Report
Groundwater Compliance Monitoring
Third Quarter 2002
Parcel 3 of the Former
Puget Sound Energy Talbot Storage Yard
Renton, Washington

August 28, 2002

For
Puget Western, Inc.

GeoEngineers

August 28, 2002

Consulting Engineers
and Geoscientists

Puget Western, Inc.
19515 North Creek Parkway, Suite 310
Bothell, Washington 98011

Attention: Bob Boyd

We are pleased to submit three copies of our report entitled "Groundwater Compliance Monitoring, Third Quarter 2002" for Parcel 3 of the former Puget Sound Energy (PSE) Talbot Storage Yard located in Renton, Washington. Our study was completed in general accordance with the scope of services described in our fee estimate dated February 4, 1999 and the conditions of our general agreement with PSE (Contract No. 4600001763).

We appreciate the opportunity to assist Puget Western and PSE on this project. Please contact us if you have questions regarding this report.

Yours very truly,

GeoEngineers, Inc.

Kurt R. Fraese, P.G.
Principal

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CONTENTS

REPORT
GROUNDWATER COMPLIANCE MONITORING
THIRD QUARTER 2002
PARCEL 3 OF THE FORMER
PUGET SOUND ENERGY TALBOT STORAGE YARD
RENTON, WASHINGTON
FOR
PUGET WESTERN, INC.

1.0 INTRODUCTION

This report presents the results of our quarterly groundwater monitoring activities performed on Parcel 3 of Puget Sound Energy's (PSE) former Talbot Storage Yard located at 915 Grady Way South in Renton, Washington. The activities described in this report were completed during July 2002. The location of the site relative to surrounding physical features is shown in Figure 1. The layout of the site is shown in Figure 2. PSE vacated the site in 1998. There are no buildings currently located at the site.

Groundwater monitoring activities are being conducted at the site to satisfy the conditions of a "No Further Action" (NFA) letter issued by the Washington State Department of Ecology (Ecology). The groundwater sampling activities currently are being conducted in accordance with our "Petition for Modification to the Groundwater Compliance Monitoring Plan, Grady Way Complex Property, Renton, Washington," dated July 9, 2001, and Ecology's response letter dated July 17, 2001. In this petition, we proposed that groundwater monitoring in Parcel 3 be limited to sampling GMW-4/4a for polychlorinated biphenyls (PCBs) during the first and third quarters of 2002. The modified sampling and analysis plan for compliance monitoring on Parcel 3 is presented in Table 1.

This report presents the results for the final (third quarter of 2002) groundwater monitoring event in Parcel 3.

2.0 SCOPE OF SERVICES

Our scope of services for this groundwater monitoring event is as follows:

1. Measure the depth to groundwater in accessible monitoring wells located on Parcel 3 and adjacent property comprising the former Grady Way Complex.
2. Calculate the groundwater elevation in each monitoring well and evaluate the direction of shallow groundwater flow beneath the site.
3. Measure the airspace in the monitoring well casings for combustible vapors using a Bacharach TLV Sniffer calibrated to hexane.
4. Purge one monitoring well (GMW-4/4a) located on Parcel 3 using low-flow sampling techniques, and place the purged water in a labeled and secured 55-gallon drum.
5. Obtain groundwater samples from monitoring well GMW-4/4a in accordance with the sampling and analysis plan presented in Table 1. Submit the groundwater sample for chemical analysis of PCBs using EPA Method 8082.

6. Evaluate the chemical analytical results relative to applicable Model Toxics Control Act (MTCA) cleanup levels.

3.0 GROUNDWATER MONITORING RESULTS

3.1 GENERAL

A groundwater sample was obtained from monitoring well GMW-4/4a on July 3, 2002. The groundwater sample was submitted for chemical analysis of PCBs using EPA Method 8082. The locations of the monitoring wells are shown in Figure 2. A summary of our groundwater monitoring field procedures is presented in Appendix A.

3.2 GROUNDWATER ELEVATIONS

Groundwater levels were measured in seven monitoring wells (GMW-3/3a, GMW-4/4a, GMW-5, GMW-6, GMW-7, GMW-10 and GMW-11) located on Parcel 3 on July 3, 2002. The depth to groundwater and groundwater elevations for this and previous monitoring events are presented in Table 2. Table 2 also presents groundwater elevations measured in monitoring wells located adjacent to Parcel 3, on property that formerly comprised the PSE Grady Way Complex. The depth to groundwater ranged from approximately 2.64 to 6.00 feet below the ground surface (bgs) on Parcel 3 based on our July 3, 2002 measurements.

Groundwater elevations were calculated relative to an assumed site datum (100.00 feet) using the July 2002 water level measurements. The groundwater elevations in each monitoring well and interpolated elevation contours are shown in Figure 2. Shallow groundwater beneath Parcel 3 appeared to generally flow in a westerly direction based on our July 2002 measurements. A westerly shallow groundwater flow direction also was observed beneath Parcel 3 during previous monitoring events.

3.3 COMBUSTIBLE VAPOR CONCENTRATIONS

Combustible vapors were detected at concentrations greater than 10,000 parts per million (ppm) in the casings of monitoring wells GMW-3/3a, GMW-7 and GMW-10. Combustible vapors were detected at a concentration ranging between 1,000 to 9,000 ppm in the casings of the other monitoring wells located on Parcel 3.

Based on our past groundwater monitoring activities at the site, it is our opinion that elevated combustible vapor concentrations in the monitoring wells do not indicate the presence of soil or groundwater contamination. The elevated vapors measured in the casings likely are related to methane associated with the presence of coal debris in fill soil at the site.

3.4 CHEMICAL ANALYTICAL RESULTS

The groundwater sample obtained from GMW-4/4a during the July 2002 sampling event was submitted for analysis of PCBs. PCBs were not detected in the sample. The groundwater chemical analytical results are presented in Table 3. Laboratory reports for the chemical analyses are presented in Appendix B.

3.5 TREND ANALYSIS OF ANALYTICAL RESULTS

The trend of PCB concentrations in monitoring well GMW-4/4a is presented in Figure 3. The MTCA Method A cleanup level for PCBs also is shown in Figure 3. Analytes that were not detected in a groundwater sample are assigned a value of zero in this trend plot.

PCBs have not been detected in groundwater samples obtained from GMW-4/4a during the past six monitoring events, as shown in Figure 3.

4.0 CONCLUSIONS AND RECOMMENDATIONS

We recommend that Puget Western terminate groundwater monitoring activities in Parcel 3. We recommend this approach because, in our opinion, groundwater beneath Parcel 3 does not pose a threat to human health or the environment as long as the conditions of the existing restrictive covenant are observed. Terminating groundwater monitoring activities in Parcel 3 at this time is consistent with the guidance Ecology provided on this topic in their letter dated July 17, 2001.

5.0 LIMITATIONS

We have prepared this report for the exclusive use of Puget Western, PSE, their authorized agents and regulatory agencies. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

We appreciate the opportunity to assist Puget Western on this project. Please call if you have questions.

Yours very truly,

GeoEngineers, Inc.

Stephen C. Woodward, P.G.
Senior Project Geologist

Kurt R. Fraese, P.G.
Principal

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Attachments
Three copies submitted

State of Washington
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Licensed Geologist
Kurt R. Fraese
8/28/02

TABLE 1
SAMPLING AND ANALYSIS PLAN [1]
GROUNDWATER COMPLIANCE MONITORING
PARCEL 3 OF THE FORMER PUGET SOUND ENERGY GRADY WAY COMPLEX
RENTON, WASHINGTON

Monitoring Well	Year 2000				Year 2001				Year 2002				Year 2003				Year 2004			
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Parcel 3																				
GMW-3/3a	TPH, As	TPH																		
GMW-4/4a	PCB, As	PCB, As	PCB, As	PCB, As	PCB[2]				PCB		PCB									
GMW-5	As	As	As	As																
GMW-6																				
GMW-7																				
GMW-10																				
GMW-11																				

Notes:

[1]This is the revised version of the sampling and analysis plan as presented in our "Petition for Modification to the Groundwater Compliance Monitoring Plan, Grady Way Complex Property, Renton, Washington," dated July 9, 2001. This revised plan was approved by Ecology as indicated in their letter dated July 17, 2001. The original sampling and analysis plan is presented in our report entitled "Groundwater Compliance Monitoring Plan, Parcel 3 of the Former Puget Sound Energy Grady Way Complex," dated February 1, 2000.

[2]A groundwater sample was obtained from GMW-4/4a during the first quarter of 2001 and submitted for analysis of PCBs even though this analysis was not specified in the original sampling and analysis plan.

TPH = Total petroleum hydrocarbons. TPH will be analyzed using Ecology Method NWTPH-D extended.
As = Dissolved Arsenic. Dissolved arsenic will be analyzed using EPA Method 6020.
PCB = Polychlorinated biphenyls. PCBs will be analyzed using EPA Method 8082.

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TABLE 2 (Page 1 of 6)
SUMMARY OF GROUNDWATER ELEVATIONS
FORMER PUGET SOUND ENERGY GRADY WAY COMPLEX
RENTON, WASHINGTON

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
GMW-1	11/30/98	3.74	95.92
	02/24/99	3.21	96.45
	05/20/99	4.16	95.50
	08/10/99	4.80	94.86
	11/09/99	5.28	94.38
	01/28/00	4.02	95.64
	04/14/00	4.13	95.53
	07/21/00	5.99	93.67
	10/19/00	5.90	93.76
	01/25/01	4.48	95.18
	08/01/01	5.14	94.52
	01/04/02	3.88	95.78
	07/03/02	**4.79**	**94.87**
GMW-2/2a [4]	11/30/98	2.46	96.18
	02/24/99	1.17	97.47
	05/20/99	3.10	95.54
	08/10/99	3.81	94.83
	11/09/99[6]	2.91	95.73
	01/28/00	3.84	94.80
	04/14/00	3.97	94.67
	07/21/00	5.85	92.79
	10/19/00	5.80	92.84
	01/25/01	3.32	95.32
	08/01/01	4.23	94.41
	01/04/02	2.73	95.91
	07/03/02	**3.64**	**95.00**
GMW-3/3a [4]	11/30/98	1.42	95.70
	02/24/99	0.83	96.29
	05/20/99	1.64	95.48
	08/10/99	1.99	95.13
	11/09/99	2.19	94.93
	01/28/00	1.74	95.38
	04/14/00	1.86	95.26
	07/21/00	2.98	94.14
	10/19/00	2.84	94.28
	01/25/01	1.83	95.29
	08/01/01	2.97	94.15
	01/04/02	1.74	95.38
	07/03/02	**2.64**	**94.48**

Notes appear on page 6 of 6

TABLE 2 (Page 2 of 6)

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
GMW-4/4a [4]	11/30/98	1.45	95.13
	02/24/99	0.58	96.00
	05/20/99	2.04	94.54
	08/10/99	2.49	94.09
	11/09/99	2.14	94.44
	01/28/00	2.00	94.58
	04/14/00	2.19	94.39
	07/21/00	3.32	93.26
	10/19/00	3.12	93.46
	01/25/01	1.93	94.65
	08/01/01	3.98	92.60
	01/04/02	1.87	94.71
	07/03/02	**2.78**	**93.80**
GMW-5	11/30/98	2.93	94.24
	02/24/99	2.80	94.37
	05/20/99	3.80	93.37
	08/10/99	4.72	92.45
	11/09/99	4.55	92.62
	01/28/00	3.68	93.49
	04/14/00	4.04	93.13
	07/21/00	5.11	92.06
	10/19/00	5.05	92.12
	01/25/01	3.85	93.32
	08/01/01	4.98	92.19
	01/04/02	3.54	93.63
	07/03/02	**4.45**	**92.72**
GMW-6[5]	11/30/98	1.60	94.58
	02/24/99	1.24	94.94
	05/20/99	2.09	94.09
	08/10/99	3.61	92.57
	11/09/99[6]	--	--
	01/28/00	2.32	93.86
	04/14/00	2.47	93.71
	07/21/00	2.47	93.71
	10/19/00	3.54	92.64
	01/25/01	2.47	93.71
	08/01/01	3.04	93.14
	01/04/02	2.13	94.05
	07/03/02	**3.04**	**93.14**
GMW-7	11/30/98	4.29	93.22
	02/24/99	4.06	93.45
	05/20/99	5.09	92.42
	08/10/99	5.20	92.31
	11/09/99	5.36	92.15
	01/28/00	5.41	92.10
	04/14/00	5.59	91.92
	07/21/00	6.51	91.00
	10/19/00	6.41	91.10
	01/25/01	5.17	92.34
	08/01/01	6.00	91.51
	01/04/02	5.09	92.42
	07/03/02	**6.00**	**91.51**

Notes appear on page 6 of 6

TABLE 2 (Page 3 of 6)

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
GMW-8	11/30/98	4.60	93.51
	02/24/99	4.40	93.71
	05/20/99	5.41	92.70
	08/10/99	5.89	92.22
	11/09/99	5.98	92.13
	01/28/00	5.33	92.78
	04/14/00	5.74	92.37
	07/21/00	6.74	91.37
	10/19/00	6.63	91.48
	01/25/01	5.59	92.52
	08/01/01	6.34	91.77
	01/04/02	5.17	92.94
	07/03/02	**6.16**	**91.95**
GMW-9	11/30/98	5.85	92.86
	02/24/99	5.74	92.97
	05/20/99	6.39	92.32
	08/10/99	6.67	92.04
	11/09/99	7.02	91.69
	01/28/00	6.23	92.48
	04/14/00	6.51	92.20
	07/21/00	7.52	91.19
	10/19/00	7.40	91.31
	01/25/01	6.44	92.27
	08/01/01	7.14	91.57
	01/04/02	6.14	92.57
	07/03/02	**7.05**	**91.66**
GMW-10	11/30/98	2.60	93.24
	02/24/99	2.40	93.44
	05/20/99	3.35	92.49
	08/10/99	3.42	92.42
	11/09/99	3.77	92.07
	01/28/00	3.25	92.59
	04/14/00	3.45	92.39
	07/21/00	3.90	91.94
	10/19/00	3.85	91.99
	01/25/01	3.44	92.40
	08/01/01	4.25	91.59
	01/04/02	3.20	92.64
	07/03/02	**4.12**	**91.72**
GMW-11	11/30/98	4.42	94.33
	02/24/99	4.09	94.66
	05/20/99	5.10	93.65
	08/10/99	4.91	93.84
	11/09/99	4.76	93.99
	01/28/00	4.84	93.91
	04/14/00	4.98	93.77
	07/21/00	5.39	93.36
	10/19/00	5.30	93.45
	01/25/01	5.02	93.73
	08/01/01	5.81	92.94
	01/04/02	4.77	93.98
	07/03/02	**5.67**	**93.08**

Notes appear on page 6 of 6

TABLE 2 (Page 4 of 6)

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
GMW-12/12a [4,5]	11/30/98	8.02	94.56
	02/24/99	7.18	95.40
	05/20/99	8.00	94.58
	08/10/99	9.00	93.58
	11/09/99	9.60	92.98
	01/28/00	8.00	94.58
	04/14/00	8.24	94.34
	07/21/00	8.60	93.98
	10/19/00	8.52	94.06
	01/25/01	8.19	94.39
	08/01/01	9.17	93.41
	01/04/02	7.67	94.91
	07/03/02	**8.60**	**93.98**
GMW-13	11/30/98	5.86	93.00
	02/24/99	5.67	93.19
	05/20/99	6.22	92.64
	08/10/99	6.64	92.22
	11/09/99	6.82	92.04
	01/28/00	6.32	92.54
	04/14/00	6.54	92.32
	07/21/00	6.91	91.95
	10/19/00	7.26	91.60
	01/25/01	6.52	92.34
	08/01/01	7.06	91.80
	01/04/02	6.30	92.56
	07/03/02	**6.95**	**91.91**
GMW-14	11/30/98	5.66	93.40
	02/24/99	5.50	93.56
	05/20/99	6.35	92.71
	08/10/99	6.80	92.26
	11/09/99	7.02	92.04
	01/28/00	6.25	92.81
	04/14/00	6.60	92.46
	07/21/00	7.06	92.00
	10/19/00	7.50	91.56
	01/25/01	6.54	92.52
	08/01/01	7.19	91.87
	01/04/02	6.08	92.98
	07/03/02	**7.05**	**92.01**
GMW-15	11/09/99	4.05	95.56
	01/28/00	3.86	95.75
	04/14/00	3.85	95.76
	07/21/00	4.16	95.45
	10/19/00	4.24	95.37
	01/25/01 [6]	--	--
	08/01/01	4.35	95.26
	01/04/02	3.81	95.80
	07/03/02	**4.70**	**94.91**

Notes appear on page 6 of 6

TABLE 2 (Page 5 of 6)

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
GMW-16	11/09/99	4.91	90.46
	01/28/00	2.91	92.46
	04/14/00	3.31	92.06
	07/21/00	4.45	90.92
	10/19/00	5.42	89.95
	01/25/01	3.54	91.83
	08/01/01	4.78	90.59
	01/04/02	2.55	92.82
	07/03/02	**3.47**	**91.90**
GMW-17	11/09/99	5.00	90.43
	01/28/00	2.95	92.48
	04/14/00	3.41	92.02
	07/21/00	4.60	90.83
	10/19/00	5.51	89.92
	01/25/01	3.56	91.87
	08/01/01	4.82	90.61
	01/04/02	2.52	92.91
	07/03/02	**3.43**	**92.00**
MW-4	11/30/98	4.65	90.28
	02/24/99	4.45	90.48
	05/20/99	5.21	89.72
	08/10/99	5.52	89.41
	11/09/99	5.74	89.19
	01/28/00	5.13	89.80
	04/14/00	5.39	89.54
	07/21/00	6.49	88.44
	10/19/00	6.40	88.53
	01/25/01	5.20	89.73
	08/01/01	5.85	89.08
	01/04/02	5.01	89.92
	07/03/02	**5.91**	**89.02**
MW-10	11/30/98	7.17	93.07
	02/24/99	6.94	93.30
	05/20/99	7.56	92.68
	08/10/99	7.95	92.29
	11/09/99	8.13	92.11
	01/28/00	6.98	93.26
	04/14/00	7.32	92.92
	07/21/00	8.40	91.84
	10/19/00	8.33	91.91
	01/25/01	7.82	92.42
	08/01/01	8.38	91.86
	01/04/02	7.57	92.67
	07/03/02	**8.49**	**91.75**

Notes appear on page 6 of 6

TABLE 2 (Page 6 of 6)

Monitoring Well [1]	Date Measured	Depth to Groundwater[2] (feet)	Groundwater Elevation[3] (feet)
MW-20	11/30/98	6.92	92.62
	02/24/99	6.75	92.79
	05/20/99	7.31	92.23
	08/10/99	7.71	91.83
	11/09/99	7.88	91.66
	01/28/00	7.41	92.13
	04/14/00	7.68	91.86
	07/21/00	8.68	90.86
	10/19/00	8.61	90.93
	01/25/01	7.54	92.00
	08/01/01	8.09	91.45
	01/04/02	7.29	92.25
	07/03/02	**8.20**	**91.34**

Notes:
[1] Approximate locations of the monitoring wells are shown in Figure 2.
[2] The depths to groundwater were measured relative to the tops of the monitoring well casings.
[3] Casing elevations were surveyed relative to a temporary benchmark. The benchmark was assigned an arbitrary elevation of 100.00 feet.
[4] Monitoring well was abandoned during remedial activities and subsequently replaced.
[5] This monitoring well is located on a storage dock that is elevated several feet above surrounding site grades.
[6] This monitoring well was not accessible on this date.
"--" = not measured.
Bolding indicates data obtained during the current reporting period.

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TABLE 3 (Page 1 of 3)
SUMMARY OF GROUNDWATER CHEMICAL ANALYTICAL DATA[1]
PARCEL 3 OF THE FORMER PUGET SOUND ENERGY TALBOT STORAGE YARD
RENTON, WASHINGTON

Sample Number[2]	Date Sampled	Petroleum Hydrocarbons[3] (mg/l)		PCBs[4] (µg/l)	Dissolved Arsenic[5] (µg/l)	pH[6] (pH units)
		Diesel-Range	Lube Oil-Range			
GMW-3	02/20/98	<0.250	<0.500	<0.100	--	--
	08/29/98[7]	<0.250	<0.500	<0.100	--	7.20
	09/17/98	--	--	--	2.56	--
GMW-3a[8]	11/03/98	<0.250	<0.500	<0.100	15.2	6.40
	02/24/99	<0.250	<0.500	<0.100	<1.00	6.47
	01/28/00	<0.250	<0.500	--	1.19	--
	04/14/00	0.402	0.694	--	--	--
	04/27/00	<0.250	<0.500	--	--	--
GMW-4	02/20/98[9]	0.404	<0.500	1.17[10]	--	--
	08/29/98[9]	<0.250	<0.500	<0.100	--	6.93
GMW-4a[8]	11/03/98[9]	0.802	1.52	0.506[10]	--	6.30
	03/02/99[11]	0.361	<0.500	<0.100	--	6.35
	05/20/99	0.488	<0.500	1.18[10,12]	--	--
	08/10/99	0.436	<0.500	1.17	--	--
	11/09/99	0.275	<0.500	0.812[10]	--	--
	01/28/00	--	--	1.00[10]	1.35	--
	04/14/00	--	--	<0.100	5.43	--
	07/21/00	--	--	<0.100	13.6	--
	10/19/00	--	--	<0.100	5.55	--
	01/25/01	--	--	<0.100	--	--
	01/04/02	--	--	<0.0943	--	--
	07/03/02	--	--	**<0.0990**	--	--
MTCA Method A Cleanup Level[13]		1.0[14]		0.1	5.0	NA

Notes appear on Page 3 of 3

TABLE 3 (Page 2 of 3)

Sample Number[2]	Date Sampled	Petroleum Hydrocarbons[3] (mg/l)		PCBs[4] (µg/l)	Dissolved Arsenic[5] (µg/l)	pH[6] (pH units)
		Diesel-Range	Lube Oil-Range			
GMW-5	02/20/98	<0.250	<0.500	<0.100	–	–
	08/29/98[9]	<0.250	<0.500	<0.100	–	6.81
	11/03/98[9]	<0.250	<0.500	<0.100	–	6.30
	02/24/99[9]	0.267	<0.500	<0.100	–	6.26
	05/20/99[11]	–	–	–	–	–
	11/09/99	–	–	<0.100	–	–
	01/28/00	–	–	–	2.81	–
	04/14/00	–	–	–	24.3	–
	07/21/00	–	–	–	73.0	–
	10/19/00	–	–	–	79.1	–
MTCA Method A Cleanup Level[13]		1.0[14]		0.1	5.0	NA

Notes appear on Page 3 of 3

TABLE 3 (Page 3 of 3)

Notes:

[1] Chemical analyses were performed by North Creek Analytical Laboratory of Bothell, Washington.

[2] Groundwater sampling locations are shown in Figure 2. Groundwater sampling procedures are described in Appendix A.

[3] Diesel- and lube oil-range hydrocarbons analyzed using Ecology Method NWTPH-D extended.

[4] Polychlorinated biphenyls (PCBs) analyzed using EPA Method 8082.

[5] Dissolved arsenic analyzed using EPA Method 6020 or 6000/7000 Series.

[6] pH analyzed using EPA Method 150.1.

[7] The groundwater sample submitted for analysis of petroleum hydrocarbons was obtained on September 8, 1998.

[8] Monitoring well was abandoned during remedial activities and subsequently replaced.

[9] This sample also was submitted for analysis of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and other semivolatile organic compounds (SVOCs) using EPA Method 8270. cPAHs and other SVOCs were not detected in the sample.

[10] PCBs detected in this sample consisted of Aroclor 1242.

[11] These samples also were submitted for analysis of cPAHs and other SVOCs using EPA Method 8270. One or more PAHs (acenaphthene, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene) were detected in the samples at concentrations ranging from 0.113 to 7.14 µg/l, which are less than the respective MTCA Method B cleanup levels for these compounds. Carcinogenic PAHs were detected only in the groundwater sample obtained from GMW-7 on 11/09/99; the sum of the cPAH concentrations in this sample was 0.561 µg/l, which exceeds the MTCA Method A cleanup level (0.1 µg/l).

[12] The groundwater sample tested for PCBs was obtained from GMW-4a on 05/27/99.

[13] The January 1996 MTCA Method A cleanup levels are referenced in this report because the final cleanup action was initiated prior to August 15, 2001 [Washington Administrative Code (WAC) 173-340-702 (12) (b)].

[14] The MTCA Method A cleanup level applies to the sum of all ranges of petroleum hydrocarbons.

"--" = not tested

NA = not applicable

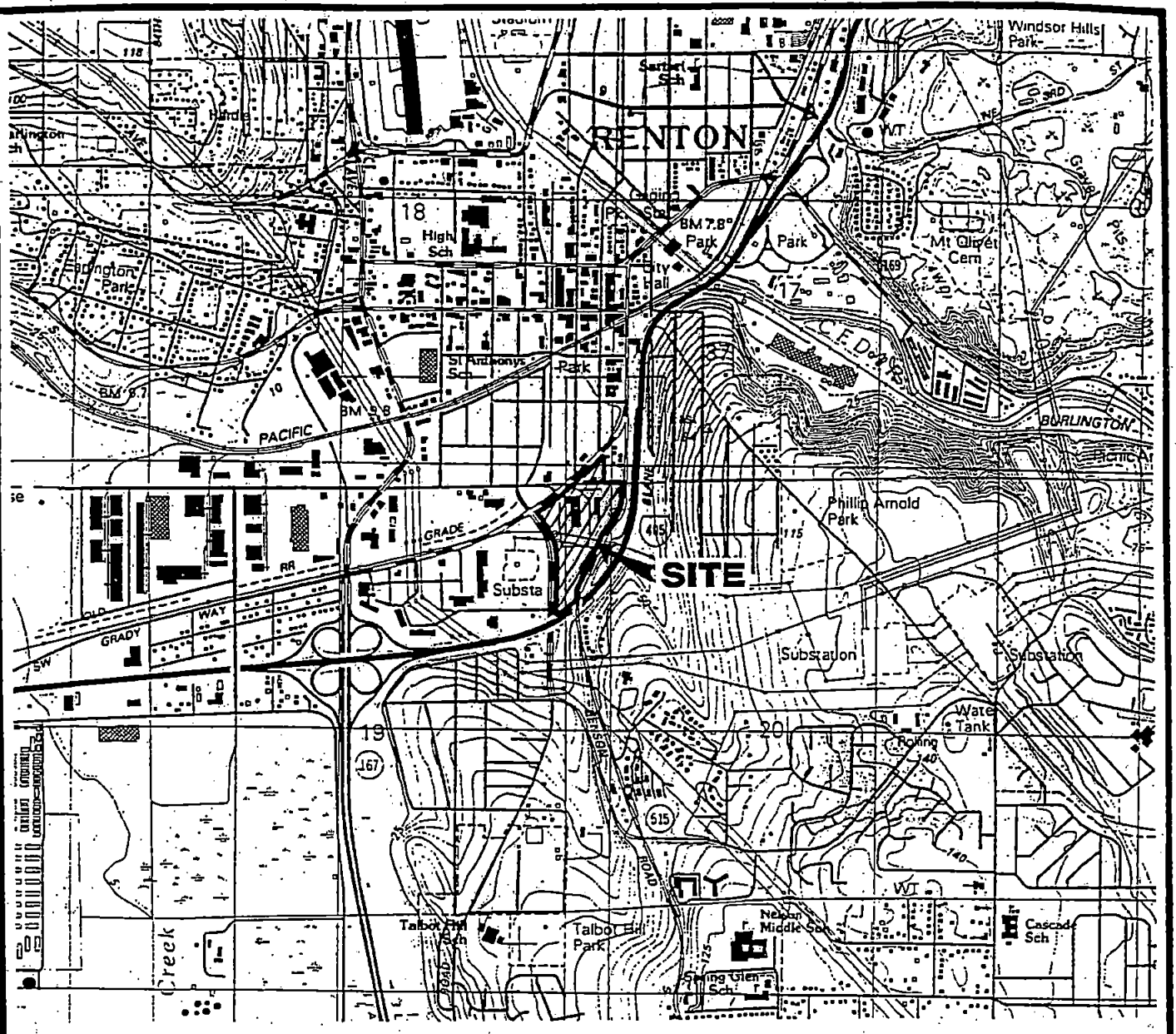
mg/l = milligrams per liter

µg/l = micrograms per liter

MTCA = Model Toxics Control Act

Shaded values exceed MTCA Method A cleanup levels.

Bolding indicates samples were obtained during the current monitoring event.



Reference: USGS 7.5' X 15' topographic–bathymetric quadrangle map "Renton, Wash.," dated 1983.

Geo Engineers

VICINITY MAP

FIGURE 1

BPP:SYF-0186-407-00-02/15/00

0186·376·R95 LCM:EDH 9/11/95

12/13/95

MAIN AVENUE S.

I-405

PARKING STRUCTURE

Property Boundary

RESIDENTIAL

BENSON ROAD S.

GRADY WAY SOUTH

UNDEVELOPED

SERVICE CENTER (REMOVED)

BAY

DIVISION OFFICE (Removed)

STORES BUILD (REMOVED)

Transformer Storage Dock

PARCEL 3

UNDEVELOPED

WETLAND AREA

TALBOT ROAD

COMMERCIAL AND OFFICES

GMW-15 94.91

GMW-16 91.90

GMW-17 92.00

GMW-1 94.87

GMW-2/2a 95.00

GMW-3/3a 94.48

MW-4 89.02

MW-8 NA

MW-10 91.75

MW-20 91.34

GMW-12/12a 93.98

GMW-4/4a 93.80

GMW-5 92.72

GMW-6 93.14

GMW-10 91.72

GMW-11 93.08

GMW-7 91.51

GMW-9 91.66

GMW-13 91.91

GMW-14 92.01

GMW-8 91.95

94.0

93.0

92.0

91.0

90.0

95.0

EXPLANATION:

GMW-1 ● 94.87 — MONITORING WELL GROUNDWATER ELEVATION BASED ON 07/03/02 MEASUREMENTS

INFERRED DIRECTION OF SHALLOW GROUNDWATER FLOW BASED ON 07/03/02 MEASUREMENTS

94 — INTERPOLATED GROUNDWATER ELEVATION CONTOUR (1.0-FOOT INTERVAL) BASED ON 07/03/02 MEASUREMENTS

NA — NOT AVAILABLE: THIS WELL WAS NOT UTILIZED FOR GROUNDWATER MONITORING ACTIVITES

Ⓢ MANHOLE

CATCH BASIN

N

0 120 240

SCALE IN FEET

Notes: 1. The locations of all features shown are approximate.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Base drawing provided by Puget Sound Energy, no date.

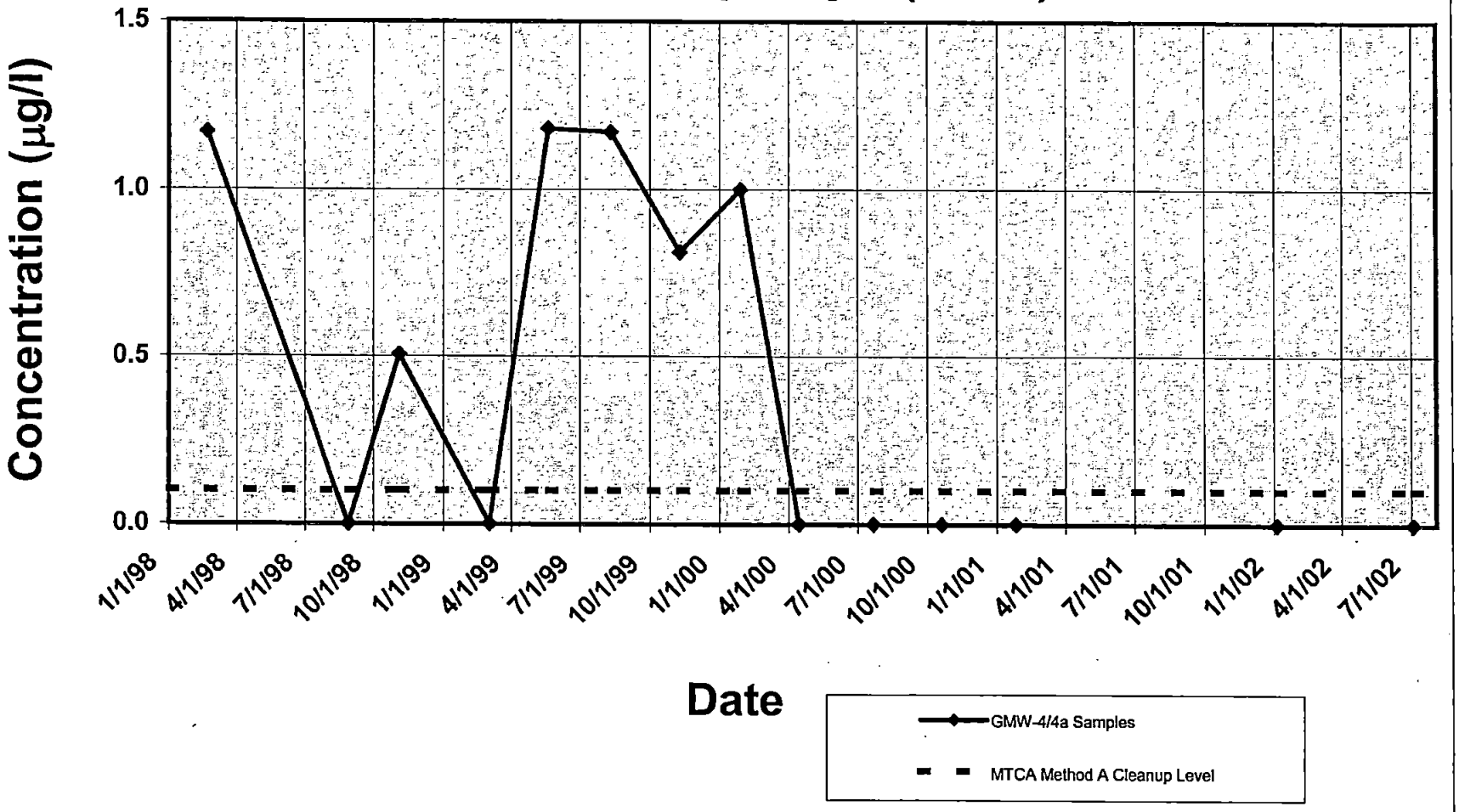
GeoEngineers

GROUNDWATER LEVEL MEASUREMENTS 07/03/02

FIGURE 2

REDM\P:\0186407\CAD\00\T2\0186407T2B.DWG 08/19/02 BPP:SYF

Figure 3
Parcel 3 Ground Water Analytical Results
Polychlorinated Biphenyls (PCBs)



APPENDIX A

FIELD PROCEDURES

APPENDIX A

FIELD PROCEDURES

GROUNDWATER MONITORING

Prior to obtaining the groundwater sample, combustible vapors and the depth to groundwater were measured in each monitoring well. Combustible vapors were measured using a Bacharach TLV Sniffer calibrated to hexane. The depths to groundwater were measured using an electronic water level indicator. The water level indicator was cleaned with a Liquinox wash and distilled water rinse prior to use in each well.

A groundwater sample was obtained from the monitoring well using low-flow/low-turbidity sampling techniques to minimize sediment suspension in the groundwater sample. Dedicated polyethylene tubing was installed in the monitoring well and connected to a peristaltic pump at the well head. A Horiba U-22 water quality measuring device (with flow-through-cell) was used to monitor geochemical parameters. The well generally was considered purged when three consecutive dissolved oxygen, pH, temperature, conductivity and turbidity measurements were within 10 percent of each other. The sample was transferred to laboratory-prepared bottles in the field and kept cool during transport to the testing laboratory. Chain-of-custody procedures were observed during transport of the sample to the laboratory.

PURGE WATER STORAGE/DISPOSAL

Purge and decontamination water generated during this monitoring event was placed in sealed and labeled drums that are currently stored on-site pending off-site permitted disposal.

APPENDIX B

CHEMICAL ANALYTICAL PROGRAM

APPENDIX B

CHEMICAL ANALYTICAL PROGRAM

SAMPLES

Chain-of-custody procedures were followed during the transport of the field samples to the accredited analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results and quality control records are included in this appendix.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Data quality exceptions documented by the accredited laboratory are reviewed by GeoEngineers and are addressed in the data quality exception section of this appendix.

DATA QUALITY EXCEPTION SUMMARY

Significant data quality exceptions were not noted during our review of the laboratory report, with one exception. The laboratory report indicates that the laboratory reduced the final extract volume for groundwater sample GMW-4/4a to one-fifth of the routine amount to achieve lower reporting limits, and that the corresponding detection limits are "estimated" based on this modification. The procedure of concentrating extracts in order to achieve lower detection limits is common practice in environmental testing. The term "estimated" is automatically applied whenever any procedure deviates slightly from the standard method. In our professional opinion the results are considered valid and useable for their intended use in this study.

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Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle WA/USA, 98101

Project: PSE-Grady Way
Project Number: 0186-407-00
Project Manager: Steve Woodward

Amended Report
Issued: 08/09/02 08:37

ANALYTICAL REPORT FOR SAMPLES - Amended

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GMW-4/4A	B2G0099-01	Water	07/03/02 15:03	07/03/02 17:50
GMW-8	B2G0099-02	Water	07/03/02 13:46	07/03/02 17:50
GMW-13	B2G0099-03	Water	07/03/02 14:15	07/03/02 17:50
GMW-14	B2G0099-04	Water	07/03/02 14:36	07/03/02 17:50

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: PSE-Grady Way	
600 Stewart St, Suite 1420	Project Number: 0186-407-00	**Amended Report**
Seattle WA/USA, 98101	Project Manager: Steve Woodward	Issued: 08/09/02 08:37

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GMW-8 (B2G0099-02) Water Sampled: 07/03/02 13:46 Received: 07/03/02 17:50									
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	2G06005	07/06/02	07/10/02	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*77.4 %*	*52-126*			"	"	"	"	
Surrogate: Octacosane	*80.7 %*	*53-122*			"	"	"	"	
GMW-13 (B2G0099-03) Water Sampled: 07/03/02 14:15 Received: 07/03/02 17:50									
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	2G06005	07/06/02	07/10/02	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*80.3 %*	*52-126*			"	"	"	"	
Surrogate: Octacosane	*81.0 %*	*53-122*			"	"	"	"	
GMW-14 (B2G0099-04) Water Sampled: 07/03/02 14:36 Received: 07/03/02 17:50									
Diesel Range Hydrocarbons	**0.254**	0.250	mg/l	1	2G06005	07/06/02	07/10/02	NWTPH-Dx	
Lube Oil Range Hydrocarbons	**0.589**	0.500	"	"	"	"	"	"	
Surrogate: 2-FBP	*72.8 %*	*52-126*			"	"	"	"	
Surrogate: Octacosane	*75.7 %*	*53-122*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: PSE-Grady Way	
600 Stewart St, Suite 1420	Project Number: 0186-407-00	**Amended Report**
Seattle WA/USA, 98101	Project Manager: Steve Woodward	Issued: 08/09/02 08:37

Polychlorinated Biphenyls by EPA Method 8082
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GMW-4/4A (B2G0099-01) Water	**Sampled: 07/03/02 15:03 Received: 07/03/02 17:50**								**A-01**
Aroclor 1016	ND	0.0990	ug/l	1	2G09005	07/09/02	08/07/02	EPA 8082	
Aroclor 1221	ND	0.0990	"	"	"	"	"	"	
Aroclor 1232	ND	0.0990	"	"	"	"	"	"	
Aroclor 1242	ND	0.0990	"	"	"	"	"	"	
Aroclor 1248	ND	0.0990	"	"	"	"	"	"	
Aroclor 1254	ND	0.0990	"	"	"	"	"	"	
Aroclor 1260	ND	0.0990	"	"	"	"	"	"	
Aroclor 1262	ND	0.0990	"	"	"	"	"	"	
Aroclor 1268	ND	0.0990	"	"	"	"	"	"	
Surrogate: TCX	*87.4 %*	*29-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*76.8 %*	*22-112*			"	"	"	"	

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Geo Engineers - Seattle	Project: PSE-Grady Way	
600 Stewart St, Suite 1420	Project Number: 0186-407-00	**Amended Report**
Seattle WA/USA, 98101	Project Manager: Steve Woodward	Issued: 08/09/02 08:37

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up) - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2G06005: Prepared 07/06/02 Using EPA 3520C										
Blank (2G06005-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Lube Oil Range Hydrocarbons	ND	0.500	"							
Surrogate: 2-FBP	*0.268*		"	*0.320*		*83.8*	*52-126*			
Surrogate: Octacosane	*0.272*		"	*0.320*		*85.0*	*53-122*			
LCS (2G06005-BS1)										
Diesel Range Hydrocarbons	1.81	0.250	mg/l	2.00		90.5	60-122			
Surrogate: 2-FBP	*0.277*		"	*0.320*		*86.6*	*52-126*			
LCS Dup (2G06005-BSD1)										
Diesel Range Hydrocarbons	1.84	0.250	mg/l	2.00		92.0	60-122	1.64	40	
Surrogate: 2-FBP	*0.280*		"	*0.320*		*87.5*	*52-126*			

North Creek Analytical - Bothell

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600 Stewart St, Suite 1420	Project Number: 0186-407-00	**Amended Report**
Seattle WA/USA, 98101	Project Manager: Steve Woodward	Issued: 08/09/02 08:37

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2G09005: Prepared 07/09/02 Using EPA 3520C										
Blank (2G09005-BLK1)										**A-01**
Aroclor 1016	ND	0.100	ug/l							
Aroclor 1221	ND	0.100	"							
Aroclor 1232	ND	0.100	"							
Aroclor 1242	ND	0.100	"							
Aroclor 1248	ND	0.100	"							
Aroclor 1254	ND	0.100	"							
Aroclor 1260	ND	0.100	"							
Aroclor 1262	ND	0.100	"							
Aroclor 1268	ND	0.100	"							
Surrogate: TCX	*0.184*		"	*0.200*		*92.0*	*29-130*			
Surrogate: Decachlorobiphenyl	*0.174*		"	*0.200*		*87.0*	*22-112*			
LCS (2G09005-BS2)										
Aroclor 1016	2.67	0.500	ug/l	2.50		107	58-124			
Aroclor 1260	2.50	0.500	"	2.50		100	64-136			
Surrogate: TCX	*0.215*		"	*0.200*		*108*	*29-130*			
Surrogate: Decachlorobiphenyl	*0.176*		"	*0.200*		*88.0*	*22-112*			
LCS Dup (2G09005-BSD2)										
Aroclor 1016	2.35	0.500	ug/l	2.50		94.0	58-124	12.7	30	
Aroclor 1260	2.40	0.500	"	2.50		96.0	64-136	4.08	30	
Surrogate: TCX	*0.181*		"	*0.200*		*90.5*	*29-130*			
Surrogate: Decachlorobiphenyl	*0.177*		"	*0.200*		*88.5*	*22-112*			

North Creek Analytical - Bothell

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600 Stewart St, Suite 1420	Project Number: 0186-407-00	**Amended Report**
Seattle WA/USA, 98101	Project Manager: Steve Woodward	Issued: 08/09/02 08:37

Notes and Definitions

A-01	Laboratory reduced final extract volume to one-fifth of the routine amount to achieve lower reporting limits. Corresponding detection limits are estimated based on this modification.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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CHAIN OF CUSTODY REPORT

Work Order #: B260899

CLIENT: GEOENGINEERS

REPORT TO: ~~0186-407-00~~ STEVE WOODWARD, BRIAN PETERKA

ADDRESS: 8410 154TH AVE NE, REDMOND, WA. 98052

PHONE: 425-861-6000 FAX: 425-861-6050

INVOICE TO: STEVE WOODWARD, GEI SEATTLE

P.O. NUMBER:

PROJECT NAME: PSE GRADY WAY

PROJECT NUMBER: 0186-407-00

SAMPLED BY: BRIAN ANDERSON

TURNAROUND REQUEST in Business Days*

Organic & Inorganic Analyses: ~~10~~ STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Please Specify

*Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		NWTPH-Dx	ACB's by EPA 8082	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1	GMW-4/4a	7-3-02	1503		X	W	2		-01
2	GMW-8	"	1346	X		W	2		-02
3	GMW-13	"	1415	X		W	2		-03
4	GMW-14	7-3-02	1436	X		W	2		-04
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

RELINQUISHED BY: Brian Anderson — DATE: 7-3-02
PRINT NAME: BRIAN ANDERSON — FIRM: GEI — TIME: 1750

RECEIVED BY: Jennifer Wisner — DATE: 7/3/02
PRINT NAME: Jennifer Wisner — FIRM: NCA — TIME: 17:50

RELINQUISHED BY: — DATE:
PRINT NAME: — FIRM: — TIME:

RECEIVED BY: — DATE:
PRINT NAME: — FIRM: — TIME:

ADDITIONAL REMARKS:

TEMP: 7.9, W/O

PAGE OF

COC REV 3/99

APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE

APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for use by Puget Western, PSE, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

---

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org .

RELIANCE CONDITIONS FOR THIRD PARTIES

No lending agency or other third 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.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

UNCERTAINTY MAY REMAIN EVEN AFTER THIS REMEDIAL ACTION IS COMPLETED

No ESA can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

SUBSURFACE CONDITIONS CAN CHANGE

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

GEOTECHNICAL, GEOLOGIC AND GEOENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.