Client Draft

PHASE II ENVIRONMENTAL SITE ASSESSMENT

1215 East Fir Street

Seattle, Washington

Prepared for:

Seattle Housing Authority
Seattle, Washington

Prepared by:

Amec Foster Wheeler
Environment & Infrastructure, Inc.
600 University Street, Suite 600
Seattle, Washington 98101
(206) 342-1760

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PHASE II ENVIRONMENTAL SITE ASSESSMENT
1215 East Fir Street
Seattle, Washington

1.0 INTRODUCTION AND BACKGROUND

This Phase II Environmental Site Assessment (ESA) summarizes the results of a soil and groundwater investigation performed at the King County-owned property at 1215 East Fir Street in Seattle, Washington (the site) on June 14, 2017 Figure 1). Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) was retained by the Seattle Housing Authority (SHA) to determine whether soil or groundwater at the site are affected by constituent of concern associated with historic releases of petroleum and potentially other constituents from either on-site or off-site sources. Amec Foster Wheeler understands that SHA intends to develop the property for residential use after the pending property transaction is complete.

A Phase I ESA was conducted in May 2017 by SoundEarth Strategies, Inc., and no recognized environmental conditions were reported for the site. However, the Phase I ESA indicated that a former gas station, three former dry cleaners, and an existing car maintenance and body work business were located within 250 feet of the site, to the north, west, and northwest. There were also four groundwater monitoring wells installed on the adjacent Seattle Curtain Company property to the west of the site.

2.0 METHODOLOGY

To determine whether off-site contamination has affected the site, soil borings and groundwater sampling locations were selected in a north-south transect along the west side of the current building to capture possible movement onto the site from the north, northwest and west. Boring locations are shown on Figure 2.

We understand that the redevelopment plans require the upper 12 feet of soil to be excavated and disposed of off site. While we were not able to complete borings inside the existing structure, the results of the soil samples should provide a preliminary indication as to whether there are affected soils or groundwater on site. Sections 2.1 through 2.4 describe the work that was performed during the ESA.

2.1 UTILITY AND SUBSURFACE LOCATING

Amec Foster Wheeler staff met Applied Professional Services, Inc. (APS) on site on June 7, 2017. The purpose of the utility survey was to ensure that drilling did not disrupt or damage underground utilities during completion of the borings. APS performed underground utility location services using electromagnetic survey methods.

The utility clearance was helpful in determining the alignment of electrical conduits from the north property boundary to a transformer station located in the middle of the site. In addition, water service and probable locations of gas and additional electrical lines were identified.

2.2 DRILLING

Amec Foster Wheeler staff met Cascade Drilling, Inc. (Cascade Drilling) on site on June 14, 2017. Cascade Drilling advanced a total of six soil borings using a Geoprobe 6600 truck-mounted direct-push drill rig. Locations of the borings are shown on Figure 2. Soil samples were collected from all six borings and groundwater was collected from three of the borings.

Depth to groundwater ranged from approximately 12 to 18 feet below ground surface (bgs) during drilling, except for once instance of perched water near 10 feet bgs. The ground surface is higher at the north end of the property than the south. Borings FIR-01 through FIR-04 were advanced to 15 feet bgs, FIR-05 was advanced to 20 feet bgs, and FIR-06 (the northernmost boring) was advanced to 25 feet bgs.

2.3 SAMPLE COLLECTION AND FIELD INDICATIONS OF CONTAMINATION

Soil samples were collected within the zone where soil transitioned from moist to saturated, which is where total petroleum hydrocarbons (TPH) would be concentrated, if present. Following collection of discrete soil ampules for analysis of volatile organic compounds (VOCs) and TPH-gasoline range hydrocarbons (TPH-G), approximately 3 to 4 inches of soil from the same interval were composited for analyses of TPH-diesel range hydrocarbons (TPH-D), TPH-motor oil range hydrocarbons (TPH-MO), and Resource Conservation and Recovery Act (RCRA) 8 Total Metals. A photoionization detector (PID) was used to screen soils for VOCs from each borehole upon opening of the acetate sample liner and to record headspace readings. Headspace readings were collected by placing a small amount of soil in a plastic bag, sealing it, and waiting for 5 to 10 minutes. The headspace of the plastic bag was then tested using the PID. No contamination was identified based on PID field screening. Sample depths are presented in Table 1. All samples collected and PID readings are shown on the boring logs (Appendix A). None of the soil samples had observable signs of

contamination, such as discoloration or odor. All soil borings were logged in the field by an Amec Foster Wheeler geologist. Boring logs were reviewed by a senior hydrogeologist

2.4 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (soil cuttings contained in two 16-gallon drums, and one other drum for decontamination water) were securely stored on the southwest area of the parking lot. Disposal is being arranged now that the soil results are known.

3.0 SOIL AND GROUNDWATER ANALYTICAL RESULTS

Figure 2 shows the locations of the soil borings. Table 1 lists analytes detected above the reporting limit in the soil samples and Table 2 lists analytes detected above the reporting limit in the groundwater samples. These tables show all detected analytes, even those below the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels, because prospective construction debris landfills have various acceptance criteria in the range that is between the detection limit and below Method A cleanup levels. Tables B-1 and Table B-2 in Appendix B lists the complete soil and groundwater sample analytical results, and the laboratory results are included as Appendix C.

Soil sample results that were above the MTCA Method A cleanup levels are as follows:

- A soil sample collected from FIR-02 collected from 13 feet bgs contained 3,700 milligrams per kilogram (mg/kg) of TPH-MO, above the MTCA Method A cleanup level of 2,000 mg/kg.

The source of the motor oil in the FIR-02 soil sample is unknown. Since the FIR-02 soil sample was collected at the capillary fringe, there is a possibility that the TPH-MO detected in the sample may be attributable to an off-site source. No other soil results were above the laboratory reporting limits or MTCA Method A cleanup levels.

Groundwater sample results that were above the MTCA Method A cleanup levels are as follows:

- Arsenic was detected at 22.4 micrograms per liter (µg/L) in FIR-01, at 11.8 µg/L in FIR-02 and 126 µg/L in FIR-06 groundwater samples, above the MTCA Method A cleanup level of 5 µg/L.
- Chromium was detected at 1,850 µg/L in the groundwater sample from FIR-06, above the MTCA Method A cleanup level of 50 µg/L.
- Lead was detected at 1,680 µg/L in groundwater sample FIR-06, above the MTCA Method A cleanup level of 15 µg/L.

The FIR-06 groundwater sample was a grab sample collected from 18 to 22 feet in depth. The lead and chromium results for the FIR-06 groundwater sample are unusual, since the concentrations are much higher than background. There are no on-site historic practices that would appear to be responsible for the presence of these metals.

It should be noted that a combined sewer is located within the vacated Mosler Avenue, which is now the alley between the buildings on the site. This combined sewer drains properties to the northwest, including the auto body business at the corner of 12th Avenue and East Fir Street. Leakage from the combined sewer or releases from a neighboring property may have contributed to the metals in groundwater at the FIR-06 location. According to the Phase I ESA, the adjoining property to the west (TD Auto Body) was listed on Ecology's Confirmed and Suspected Contaminated Sites list for lead and petroleum hydrocarbons in soil above cleanup levels.

4.0 SUMMARY AND RECOMMENDATIONS

As based on our discussions with the SHA regarding redevelopment, a single story basement (approximately 12 feet in depth) is anticipated to be constructed. Because the surface elevation of the site varies from north to south by 7–8 feet, it is unclear if the 12-foot depth is a median depth. The affected soils at FIR-02 may be encountered at a depth of 13 feet. We expect the extent of soil affected by TPH-MO to be limited in volume.

If the affected soils surrounding FIR-02 are excavated, it may be difficult to distinguish the presence of TPH-O based solely on field observations. Observable contamination was not seen during completion of the FIR-02 boring. Confirmation samples should be collected at the time of excavation and analyzed with a rapid turnaround time so that the standby time for the excavator is minimized. Costs for transport and disposal of affected soil will depend on the location of the disposal facility.

Prior to the investigation, the depth to water was assumed to be 8–12 feet, based on review of drillers' logs in the immediate vicinity of the site. However, the depth to groundwater was 12 feet at the southern end of the property and approximately 18 feet at the north end of the property. Therefore, the currently proposed depth of excavation for the basement may not require dewatering, based on the observed depths to groundwater during this investigation.

When SHA finalizes the design of the future redevelopment of the site, Amec Foster Wheeler can refine the conclusions regarding soil disposal and dewatering. SHA has expressed that they may prefer to get an opinion letter from Ecology under the Voluntary Cleanup Program. If SHA decides to excavate the soil at FIR-02, it may be possible to get a No Further Action opinion letter from Ecology

in regard to the soil. Review of the file records for TD Auto Body at Ecology's Northwest Regional office may provide additional information that may allow SHA to argue that the affected groundwater at FIR-06 is due to an off-site source.

If it is necessary to review Ecology's files to determine the potential source of the groundwater concentrations at location FIR-06, it may be desirable to see if records exist concerning Seattle Curtain Company's property. A cursory review of Ecology's website records did not indicate that this site has been reported to Ecology, despite the presence of monitoring wells in the parking lot.

5.0 LIMITATIONS

This report was prepared by Amec Foster Wheeler exclusively for the SHA. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler services and based on (1) information available at the time of preparation, (2) Phase I ESA data provided to Amec Foster Wheeler by the SHA, and (3) the assumptions, conditions, and qualifications set forth in this report. Environmental impairment of a property may result from many activities, such as illegal or unreported dumping, or the spilling of hazardous wastes or materials. The presence of contaminants at a particular property may not always be apparent, and the completion of the Phase II ESA cannot provide a guarantee that hazardous wastes or materials do not exist, particularly because not all areas of the site could be accessed for investigation. The findings contained herein are relevant to the date of Amec Foster Wheeler's sampling activities and should not be relied upon to represent conditions at later dates. In the event that changes in the nature, usage, or layout of the property or nearby properties are made, the conclusions and recommendations contained in this report may not be valid. If additional information becomes available, it should be provided to Amec Foster Wheeler so the original conclusions and recommendations can be modified as necessary.

This Phase II ESA is intended to be used by the Client for the site located at 1215 East Fir Street in Seattle, Washington, only, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. Amec Foster Wheeler has completed this work under the contract terms and conditions presented in Amec Foster Wheeler's Phase II ESA proposal dated April 20, 2017.

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TABLES

TABLE 1

ANALYTES DETECTED IN SOIL[1, 2]
1215 East Fir Street
Seattle, Washington

	MTCA Method A Cleanup Level for Unrestricted Land Use	Sample ID and Depth					
		FIR-01 (13.5 feet bgs)	FIR-02 (13 feet bgs)	FIR-03 (10.5 feet bgs)	FIR-04 (10.5 feet bgs)	FIR-05 (12.5 feet bgs)	FIR-06 (15.5 feet bgs)
Constituent							
Total Petroleum Hydrocarbons (mg/kg)							
Diesel range	2,000	50 U	340	50 U	50 U	50 U	50 U
Motor oil	2,000	250 U	**3,700**	250 U	250 U	250 U	250 U
Total Metals (mg/kg)							
Arsenic	30	5.11	2.99	6.32	14.5	4.16	9.05
Barium	NE	37.9	32.8	35.9	95.9	49.1	83.1
Chromium	2,000	15.6	11.4	16.6	27.5	21.9	20.3
Lead	250	1.52	10.4	2.05	3.20	2.82	16.4

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bold and highlighted** values exceed the screening level.

Abbreviations:
bgs = below ground surface
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act

TABLE 2

ANALYTES DETECTED IN GROUNDWATER[1, 2]

1215 East Fir Street
Seattle, Washington

	MTCA Method A Cleanup Level	Sample ID and Depth		
		FIR-01 (13.5–15 feet bgs)	FIR-03 (10–15 feet bgs)	FIR-06 (15.5–20 feet bgs)
Constituent				
Volatile Organic Compounds (µg/L)				
Acetone	NE	10 U	10 U	13
Chloroform	NE	1 U	1 U	19
Total Petroleum Hydrocarbons (µg/L)				
Diesel range	500	80 U	60 U	150
Total Metals (µg/L)				
Arsenic	5	**22.4**	**11.8**	**126**
Barium	NE	155	106	5,070
Chromium	50	35.2	14.8	**1,850**
Lead	15	4.29	7.00	**1,680**
Selenium	NE	1.69	1 U	10 U

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bold and highlighted** values exceed the screening level.

Abbreviations:
µg/L = micrograms per liter
bgs = below ground surface
MTCA = Model Toxics Control Act
NE = not established

FIGURES

CLIENT
Seattle Housing Authority
1215 Fir Street

Amec Foster Wheeler Environment & Infrastructure, Inc.
600 University Street, Suite 600
Seattle, Washington 98101

PROJECT
1215 EAST FIR STREET PHASE II ENVIRONMENTAL SITE ASSESSMENT

TITLE
SITE VICINITY

DATE
JUNE 2017

SCALE
AS SHOWN

PROJECT NO.
PS1718052G

FIGURE
1

DRAWN BY: APS CHECKED BY: JKH

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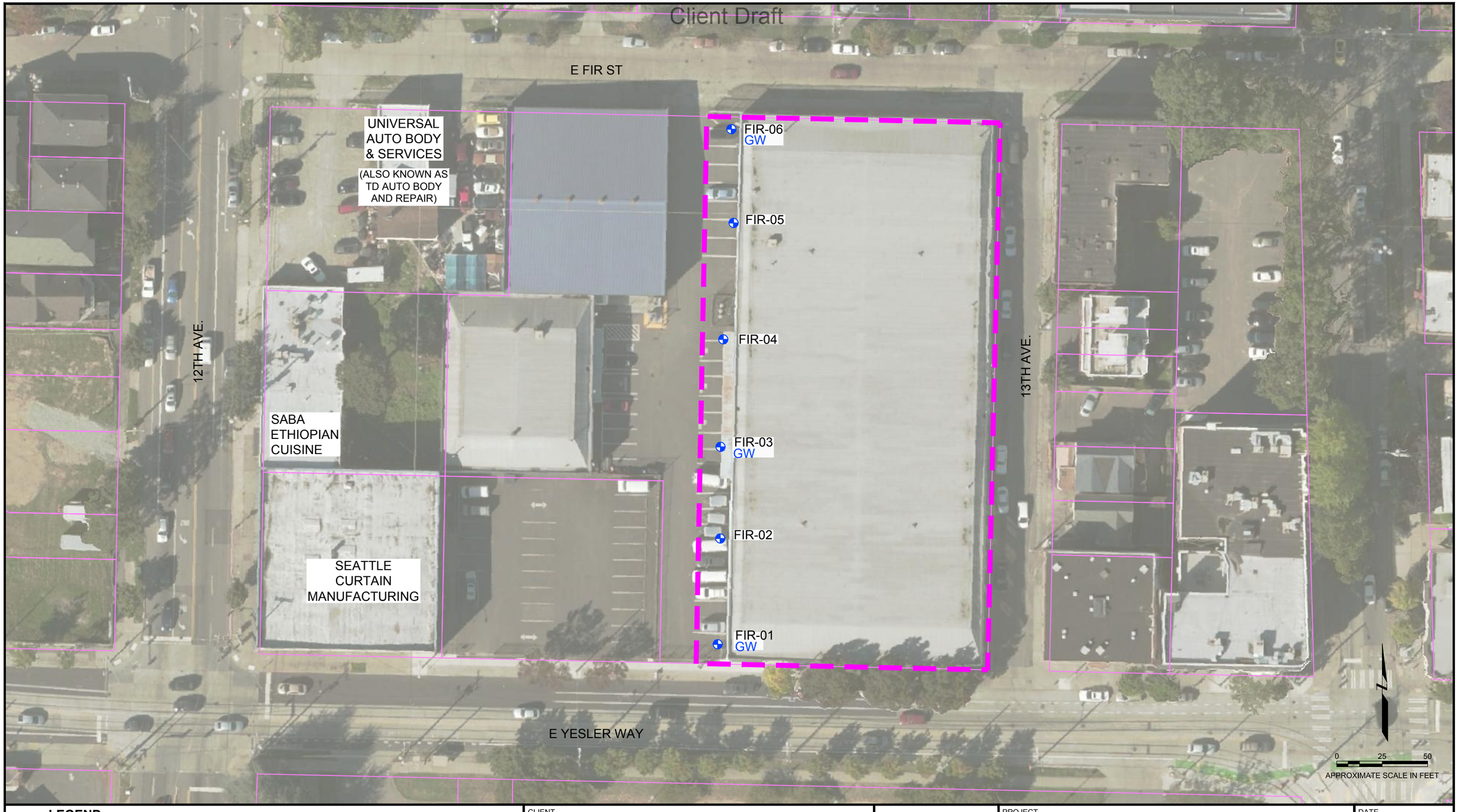

LEGEND

- SOIL SAMPLE LOCATION AND SAMPLE IDENTIFICATION (FIR-03)
- GW — GROUNDWATER SAMPLE COLLECTED FROM BORING
- APPROXIMATE SITE BOUNDARY
- PARCEL LINES

CLIENT
Seattle Housing Authority
1215 Fir Street

Amec Foster Wheeler
Environment & Infrastructure, Inc.
600 University Street, Suite 600
Seattle, Washington 98101

PROJECT
1215 EAST FIR STREET PHASE II
ENVIRONMENTAL SITE ASSESSMENT

TITLE
SITE PLAN AND
SOIL AND GROUNDWATER
SAMPLE LOCATIONS

DATE: JULY 2017
SCALE: AS SHOWN
PROJECT NO.: PS1718052G
FIGURE: 2

DRAWN BY: PM; CHECKED BY: JKH

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APPENDIX A

Boring Logs

APPENDIX B

Complete Analytical Data Table

TABLE B-1

SOIL ANALYTICAL RESULTS[1]
1215 East Fir Street
Seattle, Washington

	MTCA Method A Screening Level for Unrestricted Land Use	Sample ID and Depth					
		FIR-01 (13.5 feet bgs)	FIR-02 (13 feet bgs)	FIR-03 (10.5 feet bgs)	FIR-04 (10.5 feet bgs)	FIR-05 (12.5 feet bgs)	FIR-06 (15.5 feet bgs)
Constituent							
Volatile Organic Compounds (mg/kg)							
1,1,1,2-Tetrachloroethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,1-Trichloroethane	2	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2-Trichloroethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloropropene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	NE	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2,3-Trichloropropane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,4-Trichlorobenzene	NE	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2,4-Trimethylbenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromo-3-chloropropane	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.005	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloropropane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3,5-Trimethylbenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichloropropane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,4-Dichlorobenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,2-Dichloropropane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Butanone	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Hexanone	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Chlorotoluene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Acetone	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	0.03	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Bromobenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

TABLE B-1

SOIL ANALYTICAL RESULTS[1]
1215 East Fir Street
Seattle, Washington

	MTCA Method A Screening Level for Unrestricted Land Use	Sample ID and Depth					
		FIR-01 (13.5 feet bgs)	FIR-02 (13 feet bgs)	FIR-03 (10.5 feet bgs)	FIR-04 (10.5 feet bgs)	FIR-05 (12.5 feet bgs)	FIR-06 (15.5 feet bgs)
Bromoform	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromomethane	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
CFC-11	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CFC-12	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroethane	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloromethane	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dibromochloromethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dibromomethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dichlorobromomethane	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Ethylbenzene	6	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Hexachlorobutadiene	NE	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Hexane	NE	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Isopropylbenzene (Cumene)	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
m, p-Xylene	9	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl isobutyl ketone	NE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl t-butyl ether	0.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Methylene chloride	0.02	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
n-Propylbenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
o-Xylene	9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
p-Isopropyltoluene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
sec-Butylbenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Styrene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
tert-Butylbenzene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Tetrachloroethene	0.05	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U

TABLE B-1

SOIL ANALYTICAL RESULTS[1]
1215 East Fir Street
Seattle, Washington

	MTCA Method A Screening Level for Unrestricted Land Use	Sample ID and Depth					
		FIR-01 (13.5 feet bgs)	FIR-02 (13 feet bgs)	FIR-03 (10.5 feet bgs)	FIR-04 (10.5 feet bgs)	FIR-05 (12.5 feet bgs)	FIR-06 (15.5 feet bgs)
Toluene	7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Trichloroethene	0.03	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Vinyl chloride	NE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Total Petroleum Hydrocarbons (mg/kg)							
Gasoline Range	100 [2]	2 U	2 U	2 U	2 U	2 U	2 U
Diesel range	2000	50 U	340	50 U	50 U	50 U	50 U
Motor oil	2000	250 U	3,700	250 U	250 U	250 U	250 U
Total Metals (mg/kg)							
Arsenic	20	5.11	2.99	6.32	14.5	4.16	9.05
Barium	NE	37.9	32.8	35.9	95.9	49.1	83.1
Cadmium	2	1 U	1 U	1 U	1 U	1 U	1 U
Chromium	2000[3]	15.6	11.4	16.6	27.5	21.9	20.3
Lead	250	1.52	10.4	2.05	3.20	2.82	16.4
Mercury	2	1 U	1 U	1 U	1 U	1 U	1 U
Selenium	NE	1 U	1 U	1 U	1 U	1 U	1 U
Silver	NE	1 U	1 U	1 U	1 U	1 U	1 U

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. The cleanup level for gasoline range TPH is 100 mg/kg when benzene is not detected in the soil.
3. The cleanup level for chromium is trivalent chromium.

Abbreviations:
bgs = below ground surface
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
NE = not established

TABLE B-2

GROUNDWATER ANALYTICAL RESULTS[1]

1215 East Fir Street
Seattle, Washington

	MTCA Method A Screening Level	Sample ID and Depth		
		FIR-01 (13.5–15 feet bgs)	FIR-03 (10–15 feet bgs)	FIR-06 (15.5–20 feet bgs)
Constituent				
Volatile Organic Compounds (µg/L)				
1,1,1,2-Tetrachloroethane	NE	1 U	1 U	1 U
1,1,1-Trichloroethane	200	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	NE	1 U	1 U	1 U
1,1,2-Trichloroethane	NE	1 U	1 U	1 U
1,1-Dichloroethane	NE	1 U	1 U	1 U
1,1-Dichloroethene	NE	1 U	1 U	1 U
1,1-Dichloropropene	NE	1 U	1 U	1 U
1,2,3-Trichlorobenzene	NE	1 U	1 U	1 U
1,2,3-Trichloropropane	NE	1 U	1 U	1 U
1,2,4-Trichlorobenzene	NE	1 U	1 U	1 U
1,2,4-Trimethylbenzene	NE	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NE	10 U	10 U	10 U
1,2-Dibromoethane	0.01	1 U	1 U	1 U
1,2-Dichlorobenzene	NE	1 U	1 U	1 U
1,2-Dichloroethane	5	1 U	1 U	1 U
1,2-Dichloropropane	NE	1 U	1 U	1 U
1,3,5-Trimethylbenzene	NE	1 U	1 U	1 U
1,3-Dichlorobenzene	NE	1 U	1 U	1 U
1,3-Dichloropropane	NE	1 U	1 U	1 U
1,4-Dichlorobenzene	NE	1 U	1 U	1 U
2,2-Dichloropropane	NE	1 U	1 U	1 U
2-Butanone	NE	10 U	10 U	10 U
2-Chlorotoluene	NE	1 U	1 U	1 U
2-Hexanone	NE	10 U	10 U	10 U
4-Chlorotoluene	NE	1 U	1 U	1 U
Acetone	NE	10 U	10 U	13
Benzene	5	0.35 U	0.35 U	0.35 U
Bromobenzene	NE	1 U	1 U	1 U
Bromoform	NE	1 U	1 U	1 U
Bromomethane	NE	1 U	1 U	1 U
Carbon tetrachloride	NE	1 U	1 U	1 U
CFC-11	NE	1 U	1 U	1 U
CFC-12	NE	1 U	1 U	1 U
Chlorobenzene	NE	1 U	1 U	1 U
Chloroethane	NE	1 U	1 U	1 U
Chloroform	NE	1 U	1 U	19
Chloromethane	NE	10 U	10 U	10 U
cis-1,2-Dichloroethene	NE	1 U	1 U	1 U
cis-1,3-Dichloropropene	NE	1 U	1 U	1 U
Dibromochloromethane	NE	1 U	1 U	1 U
Dibromomethane	NE	1 U	1 U	1 U
Dichlorobromomethane	NE	1 U	1 U	1 U
Ethylbenzene	700	1 U	1 U	1 U

TABLE B-2

GROUNDWATER ANALYTICAL RESULTS[1]

1215 East Fir Street
Seattle, Washington

	MTCA Method A Screening Level	Sample ID and Depth		
		FIR-01 (13.5–15 feet bgs)	FIR-03 (10–15 feet bgs)	FIR-06 (15.5–20 feet bgs)
Constituent				
Hexachlorobutadiene	NE	1 U	1 U	1 U
Hexane	NE	1 U	1 U	1 U
Isopropylbenzene (Cumene)	NE	1 U	1 U	1 U
m, p-Xylene	1000	2 U	2 U	2 U
Methyl isobutyl ketone	NE	10 U	10 U	10 U
Methyl t-butyl ether	20	1 U	1 U	1 U
Methylene chloride	5	5 U	5 U	5 U
Naphthalene	160	1 U	1 U	1 U
n-Propylbenzene	NE	1 U	1 U	1 U
o-Xylene	1000	1 U	1 U	1 U
p-Isopropyltoluene	NE	1 U	1 U	1 U
sec-Butylbenzene	NE	1 U	1 U	1 U
Styrene	NE	1 U	1 U	1 U
tert-Butylbenzene	NE	1 U	1 U	1 U
Tetrachloroethene	5	1 U	1 U	1 U
Toluene	1000	1 U	1 U	1 U
trans-1,2-Dichloroethene	NE	1 U	1 U	1 U
trans-1,3-Dichloropropene	NE	1 U	1 U	1 U
Trichloroethene	5	1 U	1 U	1 U
Vinyl chloride	0.2	0.2 U	0.2 U	0.2 U
Total Petroleum Hydrocarbons (µg/L)				
Gasoline Range	1000 [2]	100 U	100 U	100 U
Diesel range	500	80 U	60 U	150
Motor oil	500	400 U	300 U	300 U
Total Metals (µg/L)				
Arsenic	5	22.4	11.8	126
Barium	NE	155	106	5070
Cadmium	5	1 U	1 U	10 U
Chromium	50	35.2	14.8	1850
Lead	15	4.29	7.00	1680
Mercury	2	1 U	1 U	10 U
Selenium	NE	1.69	1 U	10 U
Silver	NE	1 U	1 U	10 U

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. No benzene was detected in groundwater.

Abbreviations:
µg/L = micrograms per liter
bgs = below ground surface
MTCA = Model Toxics Control Act
NE = not established

APPENDIX C

Laboratory Analytical Data Packages

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 23, 2017

Crystal Thimsen, Project Manager
AMEC Foster Wheeler
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Ms Thimsen:

Included are the results from the testing of material submitted on June 15, 2017 from the Fir Street, PO PS1718052G, F&BI 706250 project. There are 40 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: Melanie Lanier-Kamaha'o
AMC0623R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 15, 2017 by Friedman & Bruya, Inc. from the AMEC Foster Wheeler Fir Street, PO PS1718052G, F&BI 706250 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Foster Wheeler
706250 -01	FIR-01
706250 -02	FIR-01
706250 -03	FIR-02
706250 -04	FIR-03
706250 -05	FIR-03
706250 -06	FIR-04
706250 -07	FIR-05
706250 -08	FIR-06
706250 -09	FIR-06
706250 -10	Trip Blank

Selenium failed below the acceptance criteria in the 6020A matrix spike sample. The laboratory control samples met the acceptance criteria, therefore the data were due to sample matrix effect.

All quality control requirements were acceptable.

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250
Date Extracted: 06/16/17
Date Analyzed: 06/16/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
FIR-01 706250-01	<2	88
FIR-02 706250-03	<2	95
FIR-03 706250-04	<2	88
FIR-04 706250-06	<2	88
FIR-05 706250-07	<2	88
FIR-06 706250-08	<2	87
Method Blank 07-1260 MB	<2	83

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250
Date Extracted: 06/16/17
Date Analyzed: 06/16/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
FIR-01 706250-02	<100	85
FIR-03 706250-05	<100	85
FIR-06 706250-09	<100	89
Method Blank 07-1259 MB	<100	87

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250
Date Extracted: 06/16/17
Date Analyzed: 06/16/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
FIR-01 706250-02 1/1.6	<80	<400	97
FIR-03 706250-05 1/1.2	<60	<300	97
FIR-06 706250-09 1/1.2	150 x	<300	101
Method Blank 07-1305 MB	<50	<250	80

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250
Date Extracted: 06/16/17
Date Analyzed: 06/16/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
FIR-01 706250-01	<50	<250	98
FIR-02 706250-03	340 x	3,700	100
FIR-03 706250-04	<50	<250	99
FIR-04 706250-06	<50	<250	101
FIR-05 706250-07	<50	<250	99
FIR-06 706250-08	<50	<250	98
Method Blank 07-1302 MB	<50	<250	85

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-01	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-02
Date Analyzed:	06/19/17	Data File:	706250-02.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	22.4
Barium	155
Cadmium	<1
Chromium	35.2
Lead	4.29
Mercury	<1
Selenium	1.69
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-03	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-05
Date Analyzed:	06/19/17	Data File:	706250-05.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	11.8
Barium	106
Cadmium	<1
Chromium	14.8
Lead	7.00
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-06	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-09 x10
Date Analyzed:	06/19/17	Data File:	706250-09 x10.057
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	126
Barium	5,070
Cadmium	<10
Chromium	1,170 J
Lead	1,310 ve
Mercury	<10
Selenium	<10
Silver	<10

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-06	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-09 x100
Date Analyzed:	06/19/17	Data File:	706250-09 x100.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	1,850
Lead	1,680

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	AMEC Foster Wheeler
Date Received:	NA	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	I7-329 mb
Date Analyzed:	06/19/17	Data File:	I7-329 mb.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-01	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-01
Date Analyzed:	06/16/17	Data File:	706250-01.034
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.11
Barium	37.9
Cadmium	<1
Chromium	15.6
Lead	1.52
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-02	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-03
Date Analyzed:	06/16/17	Data File:	706250-03.035
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.99
Barium	32.8
Cadmium	<1
Chromium	11.4
Lead	10.4
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-03	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-04
Date Analyzed:	06/16/17	Data File:	706250-04.036
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.32
Barium	35.9
Cadmium	<1
Chromium	16.6
Lead	2.05
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-04	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-06
Date Analyzed:	06/16/17	Data File:	706250-06.037
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	14.5
Barium	95.9
Cadmium	<1
Chromium	27.5
Lead	3.20
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-05	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-07
Date Analyzed:	06/16/17	Data File:	706250-07.038
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.16
Barium	49.1
Cadmium	<1
Chromium	21.9
Lead	2.82
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	FIR-06	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-08
Date Analyzed:	06/16/17	Data File:	706250-08.039
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.05
Barium	83.1
Cadmium	<1
Chromium	20.3
Lead	16.4
Mercury	<1
Selenium	<1
Silver	<1

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	AMEC Foster Wheeler
Date Received:	NA	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	I7-326 mb2
Date Analyzed:	06/16/17	Data File:	I7-326 mb2.025
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-01	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-02
Date Analyzed:	06/16/17	Data File:	061620.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-03	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-05
Date Analyzed:	06/16/17	Data File:	061621.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-06	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-09
Date Analyzed:	06/16/17	Data File:	061622.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	85	117
Toluene-d8	102	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	13	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	19	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Trip Blank	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	706250-10
Date Analyzed:	06/16/17	Data File:	061618.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	85	117
Toluene-d8	100	91	108
4-Bromofluorobenzene	99	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	AMEC Foster Wheeler
Date Received:	Not Applicable	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/16/17	Lab ID:	07-1283 mb
Date Analyzed:	06/16/17	Data File:	061617.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	85	117
Toluene-d8	101	91	108
4-Bromofluorobenzene	100	76	126

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-01	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-01
Date Analyzed:	06/19/17	Data File:	061911.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	105	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-02	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-03
Date Analyzed:	06/19/17	Data File:	061912.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	106	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-03	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-04
Date Analyzed:	06/19/17	Data File:	061913.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	107	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-04	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-06
Date Analyzed:	06/19/17	Data File:	061914.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	106	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-05	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-07
Date Analyzed:	06/19/17	Data File:	061915.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	106	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	FIR-06	Client:	AMEC Foster Wheeler
Date Received:	06/15/17	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	706250-08
Date Analyzed:	06/19/17	Data File:	061916.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	107	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	AMEC Foster Wheeler
Date Received:	Not Applicable	Project:	Fir Street, PO PS1718052G
Date Extracted:	06/19/17	Lab ID:	07-1285 mb
Date Analyzed:	06/19/17	Data File:	061908.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	106	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 706250-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	80	71-131

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 706226-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	69-134

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	93	99	63-142	6

ENVIRONMENTAL CHEMISTS

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 706252-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	85	87	73-135	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	83	74-139

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

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

Laboratory Code: 706267-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.18	108	111	75-125	3
Barium	ug/L (ppb)	50	39.0	102	105	75-125	3
Cadmium	ug/L (ppb)	5	<1	103	106	75-125	3
Chromium	ug/L (ppb)	20	1.96	105	107	75-125	2
Lead	ug/L (ppb)	10	1.67	97	97	75-125	0
Mercury	ug/L (ppb)	5	<1	102	104	75-125	2
Selenium	ug/L (ppb)	5	<1	100	103	75-125	3
Silver	ug/L (ppb)	5	<1	101	103	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	107	80-120
Barium	ug/L (ppb)	50	105	80-120
Cadmium	ug/L (ppb)	5	105	80-120
Chromium	ug/L (ppb)	20	106	80-120
Lead	ug/L (ppb)	10	106	80-120
Mercury	ug/L (ppb)	5	106	80-120
Selenium	ug/L (ppb)	5	100	80-120
Silver	ug/L (ppb)	5	108	80-120

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

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

Laboratory Code: 706245-08 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	78	76	75-125	3
Barium	mg/kg (ppm)	50	255	62 b	66 b	75-125	6 b
Cadmium	mg/kg (ppm)	10	<5	85	84	75-125	1
Chromium	mg/kg (ppm)	50	12.6	76	76	75-125	0
Lead	mg/kg (ppm)	50	7.67	81	81	75-125	0
Mercury	mg/kg (ppm	5	<5	83	82	75-125	1
Selenium	mg/kg (ppm)	5	<5	71 vo	77	75-125	8
Silver	mg/kg (ppm)	10	<5	76	77	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	102	80-120
Barium	mg/kg (ppm)	50	108	80-120
Cadmium	mg/kg (ppm)	10	105	80-120
Chromium	mg/kg (ppm)	50	103	80-120
Lead	mg/kg (ppm)	50	104	80-120
Mercury	mg/kg (ppm)	5	108	80-120
Selenium	mg/kg (ppm)	5	94	80-120
Silver	mg/kg (ppm)	10	96	80-120

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 706264-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	123	55-137
Chloromethane	ug/L (ppb)	50	<10	101	61-120
Vinyl chloride	ug/L (ppb)	50	<0.2	114	61-139
Bromomethane	ug/L (ppb)	50	<1	127	20-265
Chloroethane	ug/L (ppb)	50	<1	105	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	119	71-128
Acetone	ug/L (ppb)	250	<10	99	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	102	71-123
Hexane	ug/L (ppb)	50	<1	105	44-139
Methylene chloride	ug/L (ppb)	50	<5	104	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	103	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	101	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	103	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	105	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	102	63-126
Chloroform	ug/L (ppb)	50	<1	100	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	104	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	105	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	100	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	101	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	106	70-132
Benzene	ug/L (ppb)	50	<0.35	103	75-114
Trichloroethene	ug/L (ppb)	50	<1	102	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	100	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	105	78-117
Dibromomethane	ug/L (ppb)	50	<1	99	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	103	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	108	76-120
Toluene	ug/L (ppb)	50	<1	97	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	101	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	99	81-116
2-Hexanone	ug/L (ppb)	250	<10	103	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	97	80-113
Tetrachloroethene	ug/L (ppb)	50	<1	100	72-113
Dibromochloromethane	ug/L (ppb)	50	<1	106	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	100	79-120
Chlorobenzene	ug/L (ppb)	50	<1	99	75-115
Ethylbenzene	ug/L (ppb)	50	<1	101	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	76-130
m,p-Xylene	ug/L (ppb)	100	<2	101	63-128
o-Xylene	ug/L (ppb)	50	<1	100	64-129
Styrene	ug/L (ppb)	50	<1	100	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	100	74-122
Bromoform	ug/L (ppb)	50	<1	107	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	98	65-129
Bromobenzene	ug/L (ppb)	50	<1	101	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	100	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	79-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	101	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	102	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	100	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	106	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	100	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	97	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	101	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	98	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	95	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	97	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	99	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	99	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	96	53-136
Naphthalene	ug/L (ppb)	50	<1	96	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	97	59-130

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	125	129	50-157	3
Chloromethane	ug/L (ppb)	50	103	106	62-130	3
Vinyl chloride	ug/L (ppb)	50	116	121	70-128	4
Bromomethane	ug/L (ppb)	50	129	133	62-188	3
Chloroethane	ug/L (ppb)	50	106	110	66-149	4
Trichlorofluoromethane	ug/L (ppb)	50	118	124	70-132	5
Acetone	ug/L (ppb)	250	101	101	44-145	0
1,1-Dichloroethene	ug/L (ppb)	50	103	106	75-119	3
Hexane	ug/L (ppb)	50	105	105	51-153	0
Methylene chloride	ug/L (ppb)	50	103	106	63-132	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	107	70-122	7
trans-1,2-Dichloroethene	ug/L (ppb)	50	102	104	76-118	2
1,1-Dichloroethane	ug/L (ppb)	50	102	104	77-119	2
2,2-Dichloropropane	ug/L (ppb)	50	103	106	62-141	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	101	104	76-119	3
Chloroform	ug/L (ppb)	50	100	103	78-117	3
2-Butanone (MEK)	ug/L (ppb)	250	104	100	49-147	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	103	104	78-114	1
1,1,1-Trichloroethane	ug/L (ppb)	50	100	104	80-116	4
1,1-Dichloropropene	ug/L (ppb)	50	102	104	78-119	2
Carbon tetrachloride	ug/L (ppb)	50	105	109	72-128	4
Benzene	ug/L (ppb)	50	102	103	75-116	1
Trichloroethene	ug/L (ppb)	50	103	104	72-119	1
1,2-Dichloropropane	ug/L (ppb)	50	100	101	79-121	1
Bromodichloromethane	ug/L (ppb)	50	104	106	76-120	2
Dibromomethane	ug/L (ppb)	50	99	101	79-121	2
4-Methyl-2-pentanone	ug/L (ppb)	250	102	100	54-153	2
cis-1,3-Dichloropropene	ug/L (ppb)	50	106	105	76-128	1
Toluene	ug/L (ppb)	50	97	98	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	100	99	76-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	97	97	78-120	0
2-Hexanone	ug/L (ppb)	250	100	97	49-147	3
1,3-Dichloropropane	ug/L (ppb)	50	96	95	81-115	1
Tetrachloroethene	ug/L (ppb)	50	100	102	78-109	2
Dibromochloromethane	ug/L (ppb)	50	106	107	63-140	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	99	97	82-118	2
Chlorobenzene	ug/L (ppb)	50	99	100	80-113	1
Ethylbenzene	ug/L (ppb)	50	101	103	83-111	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	106	76-125	5
m,p-Xylene	ug/L (ppb)	100	101	103	84-112	2
o-Xylene	ug/L (ppb)	50	101	104	81-117	3
Styrene	ug/L (ppb)	50	99	101	83-121	2
Isopropylbenzene	ug/L (ppb)	50	100	104	81-122	4
Bromoform	ug/L (ppb)	50	106	106	40-161	0
n-Propylbenzene	ug/L (ppb)	50	99	102	81-115	3
Bromobenzene	ug/L (ppb)	50	99	102	80-113	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	101	105	83-117	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	100	102	79-118	2
1,2,3-Trichloropropane	ug/L (ppb)	50	101	102	74-116	1
2-Chlorotoluene	ug/L (ppb)	50	102	106	79-112	4
4-Chlorotoluene	ug/L (ppb)	50	100	102	80-116	2
tert-Butylbenzene	ug/L (ppb)	50	108	113	81-119	5
1,2,4-Trimethylbenzene	ug/L (ppb)	50	101	104	81-121	3
sec-Butylbenzene	ug/L (ppb)	50	98	102	83-123	4
p-Isopropyltoluene	ug/L (ppb)	50	102	106	81-122	4
1,3-Dichlorobenzene	ug/L (ppb)	50	98	101	80-115	3
1,4-Dichlorobenzene	ug/L (ppb)	50	96	97	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	98	102	79-115	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	99	101	62-133	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	99	104	75-119	5
Hexachlorobutadiene	ug/L (ppb)	50	97	100	70-116	3
Naphthalene	ug/L (ppb)	50	97	102	72-131	5
1,2,3-Trichlorobenzene	ug/L (ppb)	50	98	103	74-122	5

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 706250-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	57	10-142
Chloromethane	mg/kg (ppm)	2.5	<0.5	84	10-126
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	88	10-138
Bromomethane	mg/kg (ppm)	2.5	<0.5	91	10-163
Chloroethane	mg/kg (ppm)	2.5	<0.5	102	10-176
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	108	10-176
Acetone	mg/kg (ppm)	12.5	<0.5	104	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	108	10-160
Hexane	mg/kg (ppm)	2.5	<0.25	98	10-137
Methylene chloride	mg/kg (ppm)	2.5	<0.5	113	10-156
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	108	21-145
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	115	14-137
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	111	19-140
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	119	10-158
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	114	25-135
Chloroform	mg/kg (ppm)	2.5	<0.05	116	21-145
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	114	19-147
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	114	12-160
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	115	10-156
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	112	17-140
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	118	9-164
Benzene	mg/kg (ppm)	2.5	<0.03	111	29-129
Trichloroethene	mg/kg (ppm)	2.5	<0.02	113	21-139
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	115	30-135
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	120	23-155
Dibromomethane	mg/kg (ppm)	2.5	<0.05	115	23-145
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	110	24-155
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	122	28-144
Toluene	mg/kg (ppm)	2.5	<0.05	99	35-130
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	112	26-149
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	102	10-205
2-Hexanone	mg/kg (ppm)	12.5	<0.5	99	15-166
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	103	31-137
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	102	20-133
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	115	28-150
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	104	28-142
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	103	32-129
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	103	32-137
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	109	31-143
m,p-Xylene	mg/kg (ppm)	5	<0.1	104	34-136
o-Xylene	mg/kg (ppm)	2.5	<0.05	101	33-134
Styrene	mg/kg (ppm)	2.5	<0.05	103	35-137
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	101	31-142
Bromoform	mg/kg (ppm)	2.5	<0.05	117	21-156
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	98	23-146
Bromobenzene	mg/kg (ppm)	2.5	<0.05	101	34-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	97	18-149
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	97	28-140
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	95	25-144
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	98	31-134
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	99	31-136
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	99	30-137
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	99	10-182
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	98	23-145
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	99	21-149
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	101	30-131
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	98	29-129
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	100	31-132
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	100	11-161
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	102	22-142
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	102	10-142
Naphthalene	mg/kg (ppm)	2.5	<0.05	97	14-157
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	104	20-144

Date of Report: 06/23/17
Date Received: 06/15/17
Project: Fir Street, PO PS1718052G, F&BI 706250

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	18	20	10-146	11
Chloromethane	mg/kg (ppm)	2.5	49	54	27-133	10
Vinyl chloride	mg/kg (ppm)	2.5	47	54	22-139	14
Bromomethane	mg/kg (ppm)	2.5	62	68	38-114	9
Chloroethane	mg/kg (ppm)	2.5	63	72	10-163	13
Trichlorofluoromethane	mg/kg (ppm)	2.5	58	64	10-196	10
Acetone	mg/kg (ppm)	12.5	86	98	52-141	13
1,1-Dichloroethene	mg/kg (ppm)	2.5	69	77	47-128	11
Hexane	mg/kg (ppm)	2.5	46	50	43-142	8
Methylene chloride	mg/kg (ppm)	2.5	87	92	42-132	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	85	93	60-123	9
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	82	89	67-127	8
1,1-Dichloroethane	mg/kg (ppm)	2.5	84	89	68-115	6
2,2-Dichloropropane	mg/kg (ppm)	2.5	78	86	52-170	10
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	89	95	72-113	7
Chloroform	mg/kg (ppm)	2.5	91	98	66-120	7
2-Butanone (MEK)	mg/kg (ppm)	12.5	93	106	57-123	13
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	91	98	56-135	7
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	87	93	62-131	7
1,1-Dichloropropene	mg/kg (ppm)	2.5	82	89	69-128	8
Carbon tetrachloride	mg/kg (ppm)	2.5	85	93	60-139	9
Benzene	mg/kg (ppm)	2.5	86	93	68-114	8
Trichloroethene	mg/kg (ppm)	2.5	89	98	64-117	10
1,2-Dichloropropane	mg/kg (ppm)	2.5	91	99	72-127	8
Bromodichloromethane	mg/kg (ppm)	2.5	95	104	72-130	9
Dibromomethane	mg/kg (ppm)	2.5	93	101	70-120	8
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	90	103	45-145	13
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	93	103	75-136	10
Toluene	mg/kg (ppm)	2.5	78	84	66-126	7
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	87	95	72-132	9
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	83	91	75-113	9
2-Hexanone	mg/kg (ppm)	12.5	81	92	33-152	13
1,3-Dichloropropane	mg/kg (ppm)	2.5	84	92	72-130	9
Tetrachloroethene	mg/kg (ppm)	2.5	79	86	72-114	8
Dibromochloromethane	mg/kg (ppm)	2.5	90	98	74-125	9
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	83	93	74-132	11
Chlorobenzene	mg/kg (ppm)	2.5	83	90	76-111	8
Ethylbenzene	mg/kg (ppm)	2.5	82	90	64-123	9
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	86	95	69-135	10
m,p-Xylene	mg/kg (ppm)	5	83	90	78-122	8
o-Xylene	mg/kg (ppm)	2.5	82	90	77-124	9
Styrene	mg/kg (ppm)	2.5	84	92	74-126	9
Isopropylbenzene	mg/kg (ppm)	2.5	81	90	76-127	11
Bromoform	mg/kg (ppm)	2.5	88	100	56-132	13
n-Propylbenzene	mg/kg (ppm)	2.5	79	86	74-124	8
Bromobenzene	mg/kg (ppm)	2.5	83	89	72-122	7
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	79	86	76-126	8
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	77	86	56-143	11
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	77	86	61-137	11
2-Chlorotoluene	mg/kg (ppm)	2.5	80	86	74-121	7
4-Chlorotoluene	mg/kg (ppm)	2.5	79	87	75-122	10
tert-Butylbenzene	mg/kg (ppm)	2.5	80	87	73-130	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	80	87	76-125	8
sec-Butylbenzene	mg/kg (ppm)	2.5	79	87	71-130	10
p-Isopropyltoluene	mg/kg (ppm)	2.5	80	88	70-132	10
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	81	89	75-121	9
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	79	87	74-117	10
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	83	90	76-121	8
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	79	93	58-138	16
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	84	92	64-135	9
Hexachlorobutadiene	mg/kg (ppm)	2.5	82	91	50-153	10
Naphthalene	mg/kg (ppm)	2.5	80	90	63-140	12
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	84	92	63-138	9

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.

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 the analyte were outside of acceptance criteria. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

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

j - The analyte concentration is reported below the lowest calibration standard. 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 laboratory control sample(s) percent recovery and/or RPD were 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 analyte 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 with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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.

706250

SAMPLE CHAIN OF CUSTODY

ME 06-15-17 VSI/NWI/AI4/A03

Page # _____ of _____

Report To Crystal Thiinsen and Meilani Lanier-Kamahele
Company Amec Foster Wheeler
Address 600 University St. #600
City, State, ZIP Seattle WA 98101
Phone _____ Email _____

SAMPLERS (signature) Meilani Lanier-Kamahele

PROJECT NAME: FR Street

~~PO~~ # Reference: PS17180526

REMARKS

INVOICE TO

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH _____
Rush charges authorized by: _____

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	RCRA 8 Total metal				Notes
FIR-01	01 A-E	6/14/17	0915	S	5		X	X		X			X				
FIR-01	02 A-F	6/14/17	0935	W	6		X	X		X			X				
FIR-02	03 A-E	6/14/17	1045	S	5		X	X		X			X				
FIR-03	04 A-E	6/14/17	1120	S	5		X	X		X			X				
FIR-03	05 A-E	6/14/17	1140	W	6		X	X		X			X				
FIR-04	06 A-E	6/14/17	1225	S	5		X	X		X			X				
FIR-05	07-A-E	6/14/17	1300	S	5		X	X		X			X				
FIR-06	08 A-E	6/14/17	1350	S	5		X	X		X			X				
FIR-06	09-A-F	6/14/17	1530	W	6+3		X	X		X			X				Samples received at 2°C
TRIP BLANK	10 A-B	6/14/17	—	W	2					X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Meilani Lanier-Kamahele	Meilani Lanier-Kamahele	Amec Foster Wheeler	6/15/17	1425
Received by: Dero	DO VO	F&BI	6-15-17	14.25
Relinquished by:				
Received by:				

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