

February 28, 2018
Project No. 6-61M-13317-0



Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Attention: Ken Thiessen

**Subject: Closure Report Addendum
American Industries
4000 NW St Helens Road, Portland, Oregon
ECSI File #6148**

Dear Mr. Thiessen:

On behalf of American Industries, Inc. (American Industries), Amec Foster Wheeler is submitting this report summarizing limited subsurface investigation activities completed at the American Industries property (DEQ ECSI #6148) located at 4000 NW St Helens Road, Portland, Oregon (herein after referred to as the "subject site", Figure 1). The investigation activities summarized in this report were completed in accordance with the December 4, 2017 Limited Subsurface Investigation Work Plan (Amec Foster Wheeler, 2017b), approved by Ken Thiessen of Oregon Department of Environmental Quality (DEQ) on December 11, 2017. This report is an addendum to Amec Foster Wheeler's March 22, 2017 Closure Report for the subject site (Amec Foster Wheeler, 2017a).

INVESTIGATION PURPOSE AND OBJECTIVES

The purpose of the investigation activities summarized in this addendum was to address concerns and data gaps identified in DEQ's May 31, 2017 letter regarding the Closure Report (DEQ, 2017: Comments 1 to 3). The specific objectives of the investigation activities were to complete the characterization of the nature and extent of soil and groundwater contaminants of interest (COIs) related to: (a) the former on-site diesel underground storage tank (UST) release and (b) historical operations on the subject site, including the former foundry and plating shop operations.

PRE-INVESTIGATION ACTIVITIES

As required by the Occupational Safety and Health Administration (OSHA), a site-specific Health and Safety Plan was prepared to cover field safety protocol for Amec Foster Wheeler employees and subcontractors conducting the investigation.

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Prior to conducting the subsurface exploration, Amec Foster Wheeler personnel contacted local public utilities using the Oregon Utility Notification Service to field-mark any underground utility lines in the vicinity of the proposed sampling locations. In addition, Amec Foster Wheeler subcontracted a private utility locating service to locate utilities in the vicinity of sampling locations (Applied Professional Services – North Bend, Washington).

Amec Foster Wheeler obtained the following permits required by the City of Portland Bureau of Transportation to complete investigation work within the City of Portland right-of-way in the road shoulder and parking spaces adjacent to NW Express Avenue:

- Temporary Street Use Permit #10628900000 SS
- Test Bore Permit #TR 18 006.

INVESTIGATION FIELD WORK

Amec Foster Wheeler field personnel conducted field work on the subject site on January 29, 2018, in accordance with the Limited Subsurface Investigation Work Plan (Investigation Work Plan), as described in the following sections.

Six temporary borings were installed using a direct-push drilling method for soil and shallow groundwater sample collection (locations AB-01 to AB-06, Figure 2). Due to drill rig access limitations in the subject site warehouse building, boring AB-06 had to be installed approximately 100 feet to the southeast of the location initially proposed in the Investigation Work Plan. It is Amec Foster Wheeler's opinion that the final AB-06 location is suitable to evaluate potential subsurface soil and groundwater contamination related to the historical site foundry and plating activities.

Drilling was performed by Stratus Corporation (Stratus) of Gaston, Oregon, an Oregon-licensed well driller. An Amec Foster Wheeler scientist classified the soils encountered according to the Unified Soil Classification System, field screened soils for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID), and recorded observations (i.e., staining, odors, or elevated field screening readings) in soil boring logs (Attachment A). Photographs of the boring locations are included in Attachment B.

Each of the soil borings was completed to a depth of 15 feet below ground surface (bgs). Subsurface conditions encountered in the borings beneath ground surface pavement generally consisted of 2 to 6 feet of silty, sandy, fine to coarse gravel fill material, underlain by up to 10 feet of fine to medium sand. Underlying the gravel and sand, silt was encountered in the borings beginning at depths ranging from 5.5 to 13 feet bgs to the end of the borings at 15 feet bgs. No evidence of contamination (odor, sheen, or elevated PID headspace readings) was observed in the borings. One soil sample was collected

from each boring for laboratory analysis. Due to the absence of field evidence of impact, soil samples were collected from the depth interval just below first encountered groundwater.

Groundwater samples were collected from each boring using a dedicated temporary well point installed by Stratus consisting of ¾ -inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) temporary casing with 5 feet of 0.01-inch slot size PVC screen. Temporary wells were screened from 10 to 15 feet bgs in borings AB-01 to AB-05 and from 5 to 10 feet bgs in boring AB-06. Shallow groundwater was measured in the temporary wells as depths ranging from 5 to 6.5 approximate feet bgs. Groundwater samples were collected with a peristaltic pump using dedicated disposable sample tubing into new, laboratory-supplied sample containers. Samples collected for dissolved metals analyses were field filtered with dedicated, disposable 0.45 micron filters.

After completion of sampling activities, all the borings were abandoned in accordance with applicable Oregon Water Resources Department (OWRD) regulations. An asphalt or concrete patch was applied to restore surface pavement, if present, to the match original grade.

INVESTIGATION-DERIVED WASTE

Investigation derived waste (IDW) consisting of soil, decontamination wash water, and purged groundwater generated during sampling activities was containerized in 55-gallon drums, labeled, and staged on-site pending laboratory results. Based on laboratory results, American Industries will dispose of the IDW in accordance with applicable regulatory standards.

ANALYTICAL RESULTS

Each of the six subsurface soil samples were submitted to Apex Laboratories (Tigard, Oregon) for one or more the following analyses:

- Diesel and Oil-range petroleum hydrocarbons by method NWTPH-Dx;
- Polycyclic aromatic hydrocarbons (PAHs) by United States Environmental Protection Agency (EPA) Method 8270 (samples with diesel detections, only); and
- Resource Conservation and Recovery Act (RCRA 8) metals by EPA Method 6000.

Each of the six groundwater samples were analyzed by Apex Laboratories for one or more the following analyses:

- Diesel and Oil-range petroleum hydrocarbons by Method NWTPH-Dx;
- Dissolved RCRA 8 metals by EPA Method 6000; and
- Dissolved Hexavalent Chromium by Method SM3500-Cr B.

Copies of analytical laboratory report and chain-of-custody documentation are included in Attachment C. A summary of sample results from the 2018 and previous investigation activities is provided in Tables 1 to 4, along with applicable DEQ risk-based concentrations (RBCs) for occupational, construction worker, and excavation worker receptors (DEQ, 2015) and DEQ soil metals background concentrations (DEQ, 2013).

SOIL RESULTS

Diesel-range hydrocarbons were not detected in any of the soil samples. Oil-range petroleum hydrocarbons were detected in the 5.5 to 6.5 feet bgs soil samples collected from borings AB-01, AB-02, and AB-05 at 314, 107, and 488 milligrams per kilogram (mg/kg), respectively (Table 1). These soil samples with oil detections were also analyzed for PAHs (Table 2). Various PAHs were detected in the soil sample from on-site boring AB-05. Benzo(g,h,i)perylene was the only PAH detected in the AB-01 sample. Fluoranthene and pyrene were the only PAHs detected in the AB-02 soil sample. All concentrations of oil-range petroleum hydrocarbons and PAHs detected in soil were substantially lower than DEQ direct soil contact RBCs for occupational, construction, and excavation workers (Tables 1 and 2).

Total metals concentrations detected in soil samples collected from on-site borings AB-05 and AB-06 were less than their respective DEQ background concentrations (Table 3).

GROUNDWATER RESULTS

No diesel-range or oil-range petroleum hydrocarbons were detected in the shallow groundwater samples. All concentrations of dissolved metals detected in shallow groundwater were substantially lower than DEQ RBCs for the groundwater in excavation exposure scenario for construction and excavation workers (Table 4). Hexavalent chromium was not detected in shallow groundwater samples.

CONCLUSIONS

Based on the results of the limited subsurface investigation, Amec Foster Wheeler offers the following updates to the previous findings of the Closure Report.

NATURE AND EXTENT OF CONTAMINATION UPDATE

Diesel UST Release

Soil and groundwater samples were collected from temporary borings AB-01 to AB-05 in presumed down-to cross gradient locations to the north and east of the former diesel UST. Sample results indicate the following regarding the extent of subsurface soil and groundwater contamination related to the former diesel UST release:

- Diesel-range petroleum hydrocarbons decrease to below detection limits in subsurface soil and shallow groundwater within approximately 75 feet, or less, down-gradient from the former UST location (boring locations AB-01, AB-02, and AB-05, Figures 2 and 3).
- Oil-range petroleum hydrocarbon concentrations in subsurface soil samples collected in the vicinity of the former diesel UST location ranged from non-detect to 488 mg/kg. Oil-range petroleum hydrocarbons were detected in subsurface soil samples in presumed down-gradient locations AB-01 and AB-02 in the City of Portland right-of-way, and at down- to cross-gradient on-site location AB-05. All detected soil oil-range petroleum hydrocarbon concentrations were lower than direct soil contact RBCs (Table 1).

The absence of oil-range hydrocarbon detections in soil samples with the highest concentrations of diesel-range petroleum hydrocarbons from previous borings located nearest to the former diesel UST location (GP-1, GP-12, and GP-13, Figures 2 and 3) indicates that oil-range hydrocarbons detected in soil are not related to the former diesel UST release. In addition, oil-range petroleum hydrocarbons have not been detected in any shallow groundwater samples on or adjacent to the subject site, indicating that the low concentrations of oil-range hydrocarbons detected in subsurface soil do not appear to be associated with a groundwater contaminant plume. For these reasons, no future evaluation or investigation of oil-range hydrocarbons in subsurface soil appears warranted.

- Low concentrations of three PAH compounds were detected in subsurface soil samples in presumed down-gradient locations AB-01 and AB-02. The lower magnitude of the off-site PAH soil detections, relative to the PAHs detections at on-site locations GP-1, GP-12, and GP-18, indicates that PAH concentrations in soil decrease significantly with distance from the former UST location. All detected soil PAH concentrations on the subject site and adjacent City of Portland right-of-way were lower than their respective direct soil contact RBCs (Table 2).

Potential Historical Foundry and Plating Contaminants

Soil and groundwater samples were collected from temporary borings AB-05 and AB-06 in downgradient locations relative to the former foundry and plating shop locations on the subject site, to further evaluate the potential for metals impact related to these historical activities. The absence of elevated metals concentrations or hexavalent chromium detections in soil and groundwater samples at these locations indicates that historical site foundry and plating operations do not appear to have resulted in significant or widespread impact to soil and groundwater beneath the subject site. Thus, no additional investigation of subsurface contamination related to historical foundry and plating activities appears warranted.

LOCALITY OF FACILITY (LOF) UPDATE

Subsurface investigation activities completed by Amec Foster Wheeler in 2018 indicate that the lateral extent of residual diesel-range petroleum hydrocarbons in shallow groundwater related to the former

leaking UST decrease to below detection limits within approximately 75 feet, or less, in presumed down-gradient locations in the City of Portland right-of-way. These data indicate that the LOF does not appear to extend beyond the City of Portland right-of-way and does not appear to extend as far down-gradient as was previously estimated. The updated lateral extent of the LOF in shallow groundwater is provided in Figures 2 and 3. Vertically, the LOF is limited to the shallow water-bearing zone (less than 20 feet bgs).

Due to the age of the release, the relatively low concentrations of COIs detected in groundwater on the subject site, and the absence of detections in downgradient sampling locations, it is expected that the groundwater contaminant plume would remain stable or decline over time and that expansion of the plume beyond the NW Express Avenue right-of-way is unlikely.

HUMAN HEALTH RISK EVALUATION UPDATE

In the Closure Report (Amec Foster Wheeler, 2017a), Amec Foster Wheeler completed a screening-level human health risk assessment (HHRA) with available data to evaluate if site COIs posed potential risk to current and future receptors. The Closure Report's human health risk screening tables have been updated to include soil and groundwater collected in the January 2018 subsurface investigation (Tables 1 to 4, attached). The updated Tables 1 to 4 include a summary of compounds detected during all environmental investigation activities completed to date, along with DEQ RBCs for potentially complete exposure pathways previously identified in the Conceptual Site Model for occupational, construction worker, and excavation worker receptors.

Table 2 also includes updated soil RBCs for benzo(a)pyrene. DEQ is currently in the process of revising RBCs for benzo(a)pyrene to be consistent with current EPA Regional Screening Levels (RSLs) published in November 2017 (EPA, 2017). The updated RBCs for benzo(a)pyrene listed in Table 2 were obtained from Amec Foster Wheeler's recent correspondence with DEQ (Amec Foster Wheeler email correspondence, December 14, 2017 and February 23, 2018).

None of the COIs detected in the January 2018 samples exceeded RBCs for applicable and complete exposure pathways. Thus, Amec Foster Wheeler's original human health risk assessment findings remain unchanged: COIs in soil and groundwater do not pose unacceptable risk to current and future human receptors.

RECOMMENDATIONS

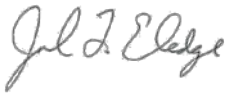
Based on the investigation findings and lines of evidence discussed above, Amec Foster Wheeler believes that a "no further action" determination is appropriate for the subsurface contamination concerns identified by DEQ in the May 31, 2017 comment letter (DEQ, 2017: Comments 1 to 3).

CLOSING

If you have any questions or require additional information, please feel free to contact the undersigned at (503) 639-3400.

Sincerely,

**Amec Foster Wheeler
Environment & Infrastructure, Inc.**



Joel L. Eledge, CHMM
Senior Environmental Scientist

Reviewed by:



Dan Schall, PE
Senior Engineer

Attachments:

Figure 1 – Site Location Map
Figure 2 – Site Plan and Sample Locations
Figure 3 – Petroleum Hydrocarbons in Soil and Groundwater

Table 1 – Petroleum Hydrocarbons and Volatile Organic Compounds Detected In Soil
Table 2 – Polynuclear Aromatic Hydrocarbons Detected In Soil
Table 3 – Metals Analytical Results in Soil
Table 4 – Groundwater Analytical Summary

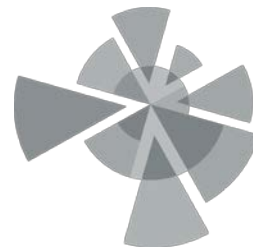
Attachment A – Soil Boring Logs
Attachment B – Photographs
Attachment C – Laboratory Report

JE/JK/DS/lp

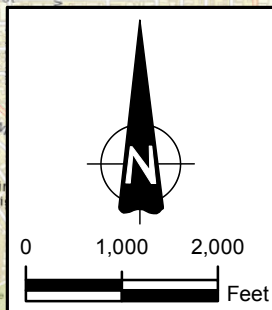
c: John Dempsey, American Industries

REFERENCES

- Adapt Engineering (Adapt), 2015. Phase I Environmental Site Assessment, American Industries, 4000 NW St Helens Road, Portland, Oregon, prepared for U.S. Bank Real Estate Technical Services. December 16, 2015.
- Adapt, 2016a. Limited Phase II Environmental Site Assessment, Intrepid Marble and Granite, 4000 NW St Helens Road, Portland, Oregon 97216. Prepared for American Industries, Inc. February 17, 2016.
- Adapt, 2016b. Extended Phase II Environmental Site Assessment, Intrepid Marble and Granite, 4000 NW St Helens Road, Portland, Oregon 97216. Prepared for American Industries, Inc. June 13, 2016.
- Amec Foster Wheeler, 2017a. Closure Report, 1.77-acre Commercial/Industrial Property, 4000 NW St Helens Road, Portland, Oregon, DEQ ECSI File # 6148. March 27, 2017.
- Amec Foster Wheeler, 2017b. Limited Subsurface Investigation Work Plan, American Industries, Inc., 4000 NW St Helens Road, Portland, Oregon, ECSI File # 6148. December 4, 2017.
- Amec Foster Wheeler, 2017c. Email Correspondence: John Kuiper (Amec Foster Wheeler) and Mark Pugh (Oregon DEQ), December 14, 2017.
- Amec Foster Wheeler, 2017d. Email Correspondence: Joel Eledge (Amec Foster Wheeler) and Ken Thiessen (Oregon DEQ), February 23, 2018.
- Oregon Department of Environmental Quality (DEQ), 2013. Technical Report: Development of Oregon Background Metals Concentrations in Soil. March 2013.
- DEQ, 2015. Risk-Based Concentrations for Individual Chemicals, Environmental Cleanup and Tanks Program. Revised November 1, 2015.
- DEQ, 2017. Letter from Matt McClincy to John Dempsey Re: American Industries Site, DEQ Cleanup Program Status, ECSI# 6148. May 31, 2017.
- United States Environmental Protection Agency (EPA), 2017. Regional Screening Levels for Chemical Contaminants at Superfund Sites. November 30, 2017.



FIGURES



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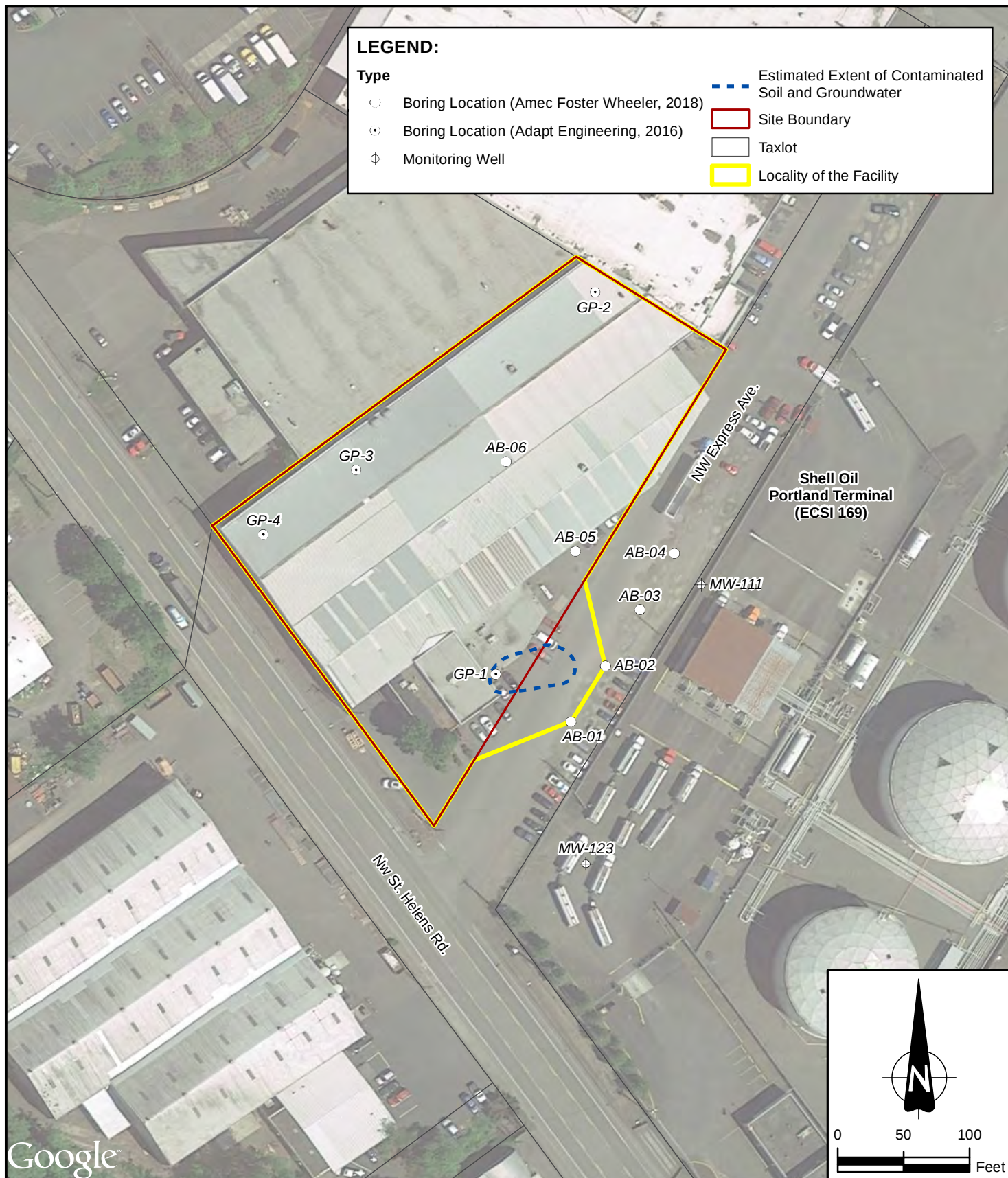
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ECSI 6148
4000 NW ST. HELENS ROAD
PORTLAND, OREGON 97210

SITE LOCATION MAP

DATE	MARCH 2017
SCALE	1" = 2,000 feet
PROJECT NO.	661M133170
FIGURE	1



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SITE PLAN AND
SAMPLE LOCATIONS

DATE
FEBRUARY 2018

SCALE
1" = 100 feet

PROJECT NO.
661M133170

FIGURE
2

NW Express Ave.

MW-111

AB-04 1/29/2018	Soil: 6.5-7.5 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 25,000	U 194
TPH-O	U 50,000	U 388

AB-03 1/29/2018	Soil: 6.5-7.5 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 25,000	U 200
TPH-O	U 50,000	U 400

LEGEND:

Boring Location (approximate):

- Petroleum Impact Visibly Noted or Odors Noted
- Petroleum Impact Visibly Noted or Odors Noted/Groundwater Sample Collected
- Petroleum Impact Visibly Noted or Odors Noted/Soil Sample Collected
- Suspected Hot Spot/Petroleum Impact Visibly Noted or Odors Noted
- Soil & Groundwater Sample Collected
- Soil Sample Collected
- Monitoring Well
- Estimated Extent of Contaminated Soil and Groundwater
- Site Boundary
- Taxlot

NOTE:
TPH-D = Diesel-range petroluem hydrocarbons
TPH-O = Oil-range petroleum hydrocarbons
ug/kg = micrograms per kilogram = parts per billion (ppb)
ug/L = micrograms per liter = parts per billion (ppb)

AB-05 1/29/2018	Soil: 5.5-6.5 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 111,000	U 213
TPH-O	488,000	U 426

AB-02 1/29/2018	Soil: 5.5-6.5 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 25,000	U 206
TPH-O	107,000	U 412

AB-01 1/29/2018	Soil: 5.5-6.5 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 25,000	U 213
TPH-O	314,000	U 426

Intrepid Marble Retail Sales Room

GP-18 4/11/2016	Soil at 5 ft bgs (ug/kg)
TPH-D	230,000
TPH-O	145,000

GP-17 4/11/2016	Soil at 8 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	U 25,000	U 206
TPH-O	U 50,000	U 412

GP-12 4/11/2016	Soil at 8 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	2,290,000	65,800
TPH-O	U 50,000	U 4,170

GP-13 4/11/2016	Soil at 8 ft bgs (ug/kg)
TPH-D	813,000
TPH-O	U 50,000

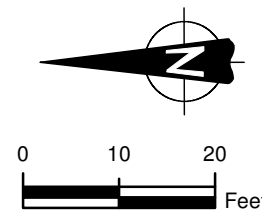
GP-8 4/11/2016	Soil at 8 ft bgs (ug/kg)
TPH-D	472,000
TPH-O	U 50,000

GP-1 1/26/2016	Soil at 2 ft bgs (ug/kg)	Groundwater (ug/L)
TPH-D	2,310,000	298,000
TPH-O	U 50,000	U 2,430

GP-6 4/11/2016	Soil at 8 ft bgs (ug/kg)
TPH-D	U 25,000
TPH-O	U 50,000

GP-5 4/11/2016	Soil (ug/kg)	Groundwater (ug/L)
TPH-D	NT	293,000
TPH-O	NT	U 21,100

AB-06



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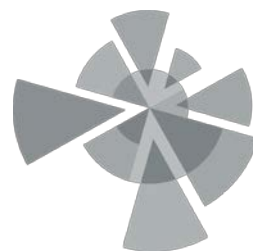
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ECSI 6148
4000 NW ST. HELENS ROAD
PORTLAND, OREGON 97210

PETROLEUM HYDROCARBONS
IN SOIL & GROUNDWATER

DATE	FEBRUARY 2018
SCALE	1" = 20'
PROJECT NO.	661M133170
FIGURE	3



TABLES

TABLE 1
Petroleum Hydrocarbons and Volatile Organic Compounds Detected In Soil
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	NWTPH-Dx		Volatile Organic Compounds by EPA Method 8260B						
					Diesel-Range Organics	Oil-Range Organics	Benzene	Ethylbenzene	Toluene	Total Xylenes	n-Butyl- benzene	sec-Butyl- benzene	Naphthalene
					Analytical Results (µg/kg)								
GP-1	GP1-1216,2'	Adapt Engineering	1/26/2016	2	2,310,000	U 50,000	U 14.5	U 36.3	U 72.6	U 36.3	U 72.6	U 72.6	U 145
GP-1	GP1-1216,20'	Adapt Engineering	1/26/196	20	U 26,400	U 52,800	NA	NA	NA	NA	NA	NA	NA
GP-4	GP4-12616, 2'	Adapt Engineering	1/26/2016	2	U 25,000	205,000	U 10.9	U 27.3	U 54.5	U 54.5	U 54.5	U 54.5	U 109
GP-4	GP4-12616, 11'	Adapt Engineering	1/26/2016	11	U 25,800	U 51,500	NA	NA	NA	NA	NA	NA	NA
GP-6	GP6-41116,8'	Adapt Engineering	4/11/2016	8	U 25,000	U 50,000	U 14.3	U 35.6	U 71.3	U 35.6	U 71.3	U 71.3	U 143
GP-8	GP8-41116,8'	Adapt Engineering	4/11/2016	8	472,000	U 50,000	U 13.9	U 34.9	U 69.7	U 34.9	U 69.7	U 69.7	U 139
GP-12	GP12-41116,8'	Adapt Engineering	4/11/2016	8	2,290,000	U 50,000	U 21.1	U 52.8	U 106	U 52.8	379	310	U 211
GP-12	GP12-41116,15'	Adapt Engineering	4/11/2016	15	U 25,000	U 50,000	NA	NA	NA	NA	NA	NA	NA
GP-13	GP13-41116,8'	Adapt Engineering	4/11/2016	8	813,000	U 50,000	U 11.7	U 29.4	U 58.7	U 29.4	U 58.7	U 58.7	U 117
GP-13	GP13-41116,15'	Adapt Engineering	4/11/2016	15	U 25,000	U 50,000	NA	NA	NA	NA	NA	NA	NA
GP-17	GP17-41116,8'	Adapt Engineering	4/11/2016	8	U 25,000	U 50,000	U 13.0	U 32.5	U 65.0	U 32.5	U 65.0	U 65.0	U 130
GP-18	GP18-41116,5'	Adapt Engineering	4/11/2016	5	230,000	145,000	U 15.1	U 37.8	U 57.7	U 37.8	U 75.7	U 75.7	U 151
AB-01	AB-01 5.5-6.5 ft	Amec Foster Wheeler	1/29/2018	5.5 - 6.5	U 25,000	314,000	NA	NA	NA	NA	NA	NA	NA
AB-02	AB-02-5.5-6.5 ft	Amec Foster Wheeler	1/29/2018	5.5 - 6.5	U 25,000	107,000	NA	NA	NA	NA	NA	NA	NA
AB-03	AB-03-6.5-7.5 ft	Amec Foster Wheeler	1/29/2018	6.5 - 7.5	U 25,000	U 50,000	NA	NA	NA	NA	NA	NA	NA
AB-04	AB-04-6.5-7.5 ft	Amec Foster Wheeler	1/29/2018	6.5 - 7.5	U 25,000	U 50,000	NA	NA	NA	NA	NA	NA	NA
AB-05	AB-05-5.5-6.5 ft	Amec Foster Wheeler	1/29/2018	5.5 - 6.5	U 111,000	488,000	NA	NA	NA	NA	NA	NA	NA
AB-06	AB-06-6.5-7.5 ft	Amec Foster Wheeler	1/29/2018	6.5 - 7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oregon Department of Environmental Quality Risk-Based Concentrations ₁													
Ingestion, Dermal Contact, and Inhalation - Occupational					14,000,000	36,000,000	37,000	150,000	88,000,000	25,000,000	NL	NL	23,000
Ingestion, Dermal Contact, and Inhalation - Construction Worker					4,600,000	11,000,000	380,000	17,000,000	28,000,000	20,000,000	NL	NL	580,000
Ingestion, Dermal Contact, and Inhalation - Excavation Worker					>Max	> Max	11,000,000	49,000,000	770,000,000	560,000,000	NL	NL	16,000,000
Vapor Intrusion into Buildings - Occupational					>Max	> Max	2,100	17,000	> Csat	> Csat	NL	NL	83,000
Volatilization to Outdoor Air - Occupational					>Max	> Max	50,000	160,000	> Csat	> Csat	NL	NL	83,000

Notes:

µg/L = micrograms per liter

Bold = Indicates analyte was detected above method detection limit.

U = Indicates analyte was not detected at or above method reporting limit shown.

NA = Parameter was not analyzed in the sample.

₁ - Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 22, 2003. Revision: November 1, 2015.

>Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Substance is deemed not to pose risks in this scenario.

>Csat = The soil RBC exceeds the limit of three-phase equilibrium partitioning. Free Product may be present.

NL = No Risk-Based Concentration (RBC) listed by DEQ.

 Shaded indicates RBC(s) exceeded in sample.

TABLE 2
Polynuclear Aromatic Hydrocarbons Detected In Soil
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Depth (ft. bgs)	Polynuclear Aromatic Hydrocarbons by Method EPA 8270SIM																
			Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
			Analytical Result (µg/kg)																
GP-1	GP1-1216,2'	2	U 88.5	U 42.3	U 12.8	U 12.8	U 12.8	U 12.8	U 12.8	U 12.8	U 12.8	U 19.2	593	U 12.8	U 41.0	U 26.9	U 29.5	351	23.6
GP-1	GP1-1216,20'	20	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7	U 12.7
GP-6	GP6-41116,8'	8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8	U 10.8
GP-8	GP8-41116,8'	8	U 11.9	U 15.5	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9	U 11.9
GP-12	GP12-41116,8'	8	U 122	U 101	U 11.1	U 11.1	U 11.1	U 11.1	U 11.1	U 41.0	U 11.1	48.5	604	U 11.1	U 57.6	U 23.2	U 44.3	984	65.8
GP-13	GP13-41116,8'	8	U 10.6	U 17.9	U 12.7	U 10.6	U 10.6	U 10.6	U 10.6	U 12.7	U 10.6	U 10.6	U 10.6	U 10.6	U 10.6	U 10.6	U 10.6	U 10.6	14.3
GP-17	GP17-41116,8'	8	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2	U 12.2
GP-18	GP18-41116,5'	5	57.5	U 50.1	222	500	471	149	627	349	54.7	467	76.3	494	92.5	146	147	194	702
AB-01	AB-01 5.5-6.5 ft	5.5 - 6.5	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	16.3	U 18.9	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8	U 11.8
AB-02	AB-02-5.5-6.5 ft	5.5 - 6.5	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	14.9	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	U 12.1	19.5
AB-05	AB-05-6.5-7.5 ft	6.5 - 7.5	U 10.8	22.2	117	94.0	133	56.3	63.7	127	14.6	244	U 10.8	69.0	U 10.8	U 10.8	U 10.8	112	205
Oregon Department of Environmental Quality Risk-Based Concentrations ₁																			
Ingestion, Dermal Contact, and Inhalation - Occupational			NL	350,000,000	2,900 _B	2,100	2,900	29,000	NL	290,000	290	30,000,000	47,000,000	2,900	NL	NL	23,000	NL	23,000,000
Ingestion, Dermal Contact, and Inhalation - Construction Worker			NL	110,000,000	24,000 _B	17,000	24,000	240,000	NL	2,400,000	2,400	10,000,000	14,000,000	24,000	NL	NL	580,000	NL	7,500,000
Ingestion, Dermal Contact, and Inhalation - Excavation Worker			NL	> Max	660,000 _B	490,000	670,000	6,700,000	NL	67,000,000	67,000	280,000,000	390,000,000	670,000	NL	NL	16,000,000	NL	210,000,000
Vapor Intrusion into Buildings - Occupational			NL	> Max	NV	NV	NV	NV	NL	NV	NV	NV	>Max	NV	NL	NL	83,000	NL	>Csat
Volatilization to Outdoor Air - Occupational			NL	> Max	NV	NV	NV	NV	NL	NV	NV	NV	>Max	NV	NL	NL	83,000	NL	>Csat

Notes:

µg/L = micrograms per liter

Bold = Indicates analyte was detected above method detection limit.

U = Indicates analyte was not detected at or above method reporting limit shown.

₁ = Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 22, 2003. Revision: November 1, 2015.

_B Oregon Department of Environmental Quality updated Risk-Based Concentrations for benzo(a)pyrene (revision based on November 2017 US EPA Regional Screening Levels, to be published in 2018).

>Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Sustance is deemed not to pose risks in this scenario.

NV = nonvolatile

NL = No Risk-Based Concentration (RBC) listed by DEQ.

>Csat = The soil RBC exceeds the limit of three-phase equilibrium partitioning. Free Product may be present.

Shaded indicates RBC(s) exceeded in sample.

TABLE 3
Metals Analytical Results in Soil
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	Total Metals by Method EPA 6020							
					Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
					Analytical Result (mg/kg)							
GP-1	GP1-12616, 2'	Adapt Engineering	1/26/2016	2	1.46	119	0.351	18.0	27.8	U 0.108	U 1.35	U 0.270
GP-2	GP2-12616, 7'	Adapt Engineering	1/26/2016	7	1.89	82.0	U 0.250	11.3	2.39	U 0.0999	U 1.25	U 0.250
GP-3	GP3-12616, 2'	Adapt Engineering	1/26/2016	2	5.43	107	0.353	15.0	45.6	U 0.101	U 1.26	U 0.252
GP-4	GP4-12616, 2'	Adapt Engineering	1/26/2016	2	9.01	105	0.707	16.7	20.3	U 0.101	U 1.26	0.897
AB-05	AB-05-5.5-6.5 ft	Amec Foster Wheeler	1/29/2018	5.5 - 6.5	5.95	84.5	0.288	19.2	18.4	U 0.100	U 1.25	U 0.251
AB-06	AB-06-6.5-7.5 ft	Amec Foster Wheeler	1/29/2018	6.5 - 7.5	2.48	83.9	0.233	15.5	4.89	U 0.0890	U 1.11	0.523
Oregon Department of Environmental Quality Risk-Based Concentrations¹												
Ingestion, Dermal Contact, and Inhalation - Occupational					1.9	220,000	1,100	> Max	800	350	NL	5,800
Ingestion, Dermal Contact, and Inhalation - Construction Worker					15	29,000	350	530,000	800	110	NL	1,800
Ingestion, Dermal Contact, and Inhalation - Excavation Worker					420	> Max	9,700	> Max	800	2,900	NL	49,000
Oregon Department of Environmental Quality Soil Metal Background Concentration (Portland Basin)²					8.8	790	0.63	76	79	0.23	0.71	0.82

Notes:

mg/kg = milligrams per kilogram

Bold = Indicates analyte was detected above method detection limit.

U = Indicates analyte was not detected at or above method reporting limit shown.

¹ = Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 22, 2003. Revision: November 1, 2015.

² = Oregon Department of Environmental Quality Development of Oregon Background Metals Concentrations in Soil Technical Report (March 2013).

>Max = The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Substance is deemed not to pose risks in this scenario.

NL = No Risk-Based Concentration (RBC) listed by DEQ.

Shaded indicates Background Level and RBC(s) exceeded in sample.

TABLE 4
Groundwater Analytical Summary
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	NWTPH-HCID			NWTPH-Gx	NWTPH-Dx	
					Gasoline-Range Organics	Diesel-Range Organics	Oil-Range Organics	Gasoline-Range Organics	Diesel-Range Organics	Oil-Range Organics
					Analytical Result (µg/L)					
Site Temporary Well Points - 4000 NW St Helens Rd										
GP-1	GP1-GW1	Adapt Engineering	1/26/2016	5 - 10	DET ^{F-09}	DET	U 2,430	NA	298,000	U 19,400
GP-2	GP2-GW2	Adapt Engineering	1/26/2016	7 -12	DET	U 243	U 243	U 100	NA	NA
GP-3	GP3-GW3	Adapt Engineering	1/26/2016	9 - 14	U 108	U 269	U 269	NA	NA	NA
GP-5	GW-GP5	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	293,000	U 21,100
GP-12	GW-GP12	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	68,500	U 4,170
GP-17	GW-GP17	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	U 206	U 412
AB-01	AB-01 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	U 213	U 426
AB-02	AB-02 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	U 206	U 412
AB-03	AB-03 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	U 200	U 400
AB-04	AB-04 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	U 194	U 388
AB-05	AB-05 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	U 213	U 426
AB-06	AB-06 GW	Amec Foster Wheeler	1/29/2018	5 - 10	NA	NA	NA	NA	NA	NA
Off-site Monitoring Wells - Texaco Bulk Terminal (ECSI 169)										
MW-111			2/23/2012	5.5 - 20.5	NA	NA	NA	U 200	U 950	U 190
MW-123			2/23/2012	5.5 - 20.5	NA	NA	NA	U 200	U 950	U 190
Oregon Department of Environmental Quality Risk-Based Concentrations ₁										
Vapor Intrusion into Buildings—Occupational					> S	> S	> S	> S	> S	> S
Volatilization to Outdoor Air—Occupational					> S	> S	> S	> S	> S	> S
Groundwater in an Excavation					14,000	> S	> S	14,000	> S	> S

Notes:

µg/L = micrograms per liter

Bold = Indicates analyte was detected above method detection limit.

DET = analyte detected

U = Indicates analyte was not detected at or above method reporting limit shown.

NA = Parameter was not analyzed in the sample.

NT = not tested

F-09 = Results in the Gasoline Range are primarily due to overlap from a heavier fuel hydrocarbon product

₁ = Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, September 22, 2003. Revision: November 1, 2015.

NL = No Risk-Based Concentration (RBC) listed by DEQ.

> S = The calculated RBC exceeds the constituent's water solubility limit

NV = The chemical is considered "nonvolatile"

TABLE 4
Groundwater Analytical Summary
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	Volatile Organic Compounds by Method EPA 8260B							
					Benzene	Toluene	Ethyl-benzene	Xylenes	n-Butyl-benzene	sec-Butyl-benzene	n-propyl-benzene	Naphthalene
					Analytical Result (µg/L)							
Site Temporary Well Points - 4000 NW St Helens Rd												
GP-1	GP1-GW1	Adapt Engineering	1/26/2016	5 - 10	U 0.200	U 1.00	U 0.500	U 0.500	1.37	1.48	0.600	U 2.00
GP-2	GP2-GW2	Adapt Engineering	1/26/2016	7 -12	U 0.200	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 0.500	U 2.00
GP-3	GP3-GW3	Adapt Engineering	1/26/2016	9 - 14	U 0.200	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 0.500	U 2.00
GP-5	GW-GP5	Adapt Engineering	4/11/2016	10	U 0.200	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 0.500	U 2.00
GP-12	GW-GP12	Adapt Engineering	4/11/2016	10	U 0.200	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 0.500	U 2.00
GP-17	GW-GP17	Adapt Engineering	4/11/2016	10	U 0.200	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 0.500	U 2.00
AB-01	AB-01 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-02	AB-02 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-03	AB-03 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-04	AB-04 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-05	AB-05 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-06	AB-06 GW	Amec Foster Wheeler	1/29/2018	5 - 10	NA	NA	NA	NA	NA	NA	NA	NA
Off-site Monitoring Wells - Texaco Bulk Terminal (ECSI 169)												
MW-111			2/23/2012	5.5 - 20.5	U 1.00	U 1.00	U 1.00	U 2.00	NA	NA	NA	U 5.00
MW-123			2/23/2012	5.5 - 20.5	U 1.00	U 1.00	U 1.00	U 2.00	NA	NA	NA	U 5.00
Oregon Department of Environmental Quality Risk-Based Concentrations 1												
Vapor Intrusion into Buildings—Occupational					2,800	210,000	7,400	> S	NL	NL	NL	10,000
Volatilization to Outdoor Air—Occupational					14,000	> S	41,000	> S	NL	NL	NL	16,000
Groundwater in an Excavation					1,800	> S	4,400	23,000	NL	NL	NL	500

Notes:

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NV = The chemical is considered "nonvolatile"

TABLE 4
Groundwater Analytical Summary
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	Polyaromatic Hydrocarbons by Method EPA 8270SIM							
					Benz(a)-athracene	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	1-Methyl-naphthalene	Phenanthrene	Pyrene
					Analytical Result (µg/L)							
Site Temporary Well Points - 4000 NW St Helens Rd												
GP-1	GP1-GW1	Adapt Engineering	1/26/2016	5 - 10	0.518	3.49	17.5	U 0.850	79.2	57.1	116	4.77
GP-2	GP2-GW2	Adapt Engineering	1/26/2016	7 -12	NA	NA	NA	NA	NA	NA	NA	NA
GP-3	GP3-GW3	Adapt Engineering	1/26/2016	9 - 14	NA	NA	NA	NA	NA	NA	NA	NA
GP-5	GW-GP5	Adapt Engineering	4/11/2016	10	U 1.65	U 1.88	U 2.12	1.5	8.85	U 2.12	11.1	1.78
GP-12	GW-GP12	Adapt Engineering	4/11/2016	10	U 0.0465	U 0.0581	U 0.256	0.0747	3.45	U 0.151	3.05	0.109
GP-17	GW-GP17	Adapt Engineering	4/11/2016	10	U 0.0449	U 0.0449	U 0.0449	U 0.0449	U 0.0449	U 0.0889	U 0.0449	U 0.0449
AB-01	AB-01 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-02	AB-02 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-03	AB-03 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-04	AB-04 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-05	AB-05 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA
AB-06	AB-06 GW	Amec Foster Wheeler	1/29/2018	5 - 10	NA	NA	NA	NA	NA	NA	NA	NA
Off-site Monitoring Wells - Texaco Bulk Terminal (ECSI 169)												
MW-111			2/23/2012	5.5 - 20.5	NA	NA	NA	NA	NA	NA	NA	NA
MW-123			2/23/2012	5.5 - 20.5	NA	NA	NA	NA	NA	NA	NA	NA
Oregon Department of Environmental Quality Risk-Based Concentrations 1												
Vapor Intrusion into Buildings—Occupational					> S	NV	NL	NV	> S	NL	NL	> S
Volatilization to Outdoor Air—Occupational					> S	NV	NL	NV	> S	NL	NL	> S
Groundwater in an Excavation					> S	> S	NL	> S	> S	NL	NL	> S

Notes:

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F-09 = Results in the Gasoline Range are primarily due to overlap from a heavier fuel hydrocarbon product

₁ = Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contam

NL = No Risk-Based Concentration (RBC) listed by DEQ.

> S = The calculated RBC exceeds the constituent's water solubility limit

NV = The chemical is considered "nonvolatile"

TABLE 4
Groundwater Analytical Summary
4000 NW St Helens Road, Portland, Oregon
ECSI 6148

Location	Sample ID	Consultant	Date	Depth (ft. bgs)	Dissolved Metals by EPA 6020								SM3500-Cr B
					Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Dissolved Hexavalent Chromium
					Analytical Result (µg/L)								
Site Temporary Well Points - 4000 NW St Helens Rd													
GP-1	GP1-GW1	Adapt Engineering	1/26/2016	5 - 10	NA	NA	NA	NA	NA	NA	NA	NA	
GP-2	GP2-GW2	Adapt Engineering	1/26/2016	7 -12	NA	NA	NA	NA	NA	NA	NA	NA	NA
GP-3	GP3-GW3	Adapt Engineering	1/26/2016	9 - 14	NA	NA	NA	NA	NA	NA	NA	NA	NA
GP-5	GW-GP5	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
GP-12	GW-GP12	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
GP-17	GW-GP17	Adapt Engineering	4/11/2016	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
AB-01	AB-01 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA	NA
AB-02	AB-02 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA	NA
AB-03	AB-03 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA	NA
AB-04	AB-04 GW	Amec Foster Wheeler	1/29/2018	10 - 15	NA	NA	NA	NA	NA	NA	NA	NA	NA
AB-05	AB-05 GW	Amec Foster Wheeler	1/29/2018	10 - 15	4.45	66.9	U 0.200	U 1.00	U 0.200	U 0.0800	U 1.00	U 0.200	U 5.00
AB-06	AB-06 GW	Amec Foster Wheeler	1/29/2018	5 - 10	U 1.00	19.7	U 0.200	U 1.00	U 0.200	U 0.0800	U 1.00	U 0.200	U 5.00
Off-site Monitoring Wells - Texaco Bulk Terminal (ECSI 169)													
MW-111			2/23/2012	5.5 - 20.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-123			2/23/2012	5.5 - 20.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oregon Department of Environmental Quality Risk-Based Concentrations 1													
Vapor Intrusion into Buildings—Occupational					NV	NV	NV	NV	NV	NV	NV	NV	NV
Volatilization to Outdoor Air—Occupational					NV	NV	NV	NV	NV	NV	NV	NV	NV
Groundwater in an Excavation					6,300	> S	130,000	> S	> S	> S	NL	1,100,000	9,400

Notes:

µg/L = micrograms per liter

Bold = Indicates analyte was detected above method detection limit.

DET = analyte detected

U = Indicates analyte was not detected at or above method reporting limit shown.

NA = Parameter was not analyzed in the sample.

NT = not tested

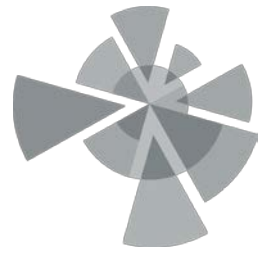
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₁ = Oregon Department of Environmental Quality Risk-Based Decision Making for the Remediation of Petroleum-Contam

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ATTACHMENT A

Soil Boring Logs

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA
0			3-inch asphalt on surface.						
		GW	Dry, gray, dense, sandy, fine to medium well-graded GRAVEL, subangular, trace to some silt (fill).			0.1			
			Increased silt content.			0.2			
			Brick fragment at 3 feet bgs. Wood fragment with strong decayed, organic-like odor at 3.2 feet bgs. No odor observed in soil below wood fragment.			34.1			
						0.3			
5							▽		
			Brick fragment at 5.7 feet bgs.			0.2			AB-01-5.5-6.5
		ML	Wet, gray, medium stiff, fine sandy SILT with trace fibrous organic material.			0.0			
						0.0			
10			Becomes soft.			0.0			
			Becomes stiff, moisture content decreases, trace orange-brown mottling.			0.0			AB-01-GW
			Grades to orange-brown.			0.0			
15			End of boring at 15 feet bgs.						
20									
BORING METHOD: Direct Push					ELEVATION REFERENCE: NA		REMARKS:		
BOREHOLE DIAMETER: 2.0 (in)					GROUND SURFACE ELEVATION: NA				
DRILL RIG: Geoprobe 7822DT					CASING ELEVATION: NA				
CONTRACTOR: Stratus Corporation									
LOGGED BY: Joel Eledge					DRILLING DATES: 1/29/2018 - 1/29/2018				

American Industries, 4000 NW St
Helens Road, Phase II ESA
6-61M-133170

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 SW Durham Road
USA 97224
Tel (503)639-3400



LOG OF BORING
AB-01

PAGE 1 OF 1

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA
		GW	Moist, brown-gray, silty sandy fine to medium well-graded GRAVEL.			0.0			
		SW	Dry, black, fine to medium well-graded SAND with trace to some silt. Becomes brown.			0.0			
5		ML	Becomes wet at 5.2 feet bgs. Wet, gray, stiff, fine sandy SILT with some fibrous organic material.			0.0			AB-02-5.5-6.5
			Becomes medium stiff, increased sand content.			0.0			
			Becomes stiff.			0.0			
10			Becomes soft. 3-inch layer of gray, silty, subrounded fine GRAVEL. Wet, stiff fine sandy SILT continued.			0.0			
			Grades to orange-brown.			0.0			AB-02-GW
			Very stiff from 13.5 to 14.5 feet bgs.			0.0			
15			End of boring at 15 feet bgs.						
20									
BORING METHOD: Direct Push BOREHOLE DIAMETER: 2.0 (in) DRILL RIG: Geoprobe 7822DT CONTRACTOR: Stratus Corporation LOGGED BY: Joel Eledge					ELEVATION REFERENCE: NA GROUND SURFACE ELEVATION: NA CASING ELEVATION: NA DRILLING DATES: 1/29/2018 - 1/29/2018				
					REMARKS:				

American Industries, 4000 NW St
Helens Road, Phase II ESA
6-61M-133170

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 SW Durham Road
USA 97224
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LOG OF BORING
AB-02

PAGE 1 OF 1

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA	
0		GW	Wet, dense, silty sandy well-graded GRAVEL. Moisture decreases with depth, sand content increases.			0.0				
						0.3				
		SW	Dry, brown, fine to medium well-graded SAND with trace to some silt.			0.0				
										0.0
5		ML	Becomes moist.			0.0				
			Wet, gray, stiff, fine sandy SILT. Becomes wet.			0.0				
10			Two-inch layer of silty sandy fine subrounded GRAVEL. Becomes stiff, gray with orange-brown mottling.							
			Grades to orange-brown.							
15			End of boring at 15 feet bgs.							
20										
BORING METHOD: Direct Push					ELEVATION REFERENCE: NA					REMARKS:
BOREHOLE DIAMETER: 2.0 (in)					GROUND SURFACE ELEVATION: NA					
DRILL RIG: Geoprobe 7822DT					CASING ELEVATION: NA					
CONTRACTOR: Stratus Corporation										
LOGGED BY: Joel Eledge					DRILLING DATES: 1/29/2018 - 1/29/2018					

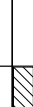
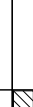
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USA 97224
Tel (503)639-3400



LOG OF BORING
AB-03

PAGE 1 OF 1

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA
0		GW	Moist, gray, silty sandy well-graded GRAVEL, subangular.			0.0			
		ML	Dry, stiff, gray, sandy SILT.			0.0			
		SW	Dry, brown, fine to medium well-graded SAND with trace silt.			0.0			
5						0.0			
			Becomes moist.			0.0			AB-04-6.5-7.5
			Becomes wet.						
10						0.0			
			Two-inch layer of silty sandy fine subrounded GRAVEL. Well-graded SAND continued.			0.0			
			Becomes dark gray.			0.0			AB-04-GW
		ML	Wet, gray, stiff, fine sandy SILT with trace orange-brown mottles.			0.0			
15			End of boring at 15 feet bgs.						
20									
BORING METHOD: Direct Push					ELEVATION REFERENCE: NA		REMARKS:		
BOREHOLE DIAMETER: 2.0 (in)					GROUND SURFACE ELEVATION: NA				
DRILL RIG: Geoprobe 7822DT					CASING ELEVATION: NA				
CONTRACTOR: Stratus Corporation									
LOGGED BY: Joel Eledge					DRILLING DATES: 1/29/2018 - 1/29/2018				

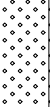
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6-61M-133170

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LOG OF BORING
AB-04

PAGE 1 OF 1

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA
		GW	3-inch asphalt on surface. Dry, gray-brown, silty sandy, well-graded GRAVEL, subangular.						
		SW	Dry, brown, fine to medium well-graded SAND, trace silt.						
			Six-inch layer of moist, brown, stiff SILT.						
5			Three-inch layer of silty sandy well-graded GRAVEL, subrounded.						
			Continued well-graded SAND as above, becomes medium dense.						
10			Two-inch layer of silty, sandy, fine subrounded GRAVEL.						
			Loose, gray-brown, fine to medium well-graded SAND with some silt.						
		ML	Wet, gray, soft, fine to medium sandy SILT.						
			Becomes medium stiff, gray with orange-brown mottling.						
			Decreased moisture content, becomes very stiff.						
15			End of boring at 15 feet bgs.						
20									
BORING METHOD: Direct Push BOREHOLE DIAMETER: 2.0 (in) DRILL RIG: Geoprobe 7822DT CONTRACTOR: Stratus Corporation LOGGED BY: Joel Eledge					ELEVATION REFERENCE: NA GROUND SURFACE ELEVATION: NA CASING ELEVATION: NA DRILLING DATES: 1/29/2018 - 1/29/2018				
					REMARKS:				

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LOG OF BORING
AB-05

PAGE 1 OF 1

DEPTH (ft bgs)	GRAPHIC LOG	USCS SYMBOL	SOIL DESCRIPTION	SAMPLE	BLOW COUNT SPT N VALUE	VOLATILE READING (ppm)	GROUNDWATER	FIELD TESTING	TESTING AND LABORATORY DATA
			Cored through 6.5 inches of concrete slab.						
		GW	Dry, gray, silty sandy well-graded GRAVEL, subangular.						
			No recovery below 2 feet bgs.						
5		SW	Dry, brown, medium dense, fine to medium well-graded SAND with trace silt. Becomes moist. Two-inch layer of gray, silty sandy, fine subrounded GRAVEL. Becomes wet.						 AB-06-6.5-7.5  AB-06-GW
10			Becomes loose.						
			Becomes medium dense, gray.						
		ML	Wet, gray, soft, fine sandy SILT. Two-inch layer of medium dense, fine to medium gray ??? Becomes stiff.						
15			End of boring at 15 feet bgs.						
20									
BORING METHOD: Direct Push					ELEVATION REFERENCE: NA		REMARKS:		
BOREHOLE DIAMETER: 2.0 (in)					GROUND SURFACE ELEVATION: NA				
DRILL RIG: Geoprobe 7822DT					CASING ELEVATION: NA				
CONTRACTOR: Stratus Corporation									
LOGGED BY: Joel Eledge					DRILLING DATES: 1/29/2018 - 1/29/2018				

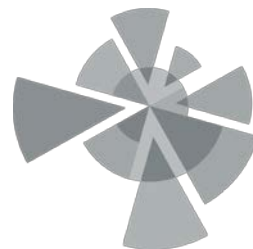
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LOG OF BORING
AB-06

PAGE 1 OF 1



ATTACHMENT B

Photographs

Photo 1



Temporary boring and groundwater monitoring point AB-01, view to the northwest.
January 29, 2018



Photo 2

Temporary boring AB-02 location (after completion of sampling and abandonment), view to the west.
January 29, 2018

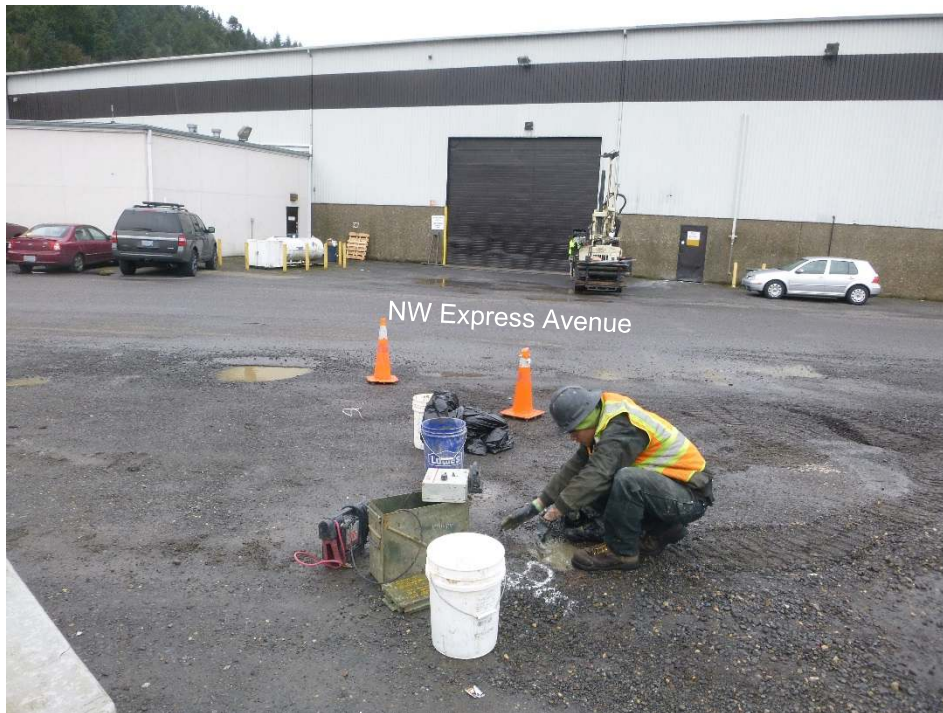


Photo 3

Temporary boring AB-03 location (after completion of sampling, during abandonment), view to the northwest.
January 29, 2018



Photo 4

Temporary boring AB-04 location (after completion of sampling and abandonment), view to the west-southwest.
January 29, 2018



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PROJECT 661M133170
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PAGE 2

Limited Subsurface Investigation
4000 NW St Helens Road
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Portland, Oregon

PHOTOGRAPH LOG



Photo 5

Temporary boring AB-05 location (during drilling), view to the southwest.
January 29, 2018

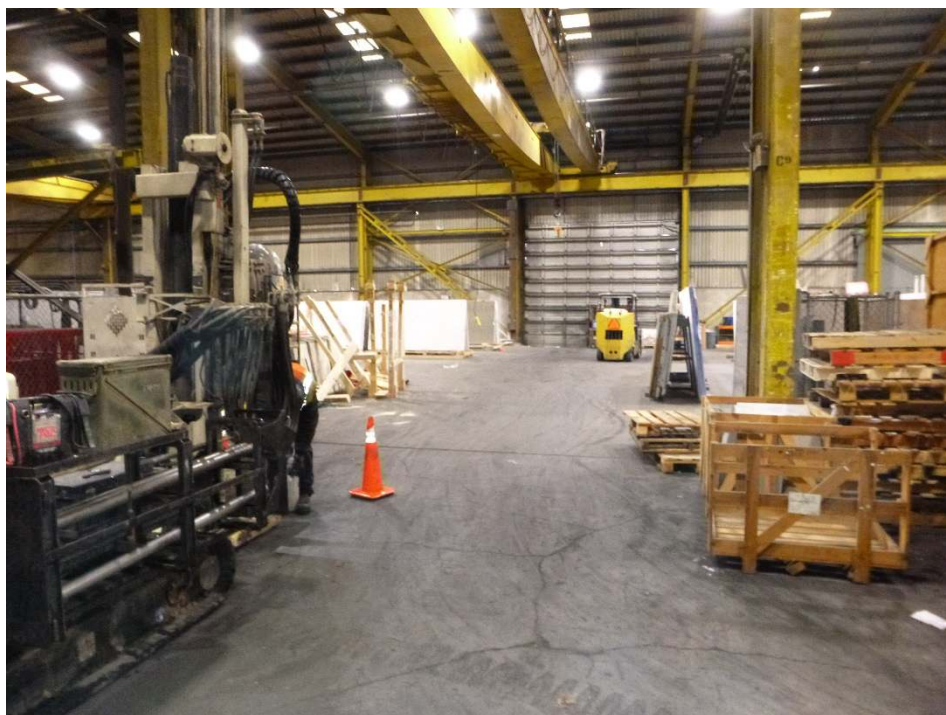


Photo 6

Temporary boring AB-06 location (during drilling), view to the south-southeast.
January 29, 2018

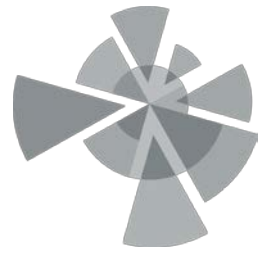


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PAGE 3

Limited Subsurface Investigation
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ECSI 6148
Portland, Oregon

PHOTOGRAPH LOG



ATTACHMENT C

Laboratory Report

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, February 13, 2018

Joel Eledge
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: American Industries / 661M133170

Enclosed are the results of analyses for work order A8A0918, which was received by the laboratory on 1/29/2018 at 4:09:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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7376 SW Durham Road
Portland, OR 97224

Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AB-01 5.5-6.5 ft	A8A0918-01	Soil	01/29/18 09:15	01/29/18 16:09
AB-01 GW	A8A0918-02	Water	01/29/18 09:30	01/29/18 16:09
AB-02-5.5-6.5 ft	A8A0918-03	Soil	01/29/18 10:00	01/29/18 16:09
AB-02 GW	A8A0918-04	Water	01/29/18 10:10	01/29/18 16:09
AB-03-6.5-7.5 ft	A8A0918-05	Soil	01/29/18 10:45	01/29/18 16:09
AB-03 GW	A8A0918-06	Water	01/29/18 10:55	01/29/18 16:09
AB-05-5.5-6.5 ft	A8A0918-07	Soil	01/29/18 11:20	01/29/18 16:09
AB-05 GW	A8A0918-08	Water	01/29/18 11:30	01/29/18 16:09
AB-04-6.5-7.5 ft	A8A0918-09	Soil	01/29/18 12:40	01/29/18 16:09
AB-04 GW	A8A0918-10	Water	01/29/18 12:45	01/29/18 16:09
AB-06-6.5-7.5 ft	A8A0918-11	Soil	01/29/18 14:40	01/29/18 16:09
AB-06 GW	A8A0918-12	Water	01/29/18 14:50	01/29/18 16:09

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Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

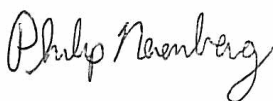
Reported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-01 5.5-6.5 ft (A8A0918-01)			Matrix: Soil		Batch: 8020298			
Diesel	ND	---	25.0	mg/kg dry	1	02/01/18 23:11	NWTPH-Dx	
Oil	314	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 96 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-01 GW (A8A0918-02)			Matrix: Water		Batch: 8020338			
Diesel	ND	---	0.213	mg/L	1	02/02/18 22:29	NWTPH-Dx	
Oil	ND	---	0.426	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-02 5.5-6.5 ft (A8A0918-03)			Matrix: Soil		Batch: 8020298			
Diesel	ND	---	25.0	mg/kg dry	1	02/01/18 23:31	NWTPH-Dx	
Oil	107	---	50.0	"	"	"	"	F-03
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 96 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-02 GW (A8A0918-04)			Matrix: Water		Batch: 8020338			
Diesel	ND	---	0.206	mg/L	1	02/02/18 22:52	NWTPH-Dx	
Oil	ND	---	0.412	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-03 6.5-7.5 ft (A8A0918-05)			Matrix: Soil		Batch: 8020298			
Diesel	ND	---	25.0	mg/kg dry	1	02/01/18 23:51	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 97 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-03 GW (A8A0918-06)			Matrix: Water		Batch: 8020338			
Diesel	ND	---	0.200	mg/L	1	02/02/18 23:15	NWTPH-Dx	
Oil	ND	---	0.400	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	"	"	"	
AB-05 5.5-6.5 ft (A8A0918-07RE1)			Matrix: Soil		Batch: 8020298			
Diesel	ND	---	111	mg/kg dry	5	02/02/18 08:57	NWTPH-Dx	
Oil	488	---	221	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	"	"	"	S-05
AB-05 GW (A8A0918-08)			Matrix: Water		Batch: 8020297			
Diesel	ND	---	0.213	mg/L	1	02/01/18 22:18	NWTPH-Dx	
Oil	ND	---	0.426	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	"	"	"	

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Philip Nerenberg, Lab Director

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7376 SW Durham Road
Portland, OR 97224

Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-04-6.5-7.5 ft (A8A0918-09)			Matrix: Soil		Batch: 8020298			
Diesel	ND	---	25.0	mg/kg dry	1	02/02/18 00:50	NWTPH-Dx	
Oil	ND	---	50.0	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		"	"	"
AB-04 GW (A8A0918-10)			Matrix: Water		Batch: 8020297			
Diesel	ND	---	0.194	mg/L	1	02/01/18 22:41	NWTPH-Dx	
Oil	ND	---	0.388	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		"	"	"

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Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-01 5.5-6.5 ft (A8A0918-01RE1)			Matrix: Soil	Batch: 8020552				
Acenaphthene	ND	---	11.8	ug/kg dry	1	02/12/18 14:09	EPA 8270D (SIM)	
Acenaphthylene	ND	---	11.8	"	"	"	"	
Anthracene	ND	---	11.8	"	"	"	"	
Benz(a)anthracene	ND	---	16.6	"	"	"	"	R-02
Benzo(a)pyrene	ND	---	11.8	"	"	"	"	
Benzo(b)fluoranthene	ND	---	11.8	"	"	"	"	
Benzo(k)fluoranthene	ND	---	11.8	"	"	"	"	
Benzo(g,h,i)perylene	16.3	---	11.8	"	"	"	"	
Chrysene	ND	---	18.9	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	---	11.8	"	"	"	"	
Dibenzofuran	ND	---	11.8	"	"	"	"	
Fluoranthene	ND	---	11.8	"	"	"	"	
Fluorene	ND	---	11.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	---	11.8	"	"	"	"	
1-Methylnaphthalene	ND	---	11.8	"	"	"	"	
2-Methylnaphthalene	ND	---	11.8	"	"	"	"	
Naphthalene	ND	---	11.8	"	"	"	"	
Phenanthrene	ND	---	11.8	"	"	"	"	
Pyrene	ND	---	11.8	"	"	"	"	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 74 %</i>		<i>Limits: 44-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>83 %</i>		<i>Limits: 54-127 %</i>	"	"	"	

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Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-02-5.5-6.5 ft (A8A0918-03)			Matrix: Soil		Batch: 8020552			
Acenaphthene	ND	---	12.1	ug/kg dry	1	02/09/18 18:32	EPA 8270D (SIM)	
Acenaphthylene	ND	---	12.1	"	"	"	"	
Anthracene	ND	---	12.1	"	"	"	"	
Benz(a)anthracene	ND	---	12.1	"	"	"	"	
Benzo(a)pyrene	ND	---	12.1	"	"	"	"	
Benzo(b)fluoranthene	ND	---	12.1	"	"	"	"	
Benzo(k)fluoranthene	ND	---	12.1	"	"	"	"	
Benzo(g,h,i)perylene	ND	---	12.1	"	"	"	"	
Chrysene	ND	---	12.1	"	"	"	"	
Dibenz(a,h)anthracene	ND	---	12.1	"	"	"	"	
Dibenzofuran	ND	---	12.1	"	"	"	"	
Fluoranthene	14.9	---	12.1	"	"	"	"	
Fluorene	ND	---	12.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	---	12.1	"	"	"	"	
1-Methylnaphthalene	ND	---	12.1	"	"	"	"	
2-Methylnaphthalene	ND	---	12.1	"	"	"	"	
Naphthalene	ND	---	12.1	"	"	"	"	
Phenanthrene	ND	---	12.1	"	"	"	"	
Pyrene	19.5	---	12.1	"	"	"	"	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 61 %</i>		<i>Limits: 44-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>65 %</i>		<i>Limits: 54-127 %</i>	"	"	"	

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Project Number: 661M133170
Project Manager: Joel EledgeReported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-05-5.5-6.5 ft (A8A0918-07)			Matrix: Soil		Batch: 8020552			
Acenaphthene	ND	---	10.8	ug/kg dry	1	02/09/18 18:58	EPA 8270D (SIM)	
Acenaphthylene	ND	---	10.8	"	"	"	"	
Anthracene	22.2	---	10.8	"	"	"	"	
Benz(a)anthracene	117	---	10.8	"	"	"	"	M-05
Benzo(a)pyrene	94.0	---	10.8	"	"	"	"	
Benzo(b)fluoranthene	133	---	10.8	"	"	"	"	M-05
Benzo(k)fluoranthene	56.3	---	10.8	"	"	"	"	M-05
Benzo(g,h,i)perylene	63.7	---	10.8	"	"	"	"	
Chrysene	127	---	10.8	"	"	"	"	M-05
Dibenz(a,h)anthracene	14.6	---	10.8	"	"	"	"	
Dibenzofuran	ND	---	10.8	"	"	"	"	
Fluoranthene	244	---	10.8	"	"	"	"	
Fluorene	ND	---	10.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	69.0	---	10.8	"	"	"	"	
1-Methylnaphthalene	ND	---	10.8	"	"	"	"	
2-Methylnaphthalene	ND	---	10.8	"	"	"	"	
Naphthalene	ND	---	10.8	"	"	"	"	
Phenanthrene	112	---	10.8	"	"	"	"	
Pyrene	205	---	10.8	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			Recovery: 74 %	Limits: 44-120 %	"	"	"	
p-Terphenyl-d14 (Surr)			82 %	Limits: 54-127 %	"	"	"	

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Portland, OR 97224

Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Dissolved Hexavalent Chromium by SM3500-Cr B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-05 GW (A8A0918-08)			Matrix: Water		Batch: 8011171			
Hexavalent Chromium	ND	---	0.00500	mg/L	1	01/30/18 10:19	SM 3500-Cr B (Diss)	
AB-06 GW (A8A0918-12)			Matrix: Water		Batch: 8011171			
Hexavalent Chromium	ND	---	0.00500	mg/L	1	01/30/18 10:19	SM 3500-Cr B (Diss)	

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Portland, OR 97224Project: American Industries
Project Number: 661M133170
Project Manager: Joel EledgeReported:
02/13/18 19:41

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-05-5.5-6.5 ft (A8A0918-07)			Matrix: Soil					
Batch: 8020424								
Arsenic	5.95	---	1.25	mg/kg dry	10	02/06/18 17:34	EPA 6020A	
Barium	84.5	---	1.25	"	"	"	"	
Cadmium	0.288	---	0.251	"	"	"	"	
Chromium	19.2	---	1.25	"	"	"	"	
Lead	18.4	---	0.251	"	"	"	"	
Mercury	ND	---	0.100	"	"	"	"	
Selenium	ND	---	1.25	"	"	"	"	
Silver	ND	---	0.251	"	"	"	"	
AB-06-6.5-7.5 ft (A8A0918-11)			Matrix: Soil					
Batch: 8020424								
Arsenic	2.48	---	1.11	mg/kg dry	10	02/06/18 17:37	EPA 6020A	
Barium	83.9	---	1.11	"	"	"	"	
Cadmium	0.223	---	0.223	"	"	"	"	
Chromium	15.5	---	1.11	"	"	"	"	
Lead	4.89	---	0.223	"	"	"	"	
Mercury	ND	---	0.0890	"	"	"	"	
Selenium	ND	---	1.11	"	"	"	"	
Silver	0.523	---	0.223	"	"	"	"	

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ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-05 GW (A8A0918-08RE1)		Matrix: Water						
Batch: 8020389								
Arsenic	4.45	---	1.00	ug/L	1	02/06/18 16:04	EPA 6020A (Diss)	
Barium	66.9	---	1.00	"	"	"	"	
Cadmium	ND	---	0.200	"	"	"	"	
Chromium	ND	---	1.00	"	"	"	"	
Lead	ND	---	0.200	"	"	"	"	
Mercury	ND	---	0.0800	"	"	"	"	
Selenium	ND	---	1.00	"	"	"	"	
Silver	ND	---	0.200	"	"	"	"	
AB-06 GW (A8A0918-12RE1)		Matrix: Water						
Batch: 8020389								
Arsenic	ND	---	1.00	ug/L	1	02/06/18 16:09	EPA 6020A (Diss)	
Barium	19.7	---	1.00	"	"	"	"	
Cadmium	ND	---	0.200	"	"	"	"	
Chromium	ND	---	1.00	"	"	"	"	
Lead	ND	---	0.200	"	"	"	"	
Mercury	ND	---	0.0800	"	"	"	"	
Selenium	ND	---	1.00	"	"	"	"	
Silver	ND	---	0.200	"	"	"	"	



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ANALYTICAL SAMPLE RESULTS

Percent Dry Weight								
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
AB-01 5.5-6.5 ft (A8A0918-01)			Matrix: Soil		Batch: 8011236			
% Solids	81.6	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	
AB-02 5.5-6.5 ft (A8A0918-03)			Matrix: Soil		Batch: 8011236			
% Solids	79.2	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	
AB-03 6.5-7.5 ft (A8A0918-05)			Matrix: Soil		Batch: 8011236			
% Solids	90.9	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	
AB-05 5.5-6.5 ft (A8A0918-07)			Matrix: Soil		Batch: 8011236			
% Solids	86.5	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	
AB-04 6.5-7.5 ft (A8A0918-09)			Matrix: Soil		Batch: 8011236			
% Solids	93.3	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	
AB-06 6.5-7.5 ft (A8A0918-11)			Matrix: Soil		Batch: 8011236			
% Solids	87.2	---	1.00	% by Weight	1	02/01/18 08:06	EPA 8000C	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch 8020297 - EPA 3510C (Fuels/Acid Ext.)						Water							
Blank (8020297-BLK1)						Prepared: 02/01/18 12:46		Analyzed: 02/01/18 21:09					
NWTPH-Dx													
Diesel	ND	---	0.182	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.364	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x							
LCS (8020297-BS1)						Prepared: 02/01/18 12:46		Analyzed: 02/01/18 21:32					
NWTPH-Dx													
Diesel	1.15	---	0.200	mg/L	1	1.25	---	92	58-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 103 %		Limits: 50-150 %		Dilution: 1x							
LCS Dup (8020297-BSD1)						Prepared: 02/01/18 12:46		Analyzed: 02/01/18 21:55					Q-19
NWTPH-Dx													
Diesel	1.10	---	0.200	mg/L	1	1.25	---	88	58-115%	5	20%		
Surr: o-Terphenyl (Surr)		Recovery: 96 %		Limits: 50-150 %		Dilution: 1x							
Batch 8020298 - EPA 3546 (Fuels)						Soil							
Blank (8020298-BLK1)						Prepared: 02/01/18 12:51		Analyzed: 02/01/18 21:13					
NWTPH-Dx													
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---		
Oil	ND	---	50.0	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 111 %		Limits: 50-150 %		Dilution: 1x							
LCS (8020298-BS1)						Prepared: 02/01/18 12:51		Analyzed: 02/01/18 21:33					
NWTPH-Dx													
Diesel	125	---	25.0	mg/kg wet	1	125	---	100	76-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 107 %		Limits: 50-150 %		Dilution: 1x							

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch 8020338 - EPA 3510C (Fuels/Acid Ext.)							Water						
Blank (8020338-BLK1)				Prepared: 02/02/18 10:26		Analyzed: 02/02/18 21:21							
NWTPH-Dx													
Diesel	ND	---	0.182	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.364	"	"	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 92 %		Limits: 50-150 %		Dilution: 1x							
LCS (8020338-BS1)				Prepared: 02/02/18 10:26		Analyzed: 02/02/18 21:43							
NWTPH-Dx													
Diesel	1.12	---	0.200	mg/L	1	1.25	---	89	58-115%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 98 %		Limits: 50-150 %		Dilution: 1x							
LCS Dup (8020338-BSD1)				Prepared: 02/02/18 10:26		Analyzed: 02/02/18 22:06							Q-19
NWTPH-Dx													
Diesel	1.09	---	0.200	mg/L	1	1.25	---	87	58-115%	2	20%		
Surr: o-Terphenyl (Surr)		Recovery: 98 %		Limits: 50-150 %		Dilution: 1x							



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QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020552 - EPA 3546						Soil						
Blank (8020552-BLK1)			Prepared: 02/09/18 10:46 Analyzed: 02/09/18 16:46									
EPA 8270D (SIM)												
Acenaphthene	ND	---	9.09	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	9.09	"	"	---	---	---	---	---	---	
Anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	9.09	"	"	---	---	---	---	---	---	
Chrysene	ND	---	9.09	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	---	9.09	"	"	---	---	---	---	---	---	
Fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Fluorene	ND	---	9.09	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
Phenanthrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			Recovery: 83 %		Limits: 44-120 %		Dilution: 1x					
p-Terphenyl-d14 (Surr)			96 %		54-127 %		"					

LCS (8020552-BS1)

Prepared: 02/09/18 10:46 Analyzed: 02/09/18 17:13

EPA 8270D (SIM)												
Acenaphthene	770	---	10.0	ug/kg wet	1	800	---	96	40-122%	---	---	
Acenaphthylene	719	---	10.0	"	"	"	---	90	32-132%	---	---	
Anthracene	688	---	10.0	"	"	"	---	86	47-123%	---	---	
Benz(a)anthracene	713	---	10.0	"	"	"	---	89	49-126%	---	---	
Benzo(a)pyrene	710	---	10.0	"	"	"	---	89	45-129%	---	---	
Benzo(b)fluoranthene	694	---	10.0	"	"	"	---	87	45-132%	---	---	
Benzo(k)fluoranthene	722	---	10.0	"	"	"	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	708	---	10.0	"	"	"	---	88	43-134%	---	---	
Chrysene	772	---	10.0	"	"	"	---	97	50-124%	---	---	
Dibenz(a,h)anthracene	701	---	10.0	"	"	"	---	88	45-134%	---	---	
Dibenzofuran	705	---	10.0	"	"	"	---	88	44-120%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

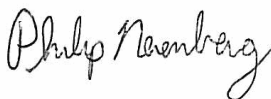
Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020552 - EPA 3546						Soil						
LCS (8020552-BS1)				Prepared: 02/09/18 10:46 Analyzed: 02/09/18 17:13								
EPA 8270D (SIM)												
Fluoranthene	770	---	10.0	ug/kg wet	"	"	---	96	50-127%	---	---	
Fluorene	732	---	10.0	"	"	"	---	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	674	---	10.0	"	"	"	---	84	45-133%	---	---	
1-Methylnaphthalene	770	---	10.0	"	"	"	---	96	40-120%	---	---	
2-Methylnaphthalene	736	---	10.0	"	"	"	---	92	38-122%	---	---	
Naphthalene	679	---	10.0	"	"	"	---	85	35-123%	---	---	
Phenanthrene	674	---	10.0	"	"	"	---	84	50-121%	---	---	
Pyrene	775	---	10.0	"	"	"	---	97	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 83 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		93 %		54-127 %		"						

Duplicate (8020552-DUP2)					Prepared: 02/09/18 10:46 Analyzed: 02/12/18 14:36							
QC Source Sample: AB-01 5.5-6.5 ft (A8A0918-01RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	---	11.8	ug/kg dry	1	---	ND	---	---	---	30%	R-0
Acenaphthylene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Anthracene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	---	21.2	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	---	11.8	"	"	---	7.35	---	---	2	30%	R-0
Benzo(b)fluoranthene	ND	---	11.8	"	"	---	8.96	---	---	5	30%	
Benzo(k)fluoranthene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	14.9	---	11.8	"	"	---	16.3	---	---	9	30%	
Chrysene	ND	---	23.6	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Fluorene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	---	11.8	"	"	---	7.59	---	---	12	30%	
1-Methylnaphthalene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	---	11.8	"	"	---	ND	---	---	---	30%	
Pyrene	17.7	---	11.8	"	"	---	10.8	---	---	48	30%	Q-0
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 78 %		Limits: 44-120 %		Dilution: 1x						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020552 - EPA 3546						Soil						
Duplicate (8020552-DUP2)					Prepared: 02/09/18 10:46		Analyzed: 02/12/18 14:36					
QC Source Sample: AB-01 5.5-6.5 ft (A8A0918-01RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			Recovery: 83 %		Limits: 54-127 %		Dilution: 1x					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Hexavalent Chromium by SM3500-Cr B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011171 - Method Prep: Aq							Water					
Blank (8011171-BLK1)					Prepared: 01/30/18 10:13		Analyzed: 01/30/18 10:18					
SM 3500-Cr B (Diss)												
Hexavalent Chromium	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (8011171-BS1)					Prepared: 01/30/18 10:13		Analyzed: 01/30/18 10:19					
SM 3500-Cr B (Diss)												
Hexavalent Chromium	0.107	---	0.00500	mg/L	1	0.100	---	107	85-115%	---	---	
Duplicate (8011171-DUP1)					Prepared: 01/30/18 10:13		Analyzed: 01/30/18 10:19					
QC Source Sample: AB-06 GW (A8A0918-12)												
SM 3500-Cr B (Diss)												
Hexavalent Chromium	ND	---	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (8011171-MS1)					Prepared: 01/30/18 10:13		Analyzed: 01/30/18 10:19					
QC Source Sample: AB-06 GW (A8A0918-12)												
SM 3500-Cr B (Diss)												
Hexavalent Chromium	0.106	---	0.00510	mg/L	1	0.100	ND	106	85-115%	---	---	



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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020424 - EPA 3051A						Soil						
Blank (8020424-BLK1)						Prepared: 02/06/18 11:17		Analyzed: 02/06/18 14:33				
EPA 6020A												
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	---	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	---	1.00	"	"	---	---	---	---	---	---	
Lead	ND	---	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	
Selenium	ND	---	1.00	"	"	---	---	---	---	---	---	
Silver	ND	---	0.200	"	"	---	---	---	---	---	---	
LCS (8020424-BS2)						Prepared: 02/06/18 11:17		Analyzed: 02/06/18 15:19				
EPA 6020A												
Arsenic	47.6	---	1.00	mg/kg wet	10	50.0	---	95	80-120%	---	---	Q-16
Barium	49.0	---	1.00	"	"	"	---	98	"	---	---	Q-16
Cadmium	47.8	---	0.200	"	"	"	---	96	"	---	---	Q-16
Chromium	49.9	---	1.00	"	"	"	---	100	"	---	---	Q-16
Lead	50.1	---	0.200	"	"	"	---	100	"	---	---	Q-16
Mercury	1.00	---	0.0800	"	"	1.00	---	100	"	---	---	Q-16
Selenium	26.3	---	1.00	"	"	25.0	---	105	"	---	---	Q-16
Silver	25.7	---	0.200	"	"	"	---	103	"	---	---	Q-16



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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8020389 - Matrix Matched Direct Inject						Water						
Blank (8020389-BLK2)						Prepared: 02/05/18 12:28		Analyzed: 02/06/18 14:51				
EPA 6020A (Diss)												
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	Q-16
Barium	ND	---	1.00	"	"	---	---	---	---	---	---	Q-16
Cadmium	ND	---	0.200	"	"	---	---	---	---	---	---	Q-16
Chromium	ND	---	1.00	"	"	---	---	---	---	---	---	Q-16
Lead	ND	---	0.200	"	"	---	---	---	---	---	---	Q-16
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	Q-16
Selenium	ND	---	1.00	"	"	---	---	---	---	---	---	Q-16
Silver	ND	---	0.200	"	"	---	---	---	---	---	---	Q-16
LCS (8020389-BS2)						Prepared: 02/05/18 12:28		Analyzed: 02/06/18 15:19				
EPA 6020A (Diss)												
Arsenic	52.9	---	1.00	ug/L	1	55.6	---	95	80-120%	---	---	Q-16
Barium	55.8	---	1.00	"	"	"	---	100	"	---	---	Q-16
Cadmium	56.2	---	0.200	"	"	"	---	101	"	---	---	Q-16
Chromium	55.0	---	1.00	"	"	"	---	99	"	---	---	Q-16
Lead	56.2	---	0.200	"	"	"	---	101	"	---	---	Q-16
Mercury	1.09	---	0.0800	"	"	1.11	---	98	"	---	---	Q-16
Selenium	27.9	---	1.00	"	"	27.8	---	100	"	---	---	Q-16
Silver	27.9	---	0.200	"	"	"	---	101	"	---	---	Q-16



AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011236 - Total Solids (Dry Weight)							Soil					
Duplicate (8011236-DUP2)					Prepared: 01/31/18 12:57		Analyzed: 02/01/18 08:06					
QC Source Sample: AB-05-5.5-6.5 ft (A8A0918-07)												
EPA 8000C												
% Solids	86.7	---	1.00	% by Weight	1	---	86.5	---	---	0.2	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020297							
A8A0918-08	Water	NWTPH-Dx	01/29/18 11:30	02/01/18 12:46	940mL/5mL	1000mL/5mL	1.06
A8A0918-10	Water	NWTPH-Dx	01/29/18 12:45	02/01/18 12:46	1030mL/5mL	1000mL/5mL	0.97
Batch: 8020338							
A8A0918-02	Water	NWTPH-Dx	01/29/18 09:30	02/02/18 10:26	940mL/5mL	1000mL/5mL	1.06
A8A0918-04	Water	NWTPH-Dx	01/29/18 10:10	02/02/18 10:26	970mL/5mL	1000mL/5mL	1.03
A8A0918-06	Water	NWTPH-Dx	01/29/18 10:55	02/02/18 10:26	1000mL/5mL	1000mL/5mL	1.00

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020298							
A8A0918-01	Soil	NWTPH-Dx	01/29/18 09:15	02/01/18 12:51	10.53g/5mL	10g/5mL	0.95
A8A0918-03	Soil	NWTPH-Dx	01/29/18 10:00	02/01/18 12:51	10.27g/5mL	10g/5mL	0.97
A8A0918-05	Soil	NWTPH-Dx	01/29/18 10:45	02/01/18 12:51	10.65g/5mL	10g/5mL	0.94
A8A0918-07RE1	Soil	NWTPH-Dx	01/29/18 11:20	02/01/18 12:51	10.44g/5mL	10g/5mL	0.96
A8A0918-09	Soil	NWTPH-Dx	01/29/18 12:40	02/01/18 12:51	10.12g/5mL	10g/5mL	0.99

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020552							
A8A0918-01RE1	Soil	EPA 8270D (SIM)	01/29/18 09:15	02/09/18 10:46	10.35g/5mL	10g/5mL	0.97
A8A0918-03	Soil	EPA 8270D (SIM)	01/29/18 10:00	02/09/18 10:46	10.42g/5mL	10g/5mL	0.96
A8A0918-07	Soil	EPA 8270D (SIM)	01/29/18 11:20	02/09/18 10:46	10.74g/5mL	10g/5mL	0.93

Dissolved Hexavalent Chromium by SM3500-Cr B

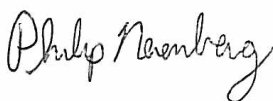
Prep: Method Prep: Ag

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8011171							
A8A0918-08	Water	SM 3500-Cr B (Diss)	01/29/18 11:30	01/30/18 10:13	25mL/25mL	25mL/25mL	1.00
A8A0918-12	Water	SM 3500-Cr B (Diss)	01/29/18 14:50	01/30/18 10:13	25mL/25mL	25mL/25mL	1.00

Total Metals by EPA 6020 (ICPMS)

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SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020424							
A8A0918-07	Soil	EPA 6020A	01/29/18 11:20	02/06/18 11:17	0.461g/50mL	0.5g/50mL	1.08
A8A0918-11	Soil	EPA 6020A	01/29/18 14:40	02/06/18 11:17	0.515g/50mL	0.5g/50mL	0.97

Dissolved Metals by EPA 6020 (ICPMS)

Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8020389							
A8A0918-08RE1	Water	EPA 6020A (Diss)	01/29/18 11:30	02/05/18 12:28	45mL/50mL	45mL/50mL	1.00
A8A0918-12RE1	Water	EPA 6020A (Diss)	01/29/18 14:50	02/05/18 12:28	45mL/50mL	45mL/50mL	1.00

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8011236							
A8A0918-01	Soil	EPA 8000C	01/29/18 09:15	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA
A8A0918-03	Soil	EPA 8000C	01/29/18 10:00	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA
A8A0918-05	Soil	EPA 8000C	01/29/18 10:45	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA
A8A0918-07	Soil	EPA 8000C	01/29/18 11:20	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA
A8A0918-09	Soil	EPA 8000C	01/29/18 12:40	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA
A8A0918-11	Soil	EPA 8000C	01/29/18 14:40	01/31/18 12:57	1N/A/1N/A	1N/A/1N/A	NA

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Notes and Definitions

Qualifiers:

- F-03 The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
- M-05 Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
- Q-05 Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-16 Reanalysis of an original Batch QC sample.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- R-02 The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

Notes and Conventions:

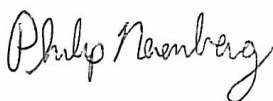
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Reported:
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CHAIN OF CUSTODY

APEX LABS Lab # ABA098 COC 1 of 2

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: AMEC Foster Wheeler Project Mgr: Joel Eledge Project Name: American Industries Project # 661M133170

Address: 7376 SW Durham Rd, Portland, OR Phone: (503) 639-3400 Fax: Email: joel.eledge@amec-fw.com

Sampled by: Joel Eledge PO#

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST			
					TCRP Metals (8)	RCRA Metals (8)	600 TIO	8082 PCBs
AB-01 5.5-6.5 ft	11/9/18	09:15	S	1				
AB-01 GW	11/9/18	09:30	W	1				
AB-02 5.5-6.5 ft	11/9/18	10:00	S	1				
AB-02 GW	11/9/18	10:10	W	1				
AB-03 6.5-7.5 ft	11/9/18	10:45	S	1				
AB-03 GW	11/9/18	10:55	W	1				
AB-05 5.5-6.5 ft	11/9/18	11:20	S	1				
AB-05 GW	11/9/18	11:30	W	3				
AB-04 6.5-7.5 ft	11/9/18	12:40	S	1				
AB-04 GW	11/9/18	12:45	W	1				

Site Location: OR WA Other:

SAMPLE ID

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle) 1 Day 2 Day 3 Day 4 DAY 5 DAY Other:

SPECIAL INSTRUCTIONS: * Run PAMS on 8x detects only. All metals have been field filtered. For soil RCRA 8 Total metals (not TCLP)

RELINQUISHED BY: Joel Eledge Date: 11/9/18 Signature: [Signature]

RECEIVED BY: Joel Eledge Date: 11/9/18 Signature: [Signature]

Printed Name: Joel Eledge Time: 16:03 Printed Name: Joel Eledge Time: 16:03

Company: AMEC FW Company: AMEC FW

AMEC Foster Wheeler	Project: American Industries	
7376 SW Durham Road	Project Number: 661M133170	Reported:
Portland, OR 97224	Project Manager: Joel Eledge	02/13/18 19:41

[illegible]

AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

Project: American Industries
Project Number: 661M133170
Project Manager: Joel Eledge

Reported:
02/13/18 19:41

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A8 A0918
Project/Project #: American Industries / 661M133170

Delivery info:

Date/Time Received: 1/29/18 @ 1609 By: CM
Delivered by: Apex ☒ Client ☒ ESS ☒ FedEx ☒ UPS ☒ Swift ☒ Senvoy ☒ SDS ☒ Other ☒

Cooler Inspection Inspected by: CM : 1/29/18 @ 1610

Chain of Custody Included? Yes ☒ No ☒ Custody Seals? Yes ☒ No ☒

Signed/Dated by Client? Yes ☒ No ☒

Signed/Dated by Apex? Yes ☒ No ☒

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	<u>3.9</u>						
Received on Ice? (Y/N)	<u>(Y)</u>						
Temp. Blanks? (Y/N)	<u>(Y)</u>						
Ice Type: (Gel/Real/Other)	<u>(G)</u>						
Condition:							

Cooler out of temp? (Y/N) Possible reason why: (Y)

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA NA

Samples Inspection Inspected by: CM : 1/29/18 @ 1610

All Samples Intact? Yes ☒ No ☒ Comments: _____

Bottle Labels/COCs agree? Yes ☒ No ☒ Comments: Am-03 GW reads
AB-03 on cont. AB-06 reads AB-06-6.5-7.5 ft on

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☒ Comments: _____

Do VOA Vials have Visible Headspace? Yes ☒ No ☒ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☒ No ☒ NA ☒

Comments: _____

Additional Information: cont.

Labeled by: CM Witness: VM Cooler Inspected by: CM See Project Contact Form: Y

Subsample
review: VM