene	0.27 J
2-Nitroaniline	<0.03 J	Indeno(1,2,3-cd)pyrene	0.48 J
Dimethyl phthalate	<0.006 J	Dibenz(a,h)anthracene	0.13 J
Acenaphthylene	0.0032 J	Benzo(g,h,i)perylene	0.48 J
2,6-Dinitrotoluene	<0.03 J	1-Methylnaphthalene	<0.03 L

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/20/13	Lab ID:	309117-01 1/10
Date Analyzed:	09/23/13	Data File:	092313.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	38 ds	56	115
Phenol-d6	84 ds	54	113
Nitrobenzene-d5	91 ds	31	164
2-Fluorobiphenyl	96 ds	47	133
2,4,6-Tribromophenol	12 ds	35	141
Terphenyl-d14	101 ds	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.03	3-Nitroaniline	<6
Bis(2-chloroethyl) ether	<0.06	Acenaphthene	<0.03
2-Chlorophenol	<0.6	2,4-Dinitrophenol	<1.8 ca
1,3-Dichlorobenzene	<0.06	Dibenzofuran	<0.06
1,4-Dichlorobenzene	<0.06	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.06	4-Nitrophenol	<1.8
Benzyl alcohol	<0.6	Diethyl phthalate	<0.06
Bis(2-chloroisopropyl) ether	<0.06	Fluorene	<0.03
2-Methylphenol	<0.6	4-Chlorophenyl phenyl ether	<0.06
Hexachloroethane	<0.06	N-Nitrosodiphenylamine	<0.06
N-Nitroso-di-n-propylamine	<0.06	4-Nitroaniline	<6 ca
3-Methylphenol + 4-Methylphenol	<1.2	4,6-Dinitro-2-methylphenol	<1.8 ca
Nitrobenzene	<0.06	4-Bromophenyl phenyl ether	<0.06
Isophorone	<0.06	Hexachlorobenzene	<0.06
2-Nitrophenol	<0.6	Pentachlorophenol	<0.6
2,4-Dimethylphenol	<0.6	Phenanthrene	0.044
Benzoic acid	<3 ca	Anthracene	<0.03
Bis(2-chloroethoxy)methane	<0.06	Carbazole	<0.6
2,4-Dichlorophenol	<0.6	Di-n-butyl phthalate	<0.6
1,2,4-Trichlorobenzene	<0.06	Fluoranthene	0.18
Naphthalene	<0.03	Pyrene	0.19
Hexachlorobutadiene	<0.06	Benzyl butyl phthalate	<0.6
4-Chloroaniline	<6	Benz(a)anthracene	0.21
4-Chloro-3-methylphenol	<0.6	Chrysene	0.39
2-Methylnaphthalene	<0.03	Bis(2-ethylhexyl) phthalate	<0.96
Hexachlorocyclopentadiene	<0.18	Di-n-octyl phthalate	<0.6
2,4,6-Trichlorophenol	<0.6	Benzo(a)pyrene	0.24
2,4,5-Trichlorophenol	<0.6	Benzo(b)fluoranthene	0.77
2-Chloronaphthalene	<0.06	Benzo(k)fluoranthene	0.30
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	0.53
Dimethyl phthalate	<0.06	Dibenz(a,h)anthracene	0.11
Acenaphthylene	<0.03	Benzo(g,h,i)perylene	0.52
2,6-Dinitrotoluene	<0.3	1-Methylnaphthalene	<0.3 L

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	JF-SB4BA2-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/20/13	Lab ID:	309117-03
Date Analyzed:	09/21/13	Data File:	092025.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	6 ip	56	115
Phenol-d6	32 ip	54	113
Nitrobenzene-d5	100	31	164
2-Fluorobiphenyl	97	47	133
2,4,6-Tribromophenol	0 ip	35	141
Terphenyl-d14	114	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	0.019
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	0.021
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18 ca
Benzyl alcohol	<0.06	Diethyl phthalate	0.0088
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	0.016
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006
Isophorone	<0.006	Hexachlorobenzene	<0.006
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06
2,4-Dimethylphenol	<0.06	Phenanthrene	0.12
Benzoic acid	<0.3 ca	Anthracene	0.023
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	0.14
Naphthalene	0.022	Pyrene	0.14
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06
4-Chloroaniline	<0.6	Benz(a)anthracene	0.094
4-Chloro-3-methylphenol	<0.06	Chrysene	0.13
2-Methylnaphthalene	0.014	Bis(2-ethylhexyl) phthalate	<0.096
Hexachlorocyclopentadiene	<0.018	Di-n-octyl phthalate	<0.06
2,4,6-Trichlorophenol	<0.06	Benzo(a)pyrene	0.11
2,4,5-Trichlorophenol	<0.06	Benzo(b)fluoranthene	0.21
2-Chloronaphthalene	<0.006	Benzo(k)fluoranthene	0.066
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	0.091
Dimethyl phthalate	<0.006	Dibenz(a,h)anthracene	0.022
Acenaphthylene	0.0032	Benzo(g,h,i)perylene	0.087
2,6-Dinitrotoluene	<0.03	1-Methylnaphthalene	<0.03 L

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/20/13	Lab ID:	03-1896 mb
Date Analyzed:	09/20/13	Data File:	092021.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	95	56	115
Phenol-d6	96	54	113
Nitrobenzene-d5	104	31	164
2-Fluorobiphenyl	98	47	133
2,4,6-Tribromophenol	98	35	141
Terphenyl-d14	104	64	125

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.003	3-Nitroaniline	<0.6
Bis(2-chloroethyl) ether	<0.006	Acenaphthene	<0.003
2-Chlorophenol	<0.06	2,4-Dinitrophenol	<0.18 ca
1,3-Dichlorobenzene	<0.006	Dibenzofuran	<0.006
1,4-Dichlorobenzene	<0.006	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.006	4-Nitrophenol	<0.18 ca
Benzyl alcohol	<0.06	Diethyl phthalate	<0.006
Bis(2-chloroisopropyl) ether	<0.006	Fluorene	<0.003
2-Methylphenol	<0.06	4-Chlorophenyl phenyl ether	<0.006
Hexachloroethane	<0.006	N-Nitrosodiphenylamine	<0.006
N-Nitroso-di-n-propylamine	<0.006	4-Nitroaniline	<0.6
3-Methylphenol + 4-Methylphenol	<0.12	4,6-Dinitro-2-methylphenol	<0.18 ca
Nitrobenzene	<0.006	4-Bromophenyl phenyl ether	<0.006
Isophorone	<0.006	Hexachlorobenzene	<0.006
2-Nitrophenol	<0.06	Pentachlorophenol	<0.06
2,4-Dimethylphenol	<0.06	Phenanthrene	<0.003
Benzoic acid	<0.3 ca	Anthracene	<0.003
Bis(2-chloroethoxy)methane	<0.006	Carbazole	<0.06
2,4-Dichlorophenol	<0.06	Di-n-butyl phthalate	<0.06
1,2,4-Trichlorobenzene	<0.006	Fluoranthene	<0.003
Naphthalene	<0.003	Pyrene	<0.003
Hexachlorobutadiene	<0.006	Benzyl butyl phthalate	<0.06
4-Chloroaniline	<0.6	Benz(a)anthracene	<0.003
4-Chloro-3-methylphenol	<0.06	Chrysene	<0.003
2-Methylnaphthalene	<0.003	Bis(2-ethylhexyl) phthalate	<0.096
Hexachlorocyclopentadiene	<0.018	Di-n-octyl phthalate	<0.06
2,4,6-Trichlorophenol	<0.06	Benzo(a)pyrene	<0.003
2,4,5-Trichlorophenol	<0.06	Benzo(b)fluoranthene	<0.003
2-Chloronaphthalene	<0.006	Benzo(k)fluoranthene	<0.003
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	<0.003
Dimethyl phthalate	<0.006	Dibenz(a,h)anthracene	<0.003
Acenaphthylene	<0.003	Benzo(g,h,i)perylene	<0.003
2,6-Dinitrotoluene	<0.03	1-Methylnaphthalene	<0.03 L

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-01
Date Analyzed:	09/11/13	Data File:	20.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	93	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	4.4 ve
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-01 1/10
Date Analyzed:	09/17/13	Data File:	T: \09-17-13\091722.D\ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	95	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<1
Aroclor 1232	<1
Aroclor 1016	<1
Aroclor 1242	<1
Aroclor 1248	<1
Aroclor 1254	4.5
Aroclor 1260	<1
Aroclor 1262	<1
Aroclor 1268	<1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4BA1-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-02
Date Analyzed:	09/11/13	Data File:	28.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	80	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4BA2-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-03
Date Analyzed:	09/11/13	Data File:	30.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	121	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	0.35
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4BA3-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-04
Date Analyzed:	09/11/13	Data File:	32.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4SSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-05
Date Analyzed:	09/11/13	Data File:	34.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	89	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	JF-SB4ESW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	309117-06
Date Analyzed:	09/11/13	Data File:	36.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/10/13	Lab ID:	03-1787 mb
Date Analyzed:	09/10/13	Data File:	10.D\ ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	103	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Rinsate Blank_2	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-07
Date Analyzed:	09/13/13	Data File:	38.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	72	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Trip Blank_2	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-08
Date Analyzed:	09/13/13	Data File:	40.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	98	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	03-1818 mb
Date Analyzed:	09/13/13	Data File:	32.D\ ECD1A.CH
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74	50	150

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 309225-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	4.10	91	89	57-128	2
Arsenic	mg/kg (ppm)	10	7.39	95 b	92 b	70-118	3 b
Selenium	mg/kg (ppm)	5	<1	87	91	64-117	4
Silver	mg/kg (ppm)	10	<1	102	98	73-122	4
Cadmium	mg/kg (ppm)	10	<1	100	98	83-116	2
Barium	mg/kg (ppm)	50	63.9	107 b	101 b	60-141	6 b
Lead	mg/kg (ppm)	50	10.6	98 b	93 b	59-148	5 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	108	78-121
Arsenic	mg/kg (ppm)	10	99	83-113
Selenium	mg/kg (ppm)	5	95	84-115
Silver	mg/kg (ppm)	10	104	81-116
Cadmium	mg/kg (ppm)	10	100	54-114
Barium	mg/kg (ppm)	50	102	85-116
Lead	mg/kg (ppm)	50	101	80-120

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 309225-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.1	88	87	62-140	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.250	92	63-131

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: 309117-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	<0.003	80	88	50-150	10
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.006	88	92	50-150	4
2-Chlorophenol	mg/kg (ppm)	0.33	<0.06	67	78	50-150	15
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	82	91	50-150	10
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	82	90	50-150	9
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.006	85	93	50-150	9
Benzyl alcohol	mg/kg (ppm)	0.33	<0.06	94	99	50-150	5
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	0.33	<0.006	89	94	50-150	5
2-Methylphenol	mg/kg (ppm)	0.33	<0.06	92	98	50-150	6
Hexachloroethane	mg/kg (ppm)	0.33	<0.006	85	93	50-150	9
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.006	90	98	50-150	9
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.12	94	100	50-150	6
Nitrobenzene	mg/kg (ppm)	0.33	<0.006	91	96	50-150	5
Isophorone	mg/kg (ppm)	0.33	<0.006	89	94	50-150	5
2-Nitrophenol	mg/kg (ppm)	0.33	<0.06	33 ip	52	50-150	45 ip
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.06	91	97	50-150	6
Benzoic acid	mg/kg (ppm)	0.5	<0.3 ca	137	144	50-150	5
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.006	87	90	50-150	3
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.06	53	71	50-150	29 ip
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.006	88	92	50-150	4
Naphthalene	mg/kg (ppm)	0.33	0.0070	88	101	50-150	14
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.006	87	92	50-150	6
4-Chloroaniline	mg/kg (ppm)	0.66	<0.6	65	67	50-150	3
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.06	95	106	50-150	11
2-Methylnaphthalene	mg/kg (ppm)	0.33	0.0037	94	104	50-150	10
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.018 J	79	88	50-150	11
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.06 J	5 ip	9 ip	50-150	57 ip
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.06 J	13 ip	24 ip	50-150	59 ip
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.006 J	90	94	50-150	4
2-Nitroaniline	mg/kg (ppm)	0.33	<0.03 J	98	107	50-150	9
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.006 J	89	94	50-150	5
Acenaphthylene	mg/kg (ppm)	0.33	0.0037 J	92	97	50-150	5
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.03 J	93	101	50-150	8
3-Nitroaniline	mg/kg (ppm)	0.66	<0.6 J	73	77	50-150	5
Acenaphthene	mg/kg (ppm)	0.33	0.0037 J	92	104	50-150	12
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.18 J ca	0 ip	0 ip	50-150	0
Dibenzofuran	mg/kg (ppm)	0.33	<0.006 J	93	104	50-150	11
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.03 J	82	91	50-150	10
4-Nitrophenol	mg/kg (ppm)	0.33	<0.18 J ca	9 ip	10 ip	50-150	11
Diethyl phthalate	mg/kg (ppm)	0.33	<0.006 J	93	95	50-150	2
Fluorene	mg/kg (ppm)	0.33	0.0037 J	98	118	50-150	19
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.006 J	94	97	50-150	3
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.006 J	92	97	50-150	5
4-Nitroaniline	mg/kg (ppm)	0.66	<0.6 J	68	70	50-150	3
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.18 J ca	0 ip	8 ip	50-150	80 ip
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.006 J	90	95	50-150	5
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.006 J	91	96	50-150	5
Pentachlorophenol	mg/kg (ppm)	0.33	<0.06 J	0 ip	0 ip	50-150	0
Phenanthrene	mg/kg (ppm)	0.33	0.038 J	98	180 vo	50-150	59 vo
Anthracene	mg/kg (ppm)	0.33	0.0083 J	94	110	50-150	16
Carbazole	mg/kg (ppm)	0.33	<0.06 J	91	100	50-150	9
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.06 J	105	104	50-150	1
Fluoranthene	mg/kg (ppm)	0.33	0.14 J	70	117	50-150	50 vo
Pyrene	mg/kg (ppm)	0.33	0.17 J	95	158 vo	50-150	50 vo
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.06 J	116	116	50-150	0
Benz(a)anthracene	mg/kg (ppm)	0.33	0.18 J	48 vo	72	50-150	40 vo
Chrysene	mg/kg (ppm)	0.33	0.34 J	7 vo	30 vo	50-150	124 vo
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.096 J	108	114	50-150	5
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.06 J	118	110	50-150	7
Benzo(a)pyrene	mg/kg (ppm)	0.33	0.20 J	51	62	50-150	19
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	0.66 J	0 vo	0 vo	50-150	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	0.23 J	35 vo	40 vo	50-150	13
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	0.40 J	0 vo	0 vo	50-150	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	0.11 J	47 vo	62 vo	50-150	28 vo
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	0.40 J	0 vo	0 vo	50-150	0

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	93	97	51-119	4
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	97	98	60-112	1
2-Chlorophenol	mg/kg (ppm)	0.33	100	100	59-114	0
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	93	94	62-113	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	92	93	61-114	1
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	95	95	61-113	0
Benzyl alcohol	mg/kg (ppm)	0.33	102	105	50-119	3
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	0.33	94	95	59-113	1
2-Methylphenol	mg/kg (ppm)	0.33	96	96	58-115	0
Hexachloroethane	mg/kg (ppm)	0.33	96	96	63-114	0
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	104	103	62-114	1
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	102	101	54-120	1
Nitrobenzene	mg/kg (ppm)	0.33	99	101	59-114	2
Isophorone	mg/kg (ppm)	0.33	98	100	61-113	2
2-Nitrophenol	mg/kg (ppm)	0.33	106	109	59-114	3
2,4-Dimethylphenol	mg/kg (ppm)	0.33	88	85	54-107	3
Benzoic acid	mg/kg (ppm)	0.5	122	125	43-150	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	92	94	60-114	2
2,4-Dichlorophenol	mg/kg (ppm)	0.33	104	106	57-118	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	92	93	56-112	1
Naphthalene	mg/kg (ppm)	0.33	93	94	61-113	1
Hexachlorobutadiene	mg/kg (ppm)	0.33	91	93	60-116	2
4-Chloroaniline	mg/kg (ppm)	0.66	67	61	10-126	9
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	110	111	59-115	1
2-Methylnaphthalene	mg/kg (ppm)	0.33	97	98	60-115	1
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	107	106	41-107	1
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	105	103	47-119	2
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	111	110	61-121	1
2-Chloronaphthalene	mg/kg (ppm)	0.33	95	95	58-114	0
2-Nitroaniline	mg/kg (ppm)	0.33	117	117	55-119	0
Dimethyl phthalate	mg/kg (ppm)	0.33	98	100	58-116	2
Acenaphthylene	mg/kg (ppm)	0.33	99	97	56-114	2
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	104	104	57-119	0
3-Nitroaniline	mg/kg (ppm)	0.66	83	82	10-143	1
Acenaphthene	mg/kg (ppm)	0.33	96	96	57-114	0
2,4-Dinitrophenol	mg/kg (ppm)	0.33	134 vo	137 vo	40-122	2
Dibenzofuran	mg/kg (ppm)	0.33	98	97	56-115	1
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	106	107	53-126	1
4-Nitrophenol	mg/kg (ppm)	0.33	113	107	40-124	5
Diethyl phthalate	mg/kg (ppm)	0.33	98	99	57-116	1
Fluorene	mg/kg (ppm)	0.33	98	97	57-118	1
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	95	96	54-119	1
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	93	93	54-113	0
4-Nitroaniline	mg/kg (ppm)	0.66	88	86	47-109	2
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	118 vo	125 vo	57-108	6
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	92	94	56-116	2
Hexachlorobenzene	mg/kg (ppm)	0.33	93	94	57-115	1
Pentachlorophenol	mg/kg (ppm)	0.33	107	108	45-123	1
Phenanthrene	mg/kg (ppm)	0.33	96	98	57-113	2
Anthracene	mg/kg (ppm)	0.33	94	94	60-118	0
Carbazole	mg/kg (ppm)	0.33	95	96	57-116	1
Di-n-butyl phthalate	mg/kg (ppm)	0.33	103	105	56-118	2
Fluoranthene	mg/kg (ppm)	0.33	102	103	58-117	1
Pyrene	mg/kg (ppm)	0.33	93	94	58-120	1
Benzyl butyl phthalate	mg/kg (ppm)	0.33	104	107	56-122	3
Benz(a)anthracene	mg/kg (ppm)	0.33	93	95	54-114	2
Chrysene	mg/kg (ppm)	0.33	94	95	57-119	1
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	101	102	56-125	1
Di-n-octyl phthalate	mg/kg (ppm)	0.33	104	106	58-120	2
Benzo(a)pyrene	mg/kg (ppm)	0.33	90	90	56-119	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	96	97	47-121	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	94	94	59-126	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	95	94	54-122	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	93	93	54-128	0
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	92	92	55-122	0

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 309117-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.8	<0.1	98	92	50-150	6
Aroclor 1260	mg/kg (ppm)	0.8	<0.1	512 ip	375 ip	50-150	31 ip

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.8	80	70-130
Aroclor 1260	mg/kg (ppm)	0.8	79	70-130

Date of Report: 10/04/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	1.0	75	82	70-130	9
Aroclor 1260	ug/L (ppb)	1.0	86	86	70-130	0

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

309117

SAMPLE CHAIN OF CUSTODY ME 09-09-13

CI3 / AI5 / V1

Page # 1 of 1

Send Report To: Dec Gardner

Company: SoundEarth Strategies, Inc.

Address: 2811 Fairview Ave. E. Suite 2000

City, State, ZIP: Seattle WA 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature): CQC

PROJECT NAME/NO.: Jorgensen Forge 0995

PO #: 1

REMARKS:

GEMS Y / N

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOC's by 8260	SVOC's by 8270D	RCRA-8 Metals	PCB's by EPA 8082	Cu+Zn	Notes
JF-SB4NSW-130909			01A	9-9-13	0942	Soil	2					⊗	X	X	✓	✓ per CC 10/15 MG
JF-SB4BA1-130909			02		0948										✓	
JF-SB4BA2-130909			03		1003							⊗			✓	
JF-SB4BA3-130909			04		1008										✓	
JF-SB4SSW-130909			05		1016										✓	
JF-SB4ESW-130909			06		1026										✓	
Rinsate Blank 2			07		1030	Water	1							X		
Trip Blank 2			08				1							X		received 2 not added in LIMS

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: C.C.	Charles Cacek	SES	9-9-13	1035
Received by:	DHD	FedEx	11	12:30
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

Freidman & Bruya, Inc. #309117 additional

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 22, 2013

Dee Gardner, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Ms. Gardner:

Included are the additional results from the testing of material submitted on September 9, 2013 from the SOU_0995_20130909, F&BI 309117 project. There are 10 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Chuck Cacek
SOU1022R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 9, 2013 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_0995_20130909, F&BI 309117 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
309117 -01	JF-SB4NSW-130909
309117 -02	JF-SB4BA1-130909
309117 -03	JF-SB4BA2-130909
309117 -04	JF-SB4BA3-130909
309117 -05	JF-SB4SSW-130909
309117 -06	JF-SB4ESW-130909
309117 -07	Rinsate Blank_2
309117 -08	Trip Blank_2

All quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4NSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-01
Date Analyzed:	09/13/13	Data File:	309117-01.027
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	104	60	125
Indium	87	60	125
Holmium	88	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	31.9
Zinc	67.0

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA1-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-02
Date Analyzed:	09/13/13	Data File:	309117-02.028
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	89	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	8.06
Zinc	16.2

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA2-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-03
Date Analyzed:	09/13/13	Data File:	309117-03.030
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	113	60	125
Indium	80	60	125
Holmium	82	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	42.8
Zinc	96.7

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4BA3-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-04
Date Analyzed:	09/13/13	Data File:	309117-04.031
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	82	60	125
Holmium	87	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	6.49
Zinc	22.1

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4SSW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-05
Date Analyzed:	09/13/13	Data File:	309117-05.032
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125
Indium	71	60	125
Holmium	75	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	35.2
Zinc	109

Analysis For Total Metals By EPA Method 200.8

Client ID:	JF-SB4ESW-130909	Client:	SoundEarth Strategies
Date Received:	09/09/13	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	309117-06
Date Analyzed:	09/13/13	Data File:	309117-06.033
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	85	60	125
Indium	81	60	125
Holmium	85	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	8.73
Zinc	17.4

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_0995_20130909, F&BI 309117
Date Extracted:	09/13/13	Lab ID:	I3-569 mb
Date Analyzed:	09/13/13	Data File:	I3-569 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	99	60	125
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Copper	<1
Zinc	<1

Date of Report: 10/22/13
Date Received: 09/09/13
Project: SOU_0995_20130909, F&BI 309117

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 309225-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	mg/kg (ppm)	50	14.9	84 b	82 b	57-120	2 b
Zinc	mg/kg (ppm)	50	23.7	78 b	73 b	55-129	7 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	mg/kg (ppm)	50	104	82-119
Zinc	mg/kg (ppm)	50	97	81-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

309117

SAMPLE CHAIN OF CUSTODY ME 09-09-13

CI3 / AI5 / V1

Page # 1 of 1

Send Report To: Dec Gardner

Company: SoundEarth Strategies, Inc.

Address: 2811 Fairview Ave. E. Suite 2000

City, State, ZIP: Seattle WA 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature): CQC

PROJECT NAME/NO.: Jorgensen Forge 0995

PO #: 1

REMARKS:

GEMS Y / N

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	NWTPH-Dx	NWTPH-Gx	BTEX by 8021B	VOC's by 8260	SVOC's by 8270D	RCRA-8 Metals	PCB's by EPA 8082	Cu+Zn	Notes
JF-SB4NSW-130909			01A	9-9-13	0942	Soil	2					⊗	X	X	✓	✓ per CC 10/15 MG
JF-SB4BA1-130909			02		0948										✓	
JF-SB4BA2-130909			03		1003							⊗			✓	
JF-SB4BA3-130909			04		1008										✓	
JF-SB4SSW-130909			05		1016										✓	
JF-SB4ESW-130909			06		1026										✓	
Rinsate Blank 2			07		1030	Water	1							X		
Trip Blank 2			08				1							X		received 2 not added in LIMS

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: C.C.	Charles Cacek	SES	9-9-13	1035
Received by:	DHD	FedEx	11	12:30
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\SESGEMSR1.DOC (Revision 1)

Samples received at 5 °C

ATTACHMENT D
DATA VALIDATION REPORT

Data Validation Report

Jorgensen Forge SB3/SB4 Upland Interim Action Soil Sampling
Seattle, Washington

Laboratory Project Numbers:

309114
309117

Prepared for:

SoundEarth Strategies, Inc.
2811 Fairview Ave East, Suite 2000
Seattle, Washington 98102

Prepared by:

Pyron Environmental, Inc.
3530 32nd Way, NW
Olympia, WA 98502

Approved By: _____ Date: ***12/5/2013***

Mingta Lin, Senior Project Chemist

ACRONYMS

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
AMU	atomic mass unit
CCB	continuing calibration blank
CCC	calibration check compound
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
CVAFS	cold vapor atomic fluorescent spectrometry
DFTPP	decafluorotriphenylphosphine
ECD	electron capture detector
EPA	U.S. Environmental Protection Agency
F&BI	Friedman & Bruya, Inc. – Seattle, Washington
GC/MS	gas chromatograph/mass spectrometer
ICAL	initial calibration
ICB	initial calibration blank
ICP/MS	inductively coupled plasma/ mass spectrometer
ICSA	ICP interference check sample solution A
ICV	initial calibration verification
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDL	method detection limit
ML	maximum level
µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
mg/L	Milligram per liter
MS	matrix spike
MSD	matrix spike duplicate

NFGs	CLP National Functional Guidelines for Data Review (EPA 2008 – Organics; EPA 2010 – Inorganics)
PCBs	polychlorinated biphenyls
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
RF	response factor
RL	reporting limit
RPD	relative percent difference
RRT	relative retention time
SDG	sample delivery group
SSAPA	Washington State Department of Ecology Sediment Sampling and Analysis Plan Appendix (Ecology 2008)
SVOCs	semi-volatile organic compounds

INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for soil samples collected during September 2013 for the referenced project. The laboratory reports validated herein were submitted by Friedman & Bruya, Inc. (F&BI) in Seattle, Washington.

A Stage 2B (as defined in EPA 2009) data validation was performed on these laboratory reports. The validation followed the procedures specified in USEPA CLP Functional Guidelines ([NFGs], EPA 2008 – Organics; EPA 2010 – Inorganics), with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the quality assurance project plan ([QAPP], Anchor, 2013) and the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed in each section pertinent to the QC parameter for each type of analysis. Qualified data with applied data qualifiers are summarized in the **Summary** section at the end of this report. Samples and the associated analyses validated herein are summarized as follows:

Field Sample ID	Laboratory Sample ID	Sampling Date	Sample Type	Analysis		
				SVOCs	PCBs	Metals
JF-SB3NSW-130906	309114-01	09/06/13	Soil	X	X	X
JF-SB3ESW-130906	309114-02	09/06/13	Soil		X	X
JF-SB3BA1-130906	309114-03	09/06/13	Soil	X	X	X
JF-SB3BA2-130906	309114-04	09/06/13	Soil		X	X
JF-SB3FD-130906	309114-05	09/06/13	Soil		X	X
Rinsate-130906	309114-06	09/06/13	Water		X	
Trip Blank	309114-07	09/06/13	Water		X	
JF-SB4NSW-130909	309117-01	09/09/13	Soil	X	X	X
JF-SB4BA1-130909	309117-02	09/09/13	Soil		X	X
JF-SB4BA2-130909	309117-03	09/09/13	Soil	X	X	X
JF-SB4BA3-130909	309117-04	09/09/13	Soil		X	X
JF-SB4SSW-130909	309117-05	09/09/13	Soil		X	X
JF-SB4ESW-130909	309117-06	09/09/13	Soil		X	X
Rinsate Blank_2	309117-07	09/09/13	Water		X	
Trip Blank_2	309117-08	09/09/13	Water		X	

Notes:

Metals – Arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc.
PCBs – Polychlorinated biphenyls
SVOCs – Semi-volatile Organic Compounds
X – The analysis was requested and performed on the sample.

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Semi-volatile Organic Compounds (SVOCs)	SW846 Method 8270D	Friedman & Bruya, Inc. (F&BI) Seattle, WA
PCB Aroclors	SW846 Method 8082A	
Total Metals	EPA Method 200.8	
Mercury	EPA Method 1631E	

Notes:

SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW-846, Third Edition, December 1996.

EPA Method 200.8 - *Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry, Revision 5.4,* Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, 1994.

EPA Method 1631E - *Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry,* Office of Water, U.S. Environmental Protection Agency, August 2002, EPA-821-R-02-019.

DATA VALIDATION FINDINGS

1. SVOCs by GC/MS (EPA Method SW8270D)

1.1 Sample Management and Holding Times

No anomalies were identified in relation to sample preservation, handling, and transport as discussed in Section 1.1.

Soil samples should be extracted within 14 days of collection, and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

1.2 GC/MS Instrument Performance Check

The method require that a GC/MS tuning analysis be performed using decafluorotriphenylphosphine (DFTPP) at the beginning of each 12-hour period prior to any analysis, and specific mass ions meet the criteria provided in the method. All instrument performance checks met the requirements.

1.3 Initial Calibration (ICAL)

The ICAL criteria require that (1) if linear average RFs is chosen as the quantitation option, at least five standards at different concentrations should be analyzed and the %RSD of RFs be ≤20% for the analyte, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be >0.995, (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the coefficient of determination (r^2) be >0.99, and (4) the RF meet the requirements in Table 4 in the Method for all target and surrogate compounds. All ICALs met the requirements.

An ICV standard (second source standard) was analyzed to verify the calibration curve. %D values were either within ±20%, or the exceedance had no adverse effects on data usability (*e.g.,* biased high ICV recovery for a compound not detected in samples).

1.4 Calibration Verification (CCV)

The CCV criteria require that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D be within ±20%, and (3) the RF meet the requirements in Table 4 in the Method for all target and surrogates compounds.

Calibration verifications were performed at the required frequency. %D values were either within ±20%, or the exceedance had no adverse effects on data usability (*e.g.,*

biased high CCV recovery for a compound not detected in samples), with the exceptions as follows:

SDG	CCV ID	Compound	%D	Bias	Affected Sample	Data Qualifier
309117	GCMS8 9/23/13, 16:21	4-Nitroaniline	27.5%	Low	JF-SB4NSW-130909 (Dilution Analysis)	**UJ**

1.5 Method Blanks

Method blanks were prepared and analyzed as required. Target compounds were not detected at or above the RLs in the method blanks.

1.6 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All percent recovery (%R) values were within the laboratory control limits, except for the following:

Sample ID	Surrogate	%R	Control Limit	Associated Compound	Data Qualifier
JF-SB3NSW-130906	Fluorophenol 2,4,6-Tribromophenol	39% 7%	56-115% 35-141%	Phenol 2-Chlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methylphenol 3- & 4-Methylphenol 4,6-Dinitro-2-methylphenol 2-Nitrophenol Pentachlorophenol 2,4-Dimethylphenol Benzoic acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	**UJ**

Sample ID	Surrogate	%R	Control Limit	Associated Compound	Data Qualifier
JF-SB4BA2-130909	Fluorophenol Phenol 2,4,6-Tribromophenol	6% 32% 0%	56-115% 54-113% 35-141%	Phenol 2-Chlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methylphenol 3- & 4-Methylphenol 4,6-Dinitro-2-methylphenol 2-Nitrophenol Pentachlorophenol 2,4-Dimethylphenol Benzoic acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	**R**

1.7 Matrix Spike (MS) and MS Duplicate (MSD)

MS/MSD analyses were performed on sample JF-SB4NSW-130909 (Lab ID: 309117-01). The %R and relative percent difference (RPD) values for a great number of compounds were outside the control limits. Due to the severe matrix effects associated with sample JF-SB4NSW-130909, the sample was first analyzed undiluted and later at a 1:10 dilution (which was therefore reported). The MS/MSD analyses were performed on the un-diluted sample and the results are not applicable for data quality evaluation. Analytical precision and accuracy were therefore evaluated with the LCS/LCSD results (see Section 1.8). No data qualifying action was taken based on the MS/MSD results.

1.8 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD were prepared and analyzed as required by the method. All %R and RPD values either met the laboratory control criteria, or the outliers had no adverse effects on data usability (*e.g.,* biased high %R or RPD value for a compound that was not detected in samples).

1.9 Internal Standards

The method requires that (1) internal standard retention time be within ±30 seconds from that of the associated 12-hour calibration standard, and (2) the area counts of all internal standards be within –50% to +100% of the associated 12-hour calibration standard. All internal standards in the sample and associated QC analyses met the criteria, except for the following:

Sample ID	Internal Standard	Sample Response Area	CCV Response Area	Affected Compound	Data Qualifier
JF-SB3NSW-130906 JF-SB3BA1-130906	Perylene-d_{12}	1083730 1437116	2879720	Di-n-octyl phthalate Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(ghi)perylene	**J/UJ**

Note: J/UJ - Detects were qualified (J) and non-detects qualified (UJ) as estimated.

1.10 Reporting Limits and Compound Quantitation

Sample-specific RLs were supported with adequate initial calibration concentrations. Sample-specific RLs for all target compounds achieved the Washington State Department of Ecology Sediment Sampling and Analysis Plan Appendix ([SSAPA]; Ecology 2008) recommended practical quantitation limits listed in the QAPP, Table 1, except for butyl benzyl phthalate and 2,4-dimethyl phenol. The RLs (60 µg/kg) for both compounds exceeded the QAPP target quantitation limits of 21 µg/kg and 29 µg/kg, respectively. No further action was taken herein other than noting the finding.

1-Methylnaphthalene was reported based on an ion spectrum library search; the reported RLs were assumptive values. 1-Methylnaphthalene was not detected at or above the estimated RLs; the results were qualified (UJ) to indicate that the reported RLs were estimated values.

Sample JF-SB4NSW-130909 (Lab ID: 309117-01) required a 1:10 dilution due to the severe matrix effects associated with this sample (see Section 1.7). The sample-specific RLs were elevated accordingly for this sample.

1.11 Field Duplicates

Field duplicates were not submitted for SVOCs analyses in these SDGs.

1.12 Overall Assessment of SVOCs Data Usability

SVOCs data are of known quality and acceptable for use, as qualified.

2. PCB Aroclors (EPA Method SW8082A)

2.1 Sample Management and Holding Times

No anomalies were identified in relation to sample preservation, handling, and transport as discussed in Section 1.1.

Soil samples should be extracted within 14 days of collection and extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using the mixture of Aroclor 1016 and 1260, (2) a single-point calibration be performed for the other five Aroclors to establish calibration factors (CFs) and for Aroclor pattern recognition, (3) at least 3 peaks (preferably 5 peaks) must be chosen for each Aroclor for characterization, (4) the %RSD values of Aroclor 1016 and 1260 CFs must be ≤20%, and (5) if dual column analysis is chosen, both columns should meet the requirements. All ICALs met the requirements.

2.3 Calibration Verification

Calibration verifications were performed at the required frequency. %D values were either within ±20%, or the exceedance had no adverse effects on data usability (*e.g.,* biased high CCV recovery for a compound not detected in samples), with the exceptions as follows:

SDG	CCV ID	Compound	%D	Bias	Affected Sample	Data Qualifier
309117	GC7 9/13/13, 16:53	Aroclor 1016	22.5% 35.2%	Low	Rinsate Blank_2 Trip Blank_2	**UJ**

2.4 Blanks

Method Blank: Method blanks were prepared and analyzed as required. PCB Aroclors were not detected at or above the RLs in the method blanks.

Trip Blanks and Rinsate Blanks: A total of three trip blanks and rinsate blanks each were submitted for PCB Aroclors analysis. PCB Aroclors were not detected at or above the RLs in these blanks.

2.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the laboratory control limits.

2.6 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample JF-SB4NSW-130909 (Lab ID: 309117-01). The MS/MSD %R and RPD values for Aroclor 1260 were outside the control limits. Since Aroclor 1260 was not detected in sample JF-SB4NSW-130909 and the %R values showed potential high-bias; no data qualifying action was taken.

2.7 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required by the method. All %R and RPD values were within the project control limits.

2.8 Method Reporting Limits

Sample-specific RLs were supported with adequate initial calibration concentrations. Sample-specific RLs achieved the SSAPA Recommended practical quantitation limits listed in the QAPP, Table 1.

2.9 Field Duplicates

Samples JF-SB3BA2-130906 and JF-SB3FD-130906 were field duplicates. PCB Aroclors were not detected at or above the RLs in either sample. The field precision met the advisory criteria.

2.10 Overall Assessment of PCB Aroclors Data Usability

PCB Aroclor data are of known quality and acceptable for use., as qualified

3. Total Metals by ICP/MS and CVAFS (EPA Methods 200.8 and 1631E)

3.1 Sample Management and Holding Times

No anomalies were identified in relation to sample preservation, handling, and transport, as discussed in Section 1.1.

Soil and water samples should be analyzed within 180 days for ICP/MS metals and 28 days for mercury. Samples were analyzed within the required holding times.

3.2 ICP/MS Tuning

Instrument tuning was performed at the required frequency. The stability check (%RSD <5%), mass calibration (mass difference <0.1 AMU), and resolution check (peak width <1.0 AMU at 5% peak height) met the NFG and method criteria.

3.3 Initial Calibration (ICAL)

The ICP/MS method requires that (1) a blank and one calibration standard be used in establishing the analytical curve, and (2) the average of replicate exposures be reported for all standards, QC, and sample analyses.

The CVAFS method require that (1) the calibration must contain a minimum of five non-zero points and the results of analysis of three bubbler blanks. The lowest calibration point must be at the Minimum Level (ML), (2) the response factor %RSD should be ≤15% and the recovery of the lowest standard is in the range of 75-125%.

All ICALs met the method requirements.

3.4 Calibration Verification (ICV and CCV)

Initial calibration verifications (ICVs) and continuing calibration verifications (CCVs) for ICP/MS and ongoing precision recovery (OPR) for CVAFS were analyzed at the required frequency. The %R values either met the control criteria (90 – 110% for ICP/MS metals, 77 – 123% for mercury) or the exceedance had no adverse effects on data usability (e.g., high-bias %D value where the target compound was not detected in associated sample).

3.5 Blanks

Calibration Blanks: Initial calibration blanks (ICBs) and continuing calibration blanks (CCBs) were not analyzed after calibration verification standards. Target analytes were either not detected at or above the RLs in the ICBs and CCBs, or sample results affected by the ICB/CCB detections were qualified as results of detections in preparation blanks.

Preparation Blanks: Preparation blanks were prepared and analyzed as required. Target analytes were either not detected at or above the RLs in the preparation blanks.

3.6 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. All %R values were within the project control limits, or the exceedance had no adverse effects on data usability (e.g., high-bias %R value where the target compound was not detected in associated sample).

3.7 Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

MS and MSD analyses were performed on sample JF-SB3NSW-130906 (Lab ID: 309114-01). The %R and RPD values either met the laboratory control limits, or the native analyte concentration was significantly higher than the spiking level, except for the following:

Analye	MS %R	MSD %R	Control Limit	RPD	Control Limit	Affected Sample	Data Qualifier
Copper	231%	200%	57-120%	14%	≤20%	JF-SB3NSW-130906 JF-SB3ESW-130906 JF-SB3BA1-130906 JF-SB3BA2-130906 JF-SB3FD-130906	**J**
Arsenic	79%	60%	70-118%	27%	≤20%	JF-SB3NSW-130906 JF-SB3ESW-130906 JF-SB3BA1-130906 JF-SB3BA2-130906 JF-SB3FD-130906	**J/UJ**
Cadmium	79%	66%	83-116%	18%	≤20%	JF-SB3NSW-130906 JF-SB3ESW-130906 JF-SB3BA1-130906 JF-SB3BA2-130906 JF-SB3FD-130906	**J/UJ**

Note: J/UJ – Detections were qualified (J) and non-detects were qualified (UJ).

3.8 Internal Standards

At least three internal standards were added to all field and QC samples for ICP/MS analyses. All percent relative intensity values were within the method criteria (60 - 125%).

3.9 Method Reporting Limits

Sample-specific RLs were supported with adequate initial calibration concentrations. Sample-specific RLs achieved the SSAPA recommended practical quantitation limits listed in the QAPP, Table 1.

3.10 Field Duplicates

Samples JF-SB3BA2-130906 and JF-SB3FD-130906 were field duplicates submitted for Metals analyses. The field precision for all analytes met the advisory criteria. Field duplicate results, RPD (or concentration difference) values, and data qualification were presented in **Appendix A**.

3.11 Overall Assessment of Metals Data Usability

Metals data are of known quality and acceptable for use, as qualified.

SUMMARY

Table I. Data Affected by QC Anomalies

Laboratory ID	Sample ID	Analyte	Qualifier	Qualified Reason	Report Section
309117-01	JF-SB4NSW-130909	4-Nitroaniline	**UJ**	CCV recovery biased low	**1.4**
309114-01	JF-SB3NSW-130906	Phenol 2-Chlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methylphenol 3- & 4-Methylphenol 4,6-Dinitro-2-methylphenol 2-Nitrophenol Pentachlorophenol 2,4-Dimethylphenol Benzoic acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	**UJ**	Surrogate spike %R values were <LCL.	**1.6**
309117-03	JF-SB4BA2-130909	Phenol 2-Chlorophenol 2,4-Dinitrophenol 4-Nitrophenol 2-Methylphenol 3- & 4-Methylphenol 4,6-Dinitro-2-methylphenol 2-Nitrophenol Pentachlorophenol 2,4-Dimethylphenol Benzoic acid 2,4-Dichlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	**R**	Surrogate spike %R values were <10%.	**1.6**
309114-01 309114-03	JF-SB3NSW-130906 JF-SB3BA1-130906	Di-n-octyl phthalate Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(ghi)perylene	**J/UJ**	Internal standard recovery was <LCL.	**1.9**

Laboratory ID	Sample ID	Analyte	Qualifier	Qualified Reason	Report Section
309114-01 309114-03 309117-01 309117-03	JF-SB3NSW-130906 JF-SB3BA1-130906 JF-SB4NSW-130909 JF-SB4BA2-130909	1-Methylnaphthalene	**UJ**	The identification of the compound was based on a ion spectrum library search and the reported RL was an assumptive value.	**1.10**
309117-07 309117-08	Rinsate Blank_2 Trip Blank_2	Aroclor 1016	**UJ**	CCV recovery biased low.	**2.3**
309114-01 309114-02 309114-03 309114-04 309114-05	JF-SB3NSW-130906 JF-SB3ESW-130906 JF-SB3BA1-130906 JF-SB3BA2-130906 JF-SB3FD-130906	Copper Arsenic Cadmium	**J/UJ**	MS and/or MSD %R or RPD value was outside the control limits.	**3.7**

Note:
CCV – Continuing calibration verification
J/UJ – Detections were qualified (J) and non-detects were qualified (UJ)
LCL – Lower control limit
MS/MSD – Matrix spike/matrix spike duplicate
%R – Percent recovery
RPD – Relative percent difference

Table II. Data Qualifier Definition

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was considered not detected at the reporting limit or reported value.
UJ	The analyte was analyzed for, and the associated quantitation limit was an estimated value.

REFERENCES

USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review,* Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, January 2010, USEPA 540/R-10/011.

USEPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13 2009, EPA 540-R-08-005.

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USEPA *Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry,* Office of Water, U.S. Environmental Protection Agency, August 2002, EPA-821-R-02-019.

USEPA *Test Methods for Evaluating Solid Waste (SW-846). Third Edition and Revised Update IIIA.* Office of Solid Waste and Emergency Response, Washington, D.C. April 1998.

USEPA *Method 200.8, Revision 5.4: Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry,* Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, 1994.

Sampling and Analysis Plan - Basis Of Design Report Jorgensen Forge Early Action Area, Seattle, Washington, Attachment 1 – Quality Assurance Project Plan, Anchor QEA, LLC., August 2013.

Appendix A

Field duplicate RPD is indicative of field and laboratory precision and sample homogeneity in combination. The CLP National Functional Guidelines or *Work Plan* do not specify criteria for field duplicate evaluation. An advisory criterion of 35% was applied to evaluating the RPD values of field duplicate results that are ≥5xRL. For results that are <5xRL, an advisory criterion of ±2RL was applied to evaluating the concentration differences. The RPD (or concentration difference as applicable) values and data qualification for detected compounds in field duplicates are presented as follows:

Analyte	Units	RL	Parent & Field Duplicate Sample Result		RPD	Difference	Data Qualifier
			JF-SB3BA2-130906	JF-SB3FD-130906			
Chromium	mg/kg	1	8.01	7.82	2%	-	
Copper	mg/kg	1	7.38	7.29	1%	-	
Zinc	mg/kg	1	17.4	16.4	6%	-	
Arsenic	mg/kg	1	2.12	2.37	-	0.25	
Silver	mg/kg	1	ND	ND	-	-	
Cadmium	mg/kg	1	ND	ND	-	-	
Lead	mg/kg	1	1.63	1.52	-	0.11	

Notes:
mg/kg – milligram per kilogram
ND – The analyte was not detected at or above the RL.
RL – Reporting limit
RPD – Relative percent difference