Off-Property Investigation Report

Former Columbia Street
Manufactured Gas Plant Property
Olympia, Washington

for
Puget Sound Energy

May 24, 2011

GeoEngineers
Earth Science + Technology

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30 YEARS 2010

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Former Columbia Street Manufactured Gas Plant Property Olympia, Washington

File No. 0186-774-00

May 24, 2011

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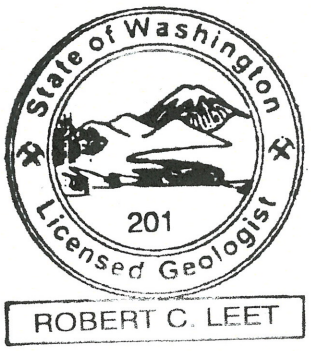

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1.0 INTRODUCTION

This report presents the results of the off-property investigation completed between November 2010 and January 2011 for the Former Columbia Street Manufactured Gas Plant (MGP) Property in Olympia, Washington (the "Property"). The Property is located at 320 Columbia Street Northwest in Olympia, Washington (Figure 1). Puget Sound Energy (PSE) is conducting remedial actions at the Property under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP), pursuant to the Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC 173-340). The site name in Ecology's Facility/Site Database is "Columbia Square Properties" and the Ecology site identification number is 91682829. The Ecology VCP project number is SW0984.

Previous investigations have detected carcinogenic polycyclic aromatic hydrocarbons (cPAHs), lead, mercury, and petroleum hydrocarbons in Property soil at concentrations exceeding MTCA Method A cleanup levels. In addition, cPAHs and arsenic have been detected above MTCA Method A cleanup levels in groundwater beneath the Property (GeoEngineers, 2008b, 2010a).

The objectives of the off-property investigation were to:

- Assess soil and groundwater beyond the Property boundaries for potential contamination.
- Evaluate whether the elevated arsenic concentrations detected in groundwater at the Property may have migrated beneath the Property from unknown sources upgradient of the Property.

The Property history and previous environmental investigations are discussed in four previous plans and reports: *Sampling and Analysis Plan* (GeoEngineers, 2008a), *Site Investigation Report* (GeoEngineers, 2008b), *Sampling and Analysis Plan – Supplemental Site Investigation* (GeoEngineers, 2009), and *Supplemental Site Investigation Report* (GeoEngineers, 2010a). The off-property investigation described herein was conducted in general accordance with the *Off-Property Investigation Work Plan* (the "Work Plan;" GeoEngineers, 2010b).

2.0 FIELD INVESTIGATION

The off-property field investigation was performed in two phases. Drilling, soil sampling, and monitoring well construction were completed between November 29 and December 2, 2010. Monitoring well development and groundwater sampling were conducted on January 6 and 7, 2011. The investigation utilized the same field procedures for drilling, field screening, and sampling as those used during previous investigations (GeoEngineers, 2008a, 2009). Figure 2 shows the off-property exploration locations.

2.1. SOIL SAMPLING

Ten soil borings (SB-18 through SB-22, MW-00D, MW-12S, MW-12D, MW-13S, and MW-13D) were advanced to depths ranging from 10.5 feet to 31.5 feet below ground surface (bgs) using hollow stem auger drilling equipment operated by Boart Longyear of Fife, Washington. The shallowest portion (5 feet) of each boring was completed using an air knife to minimize the risk of damaging

underground utilities. Figure 2 shows the off-property exploration locations. The monitoring well that was originally planned to be installed on the adjacent parcel to the east (MW-11; GeoEngineers, 2010b) was not completed because PSE was not able to obtain an access agreement with the current owner of this parcel (Olympia Longshoremen's Benevolent Association).

Soil samples were obtained at 2.5- or 5-foot intervals during drilling for lithologic description, field screening, and chemical analysis. A hand auger was used to collect the samples obtained from 2.5 feet bgs in the shallowest portions of the borings completed using the air knife; samples collected from 5 feet bgs and deeper were obtained using a split-barrel core sampler. Field screening of soil samples consisted of headspace organic vapor screening using a photoionization detector (PID) and sheen testing. (Note: the soil samples obtained from 25.5 and 30.5 feet bgs in boring MW-13D were not screened for organic vapors because the PID battery charge was exhausted before these samples were obtained.) Observed lithologies and field screening results are presented on boring logs in Appendix A. Reusable soil sampling equipment was decontaminated between sample intervals by washing with LiquiNox® and potable water and rinsing with distilled water. Augers and drill rods were decontaminated between borings using a hot-water pressure washer.

Soil samples were not obtained from borings MW-12S or MW-13S because these borings were adjacent to deeper borings (MW-12D and MW-13D) that were sampled. The lithologies in MW-12S and MW-13S were logged based on visual observation of the soil cuttings from these borings and descriptions of the samples obtained from the adjacent deeper borings.

A total of 26 soil samples were submitted to OnSite Environmental of Redmond, Washington for chemical analytical testing in accordance with the sampling and analytical testing plan contained in the Work Plan. Table 1 presents a summary of the constituents analyzed in the off-property investigation soil and groundwater samples.

Five of the soil borings (MW-00D, MW-12S, MW-12D, MW-13S, and MW-13D) were completed as groundwater monitoring wells (Figure 2). The soil borings that were not completed as monitoring wells (SB-18 through SB-22) were abandoned by filling the boreholes with bentonite.

2.2. GROUNDWATER SAMPLING

Soil borings MW-00D, MW-12S, MW-12D, MW-13S, and MW-13D were completed as 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) groundwater monitoring wells.

- Well MW-00D was installed next to existing well MW-00S (Figure 2), and was completed to a total depth of approximately 31 feet bgs. Monitoring well MW-00S was previously installed by an unknown party and appears to be approximately 12 feet deep.
- Wells MW-12S and MW-12D were installed in an alley approximately 190 feet east of the Property (Figure 2). These wells were completed to total depths of approximately 20 feet bgs and 30 feet bgs, respectively.
- Wells MW-13S and MW-13D were installed approximately 140 feet south of the Property, in the sidewalk and adjacent curb lane of Olympia Avenue NW (Figure 2). These wells were completed to total depths of approximately 20 feet bgs and 31 feet bgs, respectively.

Monitoring wells were screened at different depths during this study because previous studies indicate that arsenic concentrations are generally greater in deeper portions of the saturated zone. The previous and new monitoring wells on and adjacent to the Property are considered "shallow" or "deep" based on the depth of the well screens. The tops of the shallow well screens are generally positioned near the groundwater table, approximately 5 feet bgs. The tops of the deep well screens are generally positioned about 20 feet below the groundwater table, which is about 25 feet bgs. The deepest monitoring well is MW-3, near the middle of the Property; this well is screened from approximately 40 to 45 feet bgs.

Shallow monitoring wells MW-12S and MW-13S were constructed with 15 feet of 0.010-inch slotted screen, installed from approximately 5 to 20 feet bgs. Deep monitoring wells MW-00D, MW-12D, and MW-13D were constructed with 5 feet of 0.010-inch slotted screen, installed from approximately 25 to 30 feet bgs. Well construction diagrams are included on the boring logs in Appendix A. The locations and elevations of the soil borings and all existing and newly installed monitoring wells were surveyed by Barghausen Consulting Engineers of Kent, Washington in December 2010.

GeoEngineers developed the five new off-property monitoring wells on January 6, 2011. All new and existing monitoring wells (MW-00S, MW-00D, MW-1 through MW-8, MW-10, MW-12S, MW-12D, MW-13S, and MW-13D) were sampled on January 6 and 7, 2011 using low-flow purging and sampling methods. The groundwater samples obtained from the new off-property wells were analyzed for the constituents shown in Table 1. The groundwater samples obtained from the existing wells were analyzed for constituents previously monitored in these wells.

3.0 RESULTS

The results of the off-property investigation are presented in this section, including the observed soil and groundwater conditions and the chemical analytical results for soil and groundwater samples collected during this study.

3.1. SOIL AND GROUNDWATER PHYSICAL CONDITIONS

The subsurface lithology observed in the off-property soil borings generally consisted of black to brown, fine to coarse sand with varying amounts of silt, gravel, and shell fragments. This lithology is consistent with observations made during previous investigations of the Property. The results of field screening performed during drilling are documented on the boring logs contained in Appendix A. Only one soil sample had detectable concentrations of organic vapors based on PID readings: sample SB-21-8.0 obtained from 8 feet bgs in boring SB-21 yielded a PID reading of 2 parts per million. A moderate sheen was noted for this sample. Several other soil samples exhibited a slight sheen. Field screening results can only be interpreted from a qualitative standpoint. In general, the field screening results do not suggest the likely presence of significant soil contamination by organic compounds.

Groundwater (saturated soil) was encountered at a depth of approximately 6 feet bgs in all of the off-property borings during drilling. The depth to groundwater measured in monitoring wells on January 6 and 7, 2011 ranged from 4.27 to 5.40 feet below the top of the well casing. Groundwater level data are summarized in Table 2. The January 2011 data for the four

shallow/deep well pairs indicate minimal or no vertical groundwater gradients. The vertical gradient appeared to be slightly upward (0.02 feet head difference) at well pair MW-00S/MW-00D and slightly downward (0.05 to 0.08 feet head difference) at well pairs MW-12S/MW-12D and MW-13S/MW-13D. There appeared to be no vertical gradient at well pair MW-2/MW-3 in January 2011.

The January 2011 groundwater level data were used to prepare two potentiometric surface maps. One map (Figure 3) was prepared using data from the shallow monitoring wells; the other map (Figure 4) was prepared using data from the deeper monitoring wells. Groundwater level data from well MW-3 were not used in preparing the potentiometric maps, as this well is screened over a depth interval that is 15 feet deeper than the screened intervals of the other deep wells.

The potentiometric map prepared using the shallow well data (Figure 3) indicates that horizontal groundwater gradients in January 2011 were spatially variable in magnitude and direction. Similar to previous groundwater monitoring events, the horizontal gradient magnitudes in the shallow saturated zone were relatively small (on the order of 0.0003 to 0.002), indicating that the groundwater table in the vicinity of the Property is relatively flat. The potentiometric map prepared for the deeper portion of the saturated zone (Figure 4) suggests that horizontal gradient magnitudes in the deeper zone also were small (on the order of 0.0003 to 0.0007). Because there are fewer deep wells than shallow wells, groundwater elevation contours for the deeper portion of the saturated zone were inferred partially based on the potentiometric map for the shallow groundwater table.

The January 2011 and previous groundwater monitoring events indicate that the groundwater table in the vicinity of the Property is relatively flat (i.e., horizontal groundwater gradients are small), and the gradient direction appears to be spatially and temporally variable. Because the groundwater table is relatively flat, hydraulic perturbations to the groundwater system (such as stormwater infiltration, leaking underground utilities, or possibly tidal influx along preferential pathways such as underground utilities) can cause significant changes in the groundwater gradient. The observed temporal variability in gradient direction suggests that there is no consistent, dominant groundwater migration direction beneath the Property.

3.2. CHEMICAL ANALYTICAL RESULTS

The chemical analytical results for the soil and groundwater samples collected during the off-property investigation are summarized in Tables 3 and 4, respectively. Table 4 also includes historical groundwater monitoring data for the Property (i.e., groundwater samples collected between 2008 and 2010). The MTCA Method A cleanup levels for soil (unrestricted land use) and potable groundwater (WAC 173-340-740[2] and 173-340-720[3]) are presented in Tables 3 and 4 for comparison to the chemical analytical results. Laboratory analytical reports are contained in Appendix B.

3.2.1. Soil Chemical Analytical Results

The laboratory analytical results detected concentrations of cPAHs and/or benzene in soil exceeding the MTCA Method A cleanup levels at two off-property locations: SB-19 and SB-20

(Table 3 and Figure 5); these exceedances are discussed below. No other constituents were detected in the off-property soil samples at concentrations exceeding MTCA Method A cleanup levels. Furthermore, with one exception, arsenic was not detected in any of the off-property soil samples. The exception was sample SB-21-25.5 (obtained from 25.5 feet bgs in boring SB-21), which had an arsenic concentration of 10 mg/kg.

The cPAH total toxic equivalent concentration (TEC; calculated per WAC 173-340-708[8][e][iii][A]) in the soil sample obtained from a depth of 2.5 feet bgs in boring SB-19 (in Thurston Avenue NW, north of the Property; Figure 5) exceeded the MTCA Method A cleanup level of 0.1 mg/kg. The cPAH concentration in this sample (3.4 mg/kg TEC) is similar to the concentration (2.6 mg/kg TEC) detected in soil at 3.0 feet bgs in boring SB-12, the nearest boring previously completed on the Property (approximately 22 feet south of boring SB-19). cPAHs were not detected in soil samples obtained from 8.0, 10.5, and 15.5 feet bgs in boring SB-19 (Table 3), or in samples obtained from depths greater than 3.0 feet bgs in previous boring SB-12 (GeoEngineers, 2010a).

At boring SB-20 (in the alley south of the Property; Figure 5), cPAH concentrations in soil samples obtained from 2.5, 8.0, and 10.5 feet bgs exceeded the MTCA Method A cleanup level of 0.1 mg/kg. The highest cPAH concentration was detected in the sample obtained from 2.5 feet bgs (4.8 mg/kg TEC). The cPAH concentrations detected in soil boring SB-20 were substantially less than the highest cPAH concentrations previously detected in shallow soil in the southeast corner of the Property (120 mg/kg TEC; locations B-5 and TP-7, Figure 5). cPAHs either were not detected or were detected at concentrations less than the MTCA Method A cleanup level in deeper samples obtained from SB-20, and in all soil samples obtained from borings SB-21 and SB-22 located further west in the alley (Table 3).

Benzene was detected at a concentration greater than the MTCA Method A cleanup level of 0.03 mg/kg in the soil sample obtained from 10.5 feet bgs in boring SB-20 (Figure 5). Benzene was not detected in the shallower samples (2.5 and 8.0 feet bgs) obtained from boring SB-20. The deeper samples obtained from SB-20 were not analyzed for benzene (Table 3).

3.2.2. Groundwater Chemical Analytical Results

In January 2011, total arsenic concentrations exceeded the MTCA Method A cleanup level of 5 micrograms per liter (ug/l) in unfiltered groundwater samples obtained from on-property wells MW-1, MW-3, MW-4, and MW-5, and off-property wells MW-00S, MW-00D, MW-10, MW-12S, MW-12D, and MW-13D (Figure 6). The arsenic concentrations detected in these wells ranged from 5.1 to 340 ug/l. Arsenic was detected in six of the ten shallow wells and in all five deep wells. Detected arsenic concentrations in the shallow wells ranged from 4.1 to 19 ug/l, while concentrations in the deep wells (excluding MW-00D, which had a concentration of 5.1 ug/l) ranged from 28 to 340 ug/l. At three of the four shallow/deep wells pairs (MW-2/MW-3, MW-12S/MW-12D, and MW-13S/MW-13D), the arsenic concentration in the deep well was greater than in the shallow well.

The highest arsenic concentration (340 ug/l) was detected in well MW-13D, which is a deep well located 140 feet south of the Property. The field-measured turbidity in monitoring well MW-13D (890 nephelometric turbidity units) was significantly higher than the turbidity measured in any of the other monitoring wells sampled in January 2011. This suggests that the elevated arsenic

concentration detected in well MW-13D may be attributable to a high volume of suspended solids in the sample analyzed.

Similar to past monitoring events, cPAHs were detected at a concentration greater than the MTCA Method A cleanup level of 0.1 ug/l in the groundwater sample obtained from on-property well MW-7 (0.36 ug/l TEC; Figure 6). Groundwater conditions at this location appear to be affected by elevated concentrations of cPAHs in soil (see Figure 5). cPAHs either were not detected or were detected at a concentration less than the MTCA Method A cleanup level in the groundwater samples obtained from wells MW-5 and MW-8 (Table 4).

3.2.3. Data Quality Assessment

GeoEngineers conducted a quality assurance/quality control (QA/QC) review of the off-property investigation analytical data. No significant data quality exceptions requiring further action were noted in the laboratory analytical reports or during our data review, and none of the data was rejected. A Data Quality Assessment Summary is included in Appendix B.

A field duplicate groundwater sample was obtained from monitoring well MW-7 in January 2011; the results for this duplicate sample are reported in Table 4. The relative percent difference and/or absolute difference values for cPAH compounds in the primary and duplicate samples from well MW-7 exceeded control limits. Positive detections of these compounds were qualified "J," estimated concentration, in both samples.

Six equipment rinsate blanks and one trip blank were submitted for analysis in November 2010 and January 2011. The analytical results for these field QC blanks are summarized in Table 5. Positive detections of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo-(k)fluoranthene were reported in equipment rinsate blank sample "RINSE-010611" collected on January 6. Associated project samples collected on January 6 were not analyzed for cPAHs, therefore no action was required.

4.0 INVESTIGATION-DERIVED WASTE MANAGEMENT

Investigation-derived waste (IDW) consisting of soil cuttings from drilling, well development and purge water, and equipment decontamination water was stored on the Property in 55-gallon drums pending receipt of chemical analytical data. Soil cuttings were characterized based on the analytical results for soil boring samples and were transported to CEMEX in Everett, Washington for disposal. Well development and purge water was characterized based on the analytical results for groundwater samples and was transported to PSE's South King County Waste Management Facility in Kent, Washington for disposal.

5.0 CONCLUSIONS

The results of the off-property investigation indicate that cPAH concentrations exceed the MTCA Method A cleanup level in soil at two locations approximately 10 to 15 feet outside of the Property boundaries. These off-property cPAH occurrences exist beneath Thurston Avenue NW, near the northeastern corner of the Property (boring SB-19), and beneath the alley near the southeastern

corner of the Property (boring SB-20). Similar to the results of previous investigations on the Property (GeoEngineers, 2008b, 2010a), the cPAH exceedances at the off-property locations are limited to the upper 10 feet of soil. This study did not fully delineate the lateral extent of the soil contamination detected in off-property borings SB-19 and SB-20. However, cPAH concentrations did not exceed the cleanup level in other soil borings completed in Thurston Avenue NW or the alley.

Based on Sanborn maps, it appears that Thurston Avenue NW has bordered the northern Property boundary since the MGP was built in 1908, although the street was known as West 1st Street at that time. Accordingly, historical MGP operations would not have occurred north of the northern Property boundary. No streets, alleys, fences, buildings, or other structures are shown on the 1908 Sanborn map between the MGP and the Budd Inlet shoreline to the west and south (Figure 2 shows the 1908 shoreline). The Sanborn map from the next available year (1924) shows the present-day alley and building bordering the Property to the south.

The source of arsenic in groundwater is not apparent based on the results of the soil and groundwater investigations completed to date. However, much of the available information suggests that the historical MGP operations are not responsible for the arsenic. Most importantly, arsenic concentrations reported in all soil samples collected on and near the Property in 2009 and 2010 (34 on-property and 26 off-property samples) were generally consistent with Washington state natural background arsenic concentrations (the Washington state 90th percentile background arsenic concentration is 7 mk/kg; Ecology, 1994). Although laboratory reporting limits for 19 additional on-property soil samples collected in 2008 were slightly higher than the Washington state natural background arsenic concentration (reporting limits for these samples ranged from 11 to 14 mg/kg), arsenic was not detected in 18 of the 19 samples, and the concentration in the one sample that had detectable arsenic was 15 mg/kg, which is less than the MTCA Method A cleanup level of 20 mg/kg.

In addition to the lack of elevated arsenic concentrations in Property soils, the highest arsenic concentration detected to date in groundwater (340 ug/L) was found in off-property monitoring well MW-13D (140 feet south of the Property) in January 2011. If the arsenic source were located on the Property, the highest concentrations of arsenic in groundwater would also be expected on the Property. Existing data suggest that groundwater flow directions inferred from groundwater elevation data may be of little help in identifying the arsenic source, as the groundwater flow direction appears to be variable in the vicinity of the Property. Nonetheless, Sanborn maps indicate that numerous other potential industrial sources of metals existed in the past in the vicinity of the Property. For example, Sanborn maps from 1908, 1924, and 1946 identify the following industrial activities immediately adjacent to, and/or in the two blocks south of, the Property: “Electroplating;” “Bus Garage;” “Tin Shop;” “Auto Body & Fender Shop;” “Iron Warehouse;” “Auto Repairing;” “Boat Building;” “Sheet Metal Shop;” “Auto Painting;” “Acetylene Welding;” “Used Cars & Auto Repairing;” “Garage Shop;” “Pipe Shop & City Garage;” “Paints & Equipment Storage;” and “Sign Painting.” One or more of these historical activities could be the source of the elevated arsenic concentrations in groundwater.

6.0 LIMITATIONS

GeoEngineers has prepared this report for the exclusive use of Puget Sound Energy, its authorized agents, and regulatory agencies. No other party may rely on the product of our services unless we agree in advance and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Our interpretation of subsurface conditions for this study is based on field observations, field screening, and chemical analytical results obtained from widely spaced samples. It is always possible that contamination exists at locations or depths not identified by this study.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with our General Services Agreement with PSE (Contract No. 4600005167) and with generally accepted environmental and earth science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment, and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form of this document (email, text, table, and/or figure), if provided, and any attachments, are only a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

7.0 REFERENCES

GeoEngineers, Inc., 2008a, "Sampling and Analysis Plan, Former Columbia Street Manufactured Gas Plant Site, 320 Columbia Street NW, Olympia, Washington." GEI File No. 0186-774-00, July 16, 2008.

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TABLES

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Table 1

Soil and Groundwater Sampling and Analytical Testing Summary

Off-Property Investigation

Former Columbia Street MGP Property
Olympia, Washington

Location	Total Boring Depth (feet bgs)	Soil Sample Depth (feet bgs)	Soil Analytical Parameters						Well Screen Interval (feet bgs)	Groundwater Analytical Parameters	Sampling Objective (a)
			cPAHs (EPA 8270D-SIM)	BTEX (EPA 8021B)	TPH-D/LO (NWTPH-Dx)	Mercury (EPA 7471A)	Lead (EPA 6010B)	Arsenic (EPA 6010B)		Total Arsenic (EPA 200.8)	
SB-18	16.5	2.5	x		x	x			NA		Assess soil conditions in street north of property and north of cPAH, TPH-LO, and/or mercury exceedances at previous sampling locations SB-12, SB-13, SB-15, and SB-16.
		8.0	x		x	x					
		10.5	x		x	x					
		15.5	x								
SB-19	16.5	2.5	x		x	x			NA		Assess soil conditions in street north of property and north of cPAH, TPH-LO, and/or mercury exceedances at previous sampling locations SB-12, SB-13, SB-15, and SB-16.
		8.0	x		x	x					
		10.5	x		x	x					
		15.5	x								
SB-20	26.5	2.5	x	x	x		x		NA		Assess soil conditions in alley, southeast of cPAH, benzene, TPH-LO, and/or lead exceedances at previous sampling locations B-5, TP-7, SB-7, SB-11, and MW-5. Assess arsenic in soil in the presumed upgradient direction to assess possible correlation of soil arsenic concentrations and dissolved concentrations in MW-4 (on-property well with the highest arsenic concentrations).
		8.0	x	x	x		x	x			
		10.5	x	x	x		x				
		15.5	x					x			
		20.5	x					x			
		25.5	x					x			
SB-21	31.5	2.5	x				x		NA		Assess soil conditions in alley, south of cPAH and/or lead exceedances at previous sampling locations TP-1, SB-10, SB-11, and MW-4. Assess arsenic in soil in the presumed upgradient direction and across a depth interval that includes the MW-4 well screen (on-property well with the highest arsenic concentrations), to assess possible correlation of soil arsenic concentrations at depth and dissolved concentrations in MW-4.
		8.0	x				x	x			
		10.5	x								
		15.5						x			
		20.5						x			
		25.5						x			
		30.5						x			
SB-22	11.5	2.5	x				x	x	NA		Assess soil conditions in alley, south of cPAH and/or lead exceedances at previous sampling locations SB-9, SB-10, and MW-4. Assess arsenic in soil in the presumed upgradient direction to assess possible correlation of soil arsenic concentrations and dissolved concentrations in MW-4 (on-property well with the highest arsenic concentrations).
		8.0	x				x				
		10.5	x					x			

Location	Total Boring Depth (feet bgs)	Soil Sample Depth (feet bgs)	Soil Analytical Parameters						Well Screen Interval (feet bgs)	Groundwater Analytical Parameters	Sampling Objective (a)
			cPAHs (EPA 8270D-SIM)	BTEX (EPA 8021B)	TPH-D/LO (NWTPH-Dx)	Mercury (EPA 7471A)	Lead (EPA 6010B)	Arsenic (EPA 6010B)		Total Arsenic (EPA 200.8)	
MW-00D	31.5	5.0							25.5-30.5	x	Assess arsenic in soil for comparison to groundwater results from this well. Assess arsenic concentrations in groundwater at the same depth interval as MW-4 (on-property well with the highest arsenic concentrations), adjacent to existing shallow well MW-00 and in the presumed upgradient direction. Sampling groundwater at two depth intervals will allow for direct comparison to data from on-property wells screened over the same intervals.
		10.5						x			
		15.5						x			
		20.5						x			
		25.5						x			
		30.5						x			
MW-12S/12D (shallow/deep well pair)	20.5 (S) 31.5 (D)	5.0 (b)							5.0-20.2 (S)	x	Assess arsenic in soil for comparison to groundwater results from this well. Assess arsenic concentrations in shallow groundwater and in groundwater at the same depth interval as MW-4 (on-property well with the highest arsenic concentrations), in the presumed upgradient direction. Sampling groundwater at two depth intervals will allow for direct comparison to data from on-property wells screened over the same intervals.
		10.5 (b)						x	25.0-30.0 (D)	x	
		15.5 (b)						x			
		20.5 (b)						x			
		25.5 (b)						x			
		30.5 (b)						x			
MW-13S/13D (shallow/deep well pair)	20.0 (S) 31.5 (D)	5.0 (b)							4.5-19.5 (S)	x	Assess arsenic in soil for comparison to groundwater results from this well. Assess arsenic concentrations in shallow groundwater and in groundwater at the same depth interval as MW-4 (on-property well with the highest arsenic concentrations), in the presumed upgradient direction. Sampling groundwater at two depth intervals will allow for direct comparison to data from on-property wells screened over the same intervals.
		10.5 (b)						x	25.5-30.5 (D)	x	
		15.5 (b)						x			
		20.5 (b)						x			
		25.5 (b)						x			
		30.5 (b)						x			

Notes:

bgs = Below ground surface

BTEX = Benzene, toluene, ethylbenzene, and xylenes

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

NA = Not applicable

S = Shallow

D = Deep

TPH-G = Gasoline-range total petroleum hydrocarbons

TPH-D/LO = Diesel- and lube oil-range total petroleum hydrocarbons

(a) Previous sampling results/data referenced in this table are discussed in detail in "Site Investigation Report, Former Columbia Street MGP Site" (GeoEngineers, 2008b) and "Supplemental Site Investigation Report, Former Columbia Street Manufactured Gas Plant Property" (GeoEngineers, 2010a).

(b) Soil samples collected at locations MW-12S/12D and MW-13S/13D were obtained from only the deep boring at each location.

Table 2

Measured Groundwater Levels in Monitoring Wells
2008-2011

Former Columbia Street MGP Property
Olympia, Washington

Monitoring Well	Screened Interval (feet bgs)	Shallow or Deep Well?	Top-of-Casing Elevation[1] (feet NAVD88)	Date	Measured Depth to Groundwater[2] (feet below TOC)	Calculated Groundwater Elevation (feet NAVD88)
MW-1	5.0-20.0	Shallow	13.17	8/26/08	4.74	8.43
				10/6/08	4.64	8.53
				11/3/09	4.55	8.62
				2/15/10	4.16	9.01
				5/26/10	4.41	8.76
				1/7/11	4.27	8.90
MW-2	5.0-20.0	Shallow	13.67	8/26/08	5.33	8.34
				10/6/08	5.23	8.44
				11/3/09	5.05	8.62
				2/15/10	4.44	9.23
				5/26/10	4.97	8.70
				1/7/11	4.77	8.90
MW-3	39.5-44.5	Deep	13.65	8/26/08	5.27	8.38
				10/6/08	5.08	8.57
				11/3/09	5.02	8.63
				2/15/10	4.62	9.03
				5/26/10	4.94	8.71
				1/7/11	4.75	8.90
MW-4	23.5-28.5	Deep	13.75	8/26/08	5.30	8.45
				10/6/08	5.18	8.57
				11/3/09	5.06	8.69
				2/15/10	4.72	9.03
				5/26/10	5.28	8.47
				1/7/11	4.85	8.90
MW-5	4.5-19.5	Shallow	14.25	11/3/09	5.64	8.61
				2/15/10	5.28	8.97
				5/26/10	5.55	8.70
				1/7/11	5.40	8.85
MW-6[3]	11.1[3]	Shallow	13.69	8/26/08	5.37	8.32
				10/6/08	5.37	8.32
				11/3/09	5.08	8.61
				2/15/10	4.46	9.23
				5/26/10	5.08	8.61
				1/6/11	4.88	8.81
MW-7	4.5-19.5	Shallow	13.65	11/3/09	5.09	8.56
				2/15/10	4.63	9.02
				5/26/10	4.92	8.73
				1/7/11	4.77	8.88
MW-8	5.0-20.0	Shallow	13.76	11/3/09	5.11	8.65
				2/15/10	4.49	9.27
				5/26/10	5.07	8.69
				1/7/11	4.83	8.93

Monitoring Well	Screened Interval (feet bgs)	Shallow or Deep Well?	Top-of-Casing Elevation[1] (feet NAVD88)	Date	Measured Depth to Groundwater[2] (feet below TOC)	Calculated Groundwater Elevation (feet NAVD88)
MW-10[3]	14.0[3]	Shallow	13.76	8/26/08	5.31	8.45
				10/6/08	5.25	8.51
				11/3/09	5.14	8.62
				2/15/10	4.66	9.10
				5/26/10	4.96	8.80
				1/6/11	4.91	8.85
MW-12S	5.0-20.2	Shallow	14.19	1/7/11	5.28	8.91
MW-12D	25.0-30.0	Deep	14.20	1/7/11	5.37	8.83
MW-13S	4.5-19.5	Shallow	13.43	1/7/11	4.60	8.83
MW-13D	25.5-30.5	Deep	13.84	1/7/11	5.06	8.78
MW-00S[3]	12.4[3]	Shallow	13.59	2/15/10	4.47	9.12
				5/26/10	4.74	8.85
				1/7/11	4.75	8.84
MW-00D	25.5-30.5	Deep	13.32	1/7/11	4.46	8.86

Notes:

bgs = Below ground surface

TOC = Top of well casing

NAVD88 = North American Vertical Datum of 1988.

[1]Elevations surveyed in December 2010 by Barghausen Consulting Engineers, Inc. relative to NAVD88. Previous investigations used an arbitrary site-specific datum with an assigned elevation of 10 feet.

[2]Water levels measured with an electronic water level indicator.

[3]Pre-existing monitoring well installed by others; screened interval unknown. Value shown for screened interval is the approximate depth to bottom of well casing measured with an electronic water level indicator on February 15, 2010.

Table 3

Soil Chemical Analytical Results

Off-Property Investigation

Former Columbia Street MGP Property
Olympia, Washington

Analyte	Units	MTCA Method A Cleanup Level[1]	Sample ID: / Location ID: / Depth (ft bgs): / Sample Date:	MW-00D-10.5 / MW-00D / 10.5 / 12/2/2010	MW-00D-15.5 / MW-00D / 15.5 / 12/2/2010	MW-00D-20.5 / MW-00D / 20.5 / 12/2/2010	MW-00D-25.5 / MW-00D / 25.5 / 12/2/2010	MW-00D-30.5 / MW-00D / 30.5 / 12/2/2010	MW-12D-10.5 / MW-12D / 10.5 / 11/30/2010	MW-12D-15.5 / MW-12D / 15.5 / 11/30/2010	MW-12D-20.5 / MW-12D / 20.5 / 11/30/2010	MW-12D-25.5 / MW-12D / 25.5 / 11/30/2010	MW-12D-30.5 / MW-12D / 30.5 / 11/30/2010	MW-13D-10.5 / MW-13D / 10.5 / 11/29/2010	MW-13D-15.5 / MW-13D / 15.5 / 11/29/2010	MW-13D-20.5 / MW-13D / 20.5 / 11/29/2010	MW-13D-25.5 / MW-13D / 25.5 / 11/29/2010	MW-13D-30.5 / MW-13D / 30.5 / 11/29/2010
Volatile Organic Compounds (EPA 8021B)																		
Benzene	ug/kg	30		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg	7000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/kg	6000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, m-,p-	ug/kg	9000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylene, o-	ug/kg	9000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Dx)																		
Diesel-Range	mg/kg	2000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lube Oil-Range	mg/kg	2000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)																		
Benzo(a)anthracene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	ug/kg	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total cPAHs TEC	ug/kg	100		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals (EPA 6010B/7471A)																		
Arsenic	mg/kg	20		5.9 U	5.9 U	5.7 U	5.5 U	5.7 U	5.5 U	5.8 U	5.7 U	5.7 U	6.6 U	5.9 U	6.0 U	5.8 U	5.7 U	5.8 U
Lead	mg/kg	250		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	2		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analyte	Units	MTCA Method A Cleanup Level[1]	Sample ID:	SB-18-2.5	SB-18-8.0	SB-18-10.5	SB-18-15.5	SB-19-2.5	SB-19-8.0	SB-19-10.5	SB-19-15.5	SB-20-2.5	SB-20-8.0	SB-20-10.5	SB-20-15.5	SB-20-20.5	SB-20-25.5
			Location ID:	SB-18	SB-18	SB-18	SB-18	SB-19	SB-19	SB-19	SB-19	SB-20	SB-20	SB-20	SB-20	SB-20	SB-20
			Depth (ft bgs):	2.5	8.0	10.5	15.5	2.5	8.0	10.5	15.5	2.5	8.0	10.5	15.5	20.5	25.5
			Sample Date:	12/2/2010	12/2/2010	12/2/2010	12/2/2010	12/2/2010	12/2/2010	12/2/2010	12/2/2010	12/1/2010	12/1/2010	12/1/2010	12/1/2010	12/1/2010	12/1/2010
Volatile Organic Compounds (EPA 8021B)																	
Benzene	ug/kg	30		--	--	--	--	--	--	--	--	25 U	25 U	**1000**	--	--	--
Toluene	ug/kg	7000		--	--	--	--	--	--	--	--	120 U	130 U	130 U	--	--	--
Ethylbenzene	ug/kg	6000		--	--	--	--	--	--	--	--	58 U	65 U	66 U	--	--	--
Xylene, m-,p-	ug/kg	9000		--	--	--	--	--	--	--	--	120 U	130 U	130 U	--	--	--
Xylene, o-	ug/kg	9000		--	--	--	--	--	--	--	--	58 U	65 U	66 U	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Dx)																	
Diesel-Range	mg/kg	2000		29 U	31 U	30 U	--	**57**	30 U	28 U	--	70 U	31 U	31 U	--	--	--
Lube Oil-Range	mg/kg	2000		57 U	62 U	60 U	--	**220**	59 U	56 U	--	**530**	**170**	61 U	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)																	
Benzo(a)anthracene	ug/kg	--		7.6 U	8.3 U	**11**	9.1 U	**1200**	7.9 U	7.4 U	7.6 U	**1700**	**130**	**84**	**22**	7.5 U	8.1 U
Chrysene	ug/kg	--		7.6 U	8.3 U	**10**	9.1 U	**1500**	7.9 U	7.4 U	7.6 U	**2000**	**160**	**89**	**21**	7.5 U	8.1 U
Benzo(b)fluoranthene	ug/kg	--		7.6 U	8.3 U	8.0 U	9.1 U	**1700**	7.9 U	7.4 U	7.6 U	**2500**	**190**	**75**	**16**	7.5 U	8.1 U
Benzo(k)fluoranthene	ug/kg	--		7.6 U	8.3 U	8.0 U	9.1 U	**1600**	7.9 U	7.4 U	7.6 U	**2000**	**150**	**75**	**16**	7.5 U	8.1 U
Benzo(a)pyrene	ug/kg	--		7.6 U	8.3 U	**10**	9.1 U	**2700**	7.9 U	7.4 U	7.6 U	**3800**	**280**	**120**	**24**	7.5 U	8.1 U
Indeno(1,2,3-cd)pyrene	ug/kg	--		7.6 U	8.3 U	8.0 U	9.1 U	**2200**	7.9 U	7.4 U	7.6 U	**3000**	**230**	**81**	**14**	7.5 U	8.1 U
Dibenzo(a,h)anthracene	ug/kg	--		7.6 U	8.3 U	8.0 U	9.1 U	**340**	7.9 U	7.4 U	7.6 U	**440**	**36**	**17**	7.7 U	7.5 U	8.1 U
Total cPAHs TEC	ug/kg	100		5.7 U	6.3 U	**13**	6.9 U	**3400**	6.0 U	5.6 U	5.7 U	**4800**	**360**	**150**	**31**	5.7 U	6.1 U
Metals (EPA 6010B/7471A)																	
Arsenic	mg/kg	20		--	--	--	--	--	--	--	--	--	6.2 U	--	5.8 U	5.6 U	6.0 U
Lead	mg/kg	250		--	--	--	--	--	--	--	--	**140**	**93**	**67**	--	--	--
Mercury	mg/kg	2		0.29 U	0.31 U	0.30 U	--	0.29 U	0.30 U	0.28 U	--	--	--	--	--	--	--

Analyte	Units	MTCA Method A Cleanup Level[1]	Sample ID: / Location ID: / Depth (ft bgs): / Sample Date:	SB-21-2.5 / SB-21 / 2.5 / 12/1/2010	SB-21-8.0 / SB-21 / 8.0 / 12/1/2010	SB-21-10.5 / SB-21 / 10.5 / 12/1/2010	SB-21-15.5 / SB-21 / 15.5 / 12/1/2010	SB-21-20.5 / SB-21 / 20.5 / 12/1/2010	SB-21-25.5 / SB-21 / 25.5 / 12/1/2010	SB-21-30.5 / SB-21 / 30.5 / 12/1/2010	SB-22-2.5 / SB-22 / 2.5 / 12/1/2010	SB-22-8.0 / SB-22 / 8.0 / 12/1/2010	SB-22-10.5 / SB-22 / 10.5 / 12/1/2010
Volatile Organic Compounds (EPA 8021B)													
Benzene	ug/kg	30		--	--	--	--	--	--	--	--	--	--
Toluene	ug/kg	7000		--	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/kg	6000		--	--	--	--	--	--	--	--	--	--
Xylene, m-,p-	ug/kg	9000		--	--	--	--	--	--	--	--	--	--
Xylene, o-	ug/kg	9000		--	--	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Dx)													
Diesel-Range	mg/kg	2000		--	--	--	--	--	--	--	--	--	--
Lube Oil-Range	mg/kg	2000		--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)													
Benzo(a)anthracene	ug/kg	--		7.1 U	**20**	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Chrysene	ug/kg	--		7.1 U	**47**	7.8 U	--	--	--	--	7.0 U	**14**	8.7 U
Benzo(b)fluoranthene	ug/kg	--		7.1 U	**13**	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Benzo(k)fluoranthene	ug/kg	--		7.1 U	**10**	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Benzo(a)pyrene	ug/kg	--		7.1 U	**15**	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Indeno(1,2,3-cd)pyrene	ug/kg	--		7.1 U	**12**	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Dibenzo(a,h)anthracene	ug/kg	--		7.1 U	7.8 U	7.8 U	--	--	--	--	7.0 U	8.3 U	8.7 U
Total cPAHs TEC	ug/kg	100		5.4 U	**21**	5.9 U	--	--	--	--	5.3 U	**6.4**	6.6 U
Metals (EPA 6010B/7471A)													
Arsenic	mg/kg	20		--	5.8 U	--	6.2 U	5.6 U	**10**	6.1 U	5.3 U	--	6.5 U
Lead	mg/kg	250		5.3 U	**26**	--	--	--	--	--	5.3 U	**14**	--
Mercury	mg/kg	2		--	--	--	--	--	--	--	--	--	--

Notes:

[1]MTCA Method A soil cleanup levels for unrestricted land use (WAC 173-340-740[2]).

MTCA = Washington State Model Toxics Control Act

mg/kg = Milligrams per kilogram

ug/kg = Micrograms per kilogram

ft bgs = Feet below ground surface

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

TEC = Toxic equivalent concentration calculated per WAC 173-340-708[8][e][iii][A]. For non-detected cPAHs, one-half the practical quantitation limit was used in the calculation.

-- = Constituent not analyzed or cleanup level not established

U = The analyte was analyzed for, but was not detected above the reported practical quantitation limit.

Chemical analyses performed by OnSite Environmental, Inc. in Redmond, WA.

Detections are shown in **bold** typeface.

Yellow highlighted cells indicate values that exceed the associated MTCA cleanup level.

Table 4

Groundwater Chemical Analytical Results

2008 to 2011

Former Columbia Street MGP Property

Olympia, Washington

Analyte	Units	MTCA Method A Cleanup Level[1]	Well/Sample ID: Sample Date:	MW-1 8/26/2008	MW-1 10/6/2008	MW-1 11/3/2009	MW-1 2/15/2010	MW-1 5/26/2010	MW-1 1/7/2011	MW-2 8/26/2008	MW-2 10/6/2008	MW-2 11/3/2009	MW-2/DUP-110309* 11/3/2009	MW-2 2/15/2010	MW-2 5/26/2010	MW-2 1/7/2011	MW-3 8/26/2008	MW-3/D-08-26-08* 8/26/2008	MW-3 10/6/2008	MW-3 11/3/2009	MW-3 2/15/2010	MW-3 5/26/2010	MW-3 1/7/2011
Volatile Organic Compounds (EPA 8011/8021B/8260B)																							
Benzene	ug/l	5		0.50 U	--	--	--	--	--	0.50 U	--	1.0 U	1.0 U	1.0 U	1.0 U	--	0.50 U	0.50 U	--	--	--	--	--
Toluene	ug/l	1,000		0.50 U	--	--	--	--	--	0.50 U	--	1.0 U	1.0 U	1.0 U	1.0 U	--	0.50 U	0.50 U	--	--	--	--	--
Ethylbenzene	ug/l	700		0.50 U	--	--	--	--	--	0.50 U	--	1.0 U	1.0 U	1.0 U	1.0 U	--	0.50 U	0.50 U	--	--	--	--	--
Xylene, m-,p-	ug/l	1,000 (a)		1.0 U	--	--	--	--	--	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	--	--	--	--
Xylene, o-	ug/l	1,000 (a)		1.0 U	--	--	--	--	--	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/l	0.01		--	--	--	--	--	--	--	--	0.0094 U	0.0095 U	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l	5.0		--	--	--	--	--	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	--	--	--	--
Methyl Tertiary Butyl Ether (MTBE)	ug/l	20		--	--	--	--	--	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Gx/Dx)																							
Gasoline-Range	mg/l	0.8		0.10 U	--	--	--	--	--	0.10 U	--	0.10 U	0.10 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--	--	--
Diesel-Range	mg/l	0.5		0.25 U	--	--	--	--	--	0.25 U	--	0.25 U	0.25 U	0.26 U	0.26 U	--	0.26 U	0.25 U	--	--	--	--	--
Lube Oil-Range	mg/l	0.5		0.40 U	--	--	--	--	--	0.40 U	--	0.40 U	0.40 U	0.41 U	0.41 U	--	0.41 U	0.40 U	--	--	--	--	--
Semivolatile Organic Compounds (EPA 8270D-SIM)																							
ncPAHs																							
Benzo(g,h,i)perylene	ug/l	--		0.0095 U	--	--	--	--	--	**0.061**	--	--	--	--	--	--	0.0095 U	0.0095 U	--	--	--	--	--
cPAHs																							
Benzo(a)anthracene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	**0.012**	--	0.0095 U	0.010 U	**0.013**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Chrysene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	**0.0099**	--	0.0095 U	0.010 U	**0.013**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Benzo(b)fluoranthene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	**0.020**	--	0.0095 U	0.010 U	**0.019**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Benzo(k)fluoranthene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	0.0095 U	--	0.0095 U	0.010 U	**0.013**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Benzo(a)pyrene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	**0.021**	--	0.0095 U	0.010 U	**0.029**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Indeno(1,2,3-cd)pyrene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	**0.026**	--	0.0095 U	0.010 U	**0.030**	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Dibenzo(a,h)anthracene	ug/l	--		0.0095 U	--	0.0094 U	0.0094 U	0.0095 U	--	0.0095 U	--	0.0095 U	0.010 U	0.0095 U	0.0095 U	--	0.0095 U	0.0095 U	--	0.0093 U	0.0094 U	0.0095 U	--
Total cPAHs TEC	ug/l	0.1		0.0072 U	--	0.0071 U	0.0071 U	0.0072 U	--	**0.028**	--	0.0072 U	0.0076 U	**0.037**	0.0072 U	--	0.0072 U	0.0072 U	--	0.0070 U	0.0071 U	0.0072 U	--
Metals (EPA 200.8/335.4/6020/7470A)																							
Total Arsenic	mg/l	0.005		**0.024**	**0.016**	**0.0062**	**0.013**	**0.0061**	**0.0072**	**0.010**	**0.012**	**0.0066**	**0.0069**	**0.0072**	0.0033 U	0.0033 U	**0.083**	**0.084**	**0.052**	**0.031**	**0.047**	**0.041**	**0.047**
Dissolved Arsenic[2]	mg/l	0.005		--	**0.017**	--	--	--	--	--	**0.011**	--	--	--	--	--	--	--	**0.034**	--	--	--	--
Total Chromium	mg/l	0.050		**0.022**	--	0.011 U	0.011 U	0.011 U	--	**0.013**	--	0.011 U	0.011 U	0.011 U	0.011 U	--	**0.043**	**0.045**	--	0.011 U	**0.017**	0.011 U	--
Total Copper	mg/l	0.59 (b)		**0.012**	--	--	--	--	--	**0.0071**	--	--	--	--	--	--	**0.040**	**0.040**	--	--	--	--	--
Total Lead	mg/l	0.015		**0.0032**	**0.0023**	0.0011 U	**0.0019**	0.0011 U	--	**0.0051**	**0.0036**	0.0011 U	0.0011 U	**0.0046**	0.0011 U	--	**0.018**	**0.018**	**0.0072**	**0.0039**	**0.0080**	**0.0038**	--
Dissolved Lead[2]	mg/l	0.015		--	0.0010 U	--	--	--	--	--	0.0010 U	--	--	--	--	--	--	--	0.0010 U	--	--	--	--
Total Mercury	mg/l	0.002		0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	--	0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	--	0.00050 U	0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	--
Total Cyanide	mg/l	0.2 (c)		0.005 U	--	--	--	--	--	0.005 U	--	--	--	--	--	--	0.005 U	0.005 U	--	--	--	--	--

Analyte	Units	MTCA Method A Cleanup Level[1]	Well/Sample ID: Sample Date:	MW-4 8/26/2008	MW-4 10/6/2008	MW-4 11/3/2009	MW-4 2/15/2010	MW-4 5/26/2010	MW-4 1/7/2011	MW-5 11/3/2009	MW-5 2/15/2010	MW-5 5/26/2010	MW-5 1/7/2011	MW-6 8/26/2008	MW-6 10/6/2008	MW-6 11/3/2009	MW-6 2/15/2010	MW-6 5/26/2010	MW-6 1/6/2011	MW-7 11/3/2009	MW-7 2/15/2010	MW-7/DUP-021510* 2/15/2010	MW-7 5/26/2010	MW-7/DUP-100526* 5/26/2010
Volatile Organic Compounds (EPA 8011/8021B/8260B)																								
Benzene	ug/l	5		0.50 U	--	--	--	--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	**1.1**	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	ug/l	1,000		0.50 U	--	--	--	--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/l	700		0.50 U	--	--	--	--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylene, m-,p-	ug/l	1,000 (a)		1.0 U	--	--	--	--	--	1.0 U	1.0 U	1.0 U	--	1.0 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylene, o-	ug/l	1,000 (a)		1.0 U	--	--	--	--	--	1.0 U	1.0 U	1.0 U	--	1.0 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane (EDB)	ug/l	0.01		--	--	--	--	--	--	--	--	--	--	--	--	0.0095 U	--	--	--	0.0095 U	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l	5.0		--	--	--	--	--	--	--	--	--	--	--	--	0.20 U	--	--	--	0.20 U	--	--	--	--
Methyl Tertiary Butyl Ether (MTBE)	ug/l	20		--	--	--	--	--	--	--	--	--	--	--	--	0.20 U	--	--	--	0.20 U	--	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Gx/Dx)																								
Gasoline-Range	mg/l	0.8		0.10 U	--	--	--	--	--	0.10 U	0.10 U	0.10 U		0.10 U	--	0.10 U	0.10 U	0.10 U	--	**0.26**	0.10 U	0.10 U	0.10 U	0.10 U
Diesel-Range	mg/l	0.5		0.25 U	--	--	--	--	--	0.25 U	0.26 U	0.26 U	0.26 U	0.25 U	--	0.25 U	0.26 U	0.26 U	--	0.25 U	0.25 U	0.25 U	0.26 U	0.26 U
Lube Oil-Range	mg/l	0.5		0.41 U	--	--	--	--	--	0.40 U	0.41 U	0.41 U	0.41 U	0.40 U	--	0.40 U	0.41 U	0.41 U	--	0.40 U	0.40 U	0.40 U	0.41 U	0.41 U
Semivolatile Organic Compounds (EPA 8270D-SIM)																								
ncPAHs																								
Benzo(g,h,i)perylene	ug/l	--		0.0095 U	--	--	--	--	--	**--**	--	--	--	0.0095 U	--	--	--	--	--	**--**	--	**--**	--	--
cPAHs																								
Benzo(a)anthracene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	**0.013**	--	**0.012**	0.0095 U	**0.021**	**0.023**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.051**	**0.064**	**0.090**	**0.084 J**	**0.12 J**
Chrysene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	**0.012**	0.0095 U	**0.017**	**0.023**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.067**	**0.087 J**	**0.13 J**	**0.12 J**	**0.17 J**
Benzo(b)fluoranthene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	**0.017**	0.0095 U	**0.014**	**0.028**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.13**	**0.14 J**	**0.22 J**	**0.16 J**	**0.24 J**
Benzo(k)fluoranthene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	0.010 U	0.0095 U	**0.012**	**0.024**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.030**	**0.12 J**	**0.18 J**	**0.10 J**	**0.17 J**
Benzo(a)pyrene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	0.010 U	0.0095 U	**0.017**	**0.046**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.14**	**0.21 J**	**0.31 J**	**0.23 J**	**0.37 J**
Indeno(1,2,3-cd)pyrene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	**0.011**	0.0095 U	**0.015**	**0.035**	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.15**	**0.22 J**	**0.32 J**	**0.28 J**	**0.42 J**
Dibenzo(a,h)anthracene	ug/l	--		0.0095 U	--	0.0095 U	0.0095 U	0.0094 U	--	0.010 U	0.0095 U	**0.0098**	0.0097 U	0.0095 U	--	0.0097 U	0.0095 U	0.0097 U	--	**0.016**	**0.023**	**0.032**	**0.032 J**	**0.048 J**
Total cPAHs TEC	ug/l	0.1		0.0072 U	--	0.0072 U	0.0072 U	**0.0079**	--	**0.010**	0.0072 U	**0.024**	**0.058**	0.0072 U	--	0.0073 U	0.0072 U	0.0073 U	--	**0.18**	**0.27 J**	**0.40 J**	**0.30 J**	**0.47 J**
Metals (EPA 200.8/335.4/6020/7470A)																								
Total Arsenic	mg/l	0.005		**0.12**	**0.057**	**0.088**	**0.092**	**0.085**	**0.093**	**0.023**	**0.025**	**0.018**	**0.0088**	**0.0056**	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.0033 U	**0.011**	0.0033 U	0.0033 U	0.0033 U	0.0033 U
Dissolved Arsenic[2]	mg/l	0.005		--	**0.042**	--	--	--	--	--	--	--	--	--	0.0030 U	--	--	--	--	--	--	--	--	--
Total Chromium	mg/l	0.050		**0.052**	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	**0.013**	--	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Total Copper	mg/l	0.59 (b)		**0.026**	--	**--**	**--**	--	--	**--**	**--**	--	--	0.011 U	--	--	--	--	--	**--**	--	--	--	--
Total Lead	mg/l	0.015		**0.0062**	**0.0039**	**0.0013**	0.0011 U	0.0011 U	--	**0.0054**	0.0011 U	0.0011 U	0.0011 U	**0.0022**	**0.0086**	0.0011 U	0.0011 U	**0.0025**	--	**0.0063**	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Dissolved Lead[2]	mg/l	0.015		--	0.0010 U	--	--	--	--	--	--	--	--	--	0.0010 U	--	--	--	--	--	--	--	--	--
Total Mercury	mg/l	0.002		0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.0005 U	--	0.00050 U	0.00050 U	0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
Total Cyanide	mg/l	0.2 (c)		0.005 U	--	**--**	**--**	--	--	**--**	**--**	--	--	0.005 U	--	--	--	--	--	**--**	--	--	--	--

Analyte	Units	MTCA Method A Cleanup Level[1]	Well/Sample ID: Sample Date:	MW-7 1/7/2011	MW-7/DUP-010711* 1/7/2011	MW-8 11/3/2009	MW-8 2/15/2010	MW-8 5/26/2010	MW-8 1/7/2011	MW-10 8/26/2008	MW-10 10/6/2008	MW-10 11/3/2009	MW-10 2/15/2010	MW-10 5/26/2010	MW-10 1/6/2011	MW-12S 1/7/2011	MW-12D 1/7/2011	MW-13S 1/7/2011	MW-13D 1/7/2011	MW-00S 2/15/2010	MW-00S 5/26/2010	MW-00S 1/7/2011	MW-00D 1/7/2011
Volatile Organic Compounds (EPA 8011/8021B/8260B)																							
Benzene	ug/l	5		--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--
Toluene	ug/l	1,000		--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	700		--	--	1.0 U	1.0 U	1.0 U	--	0.50 U	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--
Xylene, m-,p-	ug/l	1,000 (a)		--	--	1.0 U	1.0 U	1.0 U	--	1.0 U	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--
Xylene, o-	ug/l	1,000 (a)		--	--	1.0 U	1.0 U	1.0 U	--	1.0 U	--	1.0 U	1.0 U	1.0 U	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/l	0.01		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l	5.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Tertiary Butyl Ether (MTBE)	ug/l	20		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Gx/Dx)																							
Gasoline-Range	mg/l	0.8		--	--	0.10 U	0.10 U	0.10 U	--	0.10 U	--	0.10 U	0.10 U	0.10 U	--	--	--	--	--	--	--	--	--
Diesel-Range	mg/l	0.5		--	--	0.25 U	0.25 U	0.26 U	--	0.25 U	--	0.25 U	0.25 U	0.26 U	--	--	--	--	--	--	--	--	--
Lube Oil-Range	mg/l	0.5		--	--	0.40 U	0.40 U	0.42 U	--	0.40 U	--	0.40 U	0.40 U	0.41 U	--	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds (EPA 8270D-SIM)																							
ncPAHs																							
Benzo(g,h,i)perylene	ug/l	--		--	--	**--**	**--**	--	--	0.0095 U	--	--	--	--	--	--	--	--	--	--	--	--	--
cPAHs																							
Benzo(a)anthracene	ug/l	--		**0.079 J**	**0.049 J**	0.0097 U	**0.011**	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	**0.010**	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	--		**0.12 J**	**0.072 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/l	--		**0.19 J**	**0.12 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/l	--		**0.16 J**	**0.087 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/l	--		**0.28 J**	**0.17 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/l	--		**0.30 J**	**0.17 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	ug/l	--		**0.033 J**	**0.018 J**	0.0097 U	0.0095 U	0.0095 U	0.0097 U	0.0095 U	--	0.0098 U	0.0095 U	0.0096 U	--	--	--	--	--	--	--	--	--
Total cPAHs TEC	ug/l	0.1		**0.36 J**	**0.22 J**	0.0073 U	**0.0078**	0.0072 U	0.0073 U	0.0072 U	--	0.0074 U	0.0072 U	**0.0078**	--	--	--	--	--	--	--	--	--
Metals (EPA 200.8/335.4/6020/7470A)																							
Total Arsenic	mg/l	0.005		0.0033 U	**0.0035**	0.0033 U	0.0033 U	0.0033 U	0.0033 U	**0.012**	**0.011**	**0.0064**	0.0033 U	**0.017**	**0.019**	**0.0052**	**0.028**	**0.0041**	**0.34**	**0.010**	**0.0047**	**0.0052**	**0.0051**
Dissolved Arsenic[2]	mg/l	0.005		--	--	--	--	--	--	--	**0.010**	--	--	--	--	--	--	--	--	--	--	--	--
Total Chromium	mg/l	0.050		0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	--	0.011 U	0.011 U	0.011 U	--	--	--	--	--	--	--	--	--
Total Copper	mg/l	0.59 (b)		--	--	**--**	--	--	--	0.011 U	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Lead	mg/l	0.015		**0.0029**	**0.0029**	**0.0012**	0.0011 U	0.0011 U	0.0011 U	0.0011 U	**0.0047**	**0.0024**	0.0011 U	**0.0097**	--	--	--	--	--	--	--	--	--
Dissolved Lead[2]	mg/l	0.015		--	--	--	--	--	--	--	0.0010 U	--	--	--	--	--	--	--	--	--	--	--	--
Total Mercury	mg/l	0.002		0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	--	0.00050 U	0.00050 U	0.00050 U	--	--	--	--	--	--	--	--	--
Total Cyanide	mg/l	0.2 (c)				**--**	--	--	--	0.005 U	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

[1]MTCA Method A cleanup levels for potable groundwater (WAC 173-340-720[3]).

[2]Groundwater samples analyzed for dissolved arsenic and dissolved lead were field-filtered with a 45 micron filter.

(a) Total value for all xylenes.

(b) MTCA Method B cleanup level (standard formula value) for potable groundwater (WAC 173-340-720[4][b]).

(c) Federal Primary Maximum Contaminant Level (MCL) (40 C.F.R. 141).

MTCA = Washington State Model Toxics Control Act

ug/l = Micrograms per liter

mg/l = Milligrams per liter

*Field duplicate sample

ft bgs = Feet below ground surface

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

ncPAHs = Non-carcinogenic polycyclic aromatic hydrocarbons (results are shown only for ncPAHs that have been historically detected)

TEC = Toxic equivalent concentration calculated per WAC 173-340-708[8][e]. For non-detected cPAHs, one-half the practical quantitation limit was used in the calculation.

-- = Constituent not analyzed or cleanup level not established

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported practical quantitation limit.

Chemical analyses (except cyanide) performed by OnSite Environmental, Inc. in Redmond, WA; cyanide analysis performed by Analytical Resources, Inc. in Seattle, WA.

Detections are shown in **bold** typeface.

Yellow highlighted cells indicate values that exceed the associated MTCA cleanup level.

Table 5

Field Quality Control Blank Analytical Results

Off-Property Investigation

Former Columbia Street MGP Property

Olympia, Washington

Analytes	Units	Sample ID: / Laboratory ID: / Sample Date:	MW-13D-30.5-R / 12-024-06 / 11/29/2010	MW-12D-30.5-R / 12-025-06 / 11/30/2010	SB-20-25.5-R / 12-026-17 / 12/1/2010	Trip Blank / 12-026-18 / 12/1/2010	SB-18-15.5-R / 12-035-14 / 12/2/2010	RINSE-010611 / 01-054-17 / 1/6/2011	RINSE-010711 / 01-054-18 / 1/7/2011
Volatile Organic Compounds (EPA 8021B)									
Benzene	ug/l		--	--	1.0 U	1.0 U	--	--	--
Toluene	ug/l		--	--	1.0 U	1.0 U	--	--	--
Ethylbenzene	ug/l		--	--	1.0 U	1.0 U	--	--	--
Xylene, m-,p-	ug/l		--	--	1.0 U	1.0 U	--	--	--
Xylene, o-	ug/l		--	--	1.0 U	1.0 U	--	--	--
Total Petroleum Hydrocarbons (NWTPH-Dx)									
Diesel-Range	mg/L		--	--	0.25 U	--	0.25 U	0.26 U	0.26 U
Lube Oil-Range	mg/L		--	--	0.40 U	--	0.40 U	0.41 U	0.41 U
Carcinogenic Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)									
Benzo(a)anthracene	ug/l		--	--	0.0094 U	--	0.0094 U	**0.011**	0.0095 U
Chrysene	ug/l		--	--	0.0094 U	--	0.0094 U	**0.010**	0.0095 U
Benzo(b)fluoranthene	ug/l		--	--	0.0094 U	--	0.0094 U	**0.022**	0.0095 U
Benzo(k)fluoranthene	ug/l		--	--	0.0094 U	--	0.0094 U	**0.018**	0.0095 U
Benzo(a)pyrene	ug/l		--	--	0.0094 U	--	0.0094 U	0.0095 U	0.0095 U
Indeno(1,2,3-cd)pyrene	ug/l		--	--	0.0094 U	--	0.0094 U	0.0095 U	0.0095 U
Dibenzo(a,h)anthracene	ug/l		--	--	0.0094 U	--	0.0094 U	0.0095 U	0.0095 U
Total cPAHs TEC	ug/l		--	--	0.0071 U	--	0.0071 U	**0.011**	0.0072 U
Metals (EPA 200.8/7470A)									
Arsenic	mg/l		0.0030 U	0.0030 U	0.0033 U	--	0.0033 U	0.0033 U	0.0033 U
Chromium	mg/l		--	--	--	--	--	0.011 U	0.011 U
Lead	mg/l		--	--	0.0011 U	--	--	0.0011 U	0.0011 U
Mercury	mg/l		--	--	--	--	0.00050 U	0.00050 U	0.00050 U

Notes:

ug/l = Micrograms per liter

mg/l = Milligrams per liter

-- = Constituent not analyzed or cleanup level not established

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

TEC = Toxic equivalent concentration calculated per WAC 173-340-708[8][e][iii][A]. For non-detected cPAHs, one-half the practical quantitation limit was used in the calculation.

U = The analyte was analyzed for, but was not detected above the reported practical quantitation limit.

Chemical analyses performed by OnSite Environmental, Inc. in Redmond, WA.

Detections are shown in **bold** typeface.

FIGURES

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Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps, Street Maps 2005

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

Vicinity Map

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 1

Office: SEA Path: P:\0\0186774\GIS\FI-018677400_F1_.mxd Map Revised: January 19, 2010 mm2,EL

HORTONSPHERE/
ABOVEGROUND
GAS TANK (1934)

PRODUCTION BUILDING
WASH BOXES

THURSTON AVENUE NW

SB-18

MW-10

SB-19

SCRUBBERS

SIDEWALK

MW-00(D)

MW-00(S)

APPROXIMATE BOUNDARY
OF UST EXCAVATION (1990)

MW-6

OUTBUILDING (1924)

MW-2

MW-3

MW-7

GENERATOR

SIDEWALK

GAS HOLDER

MW-8

PURIFIERS

MW-1

FORMER MGP
GAS VENT (?)

MW-4

MW-5

GAS HOLDER

SB-22

ALLEY

SB-21

SB-20

COLUMBIA STREET NW

CAPITOL WAY

MW-12S

MW-12D

1908 APPROXIMATE
SHORELINE LOCATION

MW-13D

MW-13S

OLYMPIA AVENUE NW

Legend

- 1908 Site facilities / features
- Existing building
- Former office building (demolished 10/2009)
- Existing fence
- Existing monitoring well
- Monitoring well installed during off-property investigation
- Soil boring completed during off-property investigation

N
W E
S

30 0 30
FEET

Notes

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Reference: Base aerial image from USGS Seamless Imagery Server.

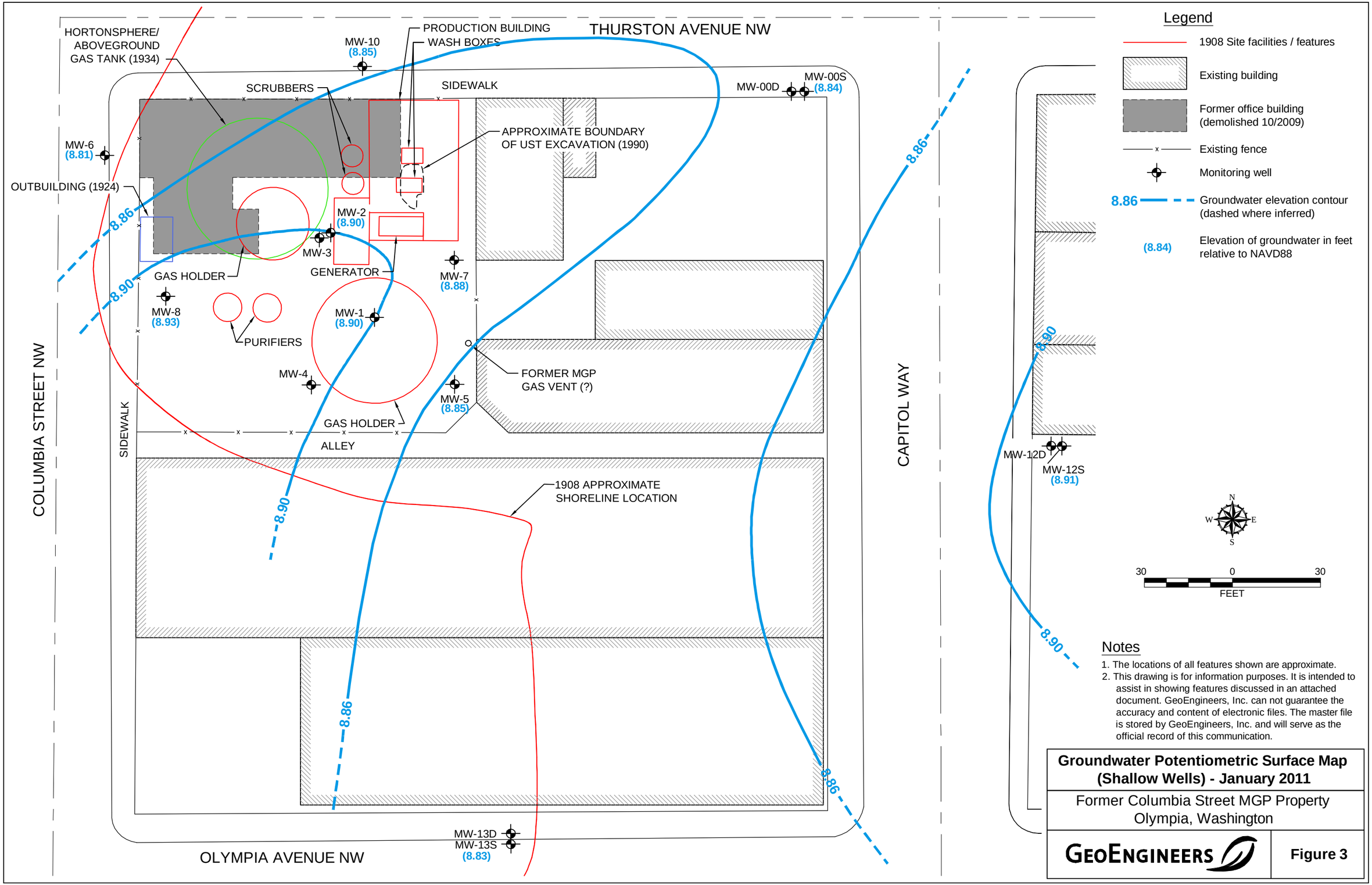
Off-Property Exploration Locations

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 2

P:\0\0186774\00\TASK 0300 - OFF-PROPERTY INVESTIGATION\CAD\0186774.00_TASK 0300 FIG 2 OFF PROPERTY INVESTIGATION.DWG\TAB:F2 MODIFIED BY TMICHAUD ON MAR 18, 2011 - 10:44



Legend

- 1908 Site facilities / features
- Existing building
- Former office building (demolished 10/2009)
- Existing fence
- Monitoring well
- 8.86 Groundwater elevation contour (dashed where inferred)
- (8.84) Elevation of groundwater in feet relative to NAVD88

Notes

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Groundwater Potentiometric Surface Map (Shallow Wells) - January 2011

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 3

THURSTON AVENUE NW

COLUMBIA STREET NW

CAPITOL WAY

OLYMPIA AVENUE NW

HORTONSPHERE/ ABOVEGROUND GAS TANK (1934)

PRODUCTION BUILDING WASH BOXES

SCRUBBERS

SIDEWALK

APPROXIMATE BOUNDARY OF UST EXCAVATION (1990)

OUTBUILDING (1924)

GAS HOLDER

PURIFIERS

FORMER MGP GAS VENT (?)

GENERATOR

ALLEY

1908 APPROXIMATE SHORELINE LOCATION

MW-10

MW-00D (8.86)

MW-00S

MW-6

MW-2

MW-3 (8.90)

MW-7

MW-8

MW-1

MW-4 (8.90)

MW-5

(8.78) MW-13D

MW-13S

MW-12D (8.83)

MW-12S

8.90

8.86

8.82

8.78

Legend

- 1908 Site facilities / features
- Existing building
- Former office building (demolished 10/2009)
- Existing fence
- Monitoring well
- 8.86 Groundwater elevation contour (dashed where inferred)
- (8.84) Elevation of groundwater in feet relative to NAVD88

N

W E

S

30 0 30

FEET

Notes

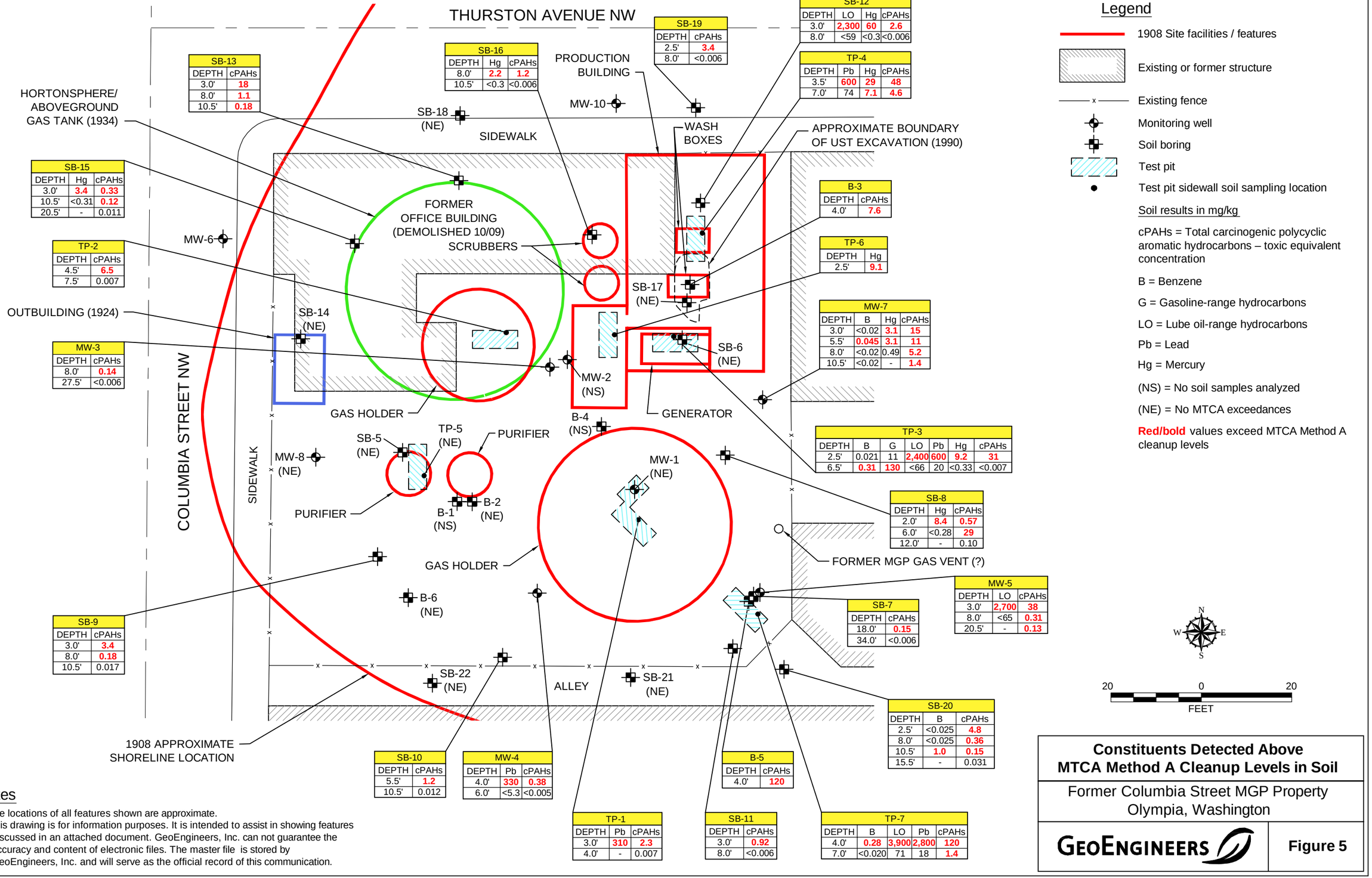
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Groundwater Potentiometric Surface Map (Deep Wells) - January 2011

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 4



Legend

- 1908 Site facilities / features
- Existing or former structure
- Existing fence
- Monitoring well
- Soil boring
- Test pit
- Test pit sidewall soil sampling location

Soil results in mg/kg

cPAHs = Total carcinogenic polycyclic aromatic hydrocarbons – toxic equivalent concentration

B = Benzene

G = Gasoline-range hydrocarbons

LO = Lube oil-range hydrocarbons

Pb = Lead

Hg = Mercury

(NS) = No soil samples analyzed

(NE) = No MTCA exceedances

Red/bold values exceed MTCA Method A cleanup levels

Notes

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Constituents Detected Above MTCA Method A Cleanup Levels in Soil

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 5

P:\01\0186774\00\TASK 0300 - OFF-PROPERTY INVESTIGATION\CAD\0186774000_TASK 0300 FIG 5 SOIL ANALYTICAL RESULTS.DWG\TAB:FIG 6 MODIFIED BY TMICHAUD ON MAR 18, 2011 - 10:26

P:\0\0186774\00\Task 0300 - Off-Property Investigation\CAD\0186774a00_Task 0300 Fig 6 GW Analytical Results.dwg\TAB:F6 modified by THICHAUD on Mar 18, 2011 - 10:28

HORTONSPHERE/
ABOVEGROUND
GAS TANK (1934)

OUTBUILDING (1924)

PRODUCTION BUILDING
WASH BOXES

THURSTON AVENUE NW

SIDEWALK

SCRUBBERS

APPROXIMATE BOUNDARY
OF UST EXCAVATION (1990)

GENERATOR

GAS HOLDER

PURIFIERS

MW-8
(NE)

B-1
(NS)

FORMER MGP
GAS VENT (?)

GAS HOLDER

ALLEY

COLUMBIA STREET NW

SIDEWALK

SIDEWALK

CAPITOL WAY

1908 APPROXIMATE
SHORELINE LOCATION

SIDEWALK

OLYMPIA AVENUE NW

MW-13S
(NE)

MW-6		
DATE	As-T	As-D
2006	<5	-
8/26/08	**5.6**	-
10/6/08	<3.3	<3.0
11/3/09	<3.3	-
2/15/10	<3.3	-
5/26/10	<3.3	-
1/6/11	<3.3	-

MW-10		
DATE	As-T	As-D
2006	**15**	-
8/26/08	**12**	-
10/6/08	**11**	**10**
11/3/09	**6.4**	-
2/15/10	<3.3	-
5/26/10	**17**	-
1/6/11	**19**	-

MW-00D	
DATE	As-T
1/7/11	**5.1**

MW-00S	
DATE	As-T
2/15/10	**10**
5/26/10	4.7
1/7/11	**5.2**

B-3		
DATE	cPAHs	As-T
2006	**0.17**	**14**

MW-2		
DATE	As-T	As-D
8/26/08	**10**	-
10/6/08	**12**	**11**
11/3/09	**6.6**	-
2/15/10	**7.2**	-
5/26/10	<3.3	-
1/7/11	<3.3	-

B-4		
DATE	As-T	
2006	**12**	

MW-7		
DATE	cPAHs	As-T
11/3/09	**0.18**	**11**
2/15/10	**0.27 J**	<3.3
5/26/10	**0.30 J**	<3.3
1/7/11	**0.36 J**	<3.3

MW-5	
DATE	As-T
11/3/09	**23**
2/15/10	**25**
5/26/10	**18**
1/7/11	**8.8**

B-5		
DATE	cPAHs	As-T
2006	**9.0**	**27**

MW-1		
DATE	As-T	As-D
8/26/08	**24**	-
10/6/08	**16**	**17**
11/3/09	**6.2**	-
2/15/10	**13**	-
5/26/10	**6.1**	-
1/7/11	**7.2**	-

B-6	
DATE	As-T
2006	**8**

B-2	
DATE	As-T
2006	**9**

MW-3				
DATE	As-T	As-D	Pb-T	Pb-D
8/26/08	**83**	-	**18**	-
10/6/08	**52**	**34**	7.2	<1.0
11/3/09	**31**	-	3.9	-
2/15/10	**47**	-	8.0	-
5/26/10	**41**	-	3.8	-
1/7/11	**47**	-	-	-

MW-4			
DATE	As-T	As-D	Cr-T
8/26/08	**120**	-	**52**
10/6/08	**57**	**42**	-
11/3/09	**88**	-	<11
2/15/10	**92**	-	<11
5/26/10	**85**	-	<11
1/7/11	**93**	-	<11

MW-13D	
DATE	As-T
1/7/11	**340**

MW-12D	
DATE	As-T
1/7/11	**28**

MW-12S	
DATE	As-T
1/7/11	**5.2**

Legend

- 1908 Site facilities / features
- Existing building
- Former office building (demolished 10/2009)
- Existing fence
- Monitoring well
- Soil boring; groundwater grab samples collected from upper 4-6 ft of saturated zone

Groundwater results in ug/l

As-T = Total arsenic

As-D = Dissolved arsenic

Pb-T = Total lead

Pb-D = Dissolved lead

Cr-T = Total chromium

cPAHs = Total carcinogenic polycyclic aromatic hydrocarbons - toxic equivalent concentration

J = Estimated concentration

(NS) = No groundwater samples analyzed

(NE) = No MTCA exceedances

Red/bold values exceed MTCA Method A cleanup levels

N W E S

30 0 30
FEET

Notes

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Constituents Detected Above MTCA Method A Cleanup Levels in Groundwater

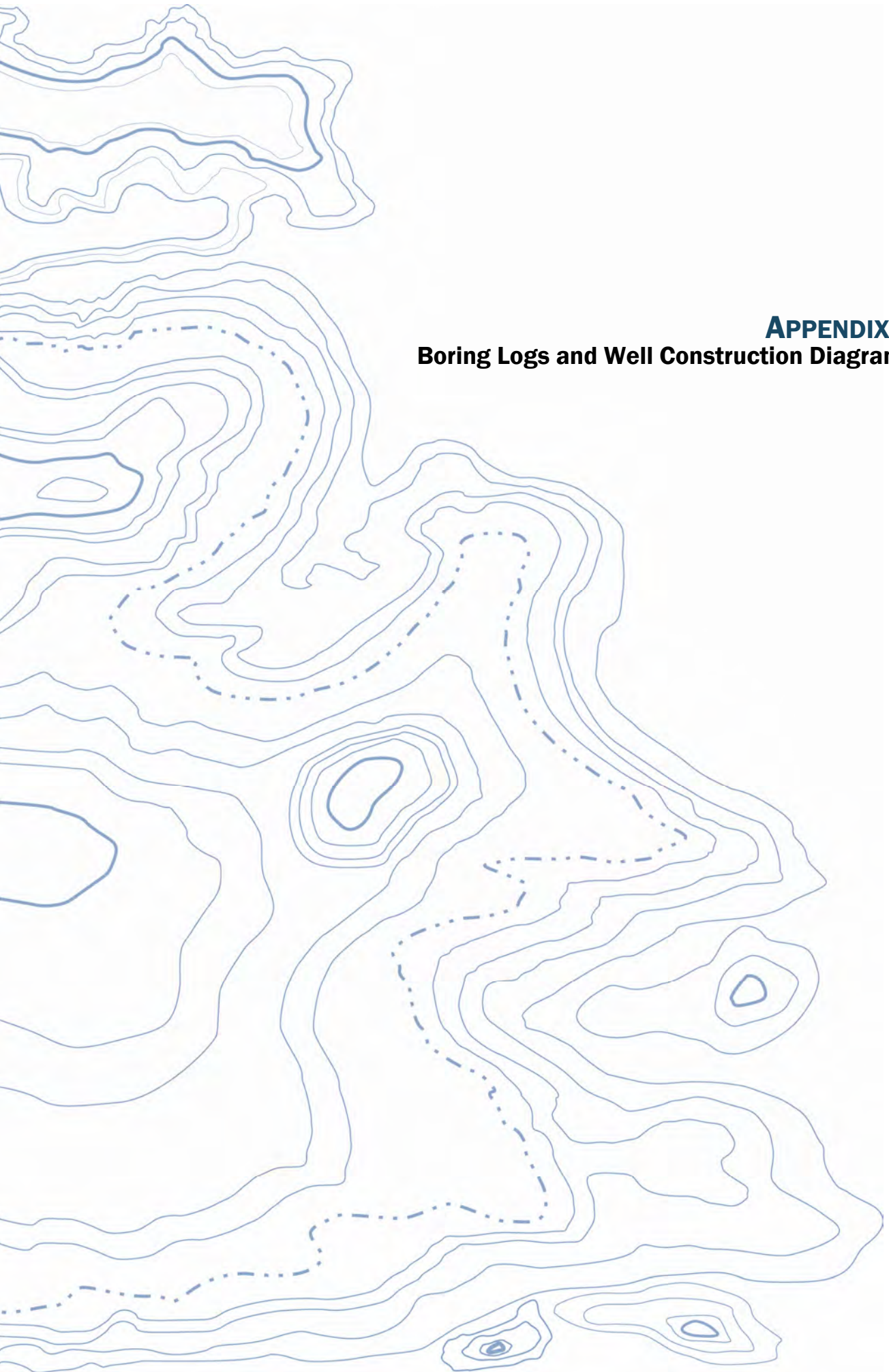
Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 6

APPENDICES

GeoEngineers



APPENDIX A
Boring Logs and Well Construction Diagrams

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	CC	Cement Concrete
	AC	Asphalt Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

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FIGURE A-1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	12/2/2010	12/2/2010	31.5	RNM	CEB	Boart Longyear	Hollow Stem Auger

Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Surface Elevation (ft) Vertical Datum	13.8 NAVD88	Top of Casing Elevation (ft)	13.3
Easting (X) Northing (Y)	1124627.67 24204.23	Horizontal Datum	NAD83/CORS

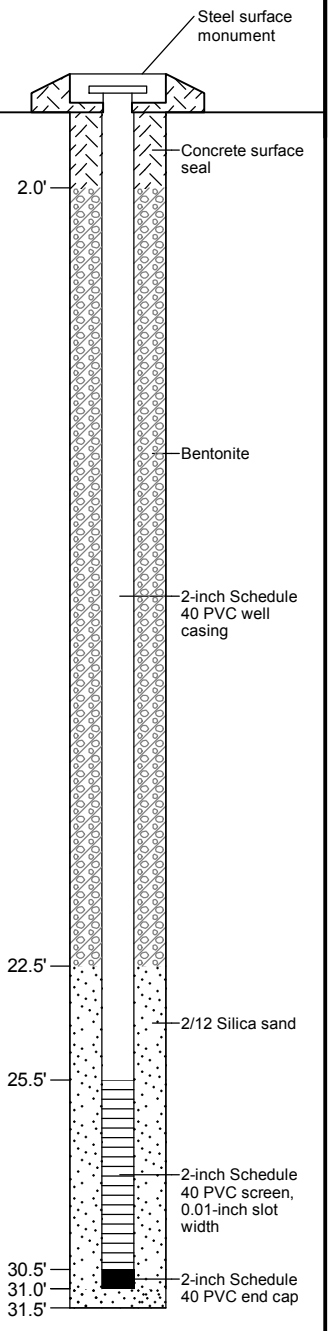
A 2 (in) well was installed on 12/2/2010 to a depth of 31 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/7/2011	4.46	8.86

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 5 feet bgs.

Depth (feet)	Elevation (feet)	Interval Recovered (in)	Blows/foot	Sample Name	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
0						AC	2 inches asphalt concrete pavement		
						GP-GM	Gray to brown fine gravel with silt and sand (medium dense, moist)		
						SP-SM	Gray fine to medium sand with silt, occasional fine gravel and shell fragments (loose, moist)		
5		6		1				NS	PID = 0
10		18	31	2				NS	PID = 0
						SP	Gray fine to coarse sand with gravel with trace silt (very dense, wet)		
15		18	53	3				NS	PID = 0
20		18	31	4				NS	PID = 0
25		16	25	5				NS	PID = 0
30		18	13	6		SP-SM	Gray to brown fine to medium sand with silt and occasional fine gravel (medium dense, wet)		

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-OOD

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-2
Sheet 1 of 1

Seattle: Date:4/7/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000\018677400 MW (2011).GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/30/2010	11/30/2010	31.5	RNM	CEB	Boart Longyear	Hollow Stem Auger

Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Surface Elevation (ft) Vertical Datum	14.4 NAVD88	Top of Casing Elevation (ft)	14.2
Easting (X) Northing (Y)	1124735.01 24083.86	Horizontal Datum	NAD83/CORS

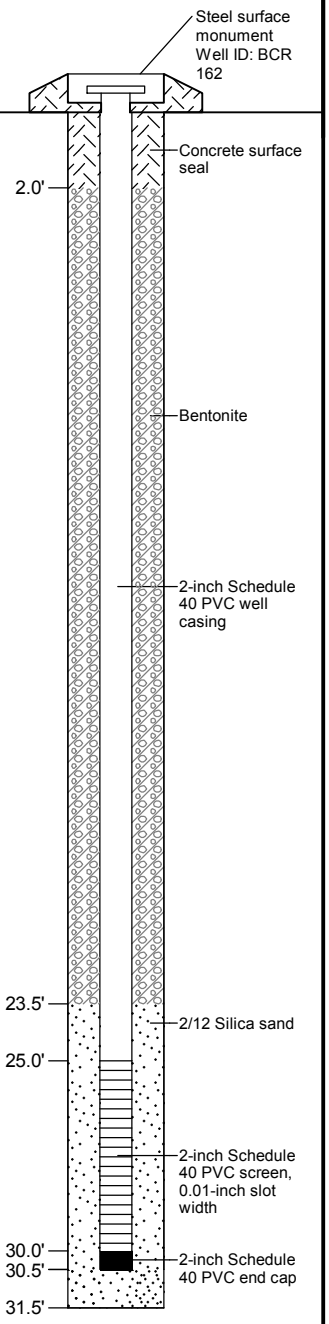
A 2 (in) well was installed on 11/30/2010 to a depth of 30.5 (ft).

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
1/7/2011	5.37	8.83

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 5 feet bgs.

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							AC	2 inches asphalt concrete pavement		
								GP/SP	4 inches gray fine gravel with sand and trace silt (medium dense, moist)		
								SP-SM	Gray fine to medium sand with silt, occasional gravel (loose, moist)		
	5	4			1	▼				SS	PID = 0
	10	12	32		2				Gray fine to coarse sand with silt and gravel (medium dense, wet)	NS	PID = 0
	15	10	16		3				Gray fine to medium sand with silt and gravel (medium dense, wet)	NS	PID = 0
	20	18	37		4				Gray fine to medium sand with silt, occasional gravel (dense, wet)	NS	PID = 0
	25	12	34		5				Increasing gravel content	NS	PID = 0
	30	18	18		6				Grades to medium dense	NS	PID = 0
								SM	Gray silty fine sand		

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-12D

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-3
Sheet 1 of 1

Seattle: Date:4/7/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000\0186774000 MW (2011).GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

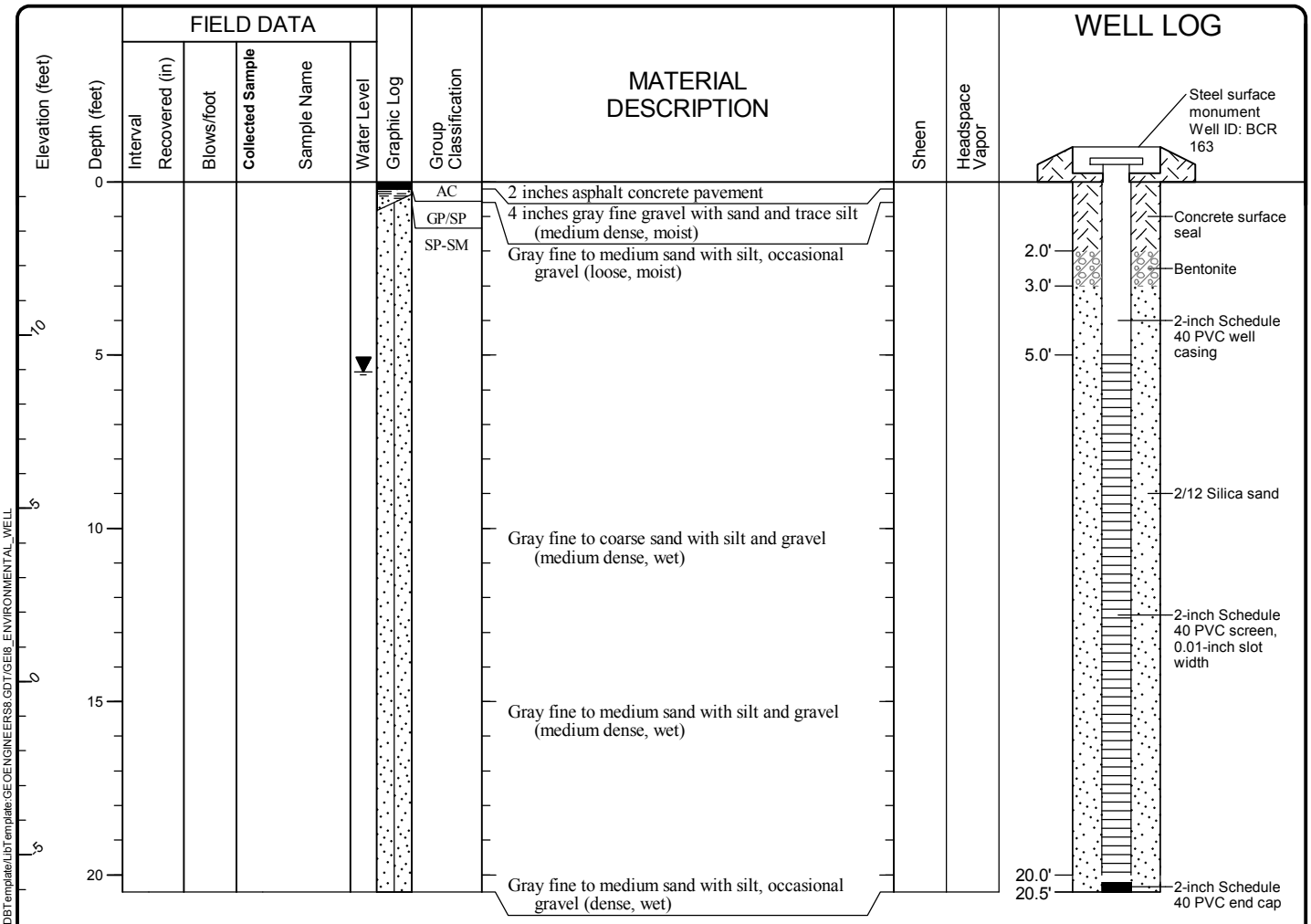
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/30/2010	11/30/2010	20.5	RNM	CEB	Boart Longyear	Hollow Stem Auger

Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Surface Elevation (ft) Vertical Datum	14.4 NAVD88	Top of Casing Elevation (ft)	14.2
Easting (X) Northing (Y)	1124730.26 24085.28	Horizontal Datum	NAD83/CORS

A 2 (in) well was installed on 11/30/2010 to a depth of 20.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/7/2011	5.28	8.91

Notes: 4¼-inch I.D.; Samples not taken due to exploration being driven directly next to MW-12D; Air knifed from 3 inches to 5 feet bgs.



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-12S

GeoEngineers

Project:	Former Columbia Street MGP Property
Project Location:	Olympia, Washington
Project Number:	0186-774-00

Figure A-4
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/24/2010	11/24/2010	31.5	RNM / CEB	Boart Longyear	Hollow Stem Auger

Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Surface Elevation (ft) Vertical Datum	14.3 NAVD88	Top of Casing Elevation (ft)	13.8
Easting (X) Northing (Y)	1124558 23938.26	Horizontal Datum	NAD83/CORS

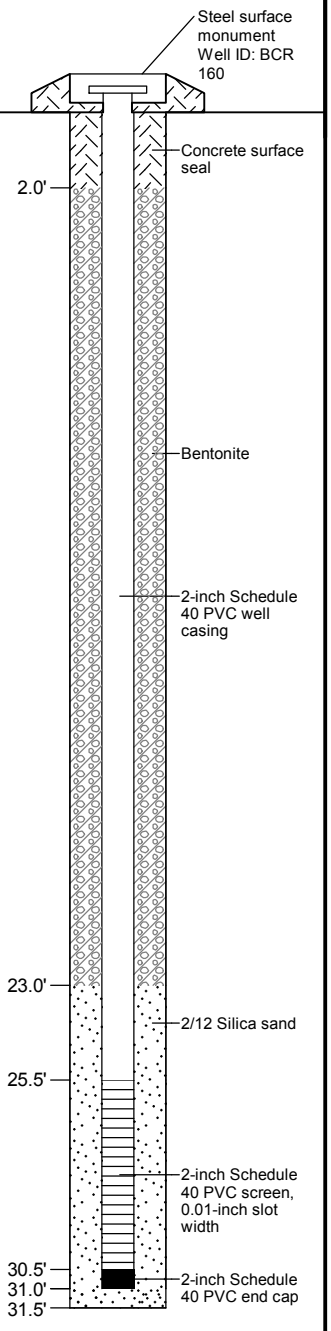
A 2 (in) well was installed on 11/24/2010 to a depth of 31 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/7/2011	5.06	8.78

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 5 feet bgs.

Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
0							CC	Cement concrete		
							SM	Dark brown silty fine to medium sand with occasional gravel (loose, moist)		
							SP-SM	Gray to brown fine to medium sand with silt, gravel and occasional cobbles and shells (loose, moist)		
5	18	9		1	▼			Grades to gray with occasional gravel, shells absent Becomes wet at 6 feet	SS	PID = 0
10	16	12		2				Grades to medium dense	NS	PID = 0
15	18	26		3				Gray fine to coarse sand with silt and gravel (medium dense, wet)	NS	PID = 0
							SP	Gray fine to coarse sand with gravel and trace silt (very dense, wet)		
20	15	55		4					NS	PID = 0
25	18	51		5					NS	
30	18	43		6				Grades to dense	NS	

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-13D

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-5
Sheet 1 of 1

Seattle: Date:4/7/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000\0186774000 MW (2011).GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

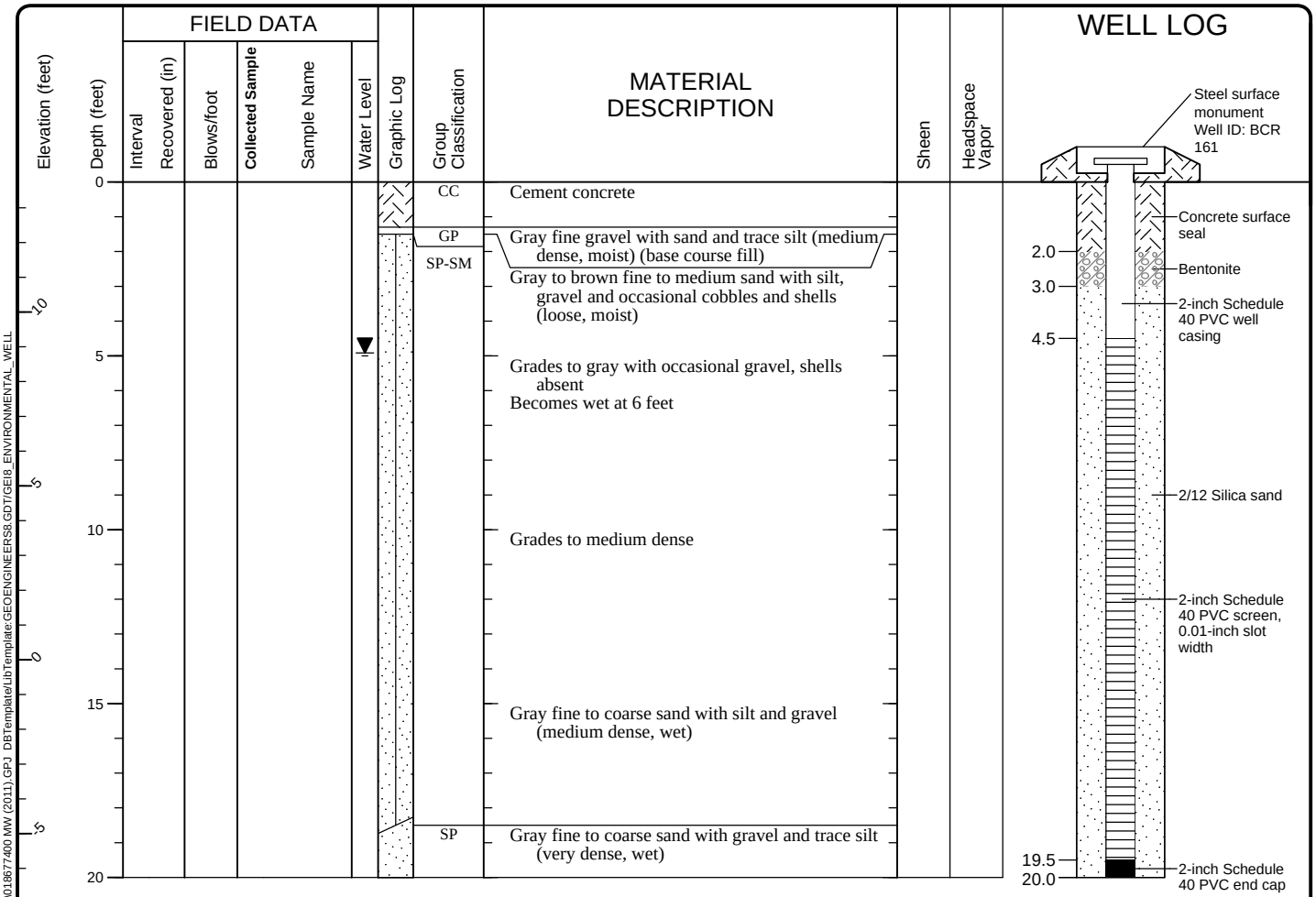
Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/30/2010	11/30/2010	20	RNM / CEB	Boart Longyear	Hollow Stem Auger

Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Surface Elevation (ft) Vertical Datum	13.7 NAVD88	Top of Casing Elevation (ft)	13.4
Easting (X) Northing (Y)	1124558.27 23934.22	System Datum	NAD83/CORS

A 2 (in) well was installed on 11/30/2010 to a depth of 20 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1/7/2011	4.60	8.83

Notes: 4¼-inch I.D.; Samples not taken due to exploration being driven directly next to MW-13D; Air knifed from 3 inches to 5 feet bgs.



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well MW-13S

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-6
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
12/2/2010	12/2/2010	16.5	RNM / CEB	Boart Longyear	Hollow Stem Auger

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
14.1 / NAVD88	Dames & Moore 300 (lbs) / 30 (in) Drop	Truck-mounted Mobile B-59

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
1124436.33 / 24200.38	NAD83/CORS	12/2/2010	6.0	8.1

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 6 feet bgs.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
10	0						AC	2 inches asphalt concrete			
							CC	5 inches cement concrete			
							GP	Gray to brown fine to coarse gravel with sand trace silt (medium dense, moist)			
		6		1			SP-SM	Gray fine to medium sand with silt, occasional fine to coarse gravel and shell fragments (loose, moist)	SS	PID = 0	
	5				▽						
5		18	19	2				Grades to medium dense, becomes wet	NS	PID = 0	
	10	15	4	3				Grades to loose	NS	PID = 0	
0							SM	Dark gray silty fine to medium sand with occasional gravel and shell fragments (medium dense, wet)			
	15	18	11	4					NS	PID = 0	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring SB-18

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-7
Sheet 1 of 1

Seattle: Date:3/31/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000186774000 MW (2011).GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	12/2/2010	12/2/2010	16.5	RNM	CEB	Boart Longyear	Hollow Stem Auger

Surface Elevation (ft) / Vertical Datum	13.9 NAVD88	Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop
Drilling Equipment	Truck-mounted Mobile B-59		
Easting (X) / Northing (Y)	1124499.59 / 24206.6	System Datum	NAD83/CORS

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 6 feet bgs.

Groundwater	Depth to Water (ft)	Elevation (ft)
Date Measured		
12/2/2010	6.0	7.9

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
10	0							AC	2 inches asphalt concrete			
								CC	9 inches cement concrete			
								GP	Gray fine gravel with sand and trace silt (medium dense, moist)			
		6			1			SP-SM	Gray to black fine to medium sand with silt and fine gravel and occasional shell fragments (loose, moist)	NS	PID = 0	
	5					▽						
5		18	15		2				Grades to medium dense, becomes wet	NS	PID = 0	
	10	18	31		3				Grades to dense	NS	PID = 0	
								GP	Gray fine to coarse gravel with sand and trace silt (medium dense, wet)			
	15	16	19		4					NS	PID = 0	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring SB-19

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-8
Sheet 1 of 1

Seattle: Date:3/31/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000186774000 MW (2011).GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
12/1/2010	12/1/2010	26.5	RNM / CEB	Boart Longyear	Hollow Stem Auger

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
14.6 / NAVD88	Dames & Moore 300 (lbs) / 30 (in) Drop	Truck-mounted Mobile B-59

Easting (X) / Northing (Y)	System Datum	Groundwater		
1124526.6 / 24073.29	NAD83/CORS	Date Measured	Depth to Water (ft)	Elevation (ft)
		12/2/2010	6.0	8.6

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 6 feet bgs.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						GP-GM	Gray to brown fine to coarse gravel with silt and sand (medium dense, moist)			
		6		1			SP-SM	Gray fine to medium sand with silt, gravel and occasional shell fragments (loose, moist)	SS	PID = 0	
10	5				▽						
		18	2	2			SP-SM	Gray fine to medium sand with silt, occasional gravel and organic matter (roots) (very loose, wet)	NS	PID = 0	
5	10	18	7	3				Grades to loose with occasional shell fragments	NS	PID = 0	
0	15	18	24	4			SP-SM	Gray fine to coarse sand with silt and gravel (medium dense, wet)	NS	PID = 0	
-5	20	18	24	5					NS	PID = 0	
-10	25	16	25	6				Gray fine to medium sand with silt and occasional gravel (medium dense, wet)	NS	PID = 0	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring SB-20

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-9
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
12/1/2010	12/1/2010	31.5	RNM / CEB	Boart Longyear	Hollow Stem Auger

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
14.4 / NAVD88	Dames & Moore 300 (lbs) / 30 (in) Drop	Truck-mounted Mobile B-59

Easting (X) / Northing (Y)	System Datum	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
1124407.71 / 24066.3	NAD83/CORS	12/2/2010	6.0	8.4

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 6 feet bgs.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						GP	Gray fine gravel (loose, moist)			
							GP-GM	Gray to brown fine to coarse gravel with silt and sand (medium dense, moist)			
							SP	Gray fine to medium sand with occasional shell fragments and trace silt (loose, moist)			
10	5	6		1	▽				SS	PID = 0	
							SP-SM	Gray fine to medium sand with silt, occasional gravel and shell fragments (medium dense, wet)			
5		18	11	2					MS	PID = 2	
	10	18	4	3				Becomes loose	NS	PID = 0	
0	15	18	7	4			SM	Gray silty fine to medium sand with occasional gravel and shell fragments (loose, wet)	NS	PID = 0	
-5	20	18	31	5			SP-SM	Gray with orange mottling fine to medium sand with silt, occasional gravel and shell fragments (dense, wet)	NS	PID = 0	
-10	25	18	45	6				Gray to brown with orange mottling fine to coarse sand with gravel and occasional shell fragments (dense, wet)	NS	PID = 0	
-15	30	18	20	7				Gray to brown fine sand with silt (medium dense, wet)	NS	PID = 0	

Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:3/31/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000186774000 MW (2011).GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_STANDARD

Log of Boring SB-21

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-10
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	12/1/2010	12/1/2010	11.5	RNM	CEB	Boart Longyear	Hollow Stem Auger

Surface Elevation (ft) / Vertical Datum	14.6 NAVD88	Hammer Data	Dames & Moore 300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted Mobile B-59
Easting (X) / Northing (Y)	1124439.57 / 24064	System Datum	NAD83/CORS		

Notes: 4¼-inch I.D.; Air-knifed from 3 inches to 6 feet bgs.

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
12/2/2010	6.0	8.6

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							AC	3 inches asphalt concrete			Air-knifed from 3 inches to 6 feet bgs
								GP	Gray to brown fine to coarse gravel with sand, trace silt and organic matter (roots) (medium dense, moist) (fill)			
								SP-SM	Gray fine to medium sand with silt, occasional fine gravel and shell fragments (loose, moist)			
		6			1				Glass and metal debris at 2 feet	NS	PID = 0	
10	5					▽			Becomes wet at 6 feet			
		15	11		2					NS	PID = 0	
5	10	12	6		3					NS	PID = 0	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring SB-22

GeoEngineers

Project: Former Columbia Street MGP Property
Project Location: Olympia, Washington
Project Number: 0186-774-00

Figure A-11
Sheet 1 of 1

Seattle: Date:3/31/11 Path:C:\DOCUMENTS AND SETTINGS\CVOSS\DESKTOP\186774000186774000 MW (2011).GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_STANDARD

APPENDIX B
Laboratory Analytical Reports and Data Quality Assessment Summary

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 29, 2011

Rob Leet
GeoEngineers, Inc.
600 Stewart, Suite 1700
Seattle, WA 98101-1233

Re: Analytical Data for Project 0186-774-00; PSE-Olympia (Columbia St.)
Laboratory Reference No. 1012-024

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on December 2, 2010.

Please note that this is a *revised* report and replaces the original report due to a request for lower arsenic PQLs.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

Case Narrative

Samples were collected on November 29, 2010 and received by the laboratory on December 2, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-13D-10.5	12-024-01	Soil	11-29-10	12-2-10	
MW-13D-15.5	12-024-02	Soil	11-29-10	12-2-10	
MW-13D-20.5	12-024-03	Soil	11-29-10	12-2-10	
MW-13D-25.5	12-024-04	Soil	11-29-10	12-2-10	
MW-13D-30.5	12-024-05	Soil	11-29-10	12-2-10	
MW-13D-30.5-R	12-024-06	Water	11-29-10	12-2-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-024-01					
Client ID:	**MW-13D-10.5**					
Arsenic	**ND**	5.9	6010B	12-7-10	12-7-10	
Lab ID:	12-024-02					
Client ID:	**MW-13D-15.5**					
Arsenic	**ND**	6.0	6010B	12-7-10	12-7-10	
Lab ID:	12-024-03					
Client ID:	**MW-13D-20.5**					
Arsenic	**ND**	5.8	6010B	12-7-10	12-7-10	
Lab ID:	12-024-04					
Client ID:	**MW-13D-25.5**					
Arsenic	**ND**	5.7	6010B	12-7-10	12-7-10	
Lab ID:	12-024-05					
Client ID:	**MW-13D-30.5**					
Arsenic	**ND**	5.8	6010B	12-7-10	12-7-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-024-06					
Client ID:	**MW-13D-30.5-R**					
Arsenic	**ND**	3.0	200.8	12-3-10	12-6-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-7-10
Date Analyzed:	12-7-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1207S2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-024-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	5.0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-024-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**91.3**	91	**90.0**	90	2	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120710P	1.00	1.01	-0.86	+/- 10%
Arsenic	CCV1120710P	1.00	0.975	2.5	+/- 10%
Arsenic	CCV2120710P	1.00	0.950	5.0	+/- 10%
Arsenic	CCV3120710P	1.00	0.938	6.2	+/- 10%
Arsenic	CCV4120710P	1.00	0.954	4.6	+/- 10%
Arsenic	CCV5120710P	1.00	0.942	5.8	+/- 10%
Arsenic	CCV6120710P	1.00	0.971	2.9	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-3-10
Date Analyzed:	12-6-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1203W2

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-3-10
Date Analyzed: 12-6-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-031-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-3-10
Date Analyzed: 12-6-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-031-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**110**	110	**114**	114	4	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120610E	0.0500	0.0496	0.80	+/- 10%
Arsenic	CCV1120610E	0.100	0.100	0	+/- 10%
Arsenic	CCV1120610E	0.0400	0.0400	0	+/- 10%
Arsenic	CCV2120610E	0.100	0.101	-1.0	+/- 10%
Arsenic	CCV2120610E	0.0400	0.0410	-2.5	+/- 10%
Arsenic	CCV3120610E	0.100	0.100	0	+/- 10%
Arsenic	CCV3120610E	0.0400	0.0403	-0.75	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-024
Project: 0186-774-00; PSE-Olympia (Columbia St.)

% MOISTURE

Date Analyzed: 12-7-10

Client ID	Lab ID	% Moisture
MW-13D-10.5	12-024-01	16
MW-13D-15.5	12-024-02	17
MW-13D-20.5	12-024-03	13
MW-13D-25.5	12-024-04	12
MW-13D-30.5	12-024-05	14

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Page 1 of 1

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE-Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 12-024

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Arsenic 6010B/200.8						% Moisture
1	MW-13D-10.5	11/29/10	1320	soil	1																X						X
2	-15.5		1330		1																X						X
3	-20.5		1355		1																X						X
4	-25.5		1410		1																X						X
5	-30.5		1435	↓	1																X						X
6	-30.5-R	↓	1445	water	1																X						

	Signature	Company	Date	Time
Relinquished	[signature]	GeoEngineers, Inc.	12/02/10	0700
Received	[signature]	OnSite Env	12/2/10	1020
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0186-774-00

OnSite Project Number: 12-024

Initiated by: BG/MW

Date Initiated: 12/21/10

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	No	N/A	1 2 3 4	
1.2 Were the custody seals intact?	Yes	No	N/A	1 2 3 4	
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	N/A	1 2 3 4	
1.4 Were the samples delivered on ice or blue ice?	Yes	No		1 2 3 4	
1.5 Were samples received between 0-6 degrees Celsius?	Yes	No	Temperature: 2°C		
1.6 Have shipping bills (if any) been attached to the back of this form?	Yes	N/A			
1.7 How were the samples delivered?	Client	Courier	UPS/FedEx	OSE Pickup	Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	Yes	No	1 2 3 4	
2.2 Was the COC legible and written in permanent ink?	Yes	No	1 2 3 4	
2.3 Have samples been relinquished and accepted by each custodian?	Yes	No	1 2 3 4	
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	Yes	No	1 2 3 4	
2.5 Were all of the samples listed on the COC submitted?	Yes	No	1 2 3 4	
2.6 Were any of the samples submitted omitted from the COC?	Yes	No	1 2 3 4	

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	No		1 2 3 4	
3.2 Were any sample labels missing or illegible?	Yes	No		1 2 3 4	
3.3 Have the correct containers been used for each analysis requested?	Yes	No		1 2 3 4	
3.4 Have the samples been correctly preserved?	Yes	No	N/A	1 2 3 4	
3.5 Are volatiles samples free from headspace and air bubbles?	Yes	No	N/A	1 2 3 4	
3.6 Is there sufficient sample submitted to perform requested analyses?	Yes	No		1 2 3 4	
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	No		1 2 3 4	
3.8 Was method 5035A used?	Yes	No	N/A	1 2 3 4	
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		N/A	1 2 3 4	

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 29, 2011

Rob Leet
GeoEngineers, Inc.
600 Stewart, Suite 1700
Seattle, WA 98101-1233

Re: Analytical Data for Project 0186-774-00; PSE-Olympia (Columbia St.)
Laboratory Reference No. 1012-025

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on December 2, 2010.

Please note that this is a *revised* report and replaces the original report due to a request for lower arsenic PQLs.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

Case Narrative

Samples were collected on November 30, 2010 and received by the laboratory on December 2, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-12D-10.5	12-025-01	Soil	11-30-10	12-2-10	
MW-12D-15.5	12-025-02	Soil	11-30-10	12-2-10	
MW-12D-20.5	12-025-03	Soil	11-30-10	12-2-10	
MW-12D-25.5	12-025-04	Soil	11-30-10	12-2-10	
MW-12D-30.5	12-025-05	Soil	11-30-10	12-2-10	
MW-12D-30.5-R	12-025-06	Water	11-30-10	12-2-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-025-01					
Client ID:	**MW-12D-10.5**					
Arsenic	**ND**	5.5	6010B	12-7-10	12-7-10	
Lab ID:	12-025-02					
Client ID:	**MW-12D-15.5**					
Arsenic	**ND**	5.8	6010B	12-7-10	12-7-10	
Lab ID:	12-025-03					
Client ID:	**MW-12D-20.5**					
Arsenic	**ND**	5.7	6010B	12-7-10	12-7-10	
Lab ID:	12-025-04					
Client ID:	**MW-12D-25.5**					
Arsenic	**ND**	5.7	6010B	12-7-10	12-7-10	
Lab ID:	12-025-05					
Client ID:	**MW-12D-30.5**					
Arsenic	**ND**	6.6	6010B	12-7-10	12-7-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-025-06					
Client ID:	**MW-12D-30.5-R**					
Arsenic	**ND**	3.0	200.8	12-3-10	12-6-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-7-10
Date Analyzed:	12-7-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1207S3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-026-16

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	5.0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-026-16

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	50	**44.9**	90	**45.9**	92	2	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120710P	1.00	1.01	-0.86	+/- 10%
Arsenic	CCV1120710P	1.00	0.975	2.5	+/- 10%
Arsenic	CCV2120710P	1.00	0.950	5.0	+/- 10%
Arsenic	CCV3120710P	1.00	0.938	6.2	+/- 10%
Arsenic	CCV4120710P	1.00	0.954	4.6	+/- 10%
Arsenic	CCV5120710P	1.00	0.942	5.8	+/- 10%
Arsenic	CCV6120710P	1.00	0.971	2.9	+/- 10%
Arsenic	CCV7120710P	1.00	0.951	4.9	+/- 10%
Arsenic	CCV8120710P	1.00	0.965	3.5	+/- 10%
Arsenic	CCV9120710P	1.00	0.937	6.3	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-3-10
Date Analyzed:	12-6-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1203W2

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-3-10
Date Analyzed: 12-6-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-031-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-3-10
Date Analyzed: 12-6-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-031-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**110**	110	**114**	114	4	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120610E	0.0500	0.0496	0.80	+/- 10%
Arsenic	CCV1120610E	0.100	0.100	0	+/- 10%
Arsenic	CCV1120610E	0.0400	0.0400	0	+/- 10%
Arsenic	CCV2120610E	0.100	0.101	-1.0	+/- 10%
Arsenic	CCV2120610E	0.0400	0.0410	-2.5	+/- 10%
Arsenic	CCV3120610E	0.100	0.100	0	+/- 10%
Arsenic	CCV3120610E	0.0400	0.0403	-0.75	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-025
Project: 0186-774-00; PSE-Olympia (Columbia St.)

% MOISTURE

Date Analyzed: 12-7-10

Client ID	Lab ID	% Moisture
MW-12D-10.5	12-025-01	10
MW-12D-15.5	12-025-02	13
MW-12D-20.5	12-025-03	13
MW-12D-25.5	12-025-04	12
MW-12D-30.5	12-025-05	25

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Page 1 of 1

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE- Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 12-025

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Arsenic 6010B/200.8						% Moisture
1	MW-12D- 10.5	11/30/10	0920	soil	1																X						X
2	-15.5		0930		1																X						X
3	-20.5		0945		1																X						X
4	-25.5		0955		1																X						X
5	-30.5		1005	↓	1																X						X
6	-30.5-R	↓	1020	water	1																X						

	Signature	Company	Date	Time
Relinquished	[signature]	GeoEngineers, Inc.	12/02/10	0700
Received	[signature]	[illegible]	12/2/10	1020
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0186-774-00

OnSite Project Number: 12-025

Initiated by: MV

Date Initiated: 12/2/10

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	**Yes**	No	**N/A**	1 2 3 4	
1.2 Were the custody seals intact?	**Yes**	No	**N/A**	1 2 3 4	
1.3 Were the custody seals signed and dated by last custodian?	**Yes**	No	**N/A**	1 2 3 4	
1.4 Were the samples delivered on ice or blue ice?	**Yes**	No		1 2 3 4	
1.5 Were samples received between 0-6 degrees Celsius?	**Yes**	No	Temperature: 2° C		
1.6 Have shipping bills (if any) been attached to the back of this form?	**Yes**	N/A			
1.7 How were the samples delivered?	**Client**	**Courier**	**UPS/FedEx**	**OSE Pickup**	**Other**

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	**Yes**	No	1 2 3 4	
2.2 Was the COC legible and written in permanent ink?	**Yes**	No	1 2 3 4	
2.3 Have samples been relinquished and accepted by each custodian?	**Yes**	No	1 2 3 4	
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	**Yes**	No	1 2 3 4	
2.5 Were all of the samples listed on the COC submitted?	**Yes**	No	1 2 3 4	
2.6 Were any of the samples submitted omitted from the COC?	Yes	**No**	1 2 3 4	

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	**No**		1 2 3 4	
3.2 Were any sample labels missing or illegible?	Yes	**No**		1 2 3 4	
3.3 Have the correct containers been used for each analysis requested?	**Yes**	No		1 2 3 4	
3.4 Have the samples been correctly preserved?	**Yes**	No	**N/A**	1 2 3 4	
3.5 Are volatiles samples free from headspace and air bubbles?	**Yes**	No	**N/A**	1 2 3 4	
3.6 Is there sufficient sample submitted to perform requested analyses?	**Yes**	No		1 2 3 4	
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	**No**		1 2 3 4	
3.8 Was method 5035A used?	**Yes**	No	**N/A**	1 2 3 4	
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	**#**		**N/A**	1 2 3 4	

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 29, 2011

Rob Leet
GeoEngineers, Inc.
600 Stewart, Suite 1700
Seattle, WA 98101-1233

Re: Analytical Data for Project 0186-774-00; PSE-Olympia (Columbia St.)
Laboratory Reference No. 1012-026

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on December 2, 2010.

Please note that this is a *revised* report and replaces the original report due to a request for lower arsenic PQL's.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

Case Narrative

Samples were collected on December 1, 2010 and received by the laboratory on December 2, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH-G/BTEX (soil) Analysis

Per EPA Method 5035A, samples were received by the laboratory in pre-weighed 40 mL VOA vials within 48 hours of sample collection. They were stored in a freezer at between -7°C and -20°C until extraction or analysis.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
SB-22-2.5	12-026-01	Soil	12-1-10	12-2-10	
SB-22-8.0	12-026-02	Soil	12-1-10	12-2-10	
SB-22-10.5	12-026-03	Soil	12-1-10	12-2-10	
SB-21-2.5	12-026-04	Soil	12-1-10	12-2-10	
SB-21-8.0	12-026-05	Soil	12-1-10	12-2-10	
SB-21-10.5	12-026-06	Soil	12-1-10	12-2-10	
SB-21-15.5	12-026-07	Soil	12-1-10	12-2-10	
SB-21-20.5	12-026-08	Soil	12-1-10	12-2-10	
SB-21-25.5	12-026-09	Soil	12-1-10	12-2-10	
SB-21-30.5	12-026-10	Soil	12-1-10	12-2-10	
SB-20-2.5	12-026-11	Soil	12-1-10	12-2-10	
SB-20-8.0	12-026-12	Soil	12-1-10	12-2-10	
SB-20-10.5	12-026-13	Soil	12-1-10	12-2-10	
SB-20-15.5	12-026-14	Soil	12-1-10	12-2-10	
SB-20-20.5	12-026-15	Soil	12-1-10	12-2-10	
SB-20-25.5	12-026-16	Soil	12-1-10	12-2-10	
SB-20-25.5-R	12-026-17	Water	12-1-10	12-2-10	
Trip Blank	12-026-18	Water	12-1-10	12-2-10	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

BTEX
EPA 8021B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-2.5**					
Laboratory ID:	12-026-11					
Benzene	**ND**	0.025	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	0.12	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	0.058	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	0.12	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	0.058	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***94***	***55-127***				
Client ID:	**SB-20-8.0**					
Laboratory ID:	12-026-12					
Benzene	**ND**	0.025	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	0.13	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	0.065	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	0.13	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	0.065	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***107***	***55-127***				
Client ID:	**SB-20-10.5**					
Laboratory ID:	12-026-13					
Benzene	**1.0**	0.025	EPA 8021	12-3-10	12-7-10	
Toluene	**ND**	0.13	EPA 8021	12-3-10	12-7-10	
Ethyl Benzene	**ND**	0.066	EPA 8021	12-3-10	12-7-10	
m,p-Xylene	**ND**	0.13	EPA 8021	12-3-10	12-7-10	
o-Xylene	**ND**	0.066	EPA 8021	12-3-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***107***	***55-127***				

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

BTEX
EPA 8021B

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-25.5-R**					
Laboratory ID:	12-026-17					
Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***74-121***				
Client ID:	**Trip Blank**					
Laboratory ID:	12-026-18					
Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***89***	***74-121***				

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Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-2.5**					
Laboratory ID:	12-026-11					
Diesel Range Organics	**ND**	70	NWTPH-Dx	12-7-10	12-7-10	U1
Lube Oil	**530**	56	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***119***	***50-150***				
Client ID:	**SB-20-8.0**					
Laboratory ID:	12-026-12					
Diesel Range Organics	**ND**	31	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil	**170**	62	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***121***	***50-150***				
Client ID:	**SB-20-10.5**					
Laboratory ID:	12-026-13					
Diesel Range Organics	**ND**	31	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	61	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***112***	***50-150***				

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Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-25.5-R**					
Laboratory ID:	12-026-17					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***94***	***50-150***				

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Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-22-2.5**					
Laboratory ID:	12-026-01					
Benzo[a]anthracene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0070	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***73***	***45 - 101***				
Pyrene-d10	***96***	***52 - 118***				
Terphenyl-d14	***82***	***41 - 106***				
Client ID:	**SB-22-8.0**					
Laboratory ID:	12-026-02					
Benzo[a]anthracene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**0.014**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***78***	***45 - 101***				
Pyrene-d10	***100***	***52 - 118***				
Terphenyl-d14	***87***	***41 - 106***				
Client ID:	**SB-22-10.5**					
Laboratory ID:	12-026-03					
Benzo[a]anthracene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0087	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***70***	***45 - 101***				
Pyrene-d10	***94***	***52 - 118***				
Terphenyl-d14	***82***	***41 - 106***				

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Project: 0186-774-00; PSE-Olympia (Columbia St.)

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-21-2.5**					
Laboratory ID:	12-026-04					
Benzo[a]anthracene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0071	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***73***	***45 - 101***				
Pyrene-d10	***95***	***52 - 118***				
Terphenyl-d14	***80***	***41 - 106***				
Client ID:	**SB-21-8.0**					
Laboratory ID:	12-026-05					
Benzo[a]anthracene	**0.020**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**0.047**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**0.013**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**0.010**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**0.015**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**0.012**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***87***	***45 - 101***				
Pyrene-d10	***95***	***52 - 118***				
Terphenyl-d14	***87***	***41 - 106***				
Client ID:	**SB-21-10.5**					
Laboratory ID:	12-026-06					
Benzo[a]anthracene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***45 - 101***				
Pyrene-d10	***97***	***52 - 118***				
Terphenyl-d14	***81***	***41 - 106***				

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cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-2.5**					
Laboratory ID:	12-026-11					
Benzo[a]anthracene	**1.7**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**2.0**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**2.5**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**2.0**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**3.8**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**3.0**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**0.44**	0.075	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***73***	***45 - 101***				
Pyrene-d10	***84***	***52 - 118***				
Terphenyl-d14	***74***	***41 - 106***				
Client ID:	**SB-20-8.0**					
Laboratory ID:	12-026-12					
Benzo[a]anthracene	**0.13**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**0.16**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**0.19**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**0.15**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**0.28**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**0.23**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**0.036**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***74***	***45 - 101***				
Pyrene-d10	***90***	***52 - 118***				
Terphenyl-d14	***80***	***41 - 106***				
Client ID:	**SB-20-10.5**					
Laboratory ID:	12-026-13					
Benzo[a]anthracene	**0.084**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**0.089**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**0.075**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**0.075**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**0.12**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**0.081**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**0.017**	0.0082	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***69***	***45 - 101***				
Pyrene-d10	***89***	***52 - 118***				
Terphenyl-d14	***78***	***41 - 106***				

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cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-15.5**					
Laboratory ID:	12-026-14					
Benzo[a]anthracene	**0.022**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**0.021**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**0.016**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**0.016**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**0.024**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**0.014**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***45 - 101***				
Pyrene-d10	***88***	***52 - 118***				
Terphenyl-d14	***78***	***41 - 106***				
Client ID:	**SB-20-20.5**					
Laboratory ID:	12-026-15					
Benzo[a]anthracene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***71***	***45 - 101***				
Pyrene-d10	***91***	***52 - 118***				
Terphenyl-d14	***80***	***41 - 106***				
Client ID:	**SB-20-25.5**					
Laboratory ID:	12-026-16					
Benzo[a]anthracene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0081	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***73***	***45 - 101***				
Pyrene-d10	***90***	***52 - 118***				
Terphenyl-d14	***80***	***41 - 106***				

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Project: 0186-774-00; PSE-Olympia (Columbia St.)

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-20-25.5-R**					
Laboratory ID:	12-026-17					
Benzo[a]anthracene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Chrysene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[b]fluoranthene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[k]fluoranthene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[a]pyrene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Dibenz[a,h]anthracene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***66***	***47 - 105***				
Pyrene-d10	***81***	***35 - 129***				
Terphenyl-d14	***70***	***36 - 106***				

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-026-01					
Client ID:	**SB-22-2.5**					
Arsenic	**ND**	5.3	6010B	12-7-10	12-7-10	
Lead	**ND**	5.3	6010B	12-7-10	12-7-10	
Lab ID:	12-026-02					
Client ID:	**SB-22-8.0**					
Lead	**14**	6.2	6010B	12-7-10	12-7-10	
Lab ID:	12-026-03					
Client ID:	**SB-22-10.5**					
Arsenic	**ND**	6.5	6010B	12-7-10	12-7-10	
Lab ID:	12-026-04					
Client ID:	**SB-21-2.5**					
Lead	**ND**	5.3	6010B	12-7-10	12-7-10	
Lab ID:	12-026-05					
Client ID:	**SB-21-8.0**					
Arsenic	**ND**	5.8	6010B	12-7-10	12-7-10	
Lead	**26**	5.8	6010B	12-7-10	12-7-10	
Lab ID:	12-026-07					
Client ID:	**SB-21-15.5**					
Arsenic	**ND**	6.2	6010B	12-7-10	12-7-10	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-026-08					
Client ID:	**SB-21-20.5**					
Arsenic	**ND**	5.6	6010B	12-7-10	12-7-10	
Lab ID:	12-026-09					
Client ID:	**SB-21-25.5**					
Arsenic	**10**	5.5	6010B	12-7-10	12-7-10	
Lab ID:	12-026-10					
Client ID:	**SB-21-30.5**					
Arsenic	**ND**	6.1	6010B	12-7-10	12-7-10	
Lab ID:	12-026-11					
Client ID:	**SB-20-2.5**					
Lead	**140**	5.6	6010B	12-7-10	12-7-10	
Lab ID:	12-026-12					
Client ID:	**SB-20-8.0**					
Arsenic	**ND**	6.2	6010B	12-7-10	12-7-10	
Lead	**93**	6.2	6010B	12-7-10	12-7-10	
Lab ID:	12-026-13					
Client ID:	**SB-20-10.5**					
Lead	**67**	6.1	6010B	12-7-10	12-7-10	

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TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-026-14					
Client ID:	**SB-20-15.5**					
Arsenic	**ND**	5.8	6010B	12-7-10	12-7-10	
Lab ID:	12-026-15					
Client ID:	**SB-20-20.5**					
Arsenic	**ND**	5.6	6010B	12-7-10	12-7-10	
Lab ID:	12-026-16					
Client ID:	**SB-20-25.5**					
Arsenic	**ND**	6.0	6010B	12-7-10	12-7-10	

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TOTAL METALS
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-026-17					
Client ID:	**SB-20-25.5-R**					
Arsenic	**ND**	3.3	200.8	12-9-10	12-9-10	
Lead	**ND**	1.1	200.8	12-9-10	12-9-10	

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BTEX
EPA 8021B
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1203S1					
Benzene	**ND**	0.025	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	0.10	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	0.050	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	0.10	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	0.050	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***100***	***55-127***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-026-11										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***94***	***99***	***55-127***			
SPIKE BLANKS											
Laboratory ID:	SB1203S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.945**	**0.993**	1.00	1.00		**95**	**99**	75-113	5	9	
Toluene	**0.994**	**1.04**	1.00	1.00		**99**	**104**	75-116	5	10	
Ethyl Benzene	**0.982**	**1.03**	1.00	1.00		**98**	**103**	82-117	5	10	
m,p-Xylene	**0.997**	**1.05**	1.00	1.00		**100**	**105**	81-122	5	10	
o-Xylene	**0.986**	**1.03**	1.00	1.00		**99**	**103**	83-118	4	10	
Surrogate:											
Fluorobenzene						***96***	***98***	***55-127***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

BTEX
EPA 8021B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Benzene	ICVD1203V-1	50.0	49.0	2	+/- 15%
Toluene	ICVD1203V-1	50.0	52.5	-5	+/- 15%
Ethyl Benzene	ICVD1203V-1	50.0	50.3	-1	+/- 15%
m,p-Xylene	ICVD1203V-1	100	99.6	0	+/- 15%
o-Xylene	ICVD1203V-1	50.0	50.2	0	+/- 15%
Benzene	CCVD1203V-1	50.0	47.6	5	+/- 15%
Toluene	CCVD1203V-1	50.0	48.9	2	+/- 15%
Ethyl Benzene	CCVD1203V-1	50.0	49.1	2	+/- 15%
m,p-Xylene	CCVD1203V-1	50.0	49.7	1	+/- 15%
o-Xylene	CCVD1203V-1	50.0	49.2	2	+/- 15%
Benzene	CCVD1203B-1	50.0	50.5	-1	+/- 15%
Toluene	CCVD1203B-1	50.0	52.0	-4	+/- 15%
Ethyl Benzene	CCVD1203B-1	50.0	53.0	-6	+/- 15%
m,p-Xylene	CCVD1203B-1	50.0	54.2	-8	+/- 15%
o-Xylene	CCVD1203B-1	50.0	53.0	-6	+/- 15%
Benzene	CCVD1207B-2	50.0	55.9	-12	+/- 15%
Toluene	CCVD1207B-2	50.0	55.9	-12	+/- 15%
Ethyl Benzene	CCVD1207B-2	50.0	56.4	-13	+/- 15%
m,p-Xylene	CCVD1207B-2	50.0	56.7	-13	+/- 15%
o-Xylene	CCVD1207B-2	50.0	56.5	-13	+/- 15%
Benzene	CCVD1207B-3	50.0	50.1	0	+/- 15%
Toluene	CCVD1207B-3	50.0	52.3	-5	+/- 15%
Ethyl Benzene	CCVD1207B-3	50.0	53.5	-7	+/- 15%
m,p-Xylene	CCVD1207B-3	50.0	55.0	-10	+/- 15%
o-Xylene	CCVD1207B-3	50.0	54.1	-8	+/- 15%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

BTEX
EPA 8021B
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1203W1					
Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Toluene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
m,p-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
o-Xylene	**ND**	1.0	EPA 8021	12-3-10	12-3-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***90***	***74-121***				
Laboratory ID:	MB1207W2					
Benzene	**ND**	1.0	EPA 8021	12-7-10	12-7-10	
Toluene	**ND**	1.0	EPA 8021	12-7-10	12-7-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	12-7-10	12-7-10	
m,p-Xylene	**ND**	1.0	EPA 8021	12-7-10	12-7-10	
o-Xylene	**ND**	1.0	EPA 8021	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***102***	***74-121***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	12-026-17										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***87***	***90***	***74-121***			
MATRIX SPIKES											
Laboratory ID:	12-026-17										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**50.4**	**51.3**	50.0	50.0	ND	**101**	**103**	78-118	2	8	
Toluene	**53.8**	**53.1**	50.0	50.0	ND	**108**	**106**	81-119	1	8	
Ethyl Benzene	**55.0**	**54.9**	50.0	50.0	ND	**110**	**110**	81-121	0	8	
m,p-Xylene	**59.1**	**55.7**	50.0	50.0	ND	**118**	**111**	79-123	6	8	
o-Xylene	**56.1**	**55.4**	50.0	50.0	ND	**112**	**111**	79-121	1	8	
Surrogate:											
Fluorobenzene						***99***	***102***	***74-121***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

BTEX
EPA 8021B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Benzene	CCVH1203B-1	50.0	48.5	3	+/- 15%
Toluene	CCVH1203B-1	50.0	50.7	-1	+/- 15%
Ethyl Benzene	CCVH1203B-1	50.0	51.9	-4	+/- 15%
m,p-Xylene	CCVH1203B-1	50.0	52.2	-4	+/- 15%
o-Xylene	CCVH1203B-1	50.0	52.4	-5	+/- 15%
Benzene	CCVH1203B-2	50.0	49.4	1	+/- 15%
Toluene	CCVH1203B-2	50.0	50.6	-1	+/- 15%
Ethyl Benzene	CCVH1203B-2	50.0	51.4	-3	+/- 15%
m,p-Xylene	CCVH1203B-2	50.0	51.8	-4	+/- 15%
o-Xylene	CCVH1203B-2	50.0	51.1	-2	+/- 15%
Benzene	CCVD1203V-1	50.0	47.6	5	+/- 15%
Toluene	CCVD1203V-1	50.0	48.9	2	+/- 15%
Ethyl Benzene	CCVD1203V-1	50.0	49.1	2	+/- 15%
m,p-Xylene	CCVD1203V-1	50.0	49.7	1	+/- 15%
o-Xylene	CCVD1203V-1	50.0	49.2	2	+/- 15%
Benzene	CCVD1203B-1	50.0	50.5	-1	+/- 15%
Toluene	CCVD1203B-1	50.0	52.0	-4	+/- 15%
Ethyl Benzene	CCVD1203B-1	50.0	53.0	-6	+/- 15%
m,p-Xylene	CCVD1203B-1	50.0	54.2	-8	+/- 15%
o-Xylene	CCVD1203B-1	50.0	53.0	-6	+/- 15%
Benzene	CCVD1207B-2	50.0	55.9	-12	+/- 15%
Toluene	CCVD1207B-2	50.0	55.9	-12	+/- 15%
Ethyl Benzene	CCVD1207B-2	50.0	56.4	-13	+/- 15%
m,p-Xylene	CCVD1207B-2	50.0	56.7	-13	+/- 15%
o-Xylene	CCVD1207B-2	50.0	56.5	-13	+/- 15%
Benzene	CCVD1207B-3	50.0	50.1	0	+/- 15%
Toluene	CCVD1207B-3	50.0	52.3	-5	+/- 15%
Ethyl Benzene	CCVD1207B-3	50.0	53.5	-7	+/- 15%
m,p-Xylene	CCVD1207B-3	50.0	55.0	-10	+/- 15%
o-Xylene	CCVD1207B-3	50.0	54.1	-8	+/- 15%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1207S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	12-7-10	12-8-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	12-7-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***145***	***50-150***				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	12-026-11						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	U1
Lube Oil	**471**	**301**			44	NA	
Surrogate:							
o-Terphenyl			***119*** ***125***	***50-150***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
CONTINUING CALIBRATION SUMMARY
(with acid/silica gel clean-up)

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
CCV1207R-V2	100	98.3	2	+/-15%
CCV1207R-V3	100	100	0	+/-15%
CCV1207R-V4	100	104	-4	+/-15%
CCV1208F-V1	100	100	0	+/-15%
CCV1208F-V2	100	102	-2	+/-15%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1207W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***88***	***50-150***				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	12-026-17						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	
Lube Oil Range Organics	**ND**	**ND**			NA	NA	
Surrogate:							
o-Terphenyl			***94*** ***94***	***50-150***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
CONTINUING CALIBRATION SUMMARY
(with acid/silica gel clean-up)

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
CCV1207R-V1	100	91.6	8	+/-15%
CCV1207R-V2	100	98.3	2	+/-15%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1208S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***45 - 101***				
Pyrene-d10	***102***	***52 - 118***				
Terphenyl-d14	***94***	***41 - 106***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-026-04										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0663**	**0.0681**	0.0833	0.0833	ND	80	82	43 - 132	3	26	
Chrysene	**0.0650**	**0.0676**	0.0833	0.0833	ND	78	81	46 - 126	4	24	
Benzo[b]fluoranthene	**0.0672**	**0.0704**	0.0833	0.0833	ND	81	85	44 - 134	5	24	
Benzo[k]fluoranthene	**0.0682**	**0.0723**	0.0833	0.0833	ND	82	87	45 - 132	6	20	
Benzo[a]pyrene	**0.0650**	**0.0666**	0.0833	0.0833	ND	78	80	36 - 136	2	23	
Indeno(1,2,3-c,d)pyrene	**0.0661**	**0.0690**	0.0833	0.0833	ND	79	83	40 - 136	4	16	
Dibenz[a,h]anthracene	**0.0645**	**0.0668**	0.0833	0.0833	ND	77	80	40 - 142	4	13	
Surrogate:											
2-Fluorobiphenyl						***71***	***70***	***45 - 101***			
Pyrene-d10						***92***	***95***	***52 - 118***			
Terphenyl-d14						***79***	***81***	***41 - 106***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1206W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Chrysene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***69***	***47 - 105***				
Pyrene-d10	***88***	***35 - 129***				
Terphenyl-d14	***76***	***36 - 106***				

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1206W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.367**	**0.361**	0.500	0.500	73	72	56 - 111	2	17	
Chrysene	**0.335**	**0.316**	0.500	0.500	67	63	55 - 102	6	19	
Benzo[b]fluoranthene	**0.359**	**0.343**	0.500	0.500	72	69	60 - 112	5	17	
Benzo[k]fluoranthene	**0.323**	**0.297**	0.500	0.500	65	59	45 - 114	8	21	
Benzo[a]pyrene	**0.333**	**0.311**	0.500	0.500	67	62	52 - 113	7	19	
Indeno(1,2,3-c,d)pyrene	**0.327**	**0.301**	0.500	0.500	65	60	34 - 124	8	21	
Dibenz[a,h]anthracene	**0.300**	**0.268**	0.500	0.500	60	54	26 - 129	11	31	
Surrogate:										
2-Fluorobiphenyl					***64***	***74***	***47 - 105***			
Pyrene-d10					***81***	***91***	***35 - 129***			
Terphenyl-d14					***70***	***78***	***36 - 106***			

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-7-10
Date Analyzed:	12-7-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1207S3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0
Lead	6010B	**ND**	5.0

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-026-16

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	5.0	
Lead	**ND**	**ND**	NA	5.0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 12-7-10
Date Analyzed: 12-7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-026-16

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	50	**44.9**	90	**45.9**	92	2	
Lead	125	**106**	85	**107**	85	0	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120710P	1.00	1.01	-0.86	+/- 10%
Lead	ICV120710P	1.00	1.03	-3.0	+/- 10%
Arsenic	CCV1120710P	1.00	0.975	2.5	+/- 10%
Lead	CCV1120710P	10.0	9.91	0.88	+/- 10%
Arsenic	CCV2120710P	1.00	0.950	5.0	+/- 10%
Lead	CCV2120710P	10.0	9.85	1.5	+/- 10%
Arsenic	CCV3120710P	1.00	0.938	6.2	+/- 10%
Lead	CCV3120710P	10.0	9.83	1.7	+/- 10%
Arsenic	CCV4120710P	1.00	0.954	4.6	+/- 10%
Lead	CCV4120710P	10.0	9.83	1.7	+/- 10%
Arsenic	CCV5120710P	1.00	0.942	5.8	+/- 10%
Lead	CCV5120710P	10.0	9.80	2.0	+/- 10%
Arsenic	CCV6120710P	1.00	0.971	2.9	+/- 10%
Lead	CCV6120710P	10.0	9.83	1.7	+/- 10%
Arsenic	CCV7120710P	1.00	0.951	4.9	+/- 10%
Lead	CCV7120710P	10.0	9.81	1.9	+/- 10%
Arsenic	CCV8120710P	1.00	0.965	3.5	+/- 10%
Lead	CCV8120710P	10.0	9.78	2.2	+/- 10%
Arsenic	CCV9120710P	1.00	0.937	6.3	+/- 10%
Lead	CCV9120710P	10.0	9.71	2.9	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-9-10
Date Analyzed:	12-9-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1209W1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3
Lead	200.8	**ND**	1.1

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-9-10
Date Analyzed: 12-9-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-026-17

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	
Lead	**ND**	**ND**	NA	1.1	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-9-10
Date Analyzed: 12-9-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-026-17

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**111**	101	**108**	98	3	
Lead	110	**110**	100	**106**	97	3	

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120910E	50.0	50.3	-0.60	+/- 10%
Lead	ICV120910E	50.0	50.4	-0.80	+/- 10%
Arsenic	CCV1120910E	100	101	-1.0	+/- 10%
Lead	CCV1120910E	100	98.2	1.8	+/- 10%
Arsenic	CCV1120910E	40.0	40.2	-0.50	+/- 10%
Lead	CCV1120910E	40.0	39.6	1.0	+/- 10%
Arsenic	CCV2120910E	100	101	-1.0	+/- 10%
Lead	CCV2120910E	100	98.4	1.6	+/- 10%
Arsenic	CCV2120910E	40.0	39.9	0.25	+/- 10%
Lead	CCV2120910E	40.0	39.5	1.3	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 2, 2010
Laboratory Reference: 1012-026
Project: 0186-774-00; PSE-Olympia (Columbia St.)

% MOISTURE

Date Analyzed: 12-3&8-10

Client ID	Lab ID	% Moisture
SB-22-2.5	12-026-01	5
SB-22-8.0	12-026-02	19
SB-22-10.5	12-026-03	23
SB-21-2.5	12-026-04	7
SB-21-8.0	12-026-05	14
SB-21-10.5	12-026-06	15
SB-21-15.5	12-026-07	20
SB-21-20.5	12-026-08	11
SB-21-25.5	12-026-09	9
SB-21-30.5	12-026-10	18
SB-20-2.5	12-026-11	11
SB-20-8.0	12-026-12	20
SB-20-10.5	12-026-13	18
SB-20-15.5	12-026-14	14
SB-20-20.5	12-026-15	11
SB-20-25.5	12-026-16	17

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE-Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 12-026

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	~~NWTPH-Gx/BTEX~~ (8021B)	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Arsenic (6010B) 7000.87	Lead (6010B) 7420.87					% Moisture
1	SB-22-2.5	12/01/10	0900	soil	1								X								X	X					X
2	-8.0		1050		1								X									X					X
3	-10.5		1055		1								X								X						X
4	SB-21-2.5		0935		1								X									X					X
5	-8.0		1205		1								X								X	X					X
6	-10.5		1210		1								X														X
7	-15.5		1220		1																X						X
8	-20.5		1230		1																X						X
9	-25.5		1235		1																X						X
10	-30.5		1245		1																X						X

	Signature	Company	Date	Time
Relinquished		GeoEngineers, Inc.	12/02/10	0700
Received			12/2/10	1020
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

Page 2 of 2

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE-Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 12-026

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	~~NWTPH-Gx~~ (BTEX) (8021B)	NWTPH-Gx	NWTPH-Dx TPH-D/LO diesel + lube oil	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Arsenic (6010B/200.8)	Lead (6010B/200.8)					% Moisture
11	SB-20-2.5	12/01/10	1415	Soil	3		X		X				X									X					X
12	-8.0		1510		3		X		X				X								X	X					X
13	-10.5		1515		3		X		X				X									X					X
14	-15.5		1520		1								X								X						X
15	-20.5		1530		1								X								X						X
16	-25.5		1536	↓	1								X								X						X
17	-25.5-R	↓	1600	water	8		X		X				X								X	X					
18	Trip Blank	—	—	↓	2		X																				

	Signature	Company	Date	Time
Relinquished		GeoEngineers, Inc.	12/02/10	0700
Received		OnSite Env.	12/2/10	1020
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0186-774-00

OnSite Project Number: 12-026

Initiated by: MMIBG

Date Initiated: 12/2/10

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	No	N/A	1 2 3 4	
1.2 Were the custody seals intact?	Yes	No	N/A	1 2 3 4	
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	N/A	1 2 3 4	
1.4 Were the samples delivered on ice or blue ice?	Yes	No		1 2 3 4	
1.5 Were samples received between 0-6 degrees Celsius?	Yes	No	Temperature:	3° C	
1.6 Have shipping bills (if any) been attached to the back of this form?	Yes	N/A			
1.7 How were the samples delivered?	Client	Courier	UPS/FedEx	OSE Pickup	Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	Yes	No		1 2 3 4
2.2 Was the COC legible and written in permanent ink?	Yes	No		1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	Yes	No		1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	Yes	No		1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	Yes	No		1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	No		1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	No		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	No		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	Yes	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	N/A	1 2 3 4
3.5 Are volatiles samples free from headspace and air bubbles?	Yes	No	N/A	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	Yes	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	No		1 2 3 4
3.8 Was method 5035A used?	Yes	No	N/A	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#	1	N/A	1 2 3 4

Explain any discrepancies:

2.4) Sample 16) SB-20-25.5 12/1/10 1535 on label [redacted] 1536 on COC

2.6) TB not on COC

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

//SERVER\OSE\Administration\forms\cooler_checklist.xls

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

March 29, 2011

Rob Leet
GeoEngineers, Inc.
600 Stewart, Suite 1700
Seattle, WA 98101-1233

Re: Analytical Data for Project 0186-774-00; PSE-Olympia (Columbia St.)
Laboratory Reference No. 1012-035

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on December 3, 2010.

Please note that this is a *revised* report and replaces the original report due to a request for lower arsenic PQL's.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

Case Narrative

Samples were collected on December 2, 2010 and received by the laboratory on December 3, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-00D-10.5	12-035-01	Soil	12-2-10	12-3-10	
MW-00D-15.5	12-035-02	Soil	12-2-10	12-3-10	
MW-00D-20.5	12-035-03	Soil	12-2-10	12-3-10	
MW-00D-25.5	12-035-04	Soil	12-2-10	12-3-10	
MW-00D-30.5	12-035-05	Soil	12-2-10	12-3-10	
SB-19-2.5	12-035-06	Soil	12-2-10	12-3-10	
SB-19-8.0	12-035-07	Soil	12-2-10	12-3-10	
SB-19-10.5	12-035-08	Soil	12-2-10	12-3-10	
SB-19-15.5	12-035-09	Soil	12-2-10	12-3-10	
SB-18-2.5	12-035-10	Soil	12-2-10	12-3-10	
SB-18-8.0	12-035-11	Soil	12-2-10	12-3-10	
SB-18-10.5	12-035-12	Soil	12-2-10	12-3-10	
SB-18-15.5	12-035-13	Soil	12-2-10	12-3-10	
SB-18-15.5-R	12-035-14	Water	12-2-10	12-3-10	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-19-2.5**					
Laboratory ID:	12-035-06					
Diesel Range Organics	**57**	29	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil	**220**	59	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***98***	***50-150***				
Client ID:	**SB-19-8.0**					
Laboratory ID:	12-035-07					
Diesel Range Organics	**ND**	30	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***103***	***50-150***				
Client ID:	**SB-19-10.5**					
Laboratory ID:	12-035-08					
Diesel Range Organics	**ND**	28	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***118***	***50-150***				
Client ID:	**SB-18-2.5**					
Laboratory ID:	12-035-10					
Diesel Range Organics	**ND**	29	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	57	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***97***	***50-150***				
Client ID:	**SB-18-8.0**					
Laboratory ID:	12-035-11					
Diesel Range Organics	**ND**	31	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	62	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***96***	***50-150***				
Client ID:	**SB-18-10.5**					
Laboratory ID:	12-035-12					
Diesel Range Organics	**ND**	30	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	60	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***125***	***50-150***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-15.5-R**					
Laboratory ID:	12-035-14					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***94***	***50-150***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-19-2.5**					
Laboratory ID:	12-035-06					
Benzo[a]anthracene	**1.2**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Chrysene	**1.5**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Benzo[b]fluoranthene	**1.7**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Benzo[k]fluoranthene	**1.6**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Benzo[a]pyrene	**2.7**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Indeno(1,2,3-c,d)pyrene	**2.2**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Dibenz[a,h]anthracene	**0.34**	0.16	EPA 8270/SIM	12-8-10	12-10-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***45 - 101***				
Pyrene-d10	***94***	***52 - 118***				
Terphenyl-d14	***83***	***41 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-19-8.0**					
Laboratory ID:	12-035-07					
Benzo[a]anthracene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0079	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***69***	***45 - 101***				
Pyrene-d10	***89***	***52 - 118***				
Terphenyl-d14	***80***	***41 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-19-10.5**					
Laboratory ID:	12-035-08					
Benzo[a]anthracene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***45 - 101***				
Pyrene-d10	***91***	***52 - 118***				
Terphenyl-d14	***81***	***41 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-19-15.5**					
Laboratory ID:	12-035-09					
Benzo[a]anthracene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***68***	***45 - 101***				
Pyrene-d10	***90***	***52 - 118***				
Terphenyl-d14	***81***	***41 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-2.5**					
Laboratory ID:	12-035-10					
Benzo[a]anthracene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0076	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***75***	***45 - 101***				
Pyrene-d10	***93***	***52 - 118***				
Terphenyl-d14	***82***	***41 - 106***				

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-8.0**					
Laboratory ID:	12-035-11					
Benzo[a]anthracene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0083	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***58***	***45 - 101***				
Pyrene-d10	***83***	***52 - 118***				
Terphenyl-d14	***73***	***41 - 106***				

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Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-10.5**					
Laboratory ID:	12-035-12					
Benzo[a]anthracene	**0.011**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**0.010**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**0.010**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***64***	***45 - 101***				
Pyrene-d10	***84***	***52 - 118***				
Terphenyl-d14	***72***	***41 - 106***				

Date of Report: March 29, 2011
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Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-15.5**					
Laboratory ID:	12-035-13					
Benzo[a]anthracene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Chrysene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[b]fluoranthene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[k]fluoranthene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Benzo[a]pyrene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Dibenz[a,h]anthracene	**ND**	0.0091	EPA 8270/SIM	12-8-10	12-9-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***45 - 101***				
Pyrene-d10	***89***	***52 - 118***				
Terphenyl-d14	***79***	***41 - 106***				

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-18-15.5-R**					
Laboratory ID:	12-035-14					
Benzo[a]anthracene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Chrysene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[b]fluoranthene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[k]fluoranthene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[a]pyrene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Dibenz[a,h]anthracene	**ND**	0.0094	EPA 8270/SIM	12-6-10	12-6-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***47 - 105***				
Pyrene-d10	***88***	***35 - 129***				
Terphenyl-d14	***79***	***36 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-035-01					
Client ID:	**MW-00D-10.5**					
Arsenic	**ND**	5.9	6010B	12-7-10	12-7-10	
Lab ID:	12-035-02					
Client ID:	**MW-00D-15.5**					
Arsenic	**ND**	5.9	6010B	12-7-10	12-7-10	
Lab ID:	12-035-03					
Client ID:	**MW-00D-20.5**					
Arsenic	**ND**	5.7	6010B	12-7-10	12-7-10	
Lab ID:	12-035-04					
Client ID:	**MW-00D-25.5**					
Arsenic	**ND**	5.5	6010B	12-7-10	12-7-10	
Lab ID:	12-035-05					
Client ID:	**MW-00D-30.5**					
Arsenic	**ND**	5.7	6010B	12-7-10	12-7-10	

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL MERCURY
EPA 7471A

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-035-06					
Client ID:	**SB-19-2.5**					
Mercury	**ND**	0.29	7471A	12-6-10	12-6-10	
Lab ID:	12-035-07					
Client ID:	**SB-19-8.0**					
Mercury	**ND**	0.30	7471A	12-6-10	12-6-10	
Lab ID:	12-035-08					
Client ID:	**SB-19-10.5**					
Mercury	**ND**	0.28	7471A	12-6-10	12-6-10	
Lab ID:	12-035-10					
Client ID:	**SB-18-2.5**					
Mercury	**ND**	0.29	7471A	12-6-10	12-6-10	
Lab ID:	12-035-11					
Client ID:	**SB-18-8.0**					
Mercury	**ND**	0.31	7471A	12-6-10	12-6-10	
Lab ID:	12-035-12					
Client ID:	**SB-18-10.5**					
Mercury	**ND**	0.30	7471A	12-6-10	12-6-10	

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	12-035-14					
Client ID:	**SB-18-15.5-R**					
Arsenic	**ND**	3.3	200.8	12-9-10	12-9-10	
Mercury	**ND**	0.50	7470A	12-8-10	12-8-10	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1207S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	12-7-10	12-8-10	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	12-7-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***145***	***50-150***				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	12-026-11						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	U1
Lube Oil	**471**	**301**			44	NA	
Surrogate:							
o-Terphenyl			***119*** ***125***	***50-150***			

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Lab Traveler: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
CCV1207R-V2	100	98.3	2	+/-15%
CCV1207R-V3	100	100	0	+/-15%
CCV1207R-V4	100	104	-4	+/-15%
CCV1208F-V1	100	100	0	+/-15%
CCV1208F-V2	100	102	-2	+/-15%

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1207W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	12-7-10	12-7-10	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	12-7-10	12-7-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***88***	***50-150***				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	12-026-17						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	
Lube Oil Range Organics	**ND**	**ND**			NA	NA	
Surrogate:							
o-Terphenyl			***94*** ***94***	***50-150***			

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Lab Traveler: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

NWTPH-Dx
(with acid/silica gel clean-up)
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
CCV1207R-V1	100	91.6	8	+/-15%
CCV1207R-V2	100	98.3	2	+/-15%

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Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1208S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Chrysene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[k]fluoranthene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270/SIM	12-8-10	12-8-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***45 - 101***				
Pyrene-d10	***102***	***52 - 118***				
Terphenyl-d14	***94***	***41 - 106***				

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	12-026-04										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0663**	**0.0681**	0.0833	0.0833	ND	80	82	43 - 132	3	26	
Chrysene	**0.0650**	**0.0676**	0.0833	0.0833	ND	78	81	46 - 126	4	24	
Benzo[b]fluoranthene	**0.0672**	**0.0704**	0.0833	0.0833	ND	81	85	44 - 134	5	24	
Benzo[k]fluoranthene	**0.0682**	**0.0723**	0.0833	0.0833	ND	82	87	45 - 132	6	20	
Benzo[a]pyrene	**0.0650**	**0.0666**	0.0833	0.0833	ND	78	80	36 - 136	2	23	
Indeno(1,2,3-c,d)pyrene	**0.0661**	**0.0690**	0.0833	0.0833	ND	79	83	40 - 136	4	16	
Dibenz[a,h]anthracene	**0.0645**	**0.0668**	0.0833	0.0833	ND	77	80	40 - 142	4	13	
Surrogate:											
2-Fluorobiphenyl						***71***	***70***	***45 - 101***			
Pyrene-d10						***92***	***95***	***52 - 118***			
Terphenyl-d14						***79***	***81***	***41 - 106***			

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB1206W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Chrysene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	12-6-10	12-6-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***69***	***47 - 105***				
Pyrene-d10	***88***	***35 - 129***				
Terphenyl-d14	***76***	***36 - 106***				

Date of Report: March 29, 2011
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Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

PAHs by EPA 8270D/SIM
(with silica gel clean-up)
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1206W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.367**	**0.361**	0.500	0.500	73	72	56 - 111	2	17	
Chrysene	**0.335**	**0.316**	0.500	0.500	67	63	55 - 102	6	19	
Benzo[b]fluoranthene	**0.359**	**0.343**	0.500	0.500	72	69	60 - 112	5	17	
Benzo[k]fluoranthene	**0.323**	**0.297**	0.500	0.500	65	59	45 - 114	8	21	
Benzo[a]pyrene	**0.333**	**0.311**	0.500	0.500	67	62	52 - 113	7	19	
Indeno(1,2,3-c,d)pyrene	**0.327**	**0.301**	0.500	0.500	65	60	34 - 124	8	21	
Dibenz[a,h]anthracene	**0.300**	**0.268**	0.500	0.500	60	54	26 - 129	11	31	
Surrogate:										
2-Fluorobiphenyl					***64***	***74***	***47 - 105***			
Pyrene-d10					***81***	***91***	***35 - 129***			
Terphenyl-d14					***70***	***78***	***36 - 106***			

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-6&7-10
Date Analyzed:	12-6&7-10
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB1206S1&MB1207S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 12-6&7-10
Date Analyzed: 12-6&7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-030-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	5.0	
Mercury	**ND**	**ND**	NA	0.25	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 12-6&7-10
Date Analyzed: 12-6&7-10

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-030-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**92.9**	93	**92.4**	92	1	
Mercury	0.50	**0.502**	100	**0.490**	98	3	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 6010B/7471A
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120710P	1.00	1.09	-9.0	+/- 10%
Mercury	ICV120610Y	0.00500	0.00515	-3.0	+/- 10%
Arsenic	CCV1120710P	1.00	0.975	2.5	+/- 10%
Mercury	CCV1120610Y	0.00500	0.00509	-1.8	+/- 20%
Arsenic	CCV2120710P	1.00	0.950	5.0	+/- 10%
Mercury	CCV2120610Y	0.00500	0.00527	-5.4	+/- 20%
Arsenic	CCV3120710P	1.00	0.938	6.2	+/- 10%
Mercury	CCV3120610Y	0.00500	0.00525	-5.0	+/- 20%
Arsenic	CCV4120710P	1.00	0.954	4.6	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-8&9-10
Date Analyzed:	12-8&9-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1209W1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL MERCURY
EPA 7470A
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-8-10
Date Analyzed:	12-8-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB1208W1

Analyte	Method	Result	PQL
Mercury	7470A	**ND**	0.50

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 12-8&9-10
Date Analyzed: 12-8&9-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-026-17

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.3	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL MERCURY
EPA 7470A
DUPLICATE QUALITY CONTROL

Date Extracted: 12-8-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.50	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 12-8&9-10
Date Analyzed: 12-8&9-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-026-17

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**111**	101	**108**	98	3	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL MERCURY
EPA 7470A
MS/MSD QUALITY CONTROL

Date Extracted: 12-8-10
Date Analyzed: 12-8-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 12-038-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	6.3	**5.62**	90	**5.59**	89	0	

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL METALS
EPA 200.8/7470A
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV120910E	50.0	50.3	-0.60	+/- 10%
Mercury	ICV120810Y	2.50	2.55	-2.0	+/- 10%
Arsenic	CCV1120910E	100	101	-1.0	+/- 10%
Mercury	CCV1120810Y	2.50	2.41	3.6	+/- 20%
Arsenic	CCV1120910E	40.0	40.2	-0.50	+/- 10%
Arsenic	CCV2120910E	100	101	-1.0	+/- 10%
Mercury	CCV2120810Y	2.50	2.43	2.8	+/- 20%
Arsenic	CCV2120910E	40.0	39.9	0.25	+/- 10%

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

TOTAL MERCURY
EPA 7470A
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Mercury	ICV120810Y	2.50	2.57	-2.8	+/- 10%
Mercury	CCV1120810Y	2.50	2.49	0.40	+/- 20%
Mercury	CCV2120810Y	2.50	2.44	2.4	+/- 20%

Date of Report: March 29, 2011
Samples Submitted: December 3, 2010
Laboratory Reference: 1012-035
Project: 0186-774-00; PSE-Olympia (Columbia St.)

% MOISTURE

Date Analyzed: 12-7&8-10

Client ID	Lab ID	% Moisture
MW-00D-10.5	12-035-01	15
MW-00D-15.5	12-035-02	15
MW-00D-20.5	12-035-03	13
MW-00D-25.5	12-035-04	9
MW-00D-30.5	12-035-05	12
SB-19-2.5	12-035-06	15
SB-19-8.0	12-035-07	16
SB-19-10.5	12-035-08	10
SB-19-15.5	12-035-09	12
SB-18-2.5	12-035-10	12
SB-18-8.0	12-035-11	19
SB-18-10.5	12-035-12	16
SB-18-15.5	12-035-13	26

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 2

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE- Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
(TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 12-035

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx diesel + TPH-D/Lo lube oil	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Arsenic 6010B/200.8	Mercury 7471A					% Moisture
1	MW-00D-10.5	12/02/10	0835	Soil	1																X							X
2	-15.5		0840		1																X							
3	-20.5		0855		1																X							
4	-25.5		0905		1																X							
5	-30.5		0915		1																X							
6	SB-19- 2.5		0935		1				X				X									X						
7	-8.0		1230		1				X				X									X						
8	-10.5		1235		1				X				X									X						
9	-15.5		1240		1								X															
10	SB-18- 2.5		1045		1				X				X									X						

	Signature	Company	Date	Time
Relinquished	[signature]	GeoEngineers, Inc.	12/03/10	0915
Received	[signature]	OSE	12/3/10	0915
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GeoEngineers, Inc.
Project Number: 0186-774-00
Project Name: PSE-Olympia (Columbia St.)
Project Manager: Rob Leet
Sampled by: Robert Miyahira

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☒ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 12-035

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx diesel + lube oil TPH-D/Lo	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	Mercury 7471A	Arsenic 200.8					% Moisture
11	SB-18-8.0	12/02/10	1410	soil	1				X				X								X						X
12	-10.5		1415		1				X				X								X						↓
13	-15.5		1425		1								X														
14	-15.5-R		1445	water	5				X				X								X	X					
15	Trip blank	—	—		2																						

	Signature	Company	Date	Time
Relinquished		GeoEngineers, Inc.	12/03/10	0915
Received			12/3/10	0915
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0186-774-00

OnSite Project Number: 12-035

Initiated by: MMV

Date Initiated: 12/3/10

1.0 Cooler Verification

1.1 Were there custody seals on the outside of the cooler?	Yes	No	N/A	1 2 3 4
1.2 Were the custody seals intact?	Yes	No	N/A	1 2 3 4
1.3 Were the custody seals signed and dated by last custodian?	Yes	No	N/A	1 2 3 4
1.4 Were the samples delivered on ice or blue ice?	Yes	No		1 2 3 4
1.5 Were samples received between 0-6 degrees Celsius?	Yes	No	Temperature: 5	
1.6 Have shipping bills (if any) been attached to the back of this form?	Yes	N/A		
1.7 How were the samples delivered?	Client	Courier	UPS/FedEx	OSE Pickup / Other

2.0 Chain of Custody Verification

2.1 Was a Chain of Custody submitted with the samples?	Yes	No	1 2 3 4
2.2 Was the COC legible and written in permanent ink?	Yes	No	1 2 3 4
2.3 Have samples been relinquished and accepted by each custodian?	Yes	No	1 2 3 4
2.4 Did the sample labels (ID, date, time, preservative) agree with COC?	Yes	No	1 2 3 4
2.5 Were all of the samples listed on the COC submitted?	Yes	No	1 2 3 4
2.6 Were any of the samples submitted omitted from the COC?	Yes	No	1 2 3 4

3.0 Sample Verification

3.1 Were any sample containers broken or compromised?	Yes	No		1 2 3 4
3.2 Were any sample labels missing or illegible?	Yes	No		1 2 3 4
3.3 Have the correct containers been used for each analysis requested?	Yes	No		1 2 3 4
3.4 Have the samples been correctly preserved?	Yes	No	N/A	1 2 3 4
3.5 Are volatiles samples free from headspace and air bubbles?	Yes	No	N/A	1 2 3 4
3.6 Is there sufficient sample submitted to perform requested analyses?	Yes	No		1 2 3 4
3.7 Have any holding times already expired or will expire in 24 hours?	Yes	No		1 2 3 4
3.8 Was method 5035A used?	Yes	No	N/A	1 2 3 4
3.9 If 5035A was used, which sampling option was used (#1, 2, or 3).	#		N/A	1 2 3 4

Explain any discrepancies:

1 - Discuss issue in Case Narrative

2 - Process Sample As-is

3 - Client contacted to discuss problem

4 - Sample cannot be analyzed or client does not wish to proceed

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 18, 2011

Rob Leet
GeoEngineers, Inc.
600 Stewart, Suite 1700
Seattle, WA 98101-1233

Re: Analytical Data for Project 0186-774-00; PSE-Olympia-MGP
Laboratory Reference No. 1101-054

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on January 10, 2011.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

Case Narrative

Samples were collected on January 6 and 7, 2011 and received by the laboratory on January 10, 2011. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-1	01-054-01	Water	1-7-11	1-10-11	
MW-2	01-054-02	Water	1-7-11	1-10-11	
MW-3	01-054-03	Water	1-7-11	1-10-11	
MW-4	01-054-04	Water	1-7-11	1-10-11	
MW-5	01-054-05	Water	1-7-11	1-10-11	
MW-6	01-054-06	Water	1-6-11	1-10-11	
MW-7	01-054-07	Water	1-7-11	1-10-11	
MW-8	01-054-08	Water	1-7-11	1-10-11	
MW-10	01-054-09	Water	1-6-11	1-10-11	
DUP-010711	01-054-10	Water	1-7-11	1-10-11	
MW-00S	01-054-11	Water	1-7-11	1-10-11	
MW-00D	01-054-12	Water	1-7-11	1-10-11	
MW-12S	01-054-13	Water	1-7-11	1-10-11	
MW-12D	01-054-14	Water	1-7-11	1-10-11	
MW-13S	01-054-15	Water	1-7-11	1-10-11	
MW-13D	01-054-16	Water	1-7-11	1-10-11	
RINSE-010611	01-054-17	Water	1-6-11	1-10-11	
RINSE-010711	01-054-18	Water	1-7-11	1-10-11	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5**					
Laboratory ID:	01-054-05					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	1-11-11	1-11-11	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*89*	*50-150*				
Client ID:	**RINSE-010611**					
Laboratory ID:	01-054-17					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	1-11-11	1-11-11	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*95*	*50-150*				
Client ID:	**RINSE-010711**					
Laboratory ID:	01-054-18					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	1-11-11	1-11-11	
Lube Oil Range Organics	**ND**	0.41	NWTPH-Dx	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5**					
Laboratory ID:	01-054-05					
Benzo[a]anthracene	**0.023**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**0.023**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**0.028**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**0.024**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**0.046**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**0.035**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*65*	*47 - 105*				
Pyrene-d10	*77*	*35 - 129*				
Terphenyl-d14	*59*	*36 - 106*				
Client ID:	**MW-7**					
Laboratory ID:	01-054-07					
Benzo[a]anthracene	**0.079**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**0.12**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**0.19**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**0.16**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**0.28**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**0.30**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**0.033**	0.0099	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*72*	*47 - 105*				
Pyrene-d10	*81*	*35 - 129*				
Terphenyl-d14	*73*	*36 - 106*				
Client ID:	**MW-8**					
Laboratory ID:	01-054-08					
Benzo[a]anthracene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**ND**	0.0097	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*75*	*47 - 105*				
Pyrene-d10	*94*	*35 - 129*				
Terphenyl-d14	*81*	*36 - 106*				

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP-010711**					
Laboratory ID:	01-054-10					
Benzo[a]anthracene	**0.049**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**0.072**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**0.12**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**0.087**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**0.17**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**0.17**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**0.018**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*77*	*47 - 105*				
Pyrene-d10	*88*	*35 - 129*				
Terphenyl-d14	*73*	*36 - 106*				
Client ID:	**RINSE-010611**					
Laboratory ID:	01-054-17					
Benzo[a]anthracene	**0.011**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**0.010**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**0.022**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**0.018**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*70*	*47 - 105*				
Pyrene-d10	*87*	*35 - 129*				
Terphenyl-d14	*76*	*36 - 106*				
Client ID:	**RINSE-010711**					
Laboratory ID:	01-054-18					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*73*	*47 - 105*				
Pyrene-d10	*77*	*35 - 129*				
Terphenyl-d14	*67*	*36 - 106*				

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-054-01					
Client ID:	**MW-1**					
Arsenic	**7.2**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-02					
Client ID:	**MW-2**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-03					
Client ID:	**MW-3**					
Arsenic	**47**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-04					
Client ID:	**MW-4**					
Arsenic	**93**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lab ID:	01-054-05					
Client ID:	**MW-5**					
Arsenic	**8.8**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**ND**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	
Lab ID:	01-054-06					
Client ID:	**MW-6**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-054-07					
Client ID:	**MW-7**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**2.9**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	
Lab ID:	01-054-08					
Client ID:	**MW-8**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**ND**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	
Lab ID:	01-054-09					
Client ID:	**MW-10**					
Arsenic	**19**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-10					
Client ID:	**DUP-010711**					
Arsenic	**3.5**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**2.9**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	
Lab ID:	01-054-11					
Client ID:	**MW-00S**					
Arsenic	**5.2**	3.3	200.8	1-17-11	1-17-11	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-054-12					
Client ID:	**MW-00D**					
Arsenic	**5.1**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-13					
Client ID:	**MW-12S**					
Arsenic	**5.2**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-14					
Client ID:	**MW-12D**					
Arsenic	**28**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-15					
Client ID:	**MW-13S**					
Arsenic	**4.1**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-16					
Client ID:	**MW-13D**					
Arsenic	**340**	3.3	200.8	1-17-11	1-17-11	
Lab ID:	01-054-17					
Client ID:	**RINSE-010611**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**ND**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-054-18					
Client ID:	**RINSE-010711**					
Arsenic	**ND**	3.3	200.8	1-17-11	1-17-11	
Chromium	**ND**	11	200.8	1-17-11	1-17-11	
Lead	**ND**	1.1	200.8	1-17-11	1-17-11	
Mercury	**ND**	0.50	7470A	1-17-11	1-17-11	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

NWTPH-Dx
QUALITY CONTROL
(with acid/silica gel clean-up)

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0111W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	1-11-11	1-11-11	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				

Analyte	Result		Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE							
Laboratory ID:	01-054-17						
	ORIG	DUP					
Diesel Range Organics	**ND**	**ND**			NA	NA	
Lube Oil Range Organics	**ND**	**ND**			NA	NA	
Surrogate:							
o-Terphenyl			*95* *99*	*50-150*			

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

NWTPH-Dx
CONTINUING CALIBRATION SUMMARY
(with acid/silica gel clean-up)

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
CCV0111F-V2	100	98.7	1	+/-15%
CCV0111F-V3	100	102	-2	+/-15%
CCV0111R-V2	100	102	-2	+/-15%
CCV0111R-V3	100	106	-6	+/-15%

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

cPAHs by EPA 8270D/SIM
(with silica gel clean-up)
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0111W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Chrysene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	1-11-11	1-11-11	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*71*	*47 - 105*				
Pyrene-d10	*90*	*35 - 129*				
Terphenyl-d14	*78*	*36 - 106*				

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0111W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.414**	**0.401**	0.500	0.500	83	80	56 - 111	3	17	
Chrysene	**0.436**	**0.410**	0.500	0.500	87	82	55 - 102	6	19	
Benzo[b]fluoranthene	**0.432**	**0.415**	0.500	0.500	86	83	60 - 112	4	17	
Benzo[k]fluoranthene	**0.405**	**0.384**	0.500	0.500	81	77	45 - 114	5	21	
Benzo[a]pyrene	**0.408**	**0.395**	0.500	0.500	82	79	52 - 113	3	19	
Indeno(1,2,3-c,d)pyrene	**0.355**	**0.362**	0.500	0.500	71	72	34 - 124	2	21	
Dibenz[a,h]anthracene	**0.324**	**0.327**	0.500	0.500	65	65	26 - 129	1	31	
Surrogate:										
2-Fluorobiphenyl					*75*	*64*	*47 - 105*			
Pyrene-d10					*92*	*90*	*35 - 129*			
Terphenyl-d14					*79*	*77*	*36 - 106*			

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A
METHOD BLANK QUALITY CONTROL

Date Extracted:	1-17&18-11
Date Analyzed:	1-17&18-11
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0117W1&MB0118W1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.3
Chromium	200.8	**ND**	11
Lead	200.8	**ND**	1.1
Mercury	7470A	**ND**	0.50

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A
DUPLICATE QUALITY CONTROL

Date Extracted: 1-17&18-11
Date Analyzed: 1-17&18-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: 01-054-05

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**8.84**	**8.52**	4	3.3	
Chromium	**ND**	**ND**	NA	11	
Lead	**ND**	**ND**	NA	1.1	
Mercury	**ND**	**ND**	NA	0.50	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A
MS/MSD QUALITY CONTROL

Date Extracted: 1-17&18-11
Date Analyzed: 1-17&18-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: 01-054-05

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**129**	110	**128**	109	1	
Chromium	110	**110**	100	**112**	101	1	
Lead	110	**112**	101	**114**	103	2	
Mercury	12.5	**12.0**	96	**12.0**	96	0	

Date of Report: January 18, 2011
Samples Submitted: January 10, 2011
Laboratory Reference: 1101-054
Project: 0186-774-00; PSE-Olympia-MGP

TOTAL METALS
EPA 200.8/7470A
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV011711E	50.0	50.1	-0.20	+/- 10%
Chromium	ICV011711E	50.0	49.5	1.0	+/- 10%
Lead	ICV011711E	50.0	50.8	-1.6	+/- 10%
Mercury	ICV011811Y	5.00	4.91	1.8	+/- 10%
Arsenic	CCV1011711E	100	102	-2.0	+/- 10%
Chromium	CCV1011711E	100	98.9	1.1	+/- 10%
Lead	CCV1011711E	100	101	-1.0	+/- 10%
Mercury	CCV1011811Y	5.00	5.31	-6.2	+/- 20%
Arsenic	CCV1011711E	40.0	40.1	-0.25	+/- 10%
Chromium	CCV1011711E	40.0	39.1	2.3	+/- 10%
Lead	CCV1011711E	40.0	38.8	3.0	+/- 10%
Arsenic	CCV2011711E	100	102	-2.0	+/- 10%
Chromium	CCV2011711E	100	97.6	2.4	+/- 10%
Lead	CCV2011711E	100	99.9	0.10	+/- 10%
Mercury	CCV2011811Y	5.00	5.1	-2.0	+/- 20%
Arsenic	CCV2011711E	40.0	40.1	-0.25	+/- 10%
Chromium	CCV2011711E	40.0	39.7	0.75	+/- 10%
Lead	CCV2011711E	40.0	39.6	1.0	+/- 10%
Arsenic	CCV3011711E	100	101	-1.0	+/- 10%
Chromium	CCV3011711E	100	101	-1.0	+/- 10%
Lead	CCV3011711E	100	98.9	1.1	+/- 10%
Mercury	CCV3011811Y	5.00	5.14	-2.8	+/- 20%
Arsenic	CCV3011711E	40.0	41.4	-3.5	+/- 10%
Chromium	CCV3011711E	40.0	39.7	0.75	+/- 10%
Lead	CCV3011711E	40.0	40.1	-0.25	+/- 10%
Arsenic	CCV4011711E	100	102	-2.0	+/- 10%
Chromium	CCV4011711E	100	104	-4.0	+/- 10%
Lead	CCV4011711E	100	96.1	3.9	+/- 10%
Arsenic	CCV4011711E	40.0	40.1	-0.25	+/- 10%
Chromium	CCV4011711E	40.0	40.6	-1.5	+/- 10%
Lead	CCV4011711E	40.0	38.8	3.0	+/- 10%

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GEOENGINEERS
Project Number: 0186-774-00
Project Name: PSE - OLYMPIA - MGP
Project Manager: ROB LEET
Sampled by: BRIAN ANDERSON

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Days ☐ 3 Days
- ☑ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 01-054

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	cPAHs EPA 8270D SIM	TOTAL ARSENIC EPA 200.8	TOTAL CHROMIUM EPA 200.8	TOTAL LEAD EPA 200.8	TOTAL MERCURY EPA 7470A		% Moisture
1	MW-1	1-7	1326	W	1																	X					
2	MW-2	1-7	1140		1																	X					
3	MW-3	1-7	1212		1																	X					
4	MW-4	1-7	1458		1																	X	X				
5	MW-5	1-7	1400		3				X												X	X	X	X	X		
6	MW-6	1-6	1502		1																[redacted]	X	[redacted]				
7	MW-7	1-7	1248		3																X	X	X	X	X		
8	MW-8	1-7	1102		3																X	X	X	X	X		
9	MW-10	1-6	1540	W	1																	X					
10	DUP-010711	1-7	0845	W	3																X	X	X	X	X		

	Signature	Company	Date	Time
Relinquished	[signature]	GEI	1-10-11	
Received	[signature]	CDE	1/10/11	1535
Relinquished				
Received				
Relinquished				
Received				

Comments/Special Instructions

Reviewed/Date

Reviewed/Date

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GEOENGINEERS
Project Number: 0186-774-00
Project Name: PSE - OLYMPIA - MGP
Project Manager: ROB LEET
Sampled by: BRIAN ANDERSON

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 01-054

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	TOTAL ARSENIC EPA 200.8	TOTAL CHROMIUM EPA 200.8	TOTAL LEAD EPA 200.8	TOTAL MERCURY EPA 7470A	cPAHs EPA 8270D SIM		% Moisture
11	MW-00S	1-7	0930	W	1																X						
12	MW-00D	1-7	1012		1																X						
13	MW-12S	1-7	0810		1																X						
14	MW-12D	1-7	0838		1																X						
15	MW-13S	1-7	0700		1																X						
16	MW-13D	1-7	0722		1																X						
17	RINSE-010611	1-6	1700		5				X												X	X	X	X	X		
18	RINSE-010711	1-7	1530	W	5				X												X	X	X	X	X		
~~—~~	~~DUP-010711~~	~~1-7~~	~~0845~~	~~W~~																							

	Signature	Company	Date	Time
Relinquished	[signature]	GEI	1-10-11	
Received	[signature]	OSE	1/10/11	1525
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

DATA QUALITY ASSESSMENT SUMMARY
cPAHs, BTEX, NWTPH-Dx, Total Metals

Project: Columbia Street MGP Off-Property
Investigation and Groundwater Monitoring Event
(Project No. 0186-774-00-0200, -0300)
November-December 2010 Soil Sampling/January 2011 Groundwater Sampling

Laboratory Sample Delivery Group (SDG):
1012-024, 1012-025, 1012-026, 1012-035, 1101-054

This Data Quality Assessment Summary documents the results of a United States Environmental Protection Agency (USEPA) Level 2b data validation/verification of analytical data from the analysis of soil and groundwater samples and laboratory and field quality control (QC) samples associated with the subject project. OnSite Environmental of Redmond, Washington performed the sample analyses. The assessment was performed by GeoEngineers, and included the QC elements listed below. Any data anomalies and/or deficiencies identified during the data quality assessment are noted.

- Sample holding times and sample preservation
- Surrogates (for organics only)
- Method blanks, trip blanks (sample "Trip Blank" dated 12/1/10), and equipment rinsate blanks (samples "MW-12D-30.5-R," "MW-13D-30.5-R," "SB-18-15.5-R," "SB-20-25.5-R," "RINSE-010611," and "RINSE-010711")

  cPAHs – Positive detections of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene were reported in equipment rinsate blank sample "RINSE-010611." No associated project samples were analyzed for cPAHs on 1/6/11, therefore no action was required.
- Laboratory control samples/laboratory control sample duplicates (LCS/LCSD)
- Matrix spikes/matrix spike duplicates (MS/MSD)
- Field duplicates (sample "DUP-010711" – duplicate of primary sample "MW-7_110107")

  cPAHs – The relative percent difference (RPD) and/or absolute difference values for primary/duplicate sample pair "MW-7_110107"/"DUP-010711" were greater than the control limits for the following compounds:

  Benzo(a)anthracene
  Chrysene
  Benzo(b)fluoranthene
  Benzo(k)fluoranthene
  Benzo(a)pyrene
  Indeno(1,2,3-c,d)pyrene
  Dibenz(a,h)anthracene

  Positive detections of these compounds were qualified "J" (estimated concentration) in both samples.
- Laboratory duplicates
- Instrument tunes
- Internal standards
- Calibrations (initial and continuing)
- Project-required target reporting limits

Overall Assessment

The results of this USEPA Level 2b data validation/verification indicate that the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, MS/MSD, and LCS/LCSD %R values. Precision was acceptable, as demonstrated by the field duplicate, laboratory duplicate, MS/MSD, and LCS/LCSD RPD values. Selected sample results were qualified "J" (estimated concentration) due to field duplicate precision outliers. All data are acceptable for the intended use.

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