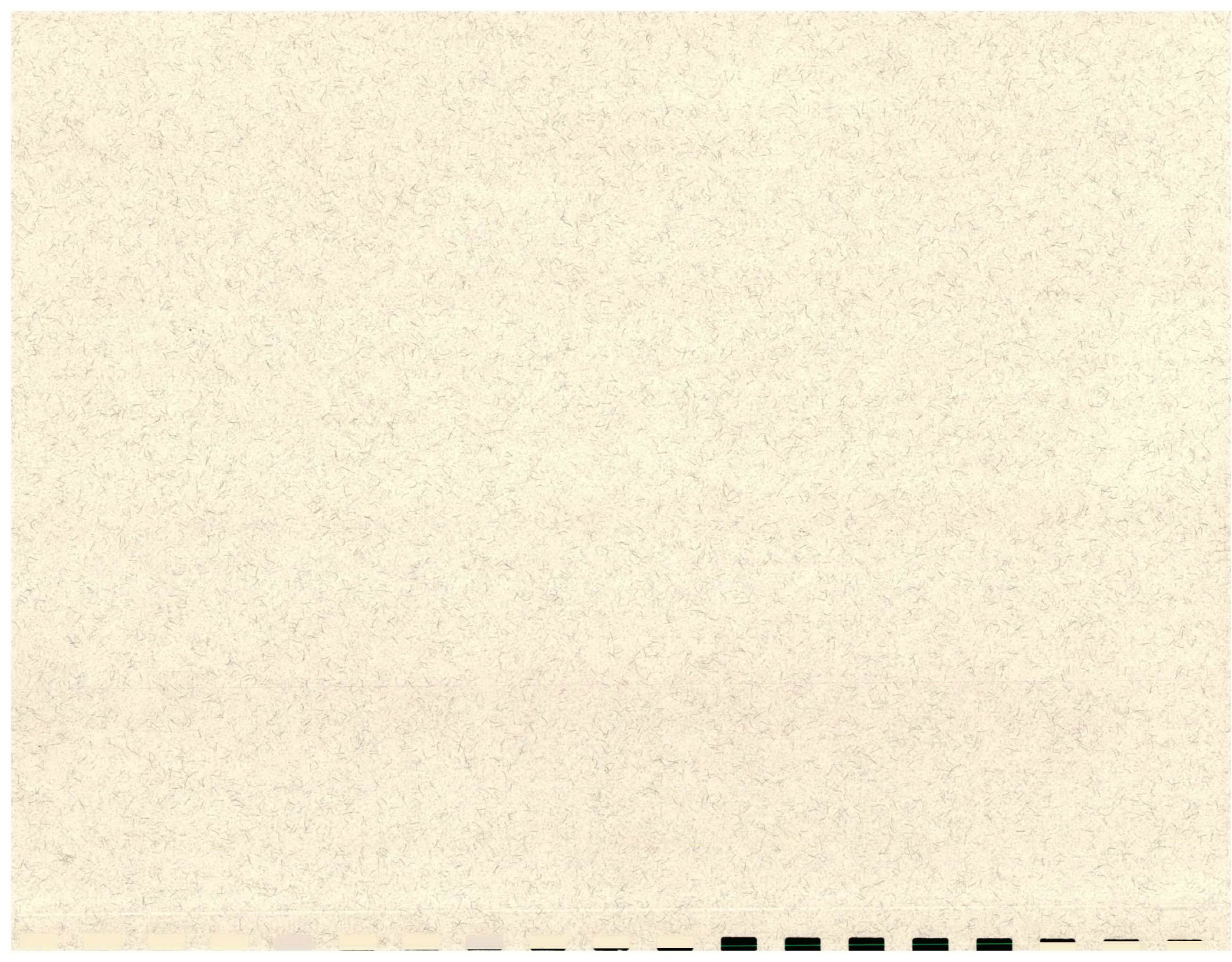


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Report
Groundwater Compliance Monitoring
Third Quarter 2002
Parcel 2 of the Former Puget Sound Energy
Grady Way/Talbot Storage Yard
Renton, Washington

August 28, 2002

For
Puget Western, Inc.



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 2 of the former Puget Sound Energy (PSE) Grady Way/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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cc: Nnamdi Madakor (one copy)
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Northwest Regional Office
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Poulsbo, Washington 98370

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**REPORT
GROUNDWATER COMPLIANCE MONITORING
THIRD QUARTER 2002
PARCEL 2 OF THE FORMER
PUGET SOUND ENERGY GRADY WAY/
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 2 of Puget Sound Energy's (PSE) former Grady Way/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. A portion of a storage dock associated with PSE's former Stores Building is located on Parcel 2, as shown in Figure 2.

This groundwater monitoring program is being conducted to meet the conditions of a "No Further Action" (NFA) letter issued by the Washington State Department of Ecology (Ecology). Groundwater monitoring activities on Parcel 2 are being completed in accordance with the sampling schedule and procedures presented in our "Groundwater Compliance Monitoring Plan, Parcel 2 of the Former Puget Sound Energy Grady Way/Talbot Storage Yard, Renton, Washington," dated February 1, 2000. The sampling and analysis plan for compliance monitoring on Parcel 2 is presented in Table 1.

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 2 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 three monitoring wells (GMW-8, GMW-13 and GMW-14) located on Parcel 2 using low-flow sampling techniques, and place the purged water in a labeled and secured 55-gallon drum.
5. Obtain groundwater samples from monitoring wells GMW-8, GMW-13 and GMW-14 in accordance with the sampling and analysis plan presented in Table 1. Submit the groundwater samples for chemical analysis of diesel- and lube oil-range hydrocarbons using Ecology Method NWTPH-D extended.

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

3.0 GROUNDWATER MONITORING RESULTS

3.1 GENERAL

Groundwater samples were obtained from three monitoring wells (GMW-8, GMW-13 and GMW-14) during this sampling event. The locations of the monitoring wells are shown in Figure 2. The groundwater samples were obtained on July 3, 2002. The groundwater samples were submitted for chemical analysis of diesel- and lube oil-range hydrocarbons using Ecology Method NWTPH-D extended. A summary of our groundwater monitoring field procedures is presented in Appendix A.

3.2 GROUNDWATER ELEVATIONS

Groundwater levels were measured in the four monitoring wells (GMW-8, GMW-9, GMW-13 and GMW-14) located on Parcel 2 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 2, on property that formerly comprised the PSE Grady Way Complex. The depth to groundwater ranged from approximately 6.16 to 7.05 feet below the ground surface (bgs) on Parcel 2 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 2 appeared to generally flow in a westerly direction based on our July 2002 measurements.

A localized groundwater gradient reversal has been observed beneath the western-most corner of Parcel 2 during previous monitoring events. This reversal was attributed to possible groundwater "mounding" near underground utilities adjacent to Grady Way South and Talbot Road. A groundwater gradient reversal may have been present beneath the western-most corner of Parcel 2 based on the July 2002 measurements (see GMW-8 and GMW-13). However, if present, the magnitude of the gradient reversal was less than previously observed at the site.

3.3 COMBUSTIBLE VAPOR CONCENTRATIONS

Combustible vapors were detected at a concentration of 5,000 parts per million (ppm) in the casing of monitoring well GMW-9. Combustible vapors either were not detected or were detected at concentrations less than 400 ppm in the other monitoring wells on Parcel 2.

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

Groundwater samples obtained during the July 2002 sampling event were submitted for analysis of diesel- and lube oil-range hydrocarbons. Chemical analytical results for the groundwater samples are presented in Table 3. Diesel- and lube oil-range hydrocarbons either were not detected or were detected at concentrations less than the MTCA Method A cleanup level in the samples submitted for analysis. Laboratory reports for the chemical analyses are presented in Appendix B.

3.5 TREND ANALYSIS OF ANALYTICAL RESULTS

The trend of petroleum hydrocarbon concentrations in monitoring wells GMW-8, GMW-13 and GMW-14 is presented in Figure 3. The MTCA Method A cleanup level for petroleum hydrocarbons 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.

Petroleum hydrocarbon concentrations in groundwater samples obtained from Parcel 2 have, in general, displayed an overall decreasing trend since the November 1998 monitoring event.

4.0 CONCLUSIONS AND RECOMMENDATIONS

GeoEngineers has monitored groundwater conditions beneath Parcel 2 since remedial excavation activities were completed on adjacent parcels during 1998-99. In general, groundwater conditions beneath Parcel 2 have improved during this period of time. In our opinion, the relatively low concentrations of residual constituents in groundwater beneath Parcel 2 do not pose a threat to human health or the environment as long as the conditions of the restrictive covenant are observed. Additionally, the source for the residual groundwater contamination does not appear to be located on Parcel 2. Based on this information, we recommend that Puget Western petition Ecology to terminate groundwater monitoring activities in Parcel 2. Terminating the groundwater monitoring activities at this time would eliminate the final two monitoring events (first and third quarters 2004) originally scheduled for Parcel 2, as outlined in the February 2000 Groundwater Compliance Monitoring Plan.

5.0 LIMITATIONS

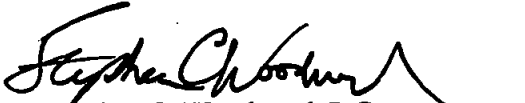
We have prepared this report for the exclusive use of Puget Western, PSE, their authorized agents and regulatory agencies. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time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

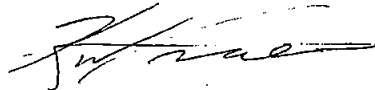
Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

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

Yours very truly,

GeoEngineers, Inc.

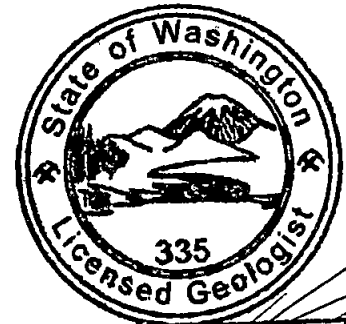

Stephen C. Woodward, P.G.
Senior Project Geologist


Kurt R. Fraese, P.G.
Principal

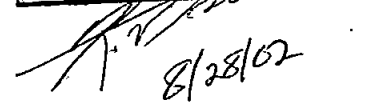
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Attachments

Three copies submitted



Kurt R. Fraese


8/28/02

**TABLE 1
SAMPLING AND ANALYSIS PLAN
GROUNDWATER COMPLIANCE MONITORING**

Parcel 2 of the Former Puget Sound Energy
Grady Way/Talbot Storage Yard
Renton, Washington

Monitoring Well	Year 2000				Year 2001				Year 2002				Year 2003				Year 2004			
	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.	1 st Qtr.	2 nd Qtr.	3 rd Qtr.	4 th Qtr.
Parcel 2																				
GMW-8	TPH, As								TPH		TPH						TPH		TPH	
GMW-9																				
GMW-13	TPH, As	As	As	As					TPH		TPH						TPH		TPH	
GMW-14	TPH, As	As	As	As					TPH		TPH						TPH		TPH	

Notes:

1. Shading indicates that groundwater samples will not be obtained from the specified well unless contaminant concentrations significantly increase in other on-site wells.
2. TPH = Total petroleum hydrocarbons. TPH will be analyzed using Ecology Method NWTPH-D extended.
3. As = Dissolved Arsenic. Dissolved arsenic will be analyzed using EPA Method 6020.

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 ^b	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.

TABLE 3 (Page 1 of 2)
SUMMARY OF GROUNDWATER CHEMICAL ANALYTICAL DATA¹

Parcel 2 of the Former Puget Sound Energy
Grady Way/Talbot Storage Yard
Renton, Washington

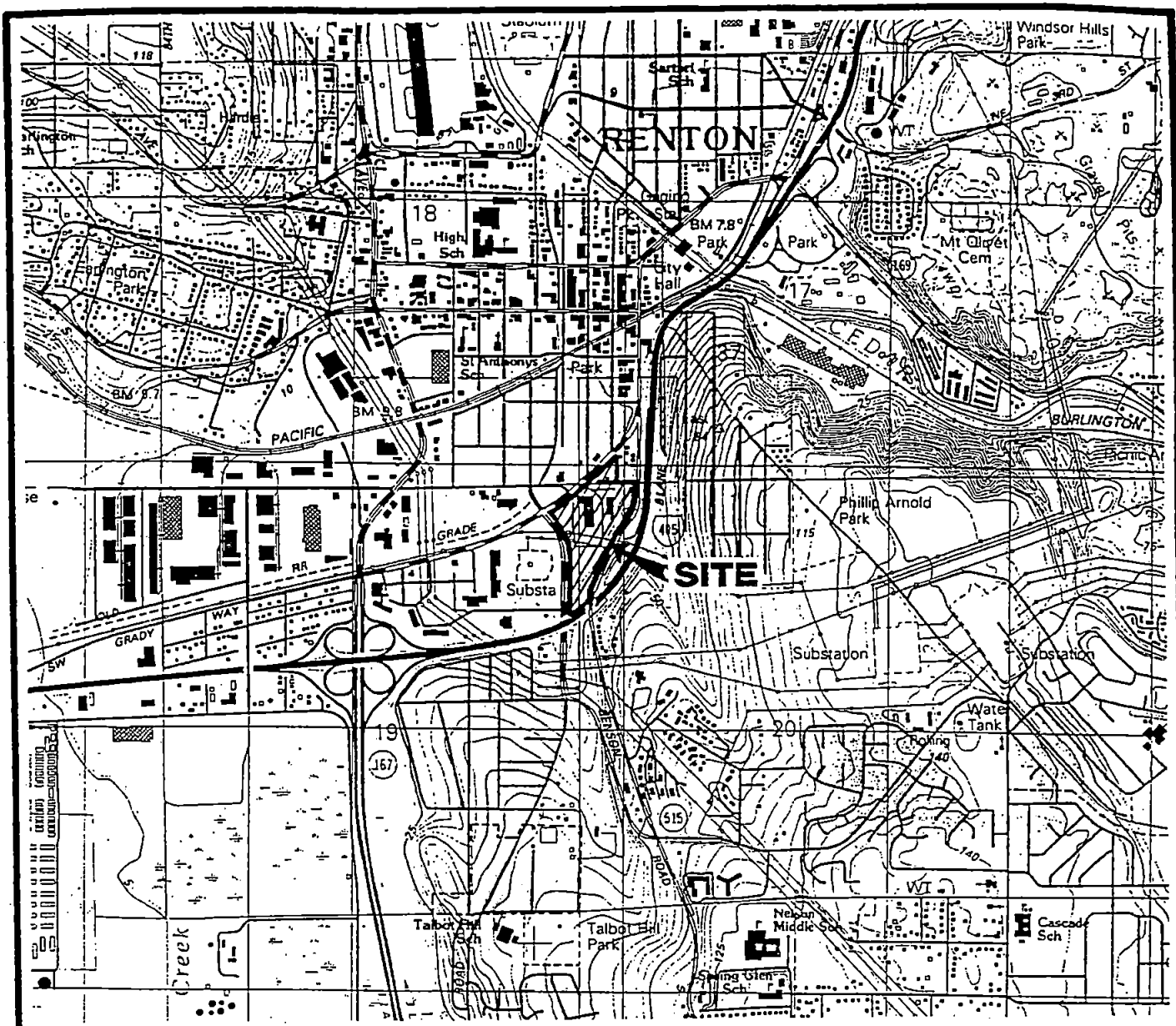
Sample Number ²	Date Sampled	Petroleum Hydrocarbons ³ (mg/l)		PCBs ⁴ (µg/l)	Dissolved Arsenic ⁵ (µg/l)	pH ⁶ (pH units)
		Diesel-Range	Lube Oil-Range			
GMW-8	08/29/1998	<0.250	<0.500	<0.100	5.95	7.31
	11/03/1998	0.385	0.942	<0.100	2.28	6.44
	11/24/1998	1.84	5.13	-	-	-
	02/24/1999	0.372	<0.500	<0.100	3.19	6.24
	05/20/1999	0.886	2.42	<0.100	-	-
	01/28/2000	0.736	0.960	-	3.18	-
	01/04/2002	<0.250	<0.500	-	-	-
	07/03/2002	<0.250	<0.500	-	-	-
GMW-13	11/24/1998	0.472	1.21	-	-	-
	02/24/1999	<0.250	<0.500	-	-	6.30
	05/20/1999	<0.250	<0.500	-	-	-
	01/28/2000	<0.250	<0.500	-	<1.00	-
	04/14/2000	-	-	-	<1.00	-
	07/21/2000	-	-	-	<1.00	-
	10/19/2000	-	-	-	<1.00	-
	01/04/2002	<0.250	<0.500	-	-	-
	07/03/2002	<0.250	<0.500	-	-	-
GMW-14	11/24/1998	1.06	2.98	-	-	-
	02/24/1999	0.556	0.969	-	-	6.31
	05/20/1999	<0.250	<0.500	-	-	-
	01/28/2000	0.330	<0.500	-	2.53	-
	04/14/2000	-	-	-	2.27	-
	07/21/2000	-	-	-	23.1	-
	10/19/2000	-	-	-	2.98	-
	01/04/2002	<0.250	<0.500	-	-	-
	07/03/2002	0.254	0.589	-	-	-
MTCA Method A Cleanup Level ⁷		1.0 ⁸		0.1	5.0	NA

Notes appear on Page 2 of 2

TABLE 3 (Page 2 of 2)

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 B.
 - 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 6000/7000 Series.
 - ⁶ pH analyzed using EPA Method 150.1.
 - ⁷ 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)]
 - ⁸ 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.



RENTON

SITE



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

Geo  Engineers

VICINITY MAP

FIGURE 1

0186-376-RB5 LCM:ROH 9/1/85

14.1.0/95

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

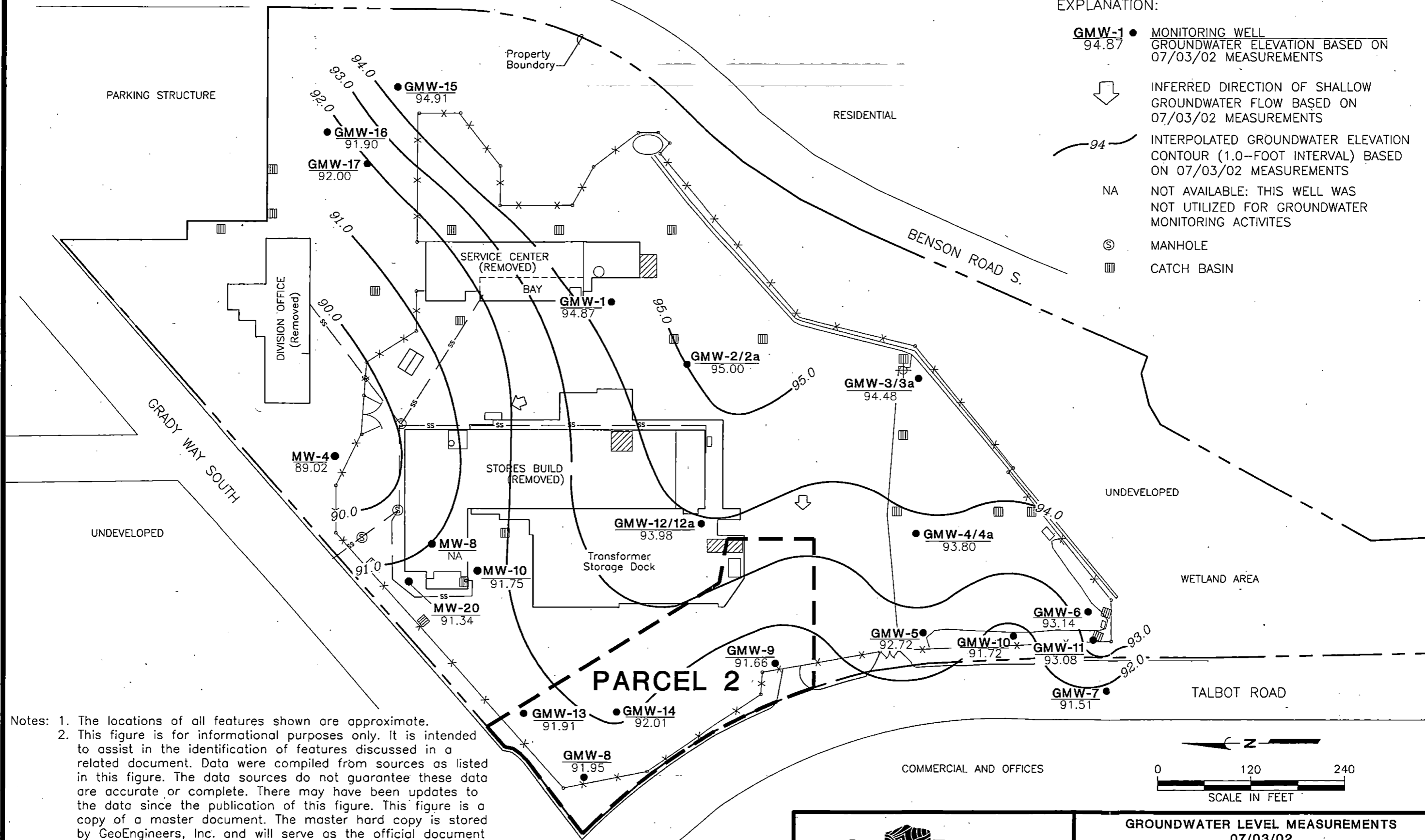
SEAT P:\0186407\CAD\00\T2\018640700T2A.DWG BPP:SYF 08/19/02

MAIN AVENUE S.

I-405

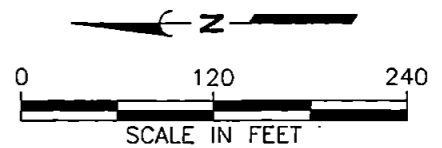
EXPLANATION:

- **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 ACTIVITIES
- ⊙ MANHOLE
- ▣ CATCH BASIN



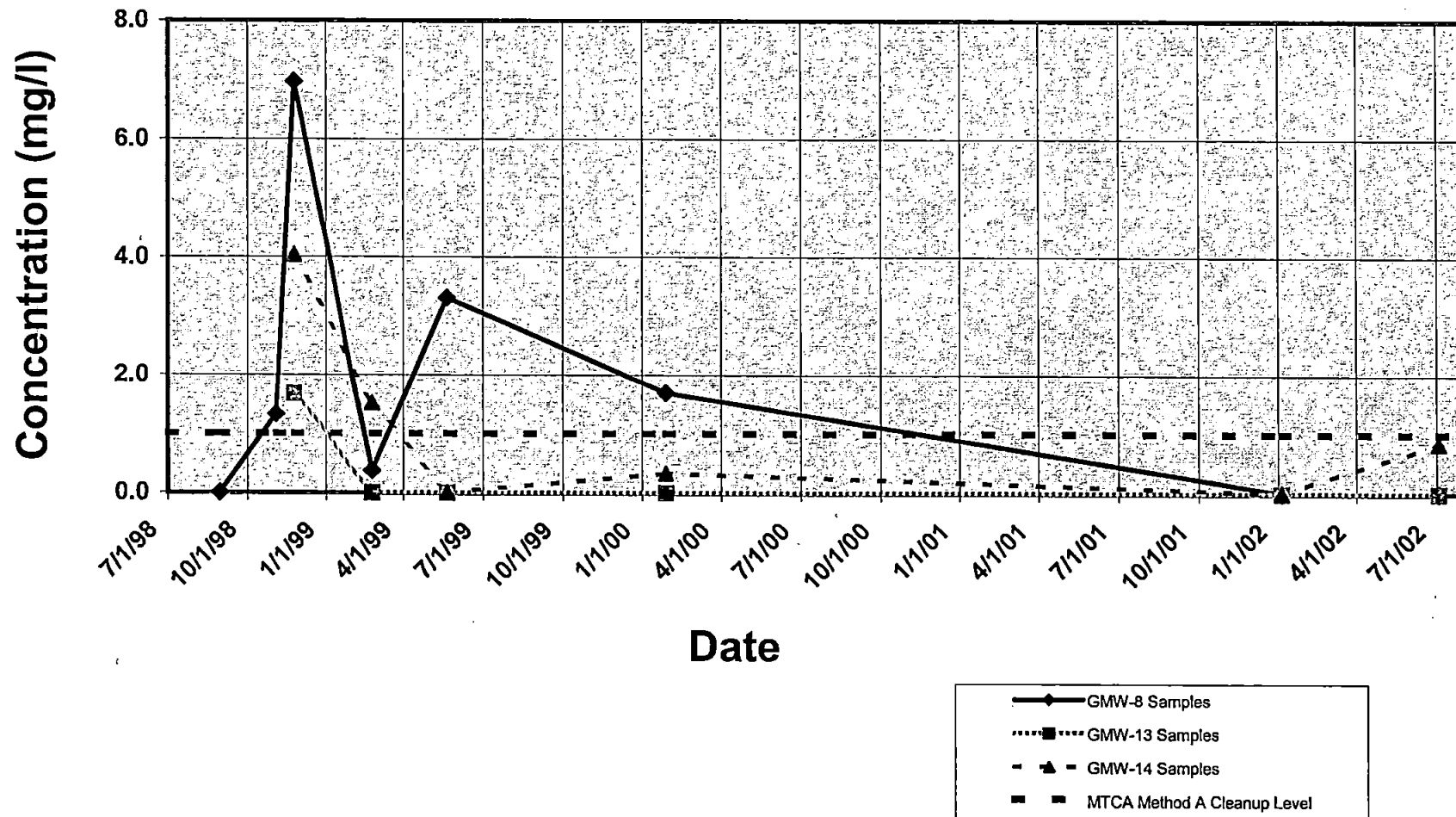
Notes: 1. The locations of all features shown are approximate.
 2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these 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.



	GROUNDWATER LEVEL MEASUREMENTS 07/03/02
	FIGURE 2

Figure 3
Parcel 2 Ground Water Analytical Results
Total Petroleum Hydrocarbons



APPENDIX A
FIELD PROCEDURES

APPENDIX A

FIELD PROCEDURES

GROUNDWATER MONITORING

Prior to obtaining groundwater samples, we measured combustible vapors and the depth to groundwater 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.

Groundwater samples were obtained from the monitoring wells using low-flow/low-turbidity sampling techniques to minimize sediment suspension in groundwater samples. Dedicated polyethylene tubing was installed in the monitoring wells 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 wells generally were considered purged when three consecutive dissolved oxygen, pH, temperature, conductivity and turbidity measurements were within 10 percent of each other. The samples were 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 samples to the laboratory.

PURGE WATER STORAGE/DISPOSAL

Purge and decontamination water generated during this monitoring event was placed in sealed and labeled drums on-site, pending 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. 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. Any data quality exceptions documented by the accredited laboratory were 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. In our opinion, the analytical data are of acceptable quality for their intended use in this study.



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

ANALYTICAL REPORT FOR SAMPLES - Amended

Table with 5 columns: Sample ID, Laboratory ID, Matrix, Date Sampled, Date Received. Rows include GMW-4/4A, GMW-8, GMW-13, GMW-14.

North Creek Analytical - Bothell

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Handwritten signature of Jeff Gerdes

Jeff Gerdes, Project Manager

North Creek Analytical, Inc. Environmental Laboratory Network



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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

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			"	"	"	"	

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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

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 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
--------------------------------------------------------------------------------	------------------------------------------------------------------------------------------	------------------------------------------

**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			

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 Project Manager: Steve Woodward

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 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			

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Project Number: 0186-407-00
Project Manager: Steve Woodward

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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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Page 6 of 6

CHAIN OF CUSTODY REPORT

Work Order #: **B260099**

CLIENT: **GEOENGINEERS**
REPORT TO: **0186-407-00 STEVE WOODWARD**
BRIAN PETERIK
ADDRESS: **8910 154TH AVE NE**
REDMOND, WA. 98052
PHONE: **425-861-6000** FAX: **425-861-6050**

INVOICE TO: **STEVE WOODWARD**
GEI SEATTLE
P.O. NUMBER:

TURNAROUND REQUEST in Business Days*

Organic & Inorganic Analyses
 10 7 5 4 3 2 1 <1
 STD.
 Petroleum Hydrocarbon Analyses
 5 4 3 2 1 <1
 STD.
 OTHER Please Specify

PROJECT NAME: **PSE GRADY WAY** REQUESTED ANALYSES

PROJECT NUMBER: **0186-407-00**
SAMPLED BY: **BRIAN ANDERSON**

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NWTFH-DX	PCB = 67	8082															
1. GMW-4/4a	7-3-02 1503		0																
2. GMW-8	↓ 1346		0																
3. GMW-13	↓ 1415		0																
4. GMW-14	7-3-02 1436		0																
5.																			
6.																			
7.																			
8.																			
9.																			
10.																			
11.																			
12.																			
13.																			
14.																			
15.																			

MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
W	2		-01
W	2		-02
W	2		-03
W	2		-04

RELINQUISHED BY: **Brian Anderson** DATE: **7-3-02** RECEIVED BY: **Jennifer Wisner** DATE: **7/3/02**
 PRINT NAME: **BRIAN ANDERSON** FIRM: **GEI** TIME: **1750** PRINT NAME: **Jennifer Wisner** FIRM: **NCA** TIME: **17:50**
 RELINQUISHED BY: DATE: RECEIVED BY: DATE:
 PRINT NAME: FIRM: TIME: PRINT NAME: FIRM: TIME:

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE



APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

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.