GROUNDWATER MONITORING TECHNICAL MEMORANDUM

FEBRUARY 2010 MONITORING EVENT

Supplemental Site Investigation
Former Columbia Street Manufactured Gas Plant Property
320 Columbia Street NW
Olympia, Washington

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Report date:	May 3, 2010
GeoEngineers file no.:	0186-774-00
Client:	Greg Andrina and John Rork, Puget Sound Energy PO Box 90868, PSE-11N, Bellevue, WA 98009
GeoEngineers project manager:	Rob Leet
Sample date:	February 15, 2010
Wells gauged:	MW-1 to MW-5, MW-7 and MW-8 (on-property wells); MW-6, MW-10, and MW-00 (off-property wells).
Non-aqueous phase liquid (well/thickness):	Not observed in any wells.
Inferred groundwater flow direction:	Predominantly toward the **east** (see Figure 1).
Groundwater flow direction similar to previous events?	No. The inferred groundwater flow direction was predominantly toward the **west** in August and October 2008, and **variable** in November 2009. Several factors may be responsible for the observed temporal shifts in groundwater flow direction, including seasonal variations in precipitation, rainwater infiltration within the unpaved footprint of the former office building or at Percival Landing Park (directly west of the subject property), or hydraulic influence from an unknown buried utility (e.g., sewer line) and/or tides in Budd Inlet.
Wells sampled:	On-property wells: MW-1 to MW-5, MW-7 and MW-8. Off-property wells: MW-6, MW-10, and MW-00.
Purge/sample methods:	Dedicated submersible pump (MW-1 to MW-4) or peristaltic pump and dedicated tubing (MW-5 to MW-8, MW-10, MW-00).
Chemical testing:	Samples were tested for one or more of the following constituents: gasoline-range total petroleum hydrocarbons (TPH) by Ecology Method NWTPH-Gx; benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B; diesel- and heavy oil-range TPH by Ecology Method NWTPH-Dx; carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270D-SIM; total metals (arsenic, mercury, lead, and chromium) by EPA Method 6010/7000.
Summary of results:	cPAHs were detected above the MTCA Method A groundwater cleanup level in one on-property well (MW-7; 0.27J ug/l). Total arsenic was detected at concentrations above the MTCA Method A groundwater cleanup level in five on-property wells (7.2 to 92 ug/l) and one off-property well (MW-00; 10 ug/l). The detected arsenic is assumed to reflect area background concentrations or to originate from an off-property source, because arsenic concentrations in on-property soil are consistent with Washington state natural background concentrations. Gasoline-, diesel-, and heavy oil-range TPH and BTEX were not detected in the six wells sampled for these constituents. The February 2010 analytical results are generally consistent with previous sampling events.

Attachments:

Table 1 – Measured Groundwater Levels in Monitoring Wells
Table 2 – Groundwater Chemical Analytical Results, 2008-2010
Figure 1 – Groundwater Potentiometric Surface Map, February 15, 2010
Figure 2 – Constituents Detected Above MTCA Method A Cleanup Levels in Groundwater
Attachment A – Data Quality Assessment Summary
Attachment B – Laboratory Report

Distribution:

One electronic copy submitted to Greg Andrina and John Rork

Submitted by:

Robert C. Leet, PhD, LG
Senior Project Manager

Stephen C. Woodward, LG
Principal

TABLE 1

Measured Groundwater Levels in Monitoring Wells

Former Columbia Street MGP

Olympia, Washington

Monitoring Well	Screened Interval (feet bgs)	Top-of-Casing Elevation[1] (feet)	Date	Measured Depth to Groundwater[2] (feet below TOC)	Calculated Groundwater Elevation (feet)
MW-1	5.0-20.0	8.42	8/26/08	4.74	3.68
			10/6/08	4.64	3.78
			11/3/09	4.55	3.87
			2/15/10	4.16	4.26
MW-2	5.0-20.0	8.96	8/26/08	5.33	3.63
			10/6/08	5.23	3.73
			11/3/09	5.05	3.91
			2/15/10	4.44	4.52
MW-3	39.5-44.5	8.92	8/26/08	5.27	3.65
			10/6/08	5.08	3.84
			11/3/09	5.02	3.90
			2/15/10	4.62	4.30
MW-4	23.5-28.5	9.00	8/26/08	5.30	3.70
			10/6/08	5.18	3.82
			11/3/09	5.06	3.94
			2/15/10	4.72	4.28
MW-5	4.5-19.5	9.53	11/3/09	5.64	3.89
			2/15/10	5.28	4.25
MW-6	11.1[3]	8.97	8/26/08	5.37	3.60
			10/6/08	5.37	3.60
			11/3/09	5.08	3.89
			2/15/10	4.46	4.51
MW-7	4.5-19.5	8.93	11/3/09	5.09	3.84
			2/15/10	4.63	4.30
MW-8	5.0-20.0	9.02	11/3/09	5.11	3.91
			2/15/10	4.49	4.53
MW-10	14.0[3]	9.02	8/26/08	5.31	3.71
			10/6/08	5.25	3.77
			11/3/09	5.14	3.88
			2/15/10	4.66	4.36
MW-00	12.4[3]	NA	2/15/10	4.47	--

Notes:

bgs = Below ground surface

TOC = Top of well casing

[1]Elevations are referenced to an arbitrary benchmark (concrete curb) near the site 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; value listed is the approximate depth to bottom of well casing measured with an electronic water level indicator on February 15, 2010.

NA = Not available

TABLE 2
Groundwater Chemical Analytical Results
2008-2010
Former Columbia Street MGP
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-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-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-4 8/26/2008	MW-4 10/6/2008	MW-4 11/3/2009	MW-4 2/15/2010
Volatile Organic Compounds (EPA 8011/8021B/8260B)																					
Benzene	ug/l	5		< 0.50	--	--	--	< 0.50	--	< 1.0	< 1.0	< 1.0	< 0.50	< 0.50	--	--	--	< 0.50	--	--	--
Toluene	ug/l	1000		< 0.50	--	--	--	< 0.50	--	< 1.0	< 1.0	< 1.0	< 0.50	< 0.50	--	--	--	< 0.50	--	--	--
Ethylbenzene	ug/l	700		< 0.50	--	--	--	< 0.50	--	< 1.0	< 1.0	< 1.0	< 0.50	< 0.50	--	--	--	< 0.50	--	--	--
Xylene, m-,p-	ug/l	1000 (a)		< 1.0	--	--	--	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	--	--	< 1.0	--	--	--
Xylene, o-	ug/l	1000 (a)		< 1.0	--	--	--	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	--	--	< 1.0	--	--	--
1,2-Dibromoethane (EDB)	ug/l	0.01		--	--	--	--	--	--	< 0.0094	< 0.0095	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l	5.0		--	--	--	--	--	--	< 0.20	< 0.20	--	--	--	--	--	--	--	--	--	--
Methyl Tertiary Butyl Ether (MTBE)	ug/l	20		--	--	--	--	--	--	< 0.20	< 0.20	--	--	--	--	--	--	--	--	--	--
TPH (NWTPH-Gx/Dx)																					
Gasoline-Range	mg/l	0.8		< 0.10	--	--	--	< 0.10	--	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	--	--	--	< 0.10	--	--	--
Diesel-Range	mg/l	0.5		< 0.25	--	--	--	< 0.25	--	< 0.25	< 0.25	< 0.26	< 0.26	< 0.25	--	--	--	< 0.25	--	--	--
Lube Oil-Range	mg/l	0.5		< 0.40	--	--	--	< 0.40	--	< 0.40	< 0.40	< 0.41	< 0.41	< 0.40	--	--	--	< 0.41	--	--	--
SVOCs (EPA 8270D-SIM)																					
ncPAHs																					
Benzo(g,h,i)perylene	ug/l	--		< 0.0095	--	--	--	**0.061**	--	--	**--**	**--**	< 0.0095	< 0.0095	--	--	--	< 0.0095	--	--	--
cPAHs																					
Benzo(a)anthracene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	**0.012**	--	< 0.0095	< 0.010	**0.013**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Chrysene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	**0.0099**	--	< 0.0095	< 0.010	**0.013**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Benzo(b)fluoranthene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	**0.020**	--	< 0.0095	< 0.010	**0.019**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Benzo(k)fluoranthene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	< 0.0095	--	< 0.0095	< 0.010	**0.013**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Benzo(a)pyrene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	**0.021**	--	< 0.0095	< 0.010	**0.029**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Indeno(1,2,3-cd)pyrene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	**0.026**	--	< 0.0095	< 0.010	**0.030**	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Dibenzo(a,h)anthracene	ug/l	--		< 0.0095	--	< 0.0094	< 0.0094	< 0.0095	--	< 0.0095	< 0.010	< 0.0095	< 0.0095	< 0.0095	--	< 0.0093	< 0.0094	< 0.0095	--	< 0.0095	< 0.0095
Total cPAHs TEC	ug/l	0.1		< 0.0072	--	< 0.0071	< 0.0071	**0.028**	--	< 0.0072	< 0.0076	**0.037**	< 0.0072	< 0.0072	--	< 0.0070	< 0.0071	< 0.0072	--	< 0.0072	< 0.0072
Metals (EPA 200.8/335.4/6020/7470A)																					
Total Arsenic	mg/l	0.005		**0.024**	**0.016**	**0.0062**	**0.013**	**0.010**	**0.012**	**0.0066**	**0.0069**	**0.0072**	**0.083**	**0.084**	**0.052**	**0.031**	**0.047**	**0.12**	**0.057**	**0.088**	**0.092**
Dissolved Arsenic[2]	mg/l	0.005		--	**0.017**	--	--	--	**0.011**	--	--	--	--	--	**0.034**	--	--	--	**0.042**	--	--
Total Chromium	mg/l	0.050		**0.022**	--	< 0.011	< 0.011	**0.013**	--	< 0.011	< 0.011	< 0.011	**0.043**	**0.045**	--	< 0.011	**0.017**	**0.052**	--	< 0.011	< 0.011
Total Copper	mg/l	0.59 (b)		**0.012**	--	--	--	**0.0071**	--	--	**--**	**--**	**0.040**	**0.040**	--	--	--	**0.026**	--	**--**	**--**
Total Lead	mg/l	0.015		**0.0032**	**0.0023**	< 0.0011	**0.0019**	**0.0051**	**0.0036**	< 0.0011	< 0.0011	**0.0046**	**0.018**	**0.018**	**0.0072**	**0.0039**	**0.0080**	**0.0062**	**0.0039**	**0.0013**	< 0.0011
Dissolved Lead[2]	mg/l	0.015		--	< 0.0010	--	--	--	< 0.0010	--	--	--	--	--	< 0.0010	--	--	--	< 0.0010	--	--
Total Mercury	mg/l	0.002		< 0.00050	--	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050
Total Cyanide	mg/l	0.2 (c)		< 0.005	--	--	--	< 0.005	--	--	**--**	**--**	< 0.005	< 0.005	--	--	--	< 0.005	--	**--**	**--**

TABLE 2
Groundwater Chemical Analytical Results
2008-2010
Former Columbia Street MGP
Olympia,Washington

Analyte	Units	MTCA Method A Cleanup Level[1]	**Well/Sample ID:** **Sample Date:**	MW-5 11/3/2009	MW-5 2/15/2010	MW-6 8/26/2008	MW-6 10/6/2008	MW-6 11/3/2009	MW-6 2/15/2010	MW-7 11/3/2009	MW-7 2/15/2010	MW-7/DUP-021510* 2/15/2010	MW-8 11/3/2009	MW-8 2/15/2010	MW-10 8/26/2008	MW-10 10/6/2008	MW-10 11/3/2009	MW-10 2/15/2010	MW-00 2/15/2010
Volatile Organic Compounds (EPA 8011/8021B/8260B)																			
Benzene	ug/l	5		< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	**1.1**	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	--
Toluene	ug/l	1000		< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	--
Ethylbenzene	ug/l	700		< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	--	< 1.0	< 1.0	--
Xylene, m-,p-	ug/l	1000 (a)		< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	--
Xylene, o-	ug/l	1000 (a)		< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	--
1,2-Dibromoethane (EDB)	ug/l	0.01		--	--	--	--	< 0.0095	--	< 0.0095	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l	5.0		--	--	--	--	< 0.20	--	< 0.20	--	--	--	--	--	--	--	--	--
Methyl Tertiary Butyl Ether (MTBE)	ug/l	20		--	--	--	--	< 0.20	--	< 0.20	--	--	--	--	--	--	--	--	--
TPH (NWTPH-Gx/Dx)																			
Gasoline-Range	mg/l	0.8		< 0.10	< 0.10	< 0.10	--	< 0.10	< 0.10	**0.26**	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	--	< 0.10	< 0.10	--
Diesel-Range	mg/l	0.5		< 0.25	< 0.26	< 0.25	--	< 0.25	< 0.26	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	--	< 0.25	< 0.25	--
Lube Oil-Range	mg/l	0.5		< 0.40	< 0.41	< 0.40	--	< 0.40	< 0.41	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	--	< 0.40	< 0.40	--
SVOCs (EPA 8270D-SIM)																			
ncPAHs																			
Benzo(g,h,i)perylene	ug/l	--		**--**	--	< 0.0095	--	--	--	**--**	--	**--**	**--**	**--**	< 0.0095	--	--	--	--
cPAHs																			
Benzo(a)anthracene	ug/l	--		**0.012**	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.051**	**0.064**	**0.090**	< 0.0097	**0.011**	< 0.0095	--	< 0.0098	< 0.0095	--
Chrysene	ug/l	--		**0.012**	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.067**	**0.087 J**	**0.13 J**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Benzo(b)fluoranthene	ug/l	--		**0.017**	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.13**	**0.14 J**	**0.22 J**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Benzo(k)fluoranthene	ug/l	--		< 0.010	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.030**	**0.12 J**	**0.18 J**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Benzo(a)pyrene	ug/l	--		< 0.010	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.14**	**0.21 J**	**0.31 J**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Indeno(1,2,3-cd)pyrene	ug/l	--		**0.011**	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.15**	**0.22 J**	**0.32 J**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Dibenzo(a,h)anthracene	ug/l	--		< 0.010	< 0.0095	< 0.0095	--	< 0.0097	< 0.0095	**0.016**	**0.023**	**0.032**	< 0.0097	< 0.0095	< 0.0095	--	< 0.0098	< 0.0095	--
Total cPAHs TEC	ug/l	0.1		**0.010**	< 0.0072	< 0.0072	--	< 0.0073	< 0.0072	**0.18**	**0.27 J**	**0.40 J**	< 0.0073	**0.0078**	< 0.0072	--	< 0.0074	< 0.0072	--
Metals (EPA 200.8/335.4/6020/7470A)																			--
Total Arsenic	mg/l	0.005		**0.023**	**0.025**	**0.0056**	< 0.0033	< 0.0033	< 0.0033	**0.011**	< 0.0033	< 0.0033	< 0.0033	< 0.0033	**0.012**	**0.011**	**0.0064**	< 0.0033	**0.010**
Dissolved Arsenic[2]	mg/l	0.005		--	--	--	< 0.0030	--	--	--	--	--	--	--	--	**0.010**	--	--	--
Total Chromium	mg/l	0.050		< 0.011	< 0.011	**0.013**	--	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	--	< 0.011	< 0.011	--
Total Copper	mg/l	0.59 (b)		**--**	**--**	< 0.011	--	--	--	**--**	--	--	**--**	--	< 0.011	--	--	--	--
Total Lead	mg/l	0.015		**0.0054**	< 0.0011	**0.0022**	**0.0086**	< 0.0011	< 0.0011	**0.0063**	< 0.0011	< 0.0011	**0.0012**	< 0.0011	< 0.0011	**0.0047**	**0.0024**	< 0.0011	--
Dissolved Lead[2]	mg/l	0.015		--	--	--	< 0.0010	--	--	--	--	--	--	--	--	< 0.0010	--	--	--
Total Mercury	mg/l	0.002		< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	--	< 0.00050	< 0.00050	--
Total Cyanide	mg/l	0.2 (c)		**--**	**--**	< 0.005	--	--	--	**--**	--	--	**--**	--	< 0.005	--	--	--	--

TABLE 2
Groundwater Chemical Analytical Results
2008-2010
Former Columbia Street MGP
Olympia,Washington

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

SVOCs = Semivolatile organic compounds

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.

TPH = Total petroleum hydrocarbons

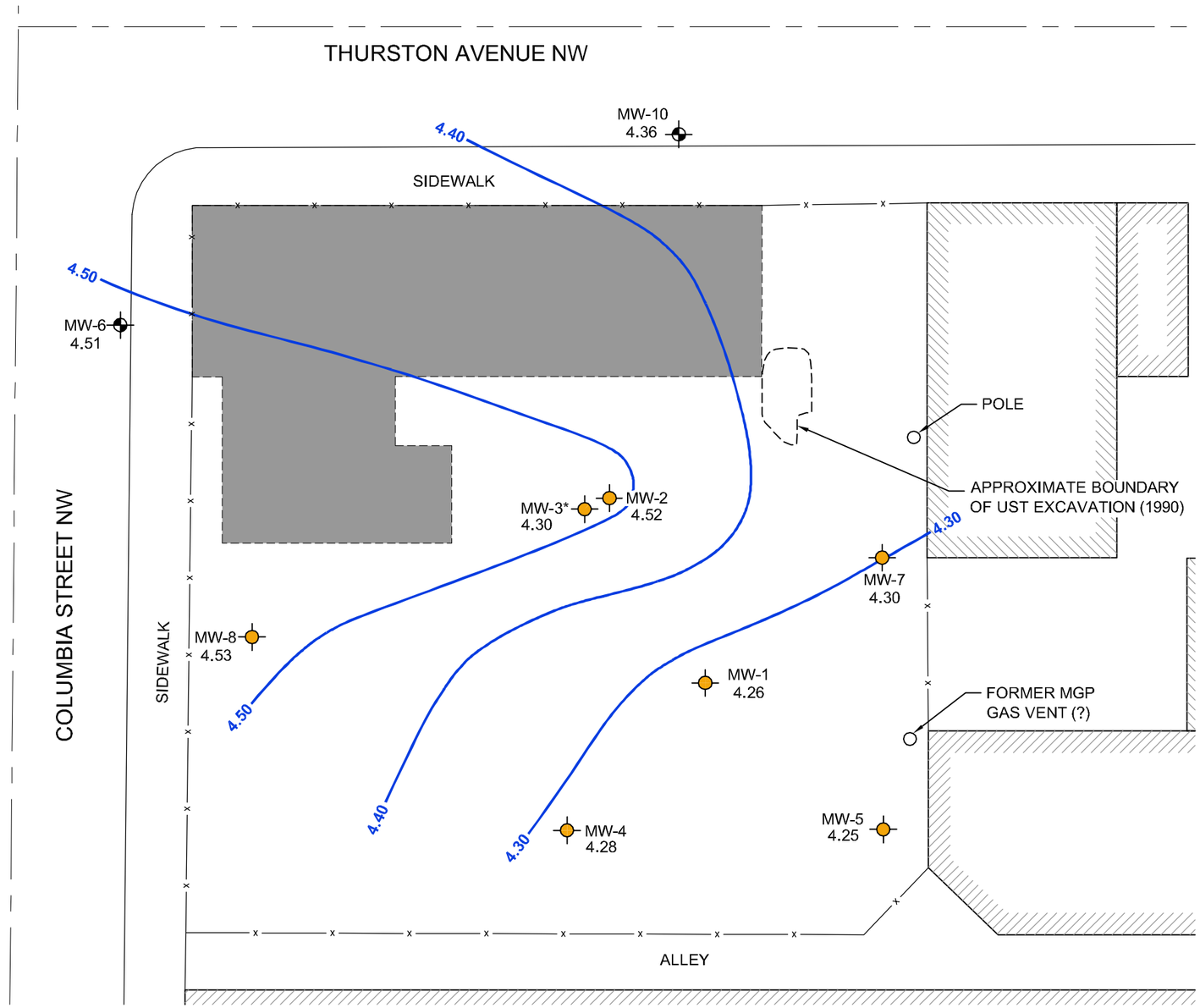
-- = Constituent not analyzed or cleanup level not established

Detections are shown in **bold** typeface.

Red box around the result indicates the value exceeds the associated MTCA cleanup level.

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

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



Legend

- Existing building
- Former office building (demolished 10/2009)
- Existing fence
- 4.40 Interpolated groundwater elevation contour (feet); dashed where inferred
- Pre-existing monitoring well
- Monitoring well (GeoEngineers 2008, 2009)
- * Well MW-3 screened from 39.5-44.5 feet bgs; groundwater elevation not used for contouring.

N
W E
S

20 0 20
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.

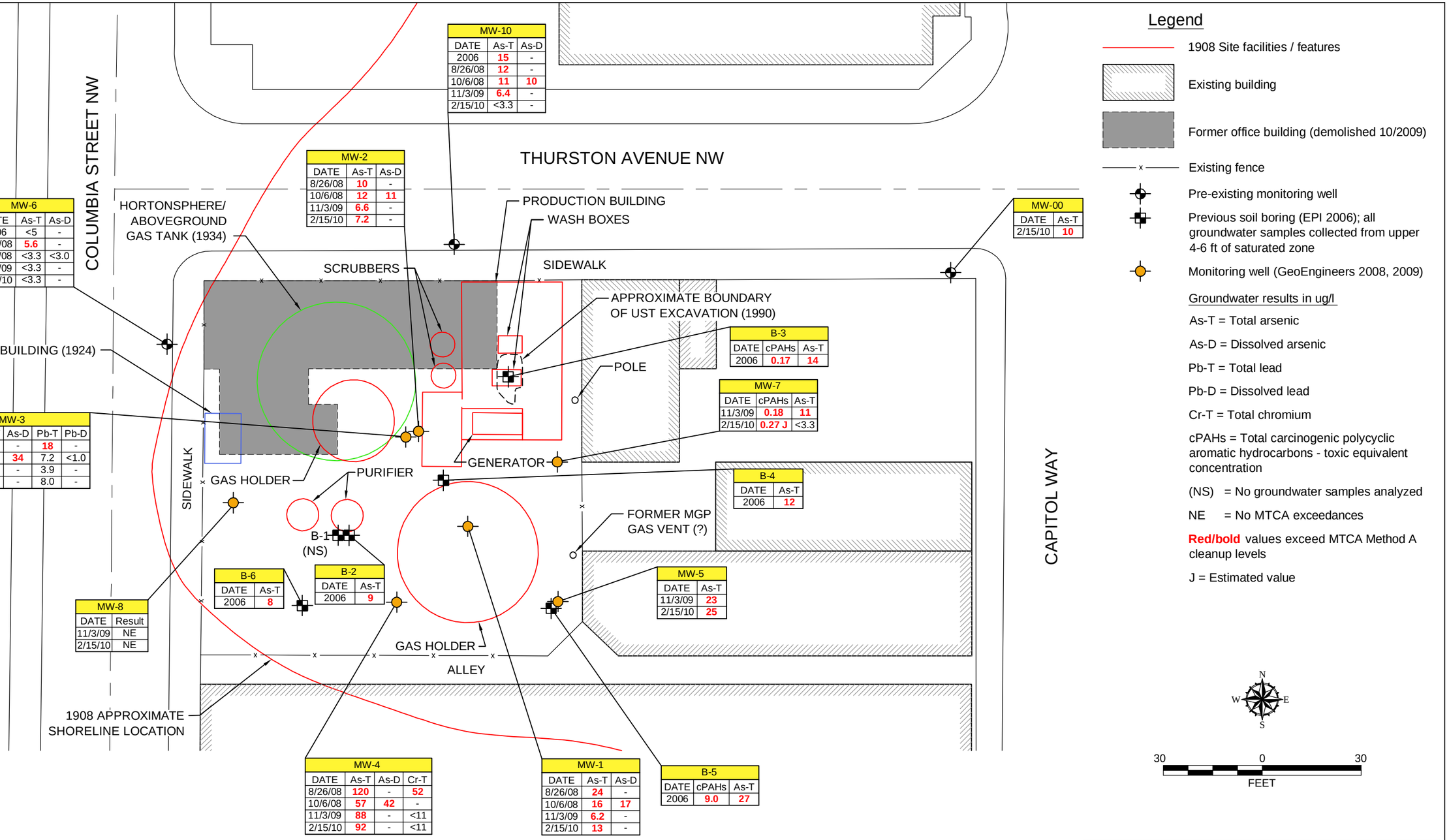
Groundwater Potentiometric Surface Map
February 15, 2010

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 1

P:\0186774\00\Task 0200 - Supplemental SI & CAP\CAD\GW MON REPORT FEB 2010\0186774_T0200_GWMR_FEB_2010_F1.dwg\TAB:F1 modified by tmichaud on Apr 30, 2010 - 11:08



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 Groundwater

Former Columbia Street MGP Property
Olympia, Washington

GeoEngineers

Figure 2

P:\0\0186774\00\TASK 0200 - SUPPLEMENTAL SI & CAP\CAD\GW MON REPORT FEB 2010\0186774\00_T0200_GWMR_FEB_2010_F2.DWG\TAB:F2 MODIFIED BY TMICHAUD ON APR 19, 2010 - 14:31

ATTACHMENT A
DATA QUALITY ASSESSMENT SUMMARY
cPAHs, NWTPH-Gx/BTEX, NWTPH-Dx, Total Metals

Project: Columbia Street MGP Supplemental Site Investigation (Project No. 0186-774-00-0200) February 2010 Groundwater Monitoring Event

Laboratory Sample Delivery Group (SDG): 1002-103 and 1002-104

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 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)

  cPAHs – The percent recovery (%R) of the surrogate terphenyl-d14 was less than the control limits in sample MW-3. However, the %R values of the other two surrogates in this sample were within the control limits, and the %R for all three surrogates was greater than 10%. Accordingly, the cPAH results for sample MW-3 are considered usable for their intended purpose and no data qualification was performed.
- Method blanks, trip blanks (sample "Trip Blank" dated 2/15/10), and equipment rinsate blanks (sample "Rinse" data 2/15/10)
- Laboratory control samples/laboratory control sample duplicates (LCS/LCSD)
- Matrix spikes/matrix spike duplicates (MS/MSD)
- Field duplicates

  cPAHs – One primary and field duplicate sample pair, MW-7 and DUP-021510, was assessed. The relative percent difference (RPD) and/or absolute difference values were greater than the control limits for the following compounds:

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

  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.

ATTACHMENT B

OnSite Environmental Inc.

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

February 24, 2010

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. 1002-103

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on February 16, 2010.

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: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

Case Narrative

Samples were collected on February 15, 2010, and received by the laboratory on February 16, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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.

PAHs EPA 8270D/SIM Analysis

Sample MW-3 had one surrogate recovery out of control limits. This is within allowance of our standard operation procedure as long as the recovery is above 10%.

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: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-1	02-103-01	Water	2-15-10	2-16-10	
MW-2	02-103-02	Water	2-15-10	2-16-10	
MW-3	02-103-03	Water	2-15-10	2-16-10	
MW-4	02-103-04	Water	2-15-10	2-16-10	
MW-5	02-103-05	Water	2-15-10	2-16-10	
MW-6	02-103-06	Water	2-15-10	2-16-10	
MW-7	02-103-07	Water	2-15-10	2-16-10	
MW-8	02-103-08	Water	2-15-10	2-16-10	
MW-10	02-103-09	Water	2-15-10	2-16-10	
DUP-021510	02-103-10	Water	2-15-10	2-16-10	
RINSE	02-103-11	Water	2-15-10	2-16-10	
TRIP BLANK	02-103-12	Water	2-15-10	2-16-10	

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2**					
Laboratory ID:	02-103-02					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*74-121*				
Client ID:	**MW-5**					
Laboratory ID:	02-103-05					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*74-121*				
Client ID:	**MW-6**					
Laboratory ID:	02-103-06					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*74-121*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7**					
Laboratory ID:	02-103-07					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*74-121*				
Client ID:	**MW-8**					
Laboratory ID:	02-103-08					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*74-121*				
Client ID:	**MW-10**					
Laboratory ID:	02-103-09					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*74-121*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP-021510**					
Laboratory ID:	02-103-10					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*92*	*74-121*				
Client ID:	**RINSE**					
Laboratory ID:	02-103-11					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*93*	*74-121*				
Client ID:	**TRIP BLANK**					
Laboratory ID:	02-103-12					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*74-121*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	02-103-02				
Client ID:	**MW-2**				
Diesel Range	**ND**	0.26	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.41	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	85%	50-150			
Lab ID:	02-103-05				
Client ID:	**MW-5**				
Diesel Range	**ND**	0.26	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.41	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	71%	50-150			
Lab ID:	02-103-06				
Client ID:	**MW-6**				
Diesel Range	**ND**	0.26	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.41	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	87%	50-150			
Lab ID:	02-103-07				
Client ID:	**MW-7**				
Diesel Range	**ND**	0.25	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.40	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	84%	50-150			
Lab ID:	02-103-08				
Client ID:	**MW-8**				
Diesel Range	**ND**	0.25	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.40	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	89%	50-150			

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	02-103-09				
Client ID:	**MW-10**				
Diesel Range	**ND**	0.25	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.40	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	85%	50-150			
Lab ID:	02-103-10				
Client ID:	**DUP-021510**				
Diesel Range	**ND**	0.25	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.40	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	87%	50-150			
Lab ID:	02-103-11				
Client ID:	**RINSE**				
Diesel Range	**ND**	0.25	2-18-10	2-18-10	Y
Lube Oil Range	**ND**	0.40	2-18-10	2-18-10	Y
Surrogate: o-terphenyl	87%	50-150			

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1**					
Laboratory ID:	02-103-01					
Benzo[a]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*79*	*35 - 100*				
Pyrene-d10	*76*	*27 - 110*				
Terphenyl-d14	*87*	*36 - 125*				
Client ID:	**MW-2**					
Laboratory ID:	02-103-02					
Benzo[a]anthracene	**0.013**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**0.013**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**0.019**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**0.013**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**0.029**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**0.030**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*62*	*35 - 100*				
Pyrene-d10	*58*	*27 - 110*				
Terphenyl-d14	*51*	*36 - 125*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3**					
Laboratory ID:	02-103-03					
Benzo[a]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*62*	*35 - 100*				
Pyrene-d10	*37*	*27 - 110*				
Terphenyl-d14	*26*	*36 - 125*				Q
Client ID:	**MW-4**					
Laboratory ID:	02-103-04					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*51*	*35 - 100*				
Pyrene-d10	*80*	*27 - 110*				
Terphenyl-d14	*81*	*36 - 125*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5**					
Laboratory ID:	02-103-05					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*35 - 100*				
Pyrene-d10	*81*	*27 - 110*				
Terphenyl-d14	*72*	*36 - 125*				
Client ID:	**MW-6**					
Laboratory ID:	02-103-06					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*75*	*35 - 100*				
Pyrene-d10	*78*	*27 - 110*				
Terphenyl-d14	*81*	*36 - 125*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7**					
Laboratory ID:	02-103-07					
Benzo[a]anthracene	**0.064**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**0.087**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**0.14**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**0.12**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**0.21**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**0.22**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**0.023**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*35 - 100*				
Pyrene-d10	*80*	*27 - 110*				
Terphenyl-d14	*81*	*36 - 125*				
Client ID:	**MW-8**					
Laboratory ID:	02-103-08					
Benzo[a]anthracene	**0.011**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*66*	*35 - 100*				
Pyrene-d10	*77*	*27 - 110*				
Terphenyl-d14	*77*	*36 - 125*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-10**					
Laboratory ID:	02-103-09					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*74*	*35 - 100*				
Pyrene-d10	*81*	*27 - 110*				
Terphenyl-d14	*82*	*36 - 125*				
Client ID:	**DUP-021510**					
Laboratory ID:	02-103-10					
Benzo[a]anthracene	**0.090**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**0.13**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**0.22**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**0.18**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**0.31**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**0.32**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**0.032**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*84*	*35 - 100*				
Pyrene-d10	*85*	*27 - 110*				
Terphenyl-d14	*87*	*36 - 125*				

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Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RINSE**					
Laboratory ID:	02-103-11					
Benzo[a]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Chrysene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[b]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[k]fluoranthene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Benzo[a]pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Dibenz[a,h]anthracene	**ND**	0.0094	EPA 8270/SIM	2-17-10	2-19-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*66*	*35 - 100*				
Pyrene-d10	*76*	*27 - 110*				
Terphenyl-d14	*78*	*36 - 125*				

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Laboratory Reference: 1002-103
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:	02-103-01					
Client ID:	**MW-1**					
Arsenic	**13**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**1.9**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-02					
Client ID:	**MW-2**					
Arsenic	**7.2**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**4.6**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-03					
Client ID:	**MW-3**					
Arsenic	**47**	3.3	200.8	2-23-10	2-23-10	
Chromium	**17**	11	200.8	2-23-10	2-23-10	
Lead	**8.0**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-04					
Client ID:	**MW-4**					
Arsenic	**92**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	

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TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-103-05					
Client ID:	**MW-5**					
Arsenic	**25**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-06					
Client ID:	**MW-6**					
Arsenic	**ND**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-07					
Client ID:	**MW-7**					
Arsenic	**ND**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-08					
Client ID:	**MW-8**					
Arsenic	**ND**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	

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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:	02-103-09					
Client ID:	**MW-10**					
Arsenic	**ND**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	
Lab ID:	02-103-10					
Client ID:	**DUP-021510**					
Arsenic	**ND**	3.3	200.8	2-23-10	2-23-10	
Chromium	**ND**	11	200.8	2-23-10	2-23-10	
Lead	**ND**	1.1	200.8	2-23-10	2-23-10	
Mercury	**ND**	0.50	7470A	2-24-10	2-24-10	

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Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0217W1					
Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Toluene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
m,p-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
o-Xylene	**ND**	1.0	EPA 8021	2-17-10	2-17-10	
Gasoline	**ND**	100	NWTPH-Gx	2-17-10	2-17-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*74-121*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-108-01										
	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	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*94*	*94*	*74-121*			
MATRIX SPIKES											
Laboratory ID:	02-108-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**49.4**	**50.6**	50.0	50.0	ND	**99**	**101**	80-122	2	9	
Toluene	**47.1**	**48.4**	50.0	50.0	ND	**94**	**97**	81-121	3	10	
Ethyl Benzene	**47.1**	**47.9**	50.0	50.0	ND	**94**	**96**	82-120	2	10	
m,p-Xylene	**47.0**	**47.8**	50.0	50.0	ND	**94**	**96**	81-121	2	10	
o-Xylene	**46.7**	**47.4**	50.0	50.0	ND	**93**	**95**	81-121	1	10	
Surrogate:											
Fluorobenzene						*92*	*94*	*74-121*			

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Gx
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
CCVH0217G-1	5.00	5.41	-8	+/- 20%
CCVH0217G-2	5.00	5.29	-6	+/- 20%
CCVD0217G-1	5.00	4.42	12	+/- 20%
CCVD0217G-2	5.00	4.29	14	+/- 20%

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BTEX by EPA 8021B
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Control Limits
Benzene	CCVH0217B-1	50.0	54.1	-8	+/- 15%
Toluene	CCVH0217B-1	50.0	53.9	-8	+/- 15%
Ethyl Benzene	CCVH0217B-1	50.0	53.7	-7	+/- 15%
m,p-Xylene	CCVH0217B-1	50.0	54.3	-9	+/- 15%
o-Xylene	CCVH0217B-1	50.0	53.9	-8	+/- 15%
Benzene	CCVH0217B-2	50.0	54.0	-8	+/- 15%
Toluene	CCVH0217B-2	50.0	52.5	-5	+/- 15%
Ethyl Benzene	CCVH0217B-2	50.0	52.3	-5	+/- 15%
m,p-Xylene	CCVH0217B-2	50.0	52.2	-4	+/- 15%
o-Xylene	CCVH0217B-2	50.0	52.4	-5	+/- 15%
Benzene	CCVD0217B-1	50.0	50.7	-1	+/- 15%
Toluene	CCVD0217B-1	50.0	49.7	1	+/- 15%
Ethyl Benzene	CCVD0217B-1	50.0	48.7	3	+/- 15%
m,p-Xylene	CCVD0217B-1	50.0	50.6	-1	+/- 15%
o-Xylene	CCVD0217B-1	50.0	49.0	2	+/- 15%
Benzene	CCVD0217B-2	50.0	51.7	-3	+/- 15%
Toluene	CCVD0217B-2	50.0	49.2	2	+/- 15%
Ethyl Benzene	CCVD0217B-2	50.0	49.4	1	+/- 15%
m,p-Xylene	CCVD0217B-2	50.0	49.3	1	+/- 15%
o-Xylene	CCVD0217B-2	50.0	49.1	2	+/- 15%

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Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-18-10
Date Analyzed:	2-18-10
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB0218W1
Diesel Range:	**ND**
PQL:	0.25
Identification:	---
Lube Oil Range:	**ND**
PQL:	0.40
Identification:	---
Surrogate Recovery	
o-Terphenyl:	77%
Flags:	Y

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	2-18-10
Date Analyzed:	2-18-10
Matrix:	Water
Units:	mg/L (ppm)

Lab ID:	02-099-01	02-099-01 DUP
Diesel Range:	**ND**	**ND**
PQL:	0.83	0.86
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	88%	92%
Flags:	Y,U1	Y,U1

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

NWTPH-Dx
CONTINUING CALIBRATION SUMMARY

Lab ID	True Value (ppm)	Calc. Value	Percent Difference	Contol Limits
DF2CCV0218R-V1	100	94.1	6	+/-15%
DF2CCV0218R-V2	100	98.2	2	+/-15%
DF2CCV0218R-V3	100	98.8	1	+/-15%

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0217W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Chrysene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Benzo[k]fluoranthene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Benzo[a]pyrene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270/SIM	2-17-10	2-18-10	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*35 - 100*				
Pyrene-d10	*91*	*27 - 110*				
Terphenyl-d14	*87*	*36 - 125*				

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

cPAHs by EPA 8270D/SIM
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:	SB0217W1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.400**	**0.404**	0.500	0.500	80	81	35 - 111	1	30	
Acenaphthylene	**0.465**	**0.454**	0.500	0.500	93	91	30 - 109	2	30	
Acenaphthene	**0.423**	**0.420**	0.500	0.500	85	84	46 - 101	1	29	
Fluorene	**0.482**	**0.502**	0.500	0.500	96	100	50 - 104	4	25	
Phenanthrene	**0.431**	**0.447**	0.500	0.500	86	89	55 - 97	4	23	
Anthracene	**0.482**	**0.502**	0.500	0.500	96	100	49 - 101	4	32	
Fluoranthene	**0.474**	**0.490**	0.500	0.500	95	98	59 - 102	3	23	
Pyrene	**0.456**	**0.462**	0.500	0.500	91	92	62 - 104	1	22	
Benzo[a]anthracene	**0.482**	**0.515**	0.500	0.500	96	103	57 - 103	6	25	
Chrysene	**0.459**	**0.491**	0.500	0.500	92	98	58 - 103	7	25	
Benzo[b]fluoranthene	**0.402**	**0.419**	0.500	0.500	80	84	61 - 100	4	27	
Benzo[k]fluoranthene	**0.382**	**0.403**	0.500	0.500	76	81	53 - 103	5	30	
Benzo[a]pyrene	**0.416**	**0.441**	0.500	0.500	83	88	35 - 107	6	32	
Indeno(1,2,3-c,d)pyrene	**0.456**	**0.467**	0.500	0.500	91	93	47 - 105	2	34	
Dibenz[a,h]anthracene	**0.439**	**0.437**	0.500	0.500	88	87	39 - 108	0	33	
Benzo[g,h,i]perylene	**0.455**	**0.454**	0.500	0.500	91	91	41 - 104	0	40	
Surrogate:										
2-Fluorobiphenyl					*78*	*76*	*35 - 100*			
Pyrene-d10					*91*	*91*	*27 - 110*			
Terphenyl-d14					*88*	*92*	*36 - 125*			

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

TOTAL METALS
EPA 200.8/7470A
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-23&24-10
Date Analyzed:	2-23&24-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0223W2&MB0224W1

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: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
Project: 0186-774-00; PSE-Olympia MGP

TOTAL METALS
EPA 200.8/7470A
DUPLICATE QUALITY CONTROL

Date Extracted: 2-23&24-10
Date Analyzed: 2-23&24-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 02-103-06

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

Date of Report: February 24, 2010
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Project: 0186-774-00; PSE-Olympia MGP

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

Date Extracted: 2-23&24-10
Date Analyzed: 2-23&24-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 02-103-06

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**122**	111	**123**	112	1	
Chromium	110	**109**	99	**107**	97	2	
Lead	110	**111**	101	**113**	103	2	
Mercury	12.5	**12.7**	102	**12.8**	102	1	

Date of Report: February 24, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-103
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	ICV022310E	50.0	49.8	0.40	+/- 10%
Chromium	ICV022310E	50.0	49.5	1.0	+/- 10%
Lead	ICV022310E	50.0	49.9	0.20	+/- 10%
Mercury	ICV022410Y	5.00	5.41	-8.2	+/- 10%
Arsenic	CCV1022310E	100	100	0	+/- 10%
Chromium	CCV1022310E	100	100	0	+/- 10%
Lead	CCV1022310E	100	99.7	0.30	+/- 10%
Mercury	CCV1022410Y	5.00	5.14	-2.8	+/- 20%
Arsenic	CCV1022310E	40.0	40.3	-0.75	+/- 10%
Chromium	CCV1022310E	40.0	40.8	-2.0	+/- 10%
Lead	CCV1022310E	40.0	40.8	-2.0	+/- 10%
Arsenic	CCV2022310E	100	99.6	0.40	+/- 10%
Chromium	CCV2022310E	100	97.3	2.7	+/- 10%
Lead	CCV2022310E	100	99.4	0.60	+/- 10%
Mercury	CCV2022410Y	5.00	5.07	-1.4	+/- 20%
Arsenic	CCV2022310E	40.0	40.0	0	+/- 10%
Chromium	CCV2022310E	40.0	40.7	-1.8	+/- 10%
Lead	CCV2022310E	40.0	40.2	-0.50	+/- 10%
Arsenic	CCV3022310E	100	99.8	0.20	+/- 10%
Chromium	CCV3022310E	100	98.3	1.7	+/- 10%
Lead	CCV3022310E	100	100	0	+/- 10%
Mercury	CCV3022410Y	5.00	5.06	-1.2	+/- 20%
Arsenic	CCV3022310E	40.0	39.7	0.75	+/- 10%
Chromium	CCV3022310E	40.0	40.6	-1.5	+/- 10%
Lead	CCV3022310E	40.0	39.6	1.0	+/- 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 the diesel range are impacting the lube oil range result.

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 Day
- ☐ 3 Day
- ☒ Standard (7 working days) (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 02-103

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont	NWTPH-HCID	NWTPH-Gx/BTEX 8021B	NWTPH-Dx QUANTIFIED, FOOD DIESEL - HEAVY OIL	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	cPAHs EPA 8270D-SIM	TOTAL METALS - ARSENIC, MERCURY, LEAD, CHROMIUM - EPA 6000/7000	200.8 DB.				% Moisture
1	MW-1	2-15-10	1350	W	3														X	X					
2	MW-2		1152		8		X	X											X	X					
3	MW-3		1248		3														X	X					
4	MW-4		1448		3														X	X					
5	MW-5		1002		8		X	X											X	X					
6	MW-6		0800		8		X	X											X	X					
7	MW-7		1056		8		X	X											X	X					
8	MW-8		1536		8		X	X											X	X					
9	MW-10		0858		8		X	X											X	X					
10	DUP-021510	2-15-10	1115	W	8		X	X											X	X					

	Signature	Company	Date	Time
Relinquished by		GEOENGINEERS	2-16-10	1032
Received by			2/16/10	1032
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

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 Day ☐ 3 Day
☒ Standard (7 working days)
(TPH analysis 5 working days)
☐ _____ (other)

Laboratory Number: 02-103

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX 8021B	NWTPH-Dx QUANTIFIED FOR DIESEL-HEAVY OIL	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	cPAHs EPA 8270D-SIM						% Moisture
11	RINSE	2-15-10	1600	W	7		X	X											X						
12	TRIP BLANK			W	3		X																		

	Signature	Company	Date	Time
Relinquished by		GEOENGINEERS	2-16-10	1032
Received by			2/16/10	1032
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0186-774-00

OnSite Project Number: 02-103

Initiated by: MM

Date Initiated: 2/16/10

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: 0,0,0	
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

February 25, 2010

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. 1002-104

Dear Rob:

Enclosed are the analytical results and associated quality control data for samples submitted on February 16, 2010.

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: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

Case Narrative

Samples were collected on February 15, 2010, and received by the laboratory on February 16, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

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: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-00	02-104-01	Water	2-15-10	2-16-10	

Date of Report: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	02-104-01					
Client ID:	**MW-00**					
Arsenic	**10**	3.3	200.8	2-23-10	2-23-10	

Date of Report: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted:	2-23-10
Date Analyzed:	2-23-10
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0223W2

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

Date of Report: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Extracted: 2-23-10
Date Analyzed: 2-23-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 02-103-06

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

Date of Report: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 2-23-10
Date Analyzed: 2-23-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 02-103-06

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	**121**	110	**121**	110	0	

Date of Report: February 25, 2010
Samples Submitted: February 16, 2010
Laboratory Reference: 1002-104
Project: 0186-774-00; PSE-Olympia MGP

TOTAL ARSENIC
EPA 200.8
CONTINUING CALIBRATION SUMMARY

Analyte	Lab ID	True Value (ppb)	Calc. Value	Percent Difference	Control Limits
Arsenic	ICV022310E	50.0	49.7	0.60	+/- 10%
Arsenic	CCV1022310E	100	100	0	+/- 10%
Arsenic	CCV1022310E	40.0	40.3	-0.75	+/- 10%
Arsenic	CCV2022310E	100	99.2	0.80	+/- 10%
Arsenic	CCV2022310E	40.0	40.1	-0.25	+/- 10%
Arsenic	CCV3022310E	100	99.1	0.90	+/- 10%
Arsenic	CCV3022310E	40.0	40.2	-0.50	+/- 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 the diesel range are impacting the lube oil range result.

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.
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Page 1 of 1

Company: GEOENGINEERS
Project Number: 0186-771-00
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 Day ☐ 3 Day
☑ Standard (7 working days)
(TPH analysis 5 working days)
☐ _____ (other)

Laboratory Number: 02-104

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D / SIM	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	Arsenic only. DB ☒ TOTAL METALS – ARSENIC, MERCURY, LEAD, CHROMIUM, COPPER, ZINC 6020 DB						% Moisture
1	MW-00	2-15-10	1558	W	1														☒						

	Signature	Company	Date	Time
Relinquished by	Brian Anderson	GEOENGINEERS	2-16-10	1032
Received by			2/16/10	1032
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:
~~HOLD – DO NOT PROCESS UNTIL ROB LEET AUTHORIZES.~~ DB 2/17/10
☒ Added 2/17 10:10. DB.

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Client Copy

Sample/Cooler Receipt and Acceptance Checklist

Client: GES

Client Project Name/Number: 0486-774-00

OnSite Project Number: 02-104

Initiated by: JMP

Date Initiated: 2/16/10

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: 0,0,0	
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