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2004 ANNUAL GROUNDWATER SAMPLING REPORT

Weyerhaeuser Snoqualmie Mill
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Revision 0

February 17, 2005

Prepared for:

Weyerhaeuser Company

Submitted by:

Shaw® Shaw Environmental, Inc.

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Bothell, Washington 98011

2004 ANNUAL GROUNDWATER SAMPLING REPORT

Weyerhaeuser Snoqualmie Mill
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The material and data in this report were prepared under the supervision and direction of the undersigned.

Brian Peters, L.G.
Project Manager

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1.0 Introduction

At Weyerhaeuser Company's (Weyerhaeuser) request, Shaw Environmental, Inc. (Shaw) conducted quarterly groundwater sampling activities at the former underground fuel storage tank (UST) and aboveground road oil storage tank (AST) areas (UST/AST Area) of the Weyerhaeuser Snoqualmie Mill. The mill is an industrial facility located in a semi-rural area approximately 1 mile northeast of Snoqualmie, Washington (Figure 1). The former UST/AST Area is located in the southern part of the mill. Four quarterly sampling events were conducted in March, June, September, and December 2004. The purpose of the groundwater sampling activities was to monitor groundwater conditions over time.

The tasks completed under the scope of work included the following:

- Measurement of depths to groundwater in the monitoring wells
- Oxygen Release Compound (ORC®)-filled sock installation and slug testing
- Collection of groundwater samples from selected wells for quantitative chemical analysis
- Interpretation and compilation of data
- Preparation of this annual groundwater sampling report

2.0 Background

2.1 General Site Information

The Weyerhaeuser Snoqualmie Mill occupies approximately 300 acres near the Snoqualmie River in Snoqualmie, Washington (Figure 1). The UST/AST Area is located in the southern portion of the mill (Figure 2). The former UST area consisted of 10 gasoline, diesel, and lubricating oil tanks and associated fuel dispensing equipment that were installed in approximately 1960. The tanks and dispensing equipment were removed in January 1989. During the tank removal, petroleum hydrocarbon-saturated soils were observed in the excavation. Approximately 300 cubic yards of impacted soil was excavated and treated on site by bioremediation (landfarming) methods. The area near the former tank basin is vacant.

The former AST (road oil storage) area consisted of an 8,000-gallon tank and a 4,000-gallon tank that were installed in approximately 1960. The tanks were removed in November 1988. A steam cleaning rack and a machine shop were located to the northwest and west, respectively, of the former road oil tank area (Figure 2). The steam cleaning rack and machine shop have been decommissioned and removed. An aboveground lube oil storage facility, decommissioned in 2004, and a concrete loading dock currently exist to the south and north, respectively, of the former AST area.

2.2 Previous Remediation Activities

From 1989 through 1997, several soil and groundwater investigations and groundwater monitoring events were conducted at the site. The results of each investigation and groundwater monitoring event from 1989 through 1993 are summarized in EMCON's *Remedial Investigation Report, Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas, Weyerhaeuser Snoqualmie Mill*, dated March 24, 1998. Based on the results of the 1989 investigation activities, approximately 700 and 600 cubic yards of petroleum hydrocarbon-impacted soil were excavated in 1989 from the former UST and AST areas, respectively. The excavated soil was treated on site by landfarming methods.

In 1990, seven groundwater monitoring wells (A1-1 through A1-7) were installed at the former UST area and four monitoring wells (A2-1 through A2-4) were installed at the former AST area (Figure 2A). The wells were screened near the top of a saturated sand unit that extends from a depth of approximately 10 to 12 feet below ground surface (bgs) to approximately 30 feet bgs. In both areas, significant soil contamination typically did not extend to depths greater than 8 feet bgs, and lateral and vertical contaminant migration appeared to be limited by shallow, silty soils.

From 1990 through 1997, analytical results indicated that the groundwater beneath the former UST area had been impacted by petroleum hydrocarbons, particularly in the vicinity of well A1-3 (located south of the former UST basin). By July 1997, only the sample from A1-3 contained volatile petroleum hydrocarbons (benzene, toluene, ethyl benzene, total xylenes [BTEX] and total petroleum hydrocarbons [TPH] as gasoline [TPH-G]) and semivolatile petroleum hydrocarbon (TPH as diesel [TPH-D]) concentrations exceeding Washington Department of Ecology's (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels[1] that were established at the time.

In addition, from 1990 through 1997, analytical results indicated that the groundwater beneath the former road oil storage tank area was also impacted by low levels of petroleum hydrocarbons. By July 1997, none of the samples contained petroleum hydrocarbon concentrations above Method A cleanup levels.

In September 1997, EMCON (currently Shaw) conducted remedial investigation activities at both the UST and AST areas to:

1. Evaluate the lateral and vertical extents of hydrocarbon-impacted soil;
2. Obtain soil data required by the Ecology Interim TPH Policy (Ecology, 1997); and
3. Evaluate the direct contact and protection of groundwater risks associated with the remaining TPH in soil.

The results of the investigation showed that petroleum hydrocarbons, where present, were typically detected at a depth of approximately 4.5 feet bgs (just above a perched groundwater table), and that the concentrations decreased significantly below 7 feet bgs. The investigation also indicated that the hydrocarbon-impacted groundwater was typically perched on top of or within a shallow silt unit above the sand aquifer, and that all of the existing monitoring wells at both areas, except monitoring well A1-3, were screened too deep to evaluate perched groundwater conditions. The risk evaluation showed that TPH concentrations in soil (up to 3,600 milligrams per kilogram [mg/kg] in the former UST area and 3,200 mg/kg in the former AST area) exhibit acceptable risks based on direct contact and protection of groundwater. The results of the 1997 remedial investigation and risk evaluation are described in EMCON's 1998 remedial investigation report (EMCON, 1998).

In September 1998, EMCON conducted additional groundwater investigation activities at the former UST/AST Areas. The purpose of the work was to characterize the perched groundwater conditions beneath both areas and to prevent potential cross-contamination of a sand aquifer beneath the perched groundwater. The work consisted of abandoning 10 groundwater monitoring

[1] Chapter 173-340 WAC, *The Model Toxics Control Act Cleanup Regulation; Method A Cleanup Levels.* Amended January 1996 (amended February 2001).

wells, drilling and sampling 4 soil borings at each area, completing each of the borings as a groundwater monitoring well, and collecting a groundwater sample from each well (Figure 2A).

The soil sample analytical results showed that all of the samples from the UST area borings contained BTEX concentrations below MTCA Method B cleanup levels, and combined TPH (TPH-G, TPH-D, and TPH as oil [TPH-O]) concentrations below the risk-based (Interim TPH Policy) site action level (3,600 mg/kg). For the AST area borings, the sample from boring A2-6 (at 5 feet bgs) contained a combined TPH (TPH-D and TPH-O) concentration of 8,300 mg/kg, which exceeded the risk-based site action level (3,200 mg/kg). Soil boring A2-6 is located behind the current aboveground lube oil storage facility, approximately 75 feet south of the former road oil storage tanks. The combined TPH concentrations in the samples from the other borings in the former AST area were below the site action level. Based on field screening and soil sample analytical results, petroleum hydrocarbons, where present, were typically detected at a depth of 5 feet bgs (just above the perched groundwater).

Based on the 1998 groundwater sample analytical results, petroleum hydrocarbons in the soil beneath both areas have impacted perched groundwater. Groundwater sample analytical results from the former UST area wells indicate that the benzene concentration in the sample from monitoring well A1-9, the TPH-O concentration in the sample from monitoring well A1-10, and the TPH-D and TPH-O concentrations in the sample from monitoring well A1-11 exceeded then-current MTCA Method A cleanup levels. The groundwater sample analytical results from the former AST area wells indicate that the TPH-O concentration in the sample from monitoring well A2-5, and the TPH-D and TPH-O concentrations in the sample from monitoring well A2-6, exceed MTCA Method A cleanup levels. The results of the 1998 groundwater investigation are described in EMCON's *Well Abandonment and Installation Report, Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas, Weyerhaeuser Snoqualmie Mill*, dated January 12, 1999.

Groundwater samples collected from all monitoring wells have contained concentrations of petroleum hydrocarbon constituents in groundwater below the current MTCA Method A cleanup levels since December 1998, with the exception of the benzene concentration in monitoring well A1-9. The benzene concentrations in groundwater samples collected from monitoring well A1-9 have ranged from 0.6 micrograms per liter (µg/L) to 22 µg/L since December 1998.

3.0 ORC-filled Sock Installation and Slug Testing

Recent analytical results from groundwater sampling events have indicated that groundwater in only one monitoring well (A1-9) continues to exceed Ecology Method A cleanup levels for benzene. As a passive remediation measure, Weyerhaeuser has implemented the use of ORC-filled socks into monitoring well A1-9 to enhance the biodegradation of the hydrocarbons in the immediate vicinity of the monitoring well. An ORC-filled sock was introduced to the well on July 17, 2003 as a interim measure to determine if ORC use would be beneficial. ORC socks were installed on a quarterly basis in 2004 as described below. As preparation for the implementation of ORC treatment during 2004, Shaw conducted slug testing at the site to determine the groundwater velocity at the site.

Three monitoring wells were selected for slug testing (monitoring wells A1-8, A1-9, and A1-10). A pressure transducer was placed into the well being tested before introduction of the slug. The pressure transducer was connected to a data logger that allowed pressure reading to be recorded at predetermined intervals. The slug dimensions were 47 inches long by 1.625 inches in diameter. The rising and falling head of water was monitored and the hydraulic conductivity was then calculated on aquifer testing software using the Bouwer-Rice Method. Based on the results from both the rising head and falling head test from both wells, the average hydraulic conductivity was calculated to be approximately 0.494 feet per day. Using an average hydraulic gradient at the site of 0.035 feet per foot (ft/ft) (based on the four quarters of groundwater elevation data in the vicinity of the former UST area and well A1-9), the calculated average apparent groundwater velocity at the site is 0.011 feet per day. The slug test evaluation sheets are included as Appendix A.

Based on the apparent groundwater velocity and a radius of the annulus space of the monitoring wells of 0.25 feet, it was calculated that the ORC-filled sock would be required to be removed approximately 14 days prior to sampling the well to allow the well to re-equilibrate with unaltered groundwater.

ORC-filled socks were installed in monitoring well A1-9 upon completion of quarterly sampling in March, June, September, and December 2004. The ORC-filled socks were removed on June 1, 2004 prior to the June 23, 2004 sampling event; on August 31, 2004 prior to the September 28, 2004 sampling event; and on November 22, 2004 prior to the December 16, 2004 sampling event.

4.0 Quarterly Groundwater Monitoring

Based on consistent results since 1998, compliance with cleanup levels in groundwater for the contaminants of concern in all site monitoring wells has been achieved (four consecutive quarters with concentrations below cleanup levels) with the exception of monitoring well A1-9 (benzene only). Therefore, during 2004, groundwater samples were collected only from monitoring well A1-9 during each of the four quarterly sampling events (March, June, September, and December 2004). The samples from well A1-9 were submitted to the Weyerhaeuser Analytical and Testing Services Laboratory in Federal Way, Washington, for analysis of BTEX by U.S. Environmental Protection Agency Method 8260B; TPH-G by Ecology Method NWTPH-G, and TPH-D and TPH-O by Ecology Method NWTPH-D extended after silica gel/sulfuric acid cleanup. The groundwater sampling procedures are described, and the sampling data sheets and the field water quality data for each sampling event are included in Appendix B.

Each quarter, before sample collection, depths to groundwater were measured in all the wells. This data is presented in Table 1. The groundwater elevations in the wells ranged from 91.15 to 96.58 feet, relative to a local site datum with a designated elevation of 100.00 feet, and are shown on Figures 3a through 3d. From March 2004 to December 2004, the groundwater elevations in the wells fluctuated by as much as 3.37 feet. During each sampling event, the groundwater flow direction beneath the site was generally toward the southwest with an average hydraulic gradient of approximately 0.035 ft/ft in the vicinity of the former UST area and well A1-9.

The groundwater sample analytical results are summarized in Table 2. The laboratory reports are presented in Appendix C.

4.1 Groundwater Sampling Event – March 2004

4.1.1 UST Area

As discussed above, a groundwater sample was only collected from A1-9. Results from this sample indicated that benzene was detected at a concentration of 6 µg/L, which is exceeds the MTCA Method A cleanup level of 5 µg/L. All other analytes were not detected above the MTCA Method A cleanup levels.

4.1.2 AST Area

Because TPH-D and TPH-O have not been detected above laboratory reporting limits in any of the samples collected from the AST area since August 2000, samples were not collected from the AST area monitoring wells during the first quarter.

4.2 Groundwater Sampling Event – June 2004

4.2.1 UST Area

Consistent with the previous quarter, a sample was collected only from monitoring well A1-9 during the second quarter. Results from this sample indicated that benzene was detected at a concentration of 7 µg/L, which exceeds the MTCA Method A cleanup level of 5 µg/L. No other analytes were detected above the MTCA Method A cleanup levels.

4.2.2 AST Area

Consistent with the previous quarter, groundwater samples were not collected from the AST area monitoring wells this quarter.

4.3 Groundwater Sampling Event – September 2004

4.3.1 UST Area

Consistent with the previous quarter, a sample was collected only from monitoring well A1-9 during the third quarter. Results from this sample indicated that benzene was detected at a concentration of 5 µg/L, which is at the MTCA Method A cleanup level. No other analytes were detected above the MTCA Method A cleanup levels.

4.3.2 AST Area

Consistent with the previous quarter, groundwater samples were not collected from the AST area monitoring wells this quarter.

4.4 Groundwater Sampling Event – December 2004

4.4.1 UST Area

Consistent with the previous quarter, a sample was collected only from monitoring well A1-9 during the forth quarter. Results from this sample indicated that benzene was detected at a concentration of 10 µg/L, which is exceeds the MTCA Method A cleanup level of 5 µg/L. No other analytes were detected above the MTCA Method A cleanup levels.

4.4.2 AST Area

Consistent with the previous quarter, groundwater samples were not collected from the AST area monitoring wells this quarter.

5.0 Conclusions and Recommendations

Groundwater elevation data collected in 2004 show that the groundwater flow direction beneath the site is generally towards the southwest, which is consistent with historical results. The calculated average hydraulic gradient during the last four quarters for the site was approximately 0.01 ft/ft.

Based on results since 1998, compliance with MTCA Method A cleanup levels in groundwater for the contaminants of concern in all site monitoring wells (both the AST and UST areas) has been achieved (four consecutive quarters with concentrations below MTCA Method A cleanup levels) with the exception of monitoring well A1-9 in the UST area (benzene only). Therefore, during 2004, groundwater samples were collected only from monitoring well A1-9 during the each of the four quarterly sampling events (March, June, September, and December).

In 2004, benzene concentrations in groundwater samples collected from well A1-9 were at or slightly above the MTCA Method A cleanup level for benzene of 5 µg/L. Based on these results compared to the previous data, the introduction of additional oxygen with the use of the ORC-filled socks appeared to have minimal effect on increasing the biodegradation rate of the benzene.

Shaw recommends collecting depth-to-water measurements in all of the wells, and sampling well A1-9 on a quarterly basis to continue monitoring BTEX concentrations downgradient of the UST area. Shaw does not recommend continued use of the ORC-filled socks based on the results of the past three quarters. ORC may be a viable alternative (if necessary), although a different delivery mechanism should be used (i.e., direct push injection program). Based on the very slight exceedances of benzene in the one remaining well that is not in compliance with the MTCA Method A standard, Shaw recommends that Weyerhaeuser submit a Request for Review of Independent Cleanup Action to Ecology's Voluntary Cleanup Program to determine if Ecology would consider a no further action status at the site. Prior to obtaining no further action status, Ecology may require additional evaluation and remediation of TPH-impacted soil remaining at the site in the vicinity of the former aboveground lube oil storage facility.

6.0 References

Ecology, 1997, *Interim Interpretive and Policy Statement - Cleanup of Total Petroleum Hydrocarbons (TPH)*. Publication No. ECY97-600, Ecology Toxics Cleanup Program, Olympia, Washington, January.

EMCON, 1998, *Remedial Investigation Report, Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas, Weyerhaeuser Snoqualmie Mill*, March 24.

EMCON, 1999, *Well Abandonment and Installation Report, Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas, Weyerhaeuser Snoqualmie Mill*, January 12.

Limitations

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Figures

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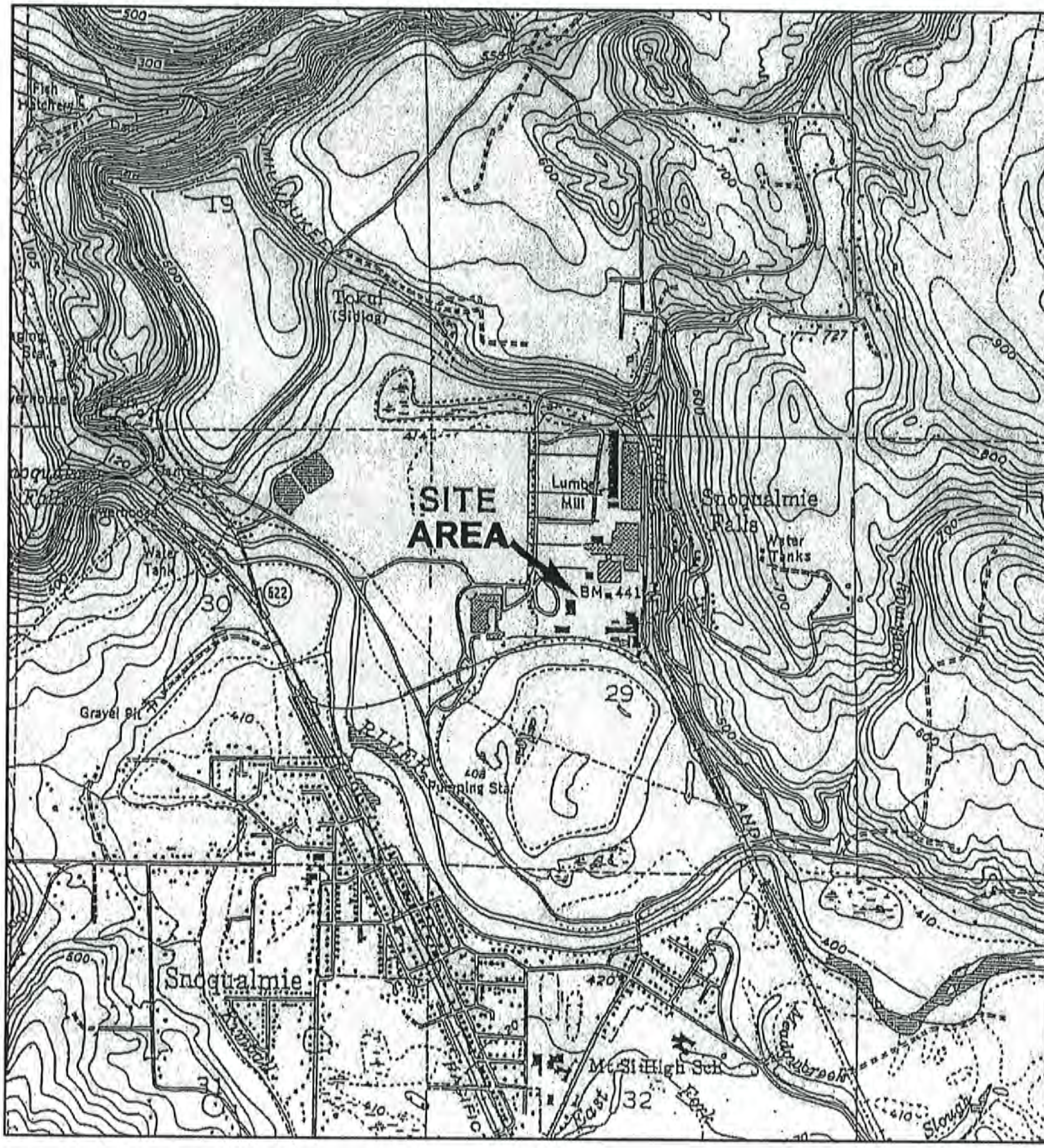

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0 2000 4000 FEET

U.S.G.S. 7.5 Min. Quadrangle, TACOMA NORTH & SOUTH, WA. (1981).

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FIGURE 1

SITE LOCATION MAP

FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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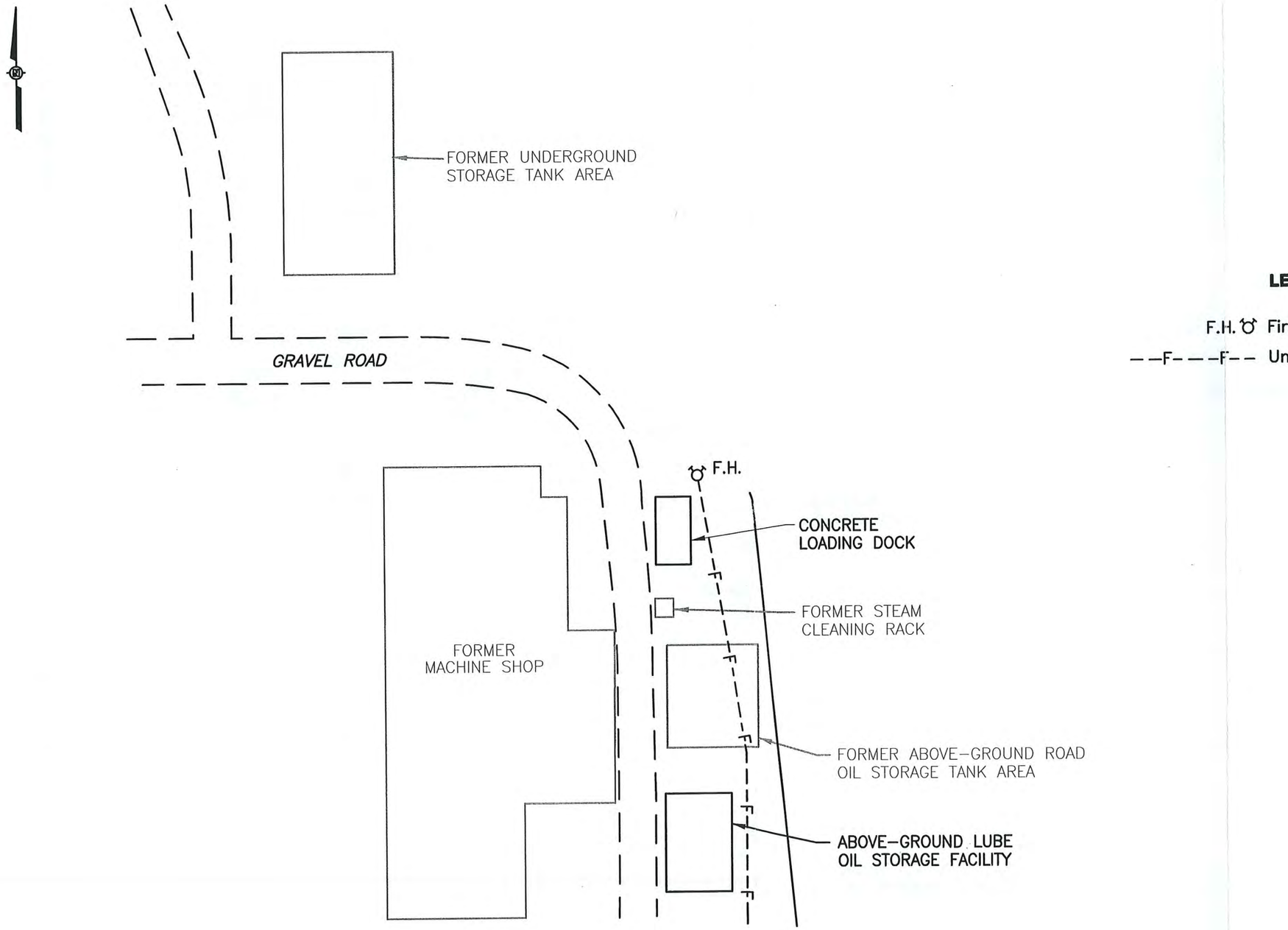

LEGEND:

F.H. Fire Hydrant

--F---F-- Underground Fire Service Main

SCALE

0 60 120 FEET

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FIGURE 2

SITE MAP

FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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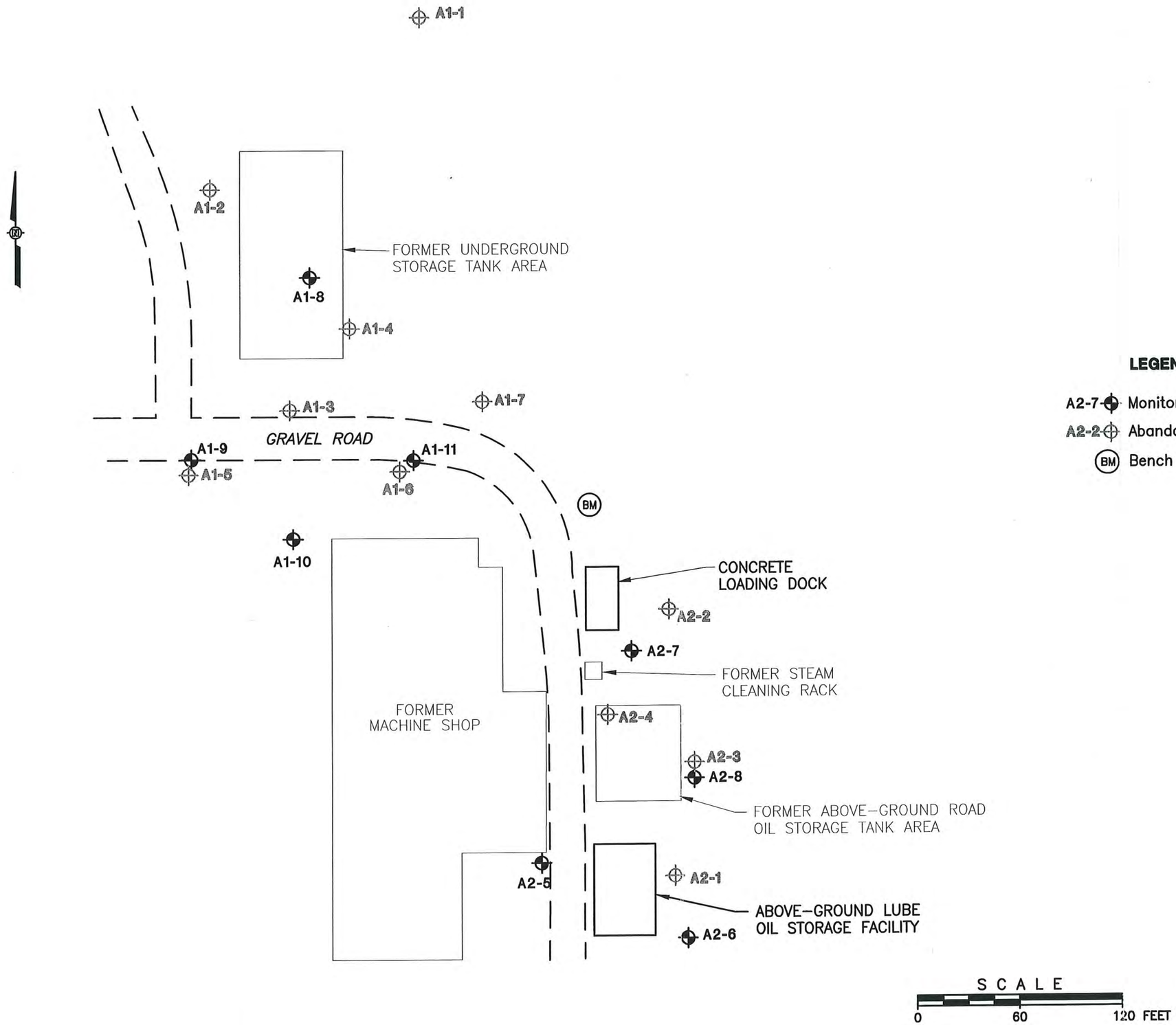

LEGEND:

A2-7 ⊕ Monitoring Well Location

A2-2 ⊕ Abandoned Monitoring Well Location

(BM) Bench mark (Fire Hydrant)

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FIGURE 2A

EXISTING AND ABANDONED MONITORING WELL LOCATIONS
FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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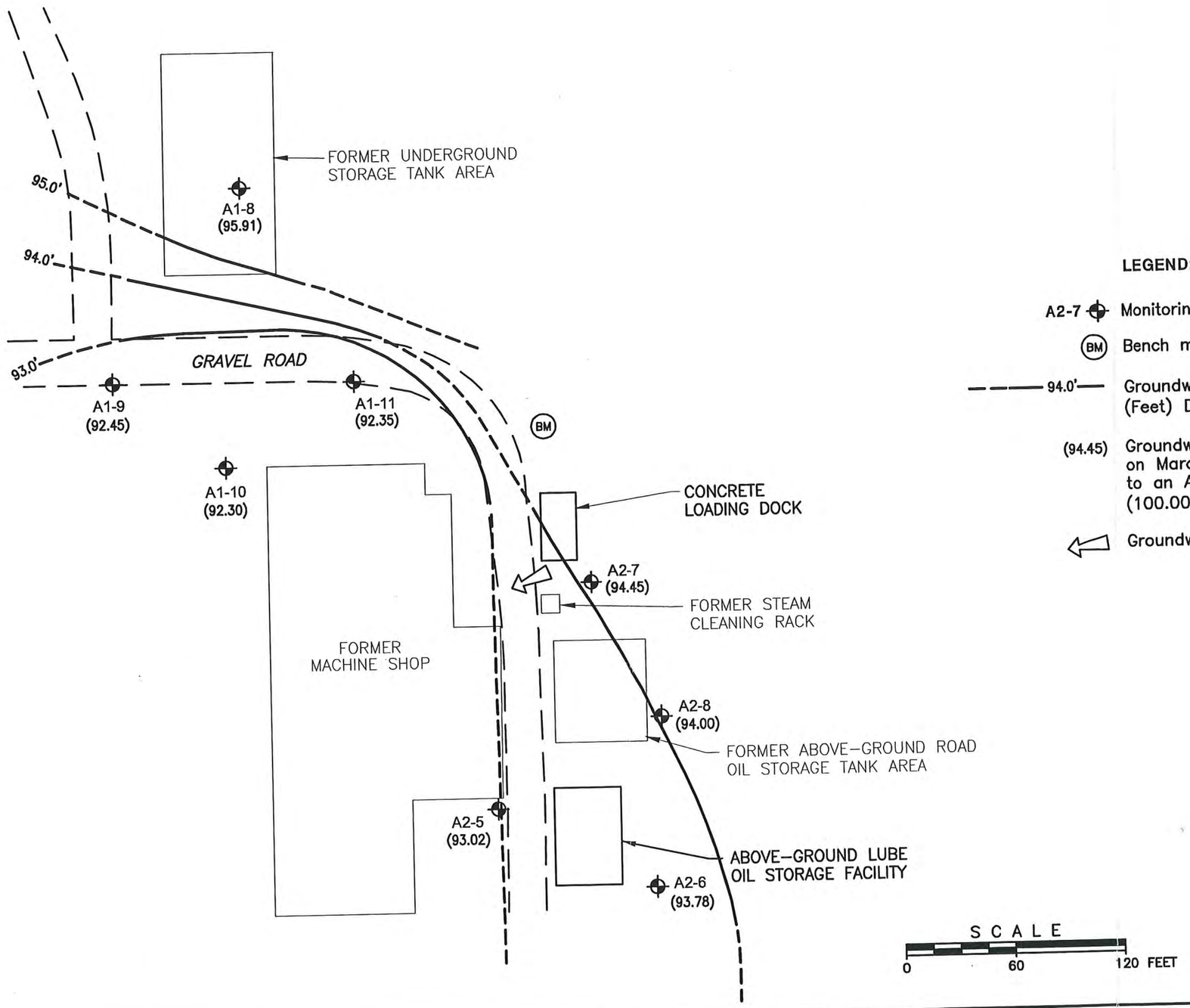

LEGEND:

- A2-7 ⊕ Monitoring Well Location
- (BM) Bench mark (Fire Hydrant)
- 94.0' Groundwater Elevation Contour (Feet) Dashed Where Inferred
- (94.45) Groundwater Elevation (Feet) on March 10, 2004 Referenced to an Arbitrary Site Datum (100.00 Feet)
- Groundwater Flow Direction

SCALE
0 60 120 FEET

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FIGURE 3A
GROUNDWATER ELEVATIONS
MARCH 10, 2004
FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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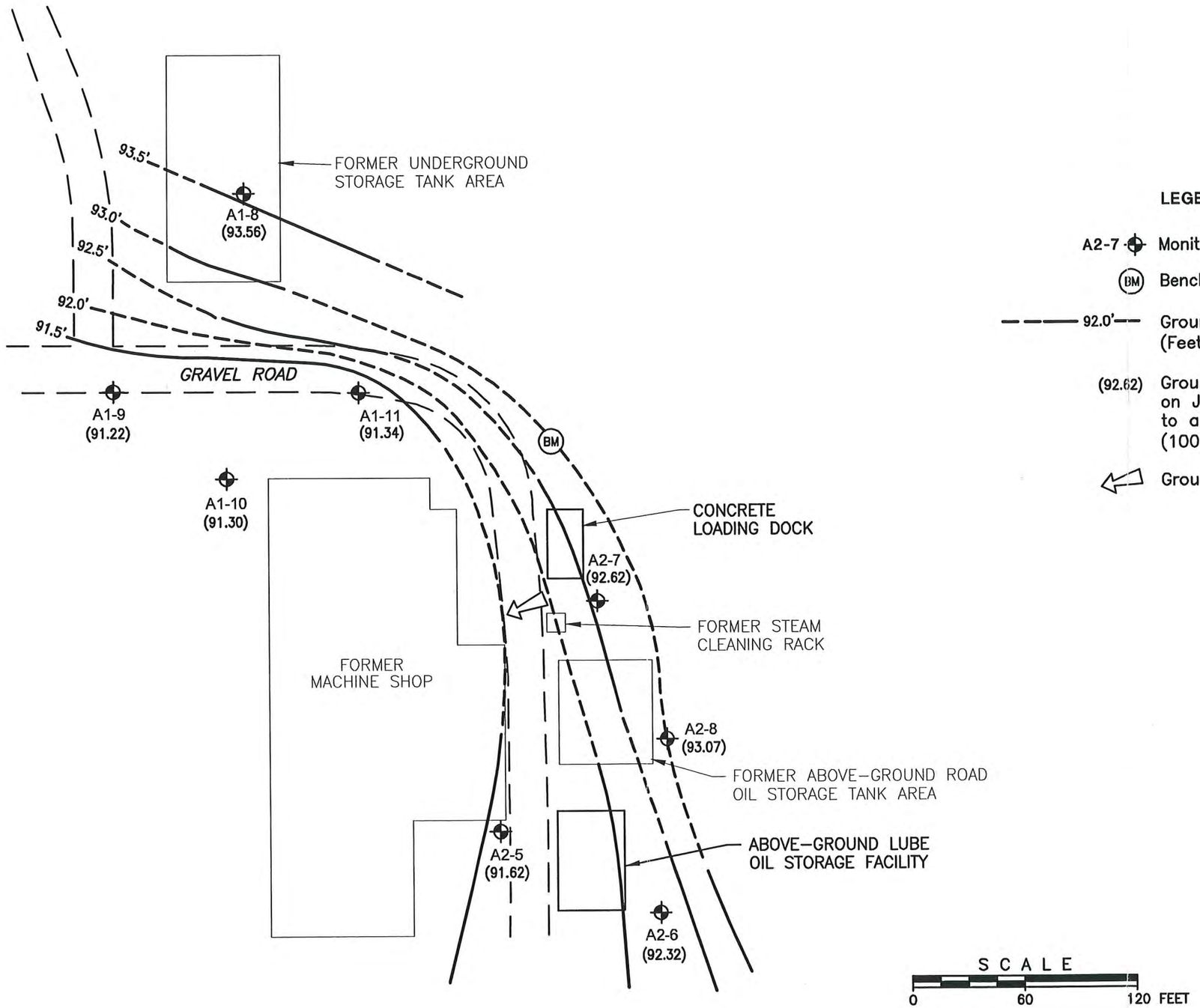

LEGEND:

- A2-7 ⊕ Monitoring Well Location
- (BM) Bench mark (Fire Hydrant)
- 92.0' Groundwater Elevation Contour (Feet) Dashed Where Inferred
- (92.62) Groundwater Elevation (Feet) on June 23, 2004 Referenced to an Arbitrary Site Datum (100.00 Feet)
- Groundwater Flow Direction

SCALE
0 60 120 FEET

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FIGURE 3B
GROUNDWATER ELEVATIONS JUNE 23, 2004
FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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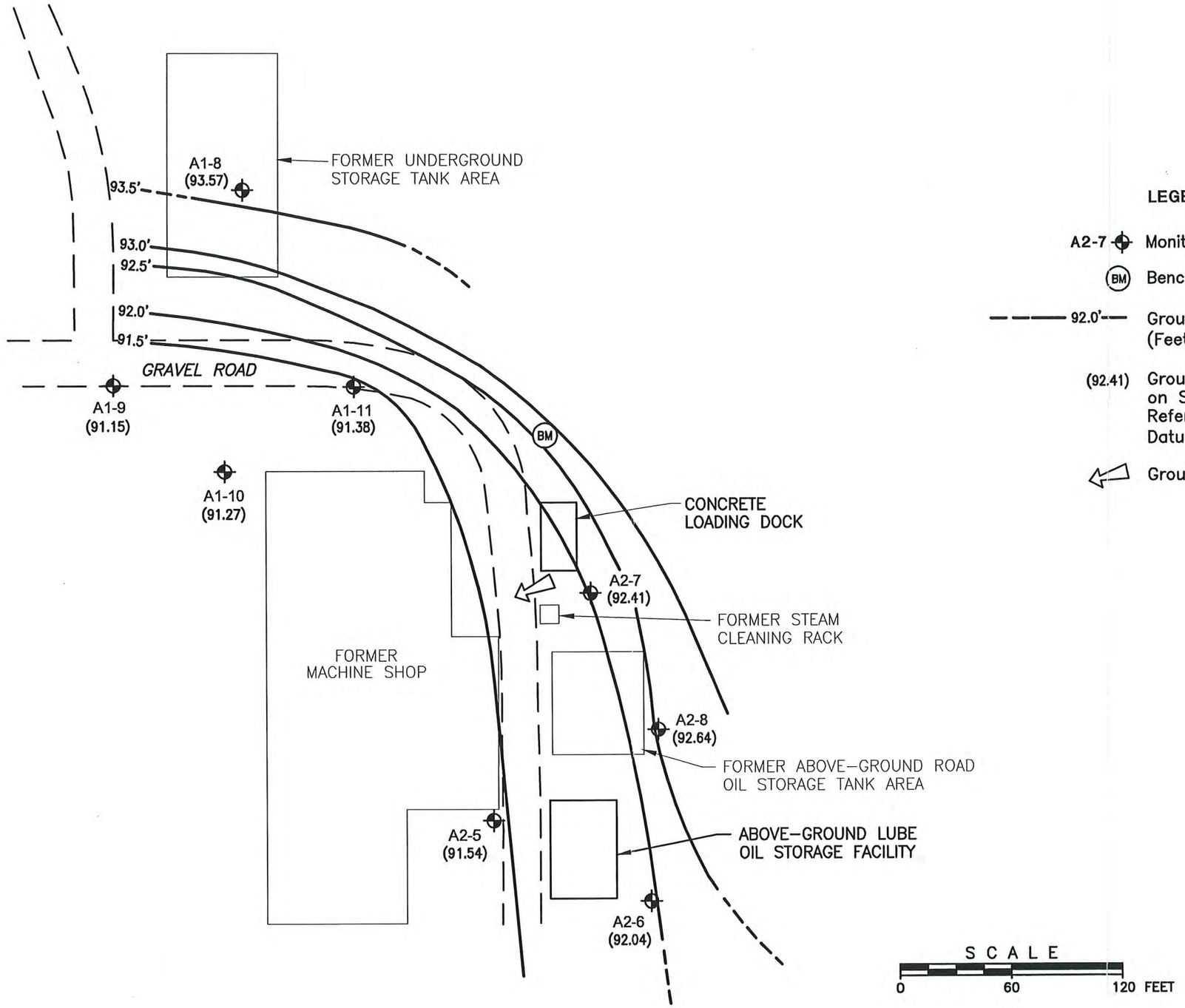

LEGEND:

- A2-7 — Monitoring Well Location
- BM — Bench mark (Fire Hydrant)
- 92.0' — Groundwater Elevation Contour (Feet) Dashed Where Inferred
- (92.41) — Groundwater Elevation (Feet) on September 28, 2004 Referenced to an Arbitrary Site Datum (100.00 Feet)
- Groundwater Flow Direction

SCALE
0 60 120 FEET

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FIGURE 3C
GROUNDWATER ELEVATIONS
SEPTEMBER 28, 2004
FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

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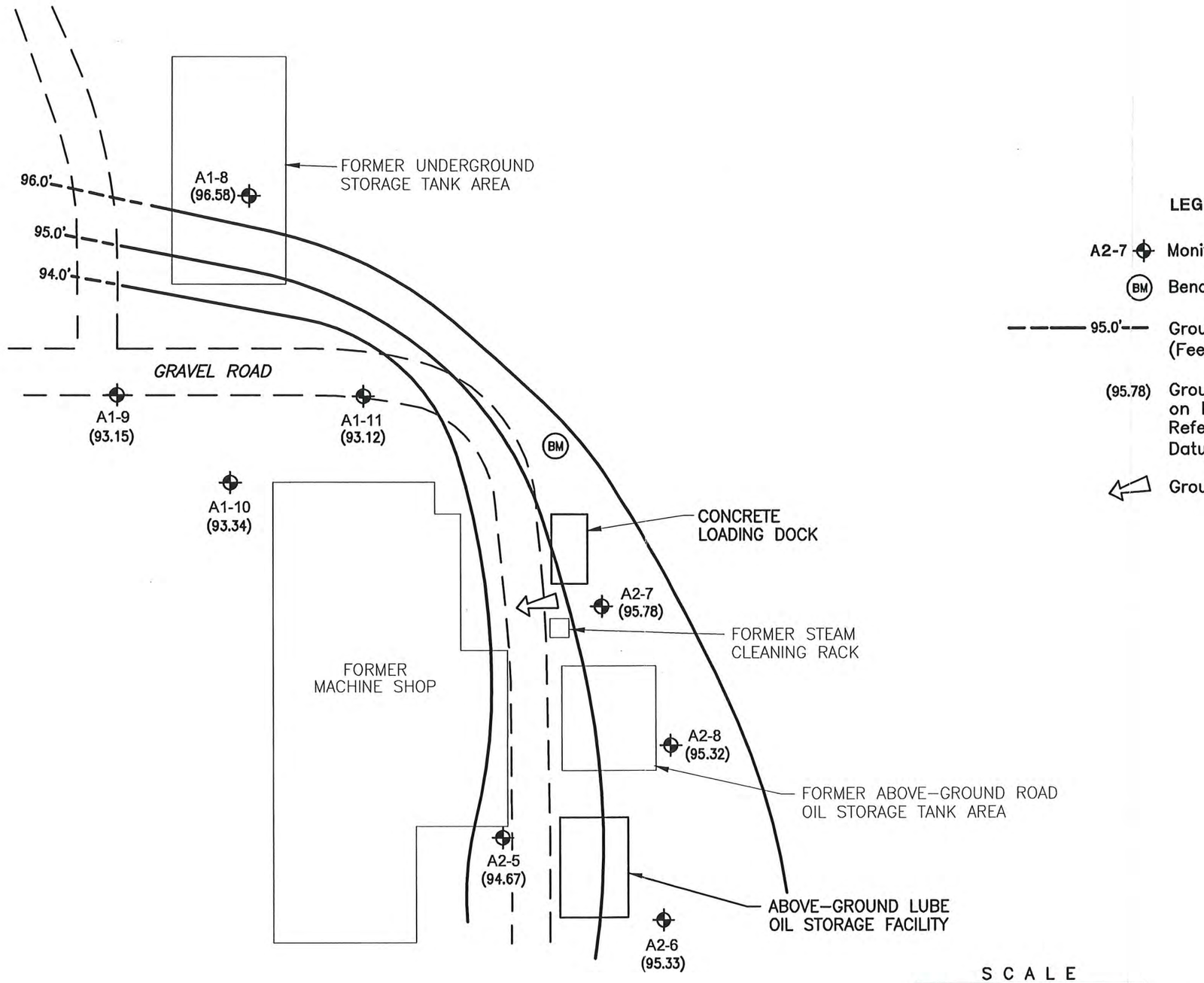

LEGEND:

- A2-7 — Monitoring Well Location
- BM — Bench mark (Fire Hydrant)
- 95.0' — Groundwater Elevation Contour (Feet) Dashed Where Inferred
- (95.78) — Groundwater Elevation (Feet) on December 16, 2004 Referenced to an Arbitrary Site Datum (100.00 Feet)
- Groundwater Flow Direction

SCALE
0 60 120 FEET

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FIGURE 3D
GROUNDWATER ELEVATIONS
DECEMBER 16, 2004
FORMER UST AND ROAD OIL TANK AREAS
WEYERHAEUSER SNOQUALMIE MILL
SNOQUALMIE, WASHINGTON

Tables

Table 1

Groundwater Monitoring Data
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well Designation	Well Elevation[a]	Date	Depth to Groundwater[b] (ft)	Groundwater Elevation (ft)	Elevation Change (ft)
A1-8	100.31	09/24/98	9.08	91.23	—
		12/08/98	3.65	96.66	+5.43
		03/31/99	5.20	95.11	-1.55
		06/08/99	6.99	93.32	-1.79
		08/18/99	8.34	91.97	-1.35
		10/28/99	7.94	92.37	+0.4
		02/15/00	4.93	95.38	+3.01
		08/03/00	8.86	91.45	-3.93
		02/21/01	5.96	94.35	+2.90
		08/28/01	7.47	92.84	-1.51
		02/19/02	5.45	94.86	+2.02
		09/04/02	9.08	91.23	-3.63
		3/26/03	3.66	96.95	+5.42
		6/26/03	7.09	93.22	-3.73
		9/8/03	9.52	90.79	-2.43
		11/13/03	6.44	93.87	+3.08
		3/10/04	4.40	95.91	+2.04
		6/23/04	6.75	93.56	-2.35
		9/28/04	6.74	93.57	+0.01
		12/16/04	3.73	96.58	+3.01
A1-9	99.52	09/24/98	9.27	90.25	—
		12/08/98	6.32	93.20	+2.95
		03/31/99	7.32	92.20	-1.00
		06/08/99	8.25	91.27	-0.93
		08/18/99	8.83	90.69	-0.58
		10/28/99	8.79	90.73	+0.04
		02/15/00	7.52	92.00	+1.27
		08/03/00	9.00	90.52	-1.48
		02/21/01	8.00	91.52	+1.00
		08/28/01	8.74	90.78	-0.74
		02/19/02	7.43	92.09	+1.31
		09/04/02	9.02	90.50	-1.59
		3/26/03	6.38	93.14	+2.64
		6/26/03	8.36	91.16	-1.98
		9/8/03	9.62	89.90	-1.26
		11/13/03	8.09	91.43	+1.53

Table 1

Groundwater Monitoring Data
Former Underground Fuel Storage Tank and
Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well Designation	Well Elevation[a]	Date	Depth to Groundwater[b] (ft)	Groundwater Elevation (ft)	Elevation Change (ft)
A1-9, cont.		3/10/04	7.07	92.45	+1.02
		6/23/04	8.30	91.22	-1.23
		9/28/04	8.37	91.15	-0.07
		12/16/04	6.37	93.15	+2.00
A1-10	100.29	09/24/98	10.00	90.29	—
		12/08/98	6.50	93.79	+3.5
		03/31/99	7.93	92.36	-1.43
		06/08/99	9.13	91.16	-1.2
		08/18/99	9.54	90.75	-0.41
		10/28/99	9.38	90.91	+0.16
		02/15/00	8.00	92.29	+1.54
		08/03/00	9.91	90.38	-1.91
		02/21/01	8.64	91.65	+1.27
		08/28/01	9.41	90.88	-0.77
		02/19/02	7.98	92.31	+1.43
		09/04/02	9.78	90.51	-1.80
		3/26/03	6.94	93.35	+2.84
		6/26/03	9.07	91.22	-2.13
		9/8/03	10.34	89.95	-1.27
		11/13/03	8.78	91.51	+1.56
		3/10/04	7.99	92.30	+0.79
		6/23/04	8.99	91.30	-1.00
		9/28/04	9.02	91.27	-0.03
		12/16/04	6.95	93.34	+2.07
A1-11	99.46	09/24/98	8.80	90.66	—
		12/08/98	5.85	93.61	+2.95
		03/31/99	7.85	91.61	-2.00
		06/08/99	7.93	91.53	-0.08
		08/18/99	8.47	90.99	-0.54
		10/28/99	8.34	91.12	+0.13
		02/15/00	7.24	92.22	+1.23
		08/03/00	8.89	90.57	-1.65
		02/21/01	7.84	91.62	+1.05
		08/28/01	8.48	90.98	-0.64
		02/19/02	7.40	92.06	+1.08
		09/04/02	8.66	90.80	-1.26

Table 1

Groundwater Monitoring Data
Former Underground Fuel Storage Tank and
Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well Designation	Well Elevation[a]	Date	Depth to Groundwater[b] (ft)	Groundwater Elevation (ft)	Elevation Change (ft)
A1-11, cont.		3/26/03	6.34	93.12	+2.32
		6/26/03	8.10	91.36	-1.76
		9/8/03	9.19	90.27	-1.09
		11/13/03	7.42	92.04	+1.77
		3/10/04	7.11	92.35	+0.31
		6/23/04	8.12	91.34	-1.01
		9/28/04	8.08	91.38	+0.04
		12/16/04	6.34	93.12	+1.74
A2-5	100.09	09/24/98	10.06	90.03	—
		12/08/98	4.45	95.64	+5.61
		03/31/99	7.03	93.06	-2.58
		06/08/99	7.78	92.31	-0.75
		08/18/99	9.44	90.65	-1.66
		10/28/99	4.59	95.50	+4.85
		02/15/00	6.15	93.94	+3.29
		08/03/00	9.68	90.41	-3.53
		02/21/01	7.79	92.30	+1.89
		08/28/01	8.98	91.11	-1.19
		02/19/02	5.62	94.47	+3.36
		09/04/02	9.69	90.40	-4.07
		3/26/03	5.51	94.58	+4.18
		6/26/03	8.65	91.44	-3.14
		9/8/03	10.49	89.60	-1.84
		11/13/03	8.92	91.17	+1.57
		3/10/04	7.07	93.02	+1.85
		6/23/04	8.47	91.62	-1.40
		9/28/04	8.55	91.54	-0.08
		12/16/04	5.424	94.67	+3.13
A2-6	100.56	09/24/98	9.75	90.81	—
		12/08/98	4.43	96.13	+5.32
		03/31/99	7.08	93.48	-2.65
		06/08/99	8.61	91.95	-1.53
		08/18/99	9.51	91.05	-0.9
		10/28/99	8.87	91.69	+0.64
		02/15/00	8.34	92.22	+1.17
		08/03/00	9.91	90.65	-1.57

Table 1

Groundwater Monitoring Data
Former Underground Fuel Storage Tank and
Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well Designation	Well Elevation[a]	Date	Depth to Groundwater[b] (ft)	Groundwater Elevation (ft)	Elevation Change (ft)
A2-8, cont.		08/18/99	8.13	92.26	-0.72
		10/28/99	6.51	93.88	+1.62
		02/15/00	6.59	93.80	+1.54
		08/03/00	8.92	91.47	-2.33
		02/21/01	7.05	93.34	+1.87
		08/28/01	8.02	92.37	-0.97
		02/19/02	6.33	94.06	+1.69
		09/04/02	7.88	92.51	-1.55
		3/26/03	5.24	95.15	+2.64
		6/26/03	7.28	93.11	-2.04
		9/8/03	7.74	92.65	-0.46
		11/13/03	6.11	94.28	+1.63
		3/10/04	6.39	94.00	-0.28
		6/23/04	7.22	93.07	-0.93
		9/28/04	7.75	92.64	-0.43
		12/16/04	4.97	95.32	+2.68

NOTE: ft = feet.

[a] Surveyed elevation based on an arbitrary site datum assigned an elevation of 100.00 feet (fire hydrant).

[b] Calculated elevation based on survey data

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	Former UST Area Wells	A1-8									
	Sample ID		A1-8-0998	A1-8-1298	A1-8-0399	A1-8-0699	A1-8-0899	A1-8-1099	A1-8-0200	A1-8-0800	A1-8-0201	A1-8-0801
	Date Sampled		09/24/98	12/08/98	03/31/99	06/08/99	08/18/99	10/28/99	02/15/00	08/03/00	02/21/01	08/28/01
	MTCA Method A Cleanup Levels[d]											
TPH as Gasoline [a] (µg/L)	800		260	<250	<250	<250	<250	<250	<250	<50	<50	<50
TPH as Diesel [b] (µg/L)	500		330	490[e]	<400	<500	<400	<75	<76	<76	<80	<78
TPH as Oil [b] (µg/L)	500		<180	300[e]	<200	<200	<400	<190	<190	<190	<200	<190
Benzene [c] (µg/L)	5.0		4	0.3	<1	<1	<1	0.2 J	<0.5	<0.5	0.5	<0.5
Toluene [c] (µg/L)	1,000		0.9	<0.5	<1	<1	<1	1	0.4 J	<0.5	<0.5	<0.5
Ethylbenzene [c] (µg/L)	700		1	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5
Xylenes [c] (µg/L)	1,000		5.6	<1	<2	<2	<2	0.9 J	0.8 J	<1.0	<1.0	<1.0

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-8, cont.				A1-9					
	Sample ID	A1-8-0202	A1-8-0902	A1-8-0303	A1-8-0603	A1-9-0998	A1-9-1298	A1-9-0399	A1-9-0699	A1-9-0899	A1-9-1099
	Date Sampled	02/19/02	09/04/02	03/26/03	06/26/03	09/24/98	12/08/98	03/31/99	06/08/99	08/18/99	10/28/99
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	<50	<50	<47	<50	590	<250	<250	<250	<250	<250
TPH as Diesel [b] (µg/L)	500	<50	<50	<50	<50	150	130	<400	<500	<400	<76
TPH as Oil [b] (µg/L)	500	<200	<200	<180	<200	180	<200	<200	<200	<400	<190
Benzene [c] (µg/L)	5.0	<0.5	<0.5	<0.5	<0.5	12	22	4	13	2	8
Toluene [c] (µg/L)	1,000	<0.5	<0.5	<0.5	<0.5	2	0.9	<1	0.3 J	<1	3
Ethylbenzene [c] (µg/L)	700	<0.5	<0.5	<0.5	<0.5	0.4	3	0.3	1.9	0.4	0.8 J
Xylenes [c] (µg/L)	1,000	<0.5	<0.5	<0.5	<0.5	2.8	1	<2	0.3 J	<2	1.4 J

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-9, cont.									
	Sample ID	A1-9-0200	A1-9-0800	A1-9-0201	A1-9-0801	A1-9-0202	A1-9-0902	A1-9-0303	A1-9-0603	A1-9-0903	A1-9-1103
	Date Sampled	02/15/00	08/03/00	02/21/01	08/28/01	02/19/02	09/04/02	03/26/03	06/26/03	09/09/03	11/13/03
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	<250	57	<50	<50	65	83	<50	<50	<50	52
TPH as Diesel [b] (µg/L)	500	<76	<78	<80	<78	<50	<50	<49	<48	<49	100
TPH as Oil [b] (µg/L)	500	<190	<190	<200	<190	<200	<200	<190	<190	<190	42J
Benzene [c] (µg/L)	5.0	6	2	3	0.7	8	3	14	2	0.6	5
Toluene [c] (µg/L)	1,000	0.4 J	<0.5	<0.5	<0.5	<0.5	<0.5	0.4J	<0.5	<0.5	0.3J
Ethylbenzene [c] (µg/L)	700	1	<0.5	<0.5	<0.5	0.8	<0.5	0.4J	<0.5	<0.5	0.8
Xylenes [c] (µg/L)	1,000	1.0 J	<1.0	<1.0	<1.0	0.7	<1.0	<0.8J	<0.5	<0.5	<1.0

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-9, cont.					A1-10			
	Sample ID	A1-9-1103 (dup)	A1-9-0304	A1-9-0604	A1-9-0904	A1-9-1204	A1-10-0998	A1-10-1298	A1-10-0399	A1-10-0699
	Date Sampled	11/13/03	03/10/04	06/23/04	09/28/04	12/16/04	09/24/98	12/08/98	03/31/99	06/08/99
	MTCA Method A Cleanup Levels[d]									
TPH as Gasoline [a] (µg/L)	800	58	63	65	<50	86	<250	<250	<250	<250
TPH as Diesel [b] (µg/L)	500	120	<50	<50	<50	<50	320	160	<400	<500
TPH as Oil [b] (µg/L)	500	220	<200	<200	<200	<200	1,800	<200	<200	<200
Benzene [c] (µg/L)	5.0	NA	6	7	5	10	<0.5	<0.5	<1	<0.5
Toluene [c] (µg/L)	1,000	NA	0.3 J	0.3 J	0.4 J	0.4 J	<0.5	<0.5	<1	<0.5
Ethylbenzene [c] (µg/L)	700	NA	1	1	0.5	1	<0.5	<0.5	<1	<0.5
Xylenes [c] (µg/L)	1,000	NA	0.3 J	0.4 J	0.3 J	0.5 J	<0.5	<1.0	<2	<0.5

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-10, cont.								
	Sample ID	A1-10-0899	A1-10-1099	A1-10-0200	A1-10-0800	A1-10-0201	A1-10-0801	A1-10-0202	A1-10-0902	A1-10-0303
	Date Sampled	08/18/99	10/28/99	02/15/00	08/03/00	02/21/01	08/28/01	02/19/02	09/04/02	03/26/03
	MTCA Method A Cleanup Levels[d]									
TPH as Gasoline [a] (µg/L)	800	<250	<250	<250	<50	<50	<50	<50	<50	<50
TPH as Diesel [b] (µg/L)	500	<400	<76	92	<78	<80	<78	<50	<50	<48
TPH as Oil [b] (µg/L)	500	<400	<190	<190	<190	<200	<190	<200	<200	<190
Benzene [c] (µg/L)	5.0	<1	0.5 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene [c] (µg/L)	1,000	<1	1	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene [c] (µg/L)	700	<1	1	0.4 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes [c] (µg/L)	1,000	<2	0.8 J	2.8	<1.0	<1.0	<1.0	<0.5	<0.5	<0.5

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-10, cont.	A1-11							
	Sample ID	A1-10-0603	A1-11-0998	A1-11-1298	A1-11-0399	A1-11-0699	A1-11-0899	A1-11-1099	A1-11-0200	A1-11-0800
	Date Sampled	06/26/03	09/24/98	12/08/98	03/31/99	06/08/99	08/18/99	10/28/99	02/15/00	08/03/00
	MTCA Method A Cleanup Levels[d]									
TPH as Gasoline [a] (µg/L)	800	<50	<250	<250	<250	<250	<250	<250	<250	<50
TPH as Diesel [b] (µg/L)	500	<49	1,900	180	<400	<500	<400	400	85	<130
TPH as Oil [b] (µg/L)	500	<190	4,700	210	270	240	<400	410	<190	<310
Benzene [c] (µg/L)	5.0	<0.5	<0.5	<0.5	<1	<0.5	<1	0.7 J	<0.5	<0.5
Toluene [c] (µg/L)	1,000	<0.5	0.6	<0.5	<1	<0.5	<1	2	2	<0.5
Ethylbenzene [c] (µg/L)	700	<0.5	<0.5	<0.5	<1	<0.5	<1	<1	0.4 J	<0.5
Xylenes [c] (µg/L)	1,000	<0.5	0.2	<1	<2	<1	<2	1.2 J	2.5	<1.0

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A1-11, cont.						Former Road Oil Storage Tank Area Wells	A2-5		
	Sample ID	A1-11-0201	A1-11-0801	A1-11-0202	A1-11-0902	A1-11-0303	A1-11-0603		A2-5-0998	A2-5-1298	A2-5-0399
	Date Sampled	02/21/01	08/28/01	02/19/02	09/04/02	03/26/03	06/26/03		09/24/98	12/08/98	03/31/99
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	<50	<50	<50	<50	<50	<50		NA	NA	NA
TPH as Diesel [b] (µg/L)	500	<80	<78	<50	<50	<48	<49		520[f]	380	<400
TPH as Oil [b] (µg/L)	500	<200	<190	<200	<200	<190	<190		2,600[f]	<200	220
Benzene [c] (µg/L)	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	NA	NA
Toluene [c] (µg/L)	1,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		0.5	NA	NA
Ethylbenzene [c] (µg/L)	700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	NA	NA
Xylenes [c] (µg/L)	1,000	<1.0	<1.0	<0.5	<0.5	<0.5	<0.5		<0.7	NA	NA

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A2-5, cont.									
	Sample ID	A2-5-0699	A2-5-0899	A2-5-1099	A2-5-0200	A2-5-0800	A2-5-0201	A2-5-0801	A2-5-0202	A2-5-0902	A2-5-0303
	Date Sampled	06/08/99	08/18/99	10/28/99	02/15/00	08/03/00	02/21/01	08/28/01	02/19/02	09/04/02	03/26/03
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH as Diesel [b] (µg/L)	500	<500	<400	<74	<76	<75	<80	<78	<50	<50	<48
TPH as Oil [b] (µg/L)	500	<200	<400	230	<190	<180	420	<190	<200	<200	<190
Benzene [c] (µg/L)	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene [c] (µg/L)	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene [c] (µg/L)	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes [c] (µg/L)	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A2-5, cont.	A2-6								
	Sample ID	A2-5-0603	A2-6-0998	A2-6-1298	A2-6-0399	A2-6-0699	A2-6-0899	A2-6-1099	A2-6-0200	A2-6-0800	A2-6-0201
	Date Sampled	06/28/03	09/24/98	12/08/98	03/31/99	06/08/99	08/18/99	10/28/99	02/15/00	08/03/00	02/21/01
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH as Diesel [b] (µg/L)	500	<48	2,000	220	<400	<500	<400	130	93	<100	<80
TPH as Oil [b] (µg/L)	500	<190	5,000	<200	<200	<200	<400	300	<190	<250	<200
Benzene [c] (µg/L)	5.0	NA	0.3	NA	NA	NA	NA	NA	NA	NA	NA
Toluene [c] (µg/L)	1,000	NA	0.8	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene [c] (µg/L)	700	NA	0.4	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes [c] (µg/L)	1,000	NA	3	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A2-6, cont.					A2-7				
	Sample ID	A2-6-0801	A2-6-0202	A2-6-0902	A2-6-0303	A2-6-0603	A2-7-0998	A2-7-1298	A2-7-0399	A2-7-0699	A2-7-0899
	Date Sampled	08/28/01	02/19/02	09/04/02	03/26/03	06/28/03	09/24/98	12/08/98	03/31/99	06/08/99	08/18/99
	MTCA Method A Cleanup Levels[d]										
TPH as Gasoline [a] (µg/L)	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH as Diesel [b] (µg/L)	500	<78	<50	<50	<48	<47	190[f]	340	<400	<500	<400
TPH as Oil [b] (µg/L)	500	<190	<200	<200	<190	<190	750[f]	330	<200	<200	<400
Benzene [c] (µg/L)	5.0	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA
Toluene [c] (µg/L)	1,000	NA	NA	NA	NA	NA	1	NA	NA	NA	NA
Ethylbenzene [c] (µg/L)	700	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA
Xylenes [c] (µg/L)	1,000	NA	NA	NA	NA	NA	0.8	NA	NA	NA	NA

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A2-7, cont.								
	Sample ID	A2-7-1099	A2-7-0200	A2-7-0800	A2-7-0201	A2-7-0801	A2-7-0202	A2-7-0902	A2-7-0303	A2-7-0603
	Date Sampled	10/28/99	02/15/00	08/03/00	02/21/01	08/28/01	02/19/02	09/04/02	03/26/03	06/28/03
	MTCA Method A Cleanup Levels[d]									
TPH as Gasoline [a] (µg/L)	800	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH as Diesel [b] (µg/L)	500	<73	<76	<76	<80	<78	<50	<50	<48	<48
TPH as Oil [b] (µg/L)	500	<180	<190	<190	<200	<190	<200	<200	<190	<190
Benzene [c] (µg/L)	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene [c] (µg/L)	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene [c] (µg/L)	700	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes [c] (µg/L)	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2
Groundwater Sample Analytical Results
Former UST and Road Oil Storage Tank Areas
Weyerhaeuser Snoqualmie Mill
Snoqualmie, Washington

	Site Sampled	A2-8				
	Sample ID	A2-8-0998	A2-8-1298	A2-8-0399	A2-8-0699	A2-8-0899
	Date Sampled	09/24/98	12/08/98	03/31/99	06/08/99	08/18/99
	MTCA Method A Cleanup Levels[d]					
TPH as Gasoline [a] (µg/L)	800	NA	NA	NA	NA	NA
TPH as Diesel [b] (µg/L)	500	90	350	<400	<500	<400
TPH as Oil [b] (µg/L)	500	340	<200	<200	<200	<400
Benzene [c] (µg/L)	5.0	<0.5	NA	NA	NA	NA
Toluene [c] (µg/L)	1,000	0.6	NA	NA	NA	NA
Ethylbenzene [c] (µg/L)	700	<0.5	NA	NA	NA	NA
Xylenes [c] (µg/L)	1,000	<0.8	NA	NA	NA	NA

NOTE: mg/L = micrograms per liter (parts per billion).

NA = not analyzed for this particular analyte.

< = not detected at or above the indicated method reporting limit.

Shaded values exceed the MTCA Method A cleanup level.

[a] Total petroleum hydrocarbons as gasoline by Ecology Method WTPH-G.

[b] Total petroleum hydrocarbons as diesel and as oil by Ecology Method WTPH-D extended.

(after silica gel/sulfuric acid cleanup).

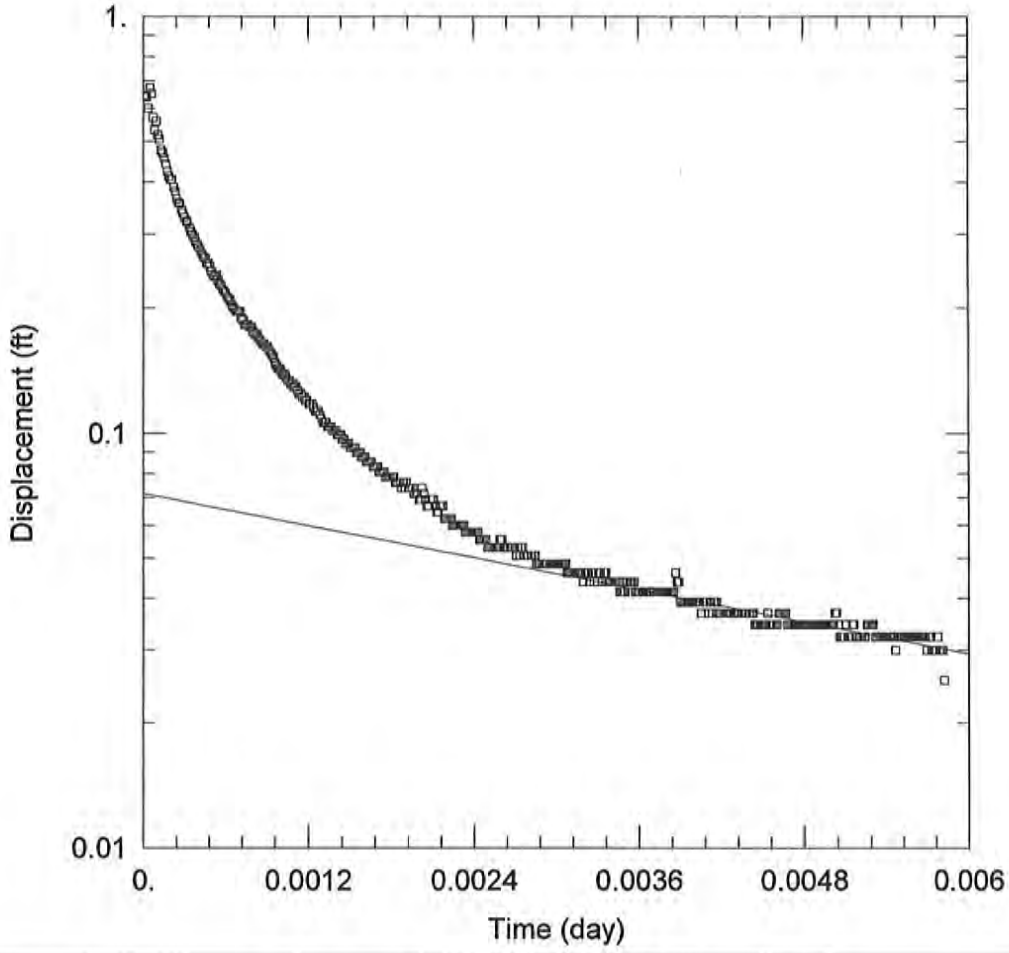
[c] Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B.

[d] Chapter 173-340 WAC, the Model Toxics Control Act Cleanup Regulations, Method A Cleanup Levels.

[e] Sample analyzed for TPH as diesel and TPH as oil was collected on 12/09/98.

[f] Sample analyzed for TPH as diesel and TPH as oil was collected on 9/25/98.

Appendix A
Slug Test Evaluation Sheets



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-8falling.aqt
Date: 06/09/04 Time: 08:38:59

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-8
Test Date: March 10, 2004

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 0.1

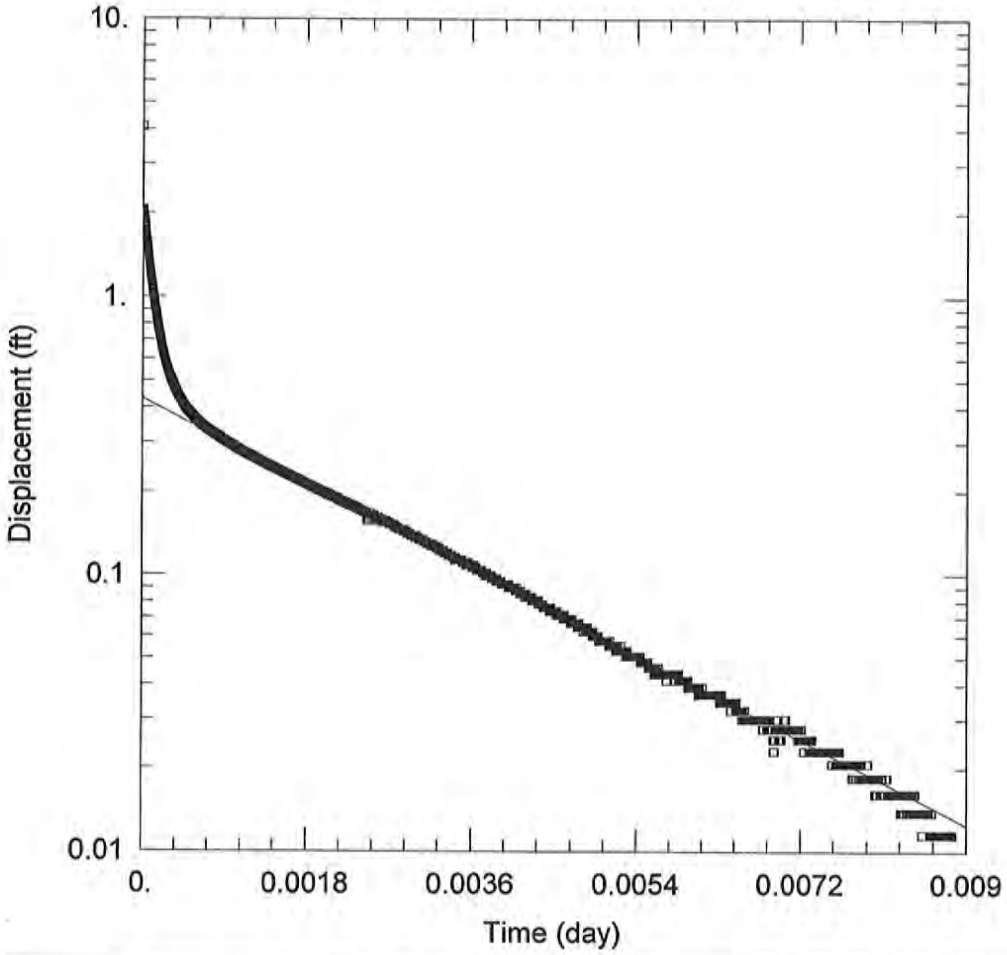
WELL DATA (MW-A1-8)

Initial Displacement: 4.08 ft Static Water Column Height: 6.58 ft
Total Well Penetration Depth: 6.58 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K_r = 0.2871 ft/day y_0 = 0.07158 ft



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-8rising.aqt
Date: 06/09/04 Time: 08:38:12

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-8
Test Date: March 10, 2004

AQUIFER DATA

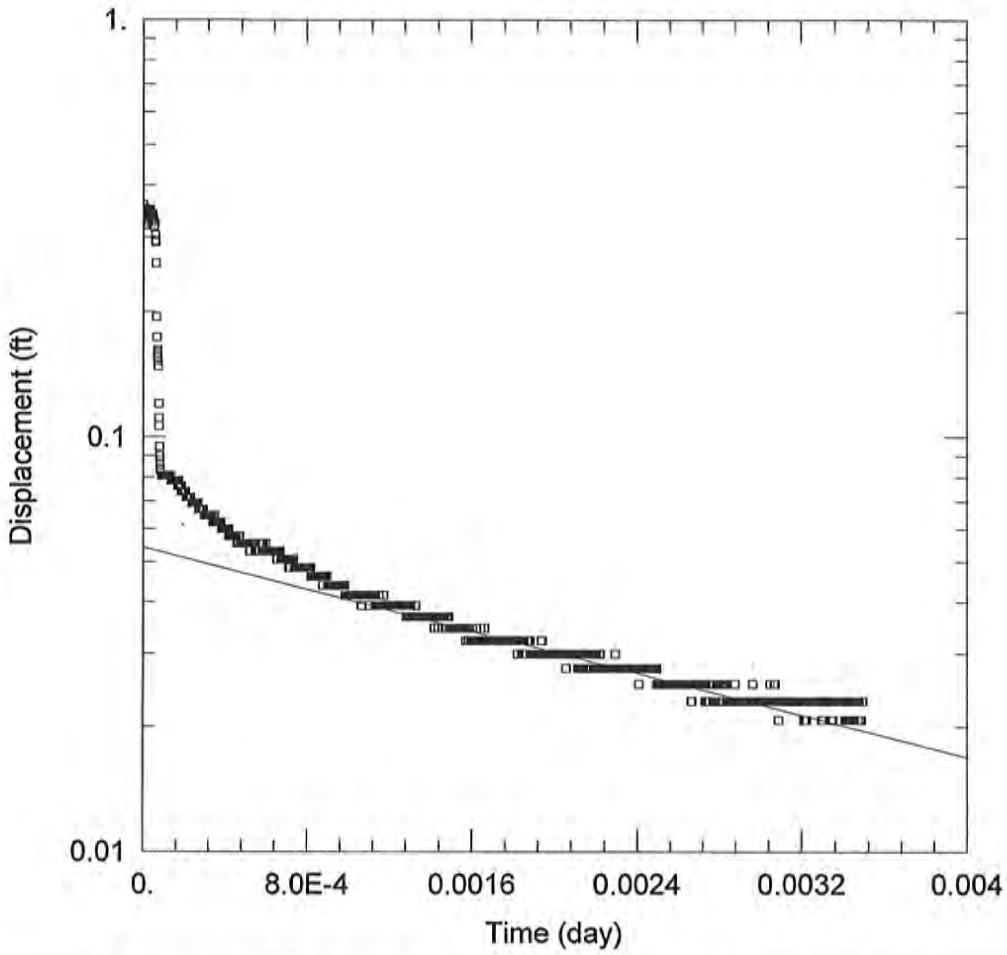
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-A1-8)

Initial Displacement: 4.08 ft
Total Well Penetration Depth: 6.58 ft
Casing Radius: 0.083 ft
Static Water Column Height: 6.58 ft
Screen Length: 5. ft
Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.7612 ft/day
y0 = 0.4305 ft



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-9falling.aqt
Date: 06/09/04 Time: 08:40:32

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-9
Test Date: March 10, 2004

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 0.1

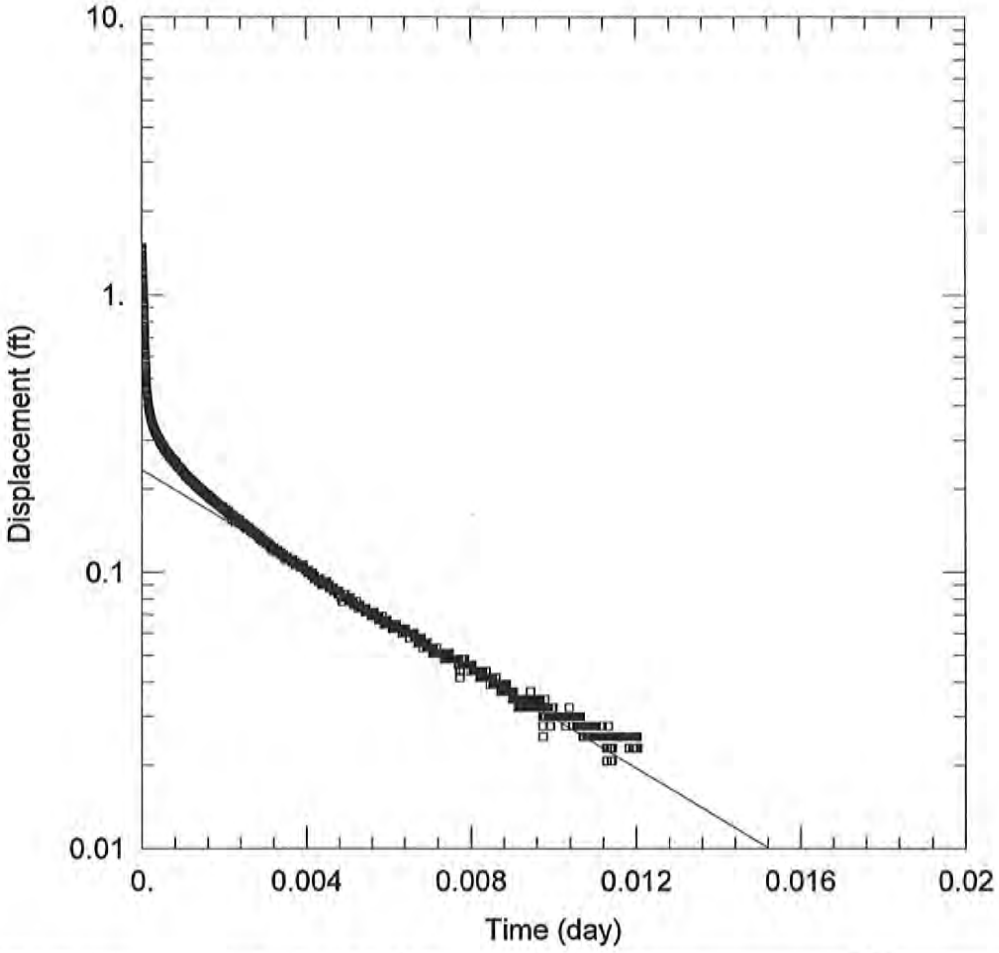
WELL DATA (MW-A1-9)

Initial Displacement: 1.48 ft
Total Well Penetration Depth: 3.74 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 3.74 ft
Screen Length: 5. ft
Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.515 ft/day y0 = 0.05418 ft



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-9rising.aqt
Date: 06/09/04 Time: 08:39:52

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-9
Test Date: March 10, 2004

AQUIFER DATA

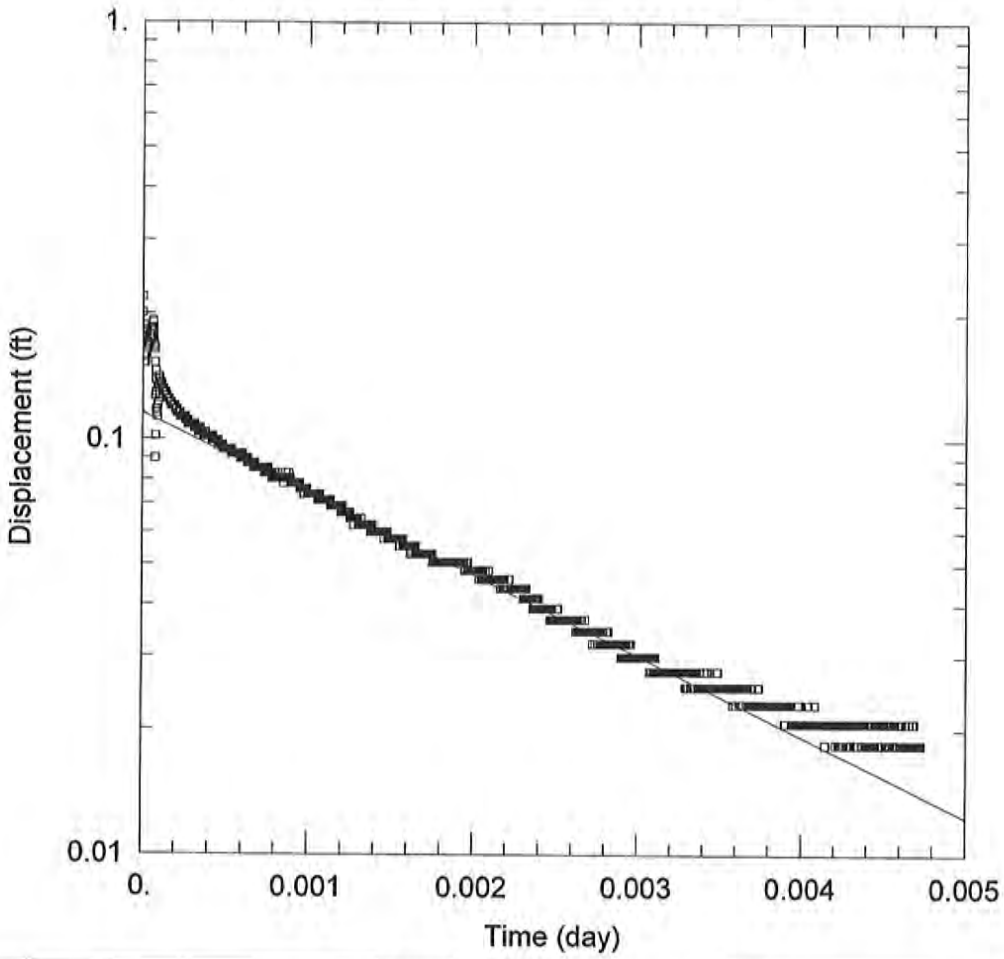
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-A1-9)

Initial Displacement: 1.48 ft
Total Well Penetration Depth: 3.74 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 3.74 ft
Screen Length: 5. ft
Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.3659 ft/day
y0 = 0.2342 ft



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-10falling.aqt
Date: 06/08/04 Time: 16:24:43

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-10
Test Date: March 10, 2004

AQUIFER DATA

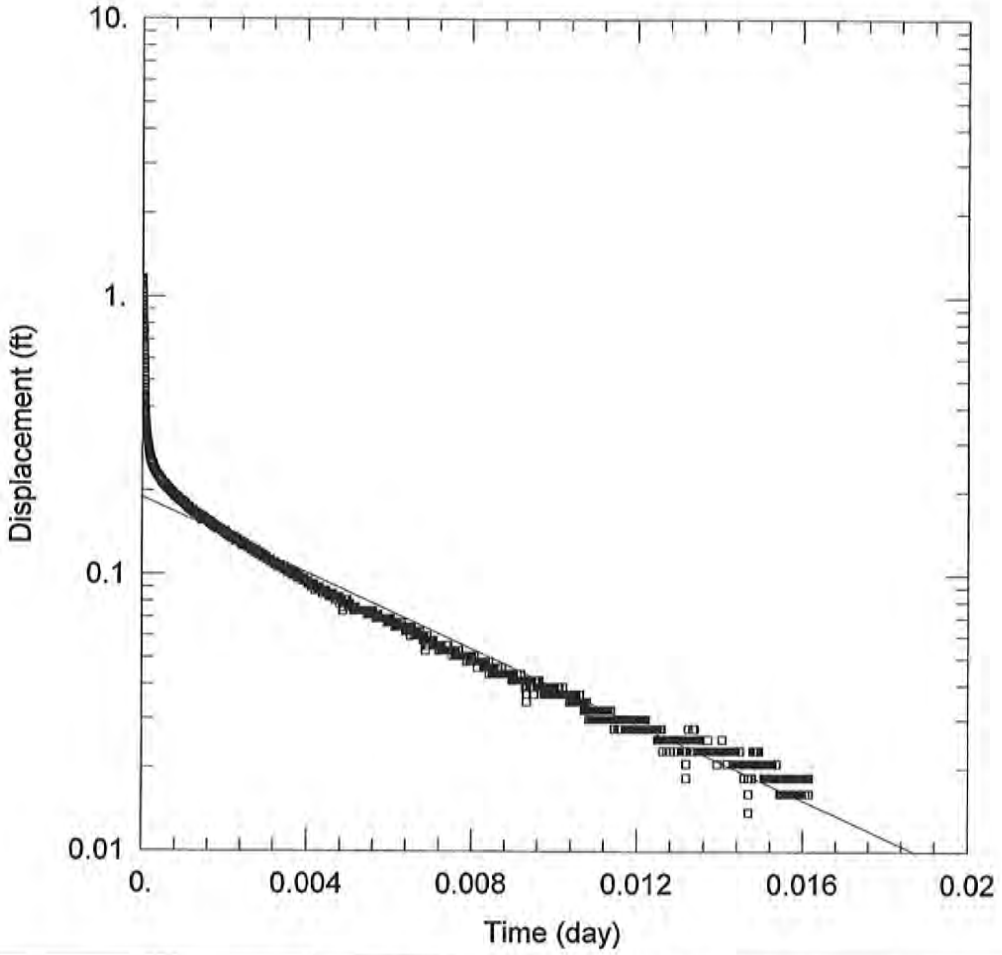
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-A1-10)

Initial Displacement: 1.158 ft
Total Well Penetration Depth: 3.11 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 3.11 ft
Screen Length: 5. ft
Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.7635 ft/day
y0 = 0.1156 ft



WELL TEST ANALYSIS

Data Set: C:\...\MW-A1-10rising.aqt
Date: 06/08/04 Time: 16:25:22

PROJECT INFORMATION

Company: Shaw E & I
Test Well: MW-A1-10
Test Date: March 10, 2004

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-A1-10)

Initial Displacement: 1.158 ft
Total Well Penetration Depth: 3.11 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 3.11 ft
Screen Length: 5. ft
Wellbore Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.2688 ft/day
y0 = 0.1902 ft

Appendix B
Field Methods and Sampling Procedures; Sampling Data Sheets

Field Methods and Sampling Procedures

This appendix documents the procedures Shaw used to perform the groundwater sampling activities described in this report. This appendix also includes the sampling data sheets and the water quality data collected in the field (Table A-1).

B.1 Groundwater Sampling

Groundwater samples were collected during March, June, September, and November 2004. During the four sampling events, groundwater samples were collected using low-flow sampling techniques. Groundwater was purged at a low rate (not to exceed 0.5 liters per minute) using a peristaltic pump with polyethylene tubing. Purging continued until field parameter measurements stabilized to within 10 percent of the previous measurement, or until the well was purged dry. The field parameter data are presented in Table A-1. Groundwater samples were collected using a peristaltic pump when water levels had recovered sufficiently. Samples were submitted in laboratory-prepared glass containers, under standard chain-of-custody procedures.

B.2 Depth to Groundwater Measurements

All depth to groundwater measurements were obtained by using an electronic water level indicator. Measurements were obtained by lowering the device into the well until it indicated that the water surface was encountered and by measuring the distance from the top of the inside riser pipe to the probe. All the measurements were recorded to the nearest 0.01 foot.

Shaw personnel surveyed all groundwater monitoring wells for vertical elevations to the nearest 0.01 foot. The wells were surveyed to a local site datum (fire hydrant), allowing determination of relative elevations of groundwater, and consequently, groundwater flow direction when the measurements were obtained. The site datum selected was assumed to be 100.00 feet.

B.3 Field Equipment Decontamination Procedures

All groundwater monitoring equipment (e.g., water level indicator) was routinely decontaminated after each measurement. The equipment was decontaminated with a non-phosphatic soap in a tap water solution, followed by a 1:1 (methanol:deionized water) rinse and a thorough deionized water rinse. The peristaltic pump tubing was disposed after purging and sampling each well. The water used for decontamination was incorporated into the generated purge water and transported to the Shaw office for treatment and disposal.

Table B-1
Field Water Quality Data
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well ID	Date	Time	pH	Electrical Conductivity (µS/cm @ 25°C)	Temperature (°C)	Dissolved Oxygen (mg/L)
A1-8	12/08/98	1740	6.37	104	10	3.65
	03/31/99	1148	5.49	74	10	4.21
	06/08/99	1335	5.82	141	15	4.66
	08/18/99	1255	5.81	285	17	2.01
	10/28/99	1055	5.68	324	15	1.93
	02/15/00	1145	5.94	233	8.1	3.98
	08/03/00	1015	7.89	192	NM	2.4
	02/21/01	1450	6.07	76	7.5	3.1
	08/28/01	1235	5.47	135	19	4.05
	02/19/02	1225	6.10	88	7.6	1.02
	09/04/02	1045	6.14	202	18.9	1.62
	3/26/03	1200	6.24	107	8.42	5.02
	6/26/03	1340	5.99	177	19.41	4.57
A1-9	12/08/98	1715	6.14	385	13	6.32
	03/31/99	1107	5.71	255	10	2.99
	06/08/99	1225	6.00	504	11	1.25
	08/18/99	1155	5.90	576	14	1.46
	10/28/99	1020	5.97	588	15	1.66
	02/15/00	1115	5.85	419	9.6	1.59
	08/03/00	0900	7.57	331	NM	1.8
	02/21/01	1345	6.07	354	10	0.5
	08/28/01	1129	5.39	497	17	1.11
	02/19/02	1155	5.70	560	9.1	2.5
	09/04/02	1130	5.87	482	18.8	1.59
	3/26/03	1100	5.98	583	10.04	1.32
	6/26/03	1650	5.88	570	16.89	0.28
	9/9/03	0740	6.04	1059	15.55	1.31
	11/13/03	1155	5.99	648	13.19	0.49
	3/10/04	1240	5.63	566	11.10	0.67
	6/23/04	0930	6.12	665	14.87	3.15
	9/28/04	1140	6.04	672	17.87	0.48
	12/16/04	1000	5.22	635	11.73	0.27
A1-10	12/08/98	1700	6.57	116	12	6.50
	03/31/99	1126	5.72	88	10	1.66
	06/08/99	1250	5.95	219	11	1.09

Table B-1
Field Water Quality Data
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well ID	Date	Time	pH	Electrical Conductivity (µS/cm @ 25°C)	Temperature (°C)	Dissolved Oxygen (mg/L)
A1-10, cont.	08/18/99	1210	5.95	360	15	1.43
	10/28/99	1205	5.98	303	16	1.87
	02/15/00	1235	5.97	090	9.7	1.46
	08/03/00	0945	7.23	112	NM	1.7
	02/21/01	1300	6.07	131	10	1.2
	08/28/01	1157	5.47	187	17	0.9
	02/19/02	1115	5.12	73	8.4	4.5
	09/04/02	1225	5.53	163	20.5	1.60
	3/26/03	1245	6.06	84	9.71	1.03
	6/26/03	1555	5.83	153	17.70	0.12
A1-11	12/08/98	1630	6.34	301	13	5.85
	03/31/99	1211	5.57	209	10	1.63
	06/08/99	1315	6.02	334	11	1.25
	08/18/99	1235	5.93	340	15	1.95
	10/28/99	1130	5.98	427	15	3.01
	02/15/00	1300	6.15	116	10.0	3.74
	08/03/00	1045	7.67	230	NM	4.2
	02/21/01	1425	6.22	143	10	0.45
	08/28/01	1214	5.64	355	17	1.01
	02/19/02	1255	6.30	188	9.6	5.1
	09/04/02	1300	5.88	244	18.4	1.77
	3/26/03	1330	6.15	202	10.03	0.79
	6/26/03	1440	5.92	291	16.46	0.13
A2-5	12/08/98	1355	7.12	59	7	4.45
	03/31/99	1232	5.63	68	10	7.79
	06/08/99	1405	6.08	004	11	5.55
	08/18/99	1315	5.87	222	15	2.31
	10/28/99	1320	6.81	127	13	2.08
	02/15/00	1425	6.17	117	7.2	4.15
	08/03/00	1220	8.13	98	NM	4.8
	02/21/01	1610	6.41	71	9.0	6.2
	08/28/01	1342	5.49	148	16	2.53
	02/19/02	1440	6.50	102	7.5	7.6
	09/04/02	1500	6.12	148	18.9	2.91

Table B-1
Field Water Quality Data
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well ID	Date	Time	pH	Electrical Conductivity (µS/cm @ 25°C)	Temperature (°C)	Dissolved Oxygen (mg/L)
A2-5, cont.	3/26/03	1600	6.61	71	8.35	9.79
	6/26/03	1250	5.83	116	16.21	0.85
A2-6	12/08/98	1400	6.44	397	11	4.43
	03/31/99	1248	5.81	231	10	2.09
	06/08/99	1425	6.08	442	10	1.67
	08/18/99	1330	6.08	462	14	1.52
	10/28/99	1345	6.04	583	15	1.67
	02/15/00	1450	6.22	077	8.4	2.97
	08/03/00	1245	7.98	295	NM	1.7
	02/21/01	1550	6.28	693	8.0	1.2
	08/28/01	1319	5.51	307	14	1.5
	02/19/02	1411	6.40	289	7.9	5.5
	09/04/02	1435	6.22	317	18.4	1.97
	3/26/03	1530	6.41	366	8.72	6.61
	6/26/03	1155	6.02	315	18.50	0.72
A2-7	12/08/98	1350	6.42	46	7	4.56
	03/31/99	1331	5.80	81	9	3.79
	06/08/99	1505	5.79	1.74	12	1.74
	08/18/99	1400	5.82	294	16	2.71
	10/28/99	1230	6.03	126	14	2.47
	02/15/00	1400	6.03	111	7.1	4.66
	08/03/00	1110	7.80	152	NM	5.7
	02/21/01	1515	6.18	94	7.5	7.2
	08/28/01	1253	5.45	238	18	1.69
	02/19/02	1320	6.50	94	7.1	5.9
	09/04/02	1345	6.02	109	20.6	2.02
	3/26/03	1420	6.44	102	8.85	3.95
	6/26/03	1020	6.33	92	16.78	0.41
A2-8	12/08/98	1410	6.64	78	8	5.12
	03/31/99	1315	5.75	83	10	3.11
	06/08/99	1445	5.97	147	12	2.39
	08/18/99	1345	5.78	266	16	2.12
	10/28/99	1255	5.76	142	15	2.44
	02/15/00	1155	5.94	186	7.8	4.71

Table B-1
Field Water Quality Data
Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas
Snoqualmie, Washington

Well ID	Date	Time	pH	Electrical Conductivity (µS/cm @ 25°C)	Temperature (°C)	Dissolved Oxygen (mg/L)
A2-8, cont.	08/03/00	1330	7.68	105	NM	3.7
	02/21/01	1530	6.01	58	7.5	1.8
	08/28/01	1309	5.28	103	18	1.34
	02/19/02	1345	6.00	85	7.4	3.2
	09/04/02	1410	5.57	121	19.6	3.26
	3/26/03	1500	6.07	91	9.02	4.69
	6/26/03	1100	5.82	110	18.04	0.85

NOTE: mg/L = milligrams per liter (parts per million).
µS/cm = microSiemens per centimeter.

Shaw™ Shaw Environmental, Inc.

FIELD ACTIVITY DAILY LOG

DAILY LOG	DATE	3	10	04
	NO.			
	SHEET 1 OF			

PROJECT NAME: Weyerhaeuser Snoqualmie Mill | PROJECT NO.: 102813 (04)

FIELD ACTIVITY SUBJECT: Quarterly Sampling.

DESCRIPTION OF DAILY ACTIVITY AND EVENTS

Onsite @ 1120 - Checked In @ Main Office.

Collected full round of water Levels.

Time	Well	DTW	DTB	Comments
1140	A1-8	4.40	10.98	NAD
1207	A1-9	7.07	11.06	HCLO
1147	A1-10	7.99	11.07	NAD
1143	A1-11	7.11	11.06	NAD
1204	A2-5	7.07	11.12	NAD
1159	A2-6	6.78	11.07	NAD
1150	A2-7	6.22	11.33	NAD
1154	A2-8	6.39	11.05	NAD

Calibrated YSI Multimeter

Set up for Low-Flow Sampling on Monitoring well A1-9.

Collected 12 voas and 2 500ml Ambers.

Conducted Slug Tests on A1-8, A1-10, and A1-9.

Inserted ORC Sock into A1-9 following Slug Testing.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DESISIONS:

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS:

SHAW E&I PERSONNEL ON SITE: Aaron Moldver

SIGNATURE: [signature] DATE: 3-10-04

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Company ☐ ES&T/WTC ☐ ES&T/NB	Project No. 102813	Site ID A1-9
SHAW Environmental	Facility Snoqualmie Mill	Date (m/d/y) 3-10-2004

Site Description ☐ Monitoring Well ☐ Extraction Well ☐ Irrigation Well ☐ Spring ☐ Borehole ☐ Probe Other:

Air Temp: 50° ☐ °C ☒ °F	Weather: Sun
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed: None
☐ TOC ☐ MP Description:	
TOC/MP Stickup: 3 ☒ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:
Site Remarks (neaby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 11.06

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Initial	Confirmation	At Start of Purging	At End of Purging			Remarks	
Time (hh:mm)	1207	1208	1212	1217	1222	1227	1232	1237
Depth to Water	7.07	7.07	7.07	7.67	7.71	7.71	7.75	
Tape Correction	—	—	—	—	—	—	—	
Water Level (WL)	7.07	7.07	7.07	7.67	7.71	7.71	7.75	
Product Thickness	—	—	—	—				
Product Recovery ☐ gallons ☐ liters								

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Slickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [_____(TD) - _____(WL)] • [_____(Well ID)]^2 • [_____(Conversion Factor)] = _____ ☐ gal ☐ liters

Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

Well Goes Dry While Purging ☐

☐ Cum. Vol. Purged ☒ Pumping Rate	≈ 120 ml/min					(Final)	Meter Type	Remarks
Time Measured (hh:mm)	1217	1222	1227	1232	1237			
pH ☒ Temp. Compensated	5.70	5.74	5.66	5.64	5.63			
Temperature ☒ °C ☐ °F	11.13	11.07	11.13	11.08	11.10			
Dissolved Oxygen mg/l	2.75	0.72	0.72	0.63	0.67			
☒ SC or ☐ EC µS/cm	578	576	574	574	566			
Turbidity ☒ NTU	Clear	Clear	Clear	Clear	Clear			
Color/Tint	Colorless	Colorless	Colorless	Colorless	Colorless			
Odor	HCLO	HCLO	HCLO	HCLO	HCLO			
ORP	-74.7	-66.4	-62.8	-56.6	-51.0			

Record time purging starts and ends in Water Level Data section. Cum. Vol Purged: cumulative volumed removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged befored sampling or avearage pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = µmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
A1-9-0304	PO	3-10-04	1240	14	—				

Sample ID may be up to 15 characters. **Sample Result Code, Date, and Time must be entered.** Result Codes: PO, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmddyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampled By (print) Aaron Moldver	Signature

Date Entered into Database_____ By_____ Page ___ of ___

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Sample Analysis Request and Chain of Custody Record

Date: 3-10-04
Project Title: Snoqualmie Mill AST/UST
page 1 of 1

Client's Name: SHAW Environmental
Account Number/Project Number: 107813 (04) OOE # 70370
Client's Address: 19909 120th Ave NE, Bothell, WA 98011
Client's Phone Number: 425-485-5000
Client's FAX Number: 425-486-9766
Client's e-mail address: brian.peters@shawgrp.com
Project manager (print): Brian Peters
Sampler Name (print): Aaron Moldver
Recorded By (signature): [signature]

Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Water	Soil/Sed	Oil		HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	8260	TPH-G	WTPH-Dx with Silica Gel Sulfuric Acid Cleanup	Notes
	AI-9-0304	3-10-04	1240	X				X							14	X	X	X	Dup

(Matrix: Water, Soil/Sed, Oil; Preservation: HCl, H_2SO_4, HNO_3, $Na_2S_2O_3$, 4°C, Frozen, Filtered; Analysis Requested (write/type in parameter))

"G"rab "D"epth composite, or "T"ime composite

turnaround time required:
- [ ] 24 hours
- [ ] 48 hours
- [ ] 7 days
- [x] 2-3 weeks -due: ___/___
- [ ] return unused samples
- [ ] IRS qualified R&D?

Results to: Brian Peters
cc:

report type:
- [ ] Electronic Report
- [ ] Disk Deliverables
- [ ] Other:
- [ ] NPDES/Regulatory

Estimated Concentration Range: Percent / ppm / ppb / ppt

Report Basis: As Rcd. / OD / Volume / Wt.

Remarks/Detection Limit Requirements

Sample Chain of Custody and Shipping Method Record

Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
[signature]	3-11-04	1840	[signature]
Relinquished by (signature)	Date	Time	Received by Laboratory (Signature)

Airbill Number	Cooler Temp	Date Received	Time Received

Form 16307 (R 9/03)

Shaw® Shaw Environmental, Inc.

FIELD ACTIVITY DAILY LOG

DAILY LOG			
DATE	6	23	04
NO.			
SHEET	1 OF		

PROJECT NAME: Weyerhaeuser Snoqualmie Mill AST/UST PROJECT NO.: 102813 (04)

FIELD ACTIVITY SUBJECT: Quarterly Groundwater Monitoring

DESCRIPTION OF DAILY ACTIVITY AND EVENTS:

Onsite @ 0800 - Signed in @ Main office.

Calibrated Horiba U-22 water Quality Monitor - o.k.

Set up for low flow sampling @ A-1-9.

Collected Full Round of water Levels

Time	Well	DTW	Comments	
0823	A-1-8	6.75	NWO	
0828	A-1-10	8.99	NWO	
0831	A-1-11	8.12	NWO	
0834	A-2-7	8.05	NWO	
0838	A-2-8	7.22	Master lock was cut off	NWO
0842	A-2-6	8.24	Master lock was cut off	NWO
0846	A-2-5	8.47	Master lock was cut off	NWO
0850	A-1-9	8.30	HCLO	

Replaced Master Locks on A-2-8, A-2-6, and A-2-5

~~Offsite~~

Installed ORC Sock in A-1-9.

Offsite @ 1015

VISITORS ON SITE: —

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: —

WEATHER CONDITIONS: 60° Overcast/Mist/Fog

IMPORTANT TELEPHONE CALLS: —

SHAW E&I PERSONNEL ON SITE: Aaron Molden

SIGNATURE: [signature]

DATE: 6-23-04

Weyerhaeuser

Sample Analysis Request and Chain of Custody Record

Date 6-23-04	Facility Snoqualmie M.11 AST/UST	Page 1 of 1
Sampler's Project Number 102813 (04)	Weyerhaeuser Account Number COE # 70370	
Sampled By ☐ Facility ☐ E&AS/WTC ☐ E&AS/NB	Consultant's Name SHAW Environmental	
Consultant's Address 1901 Dexter Ave N E Bothell, WA 98011	Consultant's Phone Number 425-485-5000	Consultant's Fax 486-7766
Project Manager (print) Brian Peters	Sampler Name (print) Aaron Mollner	Recorded By (signature)

SAMPLE DESCRIPTION					MATRIX			PRESERVATIVE							ANALYSES REQUESTED (circle or write in parameters)																								NOTES
Method	Field Sample ID (15 characters max.) (required)	Date (mm/dd/yy) (required)	Time (hh:mm) (required)	Depth (ft/m)	Water	Soil/Sed	Oil	HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	Filtered	# of Containers	pH	Cond	TDS	TSS	Color	Tannins	Volatile Organics (8240, 8260) / BTEX	Semi-volatile organics	TPH: 418.1	TPH-G	TPH-D	O + G	Metals (list below)	NH_3	CO_3	Cl	F	NO_3	SO_4	AOX / AOX<1000	TCLP: Metals VOA SVOA Pest Herb PCBs	Dioxin: Total / 2,3,7,8-TCDD / 2,3,7,8-TCDF	CN	BOD	P-ortho	TKN	P-total	TOC	COD	WTPH-Dx with Silica Gel	Sulfide, Acid Cleanup				
	A1-9-0604	6-23-04	0730		X								3							X			X																		X	X				

→ "G"rab, "D"epth composite, or "T"ime composite → Required for soil or sediment samples

Remarks/Detection Limit Requirements

Laboratory Data

- ☐ Samples on ice or blue ice

Lab Turn-Around Time
- ☐ 24 hours
- ☐ 48 hours
- ☐ 7 days
- ☑ 2-3 weeks - date due: __/__/__

- ☐ WATS/WTC
- ☐ WATS/NB
- ☐ Other: _____

Lab SR#

Case ID

SDG ID

Reporting and QA/QC Requirements

- ☐ CLP Package
- ☐ NPDES Permit
- ☐ Other: _____
- ☐ Electronic Report

Results To: Brian Peters

CC:

Sample Chain of Custody and Shipping Method Record

Relinquished By Sampler (signature)	Date	Time	Received By (signature)	Shipping Method
	6-23-04	1625		
Relinquished By (signature)	Date	Time	Received By (signature)	Airbill Number
Relinquished By (signature)	Date	Time	Received For Laboratory By (signature)	Cooler Temp (°C)
	6/23/04	1625	Samples Received Intact:	

Form 16307 (R 4/98)

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Company ☐ ES&T/WTC ☐ ES&T/NB SHAW	Project No. 102813 (04)	Site ID A-1-9
	Facility Snoqualmie Mill NSF/WB	Date (m/d/y) 6-23-04

Site Description ☒ Monitoring Well ☐ Extraction Well ☐ Irrigation Well ☐ Spring ☐ Borehole ☐ Probe Other:

Air Temp: 60 ☐ °C ☒ °F	Weather: Overcast, Mist/Fog.
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed:
☐ TOC ☐ MP Description:	
TOC/MP Stickup: 3 ☒ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:
Site Remarks (neaby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 11.06

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Initial	Confirmation	At Start of Purging	At End of Purging			Remarks	
Time (hh:mm)	0849	0850	0900	0905	0910	0915	0920	0925
Depth to Water	8.30	8.30	8.30	8.50	8.65	8.66	8.67	8.67
Tape Correction	—	—	—	—	—	—	—	—
Water Level (WL)	8.30	8.30	8.30	8.50	8.65	8.66	8.67	8.67
Product Thickness								
Product Recovery ☐ gallons ☐ liters								

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [_____(TD) - _____(WL)] • [_____(Well ID)]² • [_____(Conversion Factor)] = _____ ☐ gal ☐ liters
Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

Well Goes Dry While Purging ☐

☐ Cum. Vol. Purged ☒ Pumping Rate	~120ml/minute →				(Final)	Meter Type	Remarks
Time Measured (hh:mm)	0905	0910	0915	0920	0925			
pH ☒ Temp. Compensated	6.41	6.28	6.16	6.12	6.12			
Temperature ☒ °C ☐ °F	15.01	14.94	14.84	14.81	14.87			
Dissolved Oxygen mg/l	4.64	3.57	4.03	3.27	3.15			
☒ SC or ☐ EC µS/cm	920	826	731	678	665			
Turbidity ☐ NTU	Clear	Clear	Clear	Clear	Clear			
Color/Tint	Colorless	Colorless	Colorless	Colorless	Colorless			
Odor	HCLO	HCLO	HCLO	HCLO	HCLO			
ORP	-61	-38	-24	-23	-25			

Record time purging starts and ends in Water Level Data section. Cum. Vol Purged: cumulative volumed removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged befored sampling or avearage pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = µmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
A1-9-0604	PO	6-23-04	0930	14	—				

Sample ID may be up to 15 characters. **Sample Result Code, Date, and Time must be entered.** Result Codes: PO, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmddyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampled By (print) Aaron Moldver	Signature

Date Entered into Database _____ By _____ Page _____ of _____

Shaw™ Shaw Environmental, Inc.

FIELD ACTIVITY DAILY LOG

DAILY LOG	DATE	9	28	04
	NO.			
	SHEET	1	OF	3

PROJECT NAME: Weyerhaeuser Snoqualmie Mill Ast/Ust PROJECT NO.: # 102813(04)

FIELD ACTIVITY SUBJECT: Quarterly Groundwater Monitoring

DESCRIPTION OF DAILY ACTIVITY AND EVENTS

Onsite @ 1045 - Checked in @ main office.

Calibrated YSI Multimeter.

Set up for low flow sampling on A-1-9. Note: The purgewater contains a hydrocarbon-like odor. - Slight sheen on H_2O.)

Collected full round of water level measurements.

Time	Well	DTW	Comments
~~1111~~	A-1-9	8.37	HCLO
1118	A-1-11	8.08	NWO
1121	A-1-8	6.74	NWO
1123	A-1-10	9.02	NWO
1126	A-2-7	8.26	NWO
1128	A-2-8	7.75	NWO
1131	A-2-6	8.52	NWO
1133	A-2-5	8.55	NWO

Installed a new ORC Sock in A-1-9.

Purgewater was combined with 6-23-04 A-1-9 purgewater and will be stored @ the Everett East site until disposal can be arranged.

Offsite @ 1220 Delivered Iced Samples to WATS @ 1300.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DESISIONS:

WEATHER CONDITIONS:

Overcast 60°

IMPORTANT TELEPHONE CALLS:

SHAW E&I PERSONNEL ON SITE: Aaron Moldver

SIGNATURE: DATE: 9-28-04

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Company ☐ ES&T/WTC ☐ ES&T/NB	Project No. 02813 (04	Site ID A-1-9
SHAW Environmental Inc	Facility Snoqualmie AST/UST	Date (m/d/y) 9-28-04

Site Description ☐ Monitoring Well ☐ Extraction Well ☐ Irrigation Well ☐ Spring ☐ Borehole ☐ Probe Other:

Air Temp: ☐ °C ☒ °F	Weather: Overcast - 60°
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed: None
☐ TOC ☐ MP Description:	
TOC/MP Stickup: 3 ☒ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:
Site Remarks (neaby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 11.06

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Initial	Confirmation	At Start of Purging	~~At End of Purging~~			Remarks
Time (hh:mm)	1110	1111	1115	1120	1125	1130	1135
Depth to Water	8.37	8.37	8.37	8.47	8.59	8.65	8.61
Tape Correction	—	—	—	—	—	—	—
Water Level (WL)	8.37	8.37	8.37	8.47	8.59	8.65	8.61
Product Thickness							
Product Recovery ☐ gallons ☐ liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [_____(TD) - _____(WL)] • [_____(Well ID)]^2 • [_____(Conversion Factor)] = _____ ☐ gal ☐ liters

Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

Well Goes Dry While Purging ☐

☐ Cum. Vol. Purged ☒ Pumping Rate	≈ 120 ml/minute →				(Final)	Meter Type	Remarks
Time Measured (hh:mm)	1120	1125	1130	1135	1140	YSI	
pH ☒ Temp. Compensated	6.16	6.16	6.13	6.05	6.04	YSI	
Temperature ☒ °C ☐ °F	17.65	17.80	17.85	17.82	17.87	YSI	
Dissolved Oxygen mg/l	1.21	1.20	0.67	0.44	0.48	YSI	
☒ SC or ☐ EC µS/cm	702	697	693	679	672	YSI	
Turbidity ☐ NTU	Clear	Clear	Clear	Clear	2.63	HACH	
Color/Tint	Colorless	Colorless	Colorless	Colorless	Colorless		
Odor	HCLO	HCLO	HCLO	HCLO	HCLO		
ORP	-51.3	-45.4	-38.5	-27.0	-25.1	YSI	

Record time purging starts and ends in Water Level Data section. Cum. Vol Purged: cumulative volumed removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged befored sampling or avearage pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = µmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
A-1-9-0904	PO	9-28-04	1140	9	—				

Sample ID may be up to 15 characters. **Sample Result Code, Date, and Time must be entered.** Result Codes: PO, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmddyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampled By (print) Aaron Moldver	Signature

Date Entered into Database_____ By_____ Page ___ of ___

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Sample Analysis Request and Chain of Custody Record

Date	Project Title	page
9-28-04	Snoqualmie Mill AST/UST	1 of 1

Client's Name	Account Number/Project Number	
SHAW Environmental Inc	102813(04)	COE# 70370

Client's Address	Client's Phone Number	Client's FAX Number
19909 120th Ave NE #101 Bothell, WA 98011	425-402-3305	586-9766

Client's e-mail address	
brian.peters@shawgrp.com	

Project manager (print)	Sampler Name (print)	Recorded By (signature)
Brian Peters	Aaron Maldven	

Sample Description				Matrix				Preservation								Analysis Requested (write/type in parameter)														Notes
Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Water	Soil/Sed	Oil		HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	TPH-G (8260)	NWTPH-Dx w/silica gel Sulfuric Acid cleanup														
	A-1-4-0404	9/28/04	1140	X				X							9	X	X														

→ "G"rab "D"epth composite, or "T"ime composite

Estimated Concentration Range: Percent, ppm, ppb, ppt

Report Basis: As Rcd., OD, Volume, Wt.

turnaround time required	Results to:	report type
☐ 24 hours	Brian Peters	☐ Electronic Report
☐ 48 hours		☐ Disk Deliverables
☐ 7 days	cc:	☐ Other:
☒ 2-3 weeks -due: /		☐ NPDES/Regulatory
☐ return unused samples		
☐ IRS qualified R&D?		

Sample Chain of Custody and Shipping Method Record

Remarks/Detection Limit Requirements	Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
		9-28-04	1300	
	Relinquished by (signature)	Date	Time	Received by Laboratory (Signature)
	Airbill Number	Cooler Temp	Date Received	Time Received

Form 16307 (R 9/03)

MEMORANDUM

Shaw™
Shaw Environmental, Inc.

TO: Aaron Moldver

DATE: December 16, 2004

FROM: Jeff Newschwander

PROJECT: Weyerhaeuser – Snoqualmie Mill - 102813 – 06000000 4

SUBJECT: Snoqualmie Mill M&S

12/16/04

Water levels

Well	DTW	Time
A-1-9	6.37	0900
A-1-10	6.95	0902
A-1-11	6.34	0905
A-2-7	4.89	0907
A-2-8	4.97	0910
A-2-6	5.23	0915
A-2-5	5.42	0917
A-1-8	3.73	0920

Onsite at 0900. Collected water levels from all wells onsite. Calibrated YSI 556 meter. A-1-9 sampled low flow using peristaltic pump and YSI water meter. Power came from an inverter plugged in to the truck auxiliary power supply. Sample was collected after all parameters had stabilized for 5 minutes. Flow was kept at ~120-150 ml/min.

Sample collected for TPH-G and WTPH-Dx. Two unpreserved glass amber bottles and 6 HCl preserved VOAs were filled.

Samples returned to the office.

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Company ☐ ES&T/WTC ☐ ES&T/NB	Project No. 102813 (04)	Site ID A-1-9
	Facility Snoqualmie AST/UST	Date (m/d/y) 12-16-04

Site Description ☒ Monitoring Well ☐ Extraction Well ☐ Irrigation Well ☐ Spring ☐ Borehole ☐ Probe Other:

Air Temp: ☐ °C ☒ °F	Weather:
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed:
☐ TOC ☐ MP Description:	
TOC/MP Stickup: 3 ☒ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:
Site Remarks (neaby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC:

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Initial	~~Confirmation~~	~~At Start of Purging~~	~~At End of Purging~~			Remarks
Time (hh:mm)	0930	0940	0945	0950			
Depth to Water	6.37	6.47	6.56	6.73			
Tape Correction							
Water Level (WL)							
Product Thickness							
Product Recovery ☐ gallons ☐ liters							

Measure water level from fixed measuring point (MP) or top of well casing (TOC). Record water depth to nearest 0.01 ft or 0.002 m, with minus (-) sign if level is above MP or TOC. If no mark on MP or TOC, measure water level from north side of casing. Measure static or pre-purging water level twice; record initial and confirmation measurements and measurement times (in 24-hour clock format). MP/TOC Stickup measurement is from ground surface to nearest 0.1 ft or 0.01 m. Depth to Water codes: N - not measured; D - dry; O - obstructed; P - pumping; F - flowing (artesian well); R - recently pumped; C - cascading. Water Level (WL) = Depth to Water - Tape Correction factor. Record free product presence at time of water level measurement; use "S" for free product thickness if sheen observed. If free product removed from well, record volume removed in gallons or liters, list product type in "Remarks" column.

Field WQ Data Purge Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [_____(TD) - _____(WL)] • [_____(Well ID)]^2 • [_____(Conversion Factor)] = _____ ☐ gal ☐ liters
Conversion Factor = 0.0408 for feet and gallons; 0.1544 for feet and liters; 0.5066 for meters and liters; Well ID in inches

Well Goes Dry While Purging ☐

☐ Cum. Vol. Purged ☒ Pumping Rate						(Final)	Meter Type	Remarks
Time Measured (hh:mm)	0935	0940	0945	0950				
pH ☐ Temp. Compensated	5.28	5.23	5.22	5.22				
Temperature ☐°C ☐°F	11.55	11.70	11.71	11.73				
Dissolved Oxygen mg/l	1.14	0.28	0.27	0.27				
☐ SC or ☐ EC µS/cm	678	643	639	635				
Turbidity ☐ NTU	sl. Turbid	sl. Turbid	"	"				
Color/Tint	Colorless	Colorless	"	"				
Odor	Unknown odor	"	"	"				

Record time purging starts and ends in Water Level Data section. Cum. Vol Purged: cumulative volumed removed before sampling, in gallons or liters. Pumping Rate is gpm or Lpm, depending on box checked in casing volume calculation. Use "Final" column above for recording sample field measurements, total volume purged befored sampling or avearage pumping rate during purging. Record equipment calibration methods, decontamination procedures, equipment failures, purge water disposal method, etc. in daily field notes. SC: Specific Conductance corrected for temperature (µS/cm at 25°C); EC: Electrical Conductivity not corrected for temperature (µS/cm). µS/cm = µmho/cm. 1 gallon (US) = 3.785 L = 0.833 Imperial gallon

Sample Data Sample Depth: 10' ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Field Sample ID (unique ID on bottles)	Result Code	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Lab ID	Case ID	SDG ID	Remarks
A-1-9-1204	P0	12-16-04	1000	8	N				

Sample ID may be up to 15 characters. **Sample Result Code, Date, and Time must be entered.** Result Codes: P0, Primary Sample; D#, Duplicate Sample; S#, Split Sample (sent to second lab); BF#, Field Blank; BR#, Equipment Rinsate; BT#, Trip Blank; SF#, Field Spike (# = 1 to 9). Lab ID (up to 5 characters) is name of laboratory that will analyze the sample. Case ID (up to 5 characters) and SDG ID (sample delivery group, up to 15 characters) are required for blanks. Case ID may be the lab service request number or yy-mm. SDG may be lab's SDG, a cooler ID number, or mmddyy. Enter sample preservation and handling data on chain-of-custody form. Also record detailed information about duplicate, split, rinsate, spike, and/or blank sample collection/handling in daily field notes.

Sampled By (print) Jeff Newschwander	Signature

Date Entered into Database_____ By_____ Page ___ of ___

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Sample Analysis Request and Chain of Custody Record

Date: 12-16-04
Project Title: Snoqualmie AST/UST
page 1 of 1

Client's Name: Shaw Environmental
Account Number/Project Number: CCE # 76370 / 1012813(04)

Client's Address: 19909 120th Ave NE, Bothell, WA 98011
Client's Phone Number: 425-402-3305
Client's FAX Number:
Client's e-mail address: brian.peters@shawgrp.com

Project manager (print): Brian Peters
Sampler Name (print): Jeff Newschwander
Recorded By (signature): [signature]

Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Water	Soil/Sed	Oil		HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	TPH-G / 8260	WTPH-Dx w/ silica gel sulfuric acid cleanup
	A-1-9-1204	12-16-04	1000	X				X							8	X	X

"G"rab "D"epth composite, or "T"ime composite

Analysis Requested (write/type in parameter) | Notes

turnaround time required
- [ ] 24 hours
- [ ] 48 hours
- [ ] 7 days
- [x] 2-3 weeks -due: ___/___
- [ ] return unused samples
- [ ] IRS qualified R&D?

Results to: Brian Peters
cc:

report type
- [ ] Electronic Report
- [ ] Disk Deliverables
- [ ] Other:
- [ ] NPDES/Regulatory

Estimated Concentration Range: Percent / ppm / ppb / ppt

Report Basis: As Rcd. / OD / Volume / Wt.

Remarks/Detection Limit Requirements

Sample Chain of Custody and Shipping Method Record

Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
[signature]	12-17-04	0900	[signature]
Relinquished by (signature)	**Date**	**Time**	**Received by Laboratory (Signature)**

Airbill Number	Cooler Temp	Date Received	Time Received

Form 16307 (R 9/03)

Appendix C
Laboratory Reports

ORIGINAL IS IN
PROJECT FILE

Analysis & Testing Services

Weyerhaeuser
The future is growing™

P.O. Box 9777, WTC 2F25
Federal Way, WA 98063
32901 Weyerhaeuser Way South
Federal Way, WA 98001
Tel 253 924-6872
Fax 253 924-6654

April 2, 2004

Mr. Brian Peters
Shaw Environmental
19909 120th Avenue NE Suite # 101
Bothell, WA 98011

Dear Brian:

Please find attached a copy of our final report for the samples you requested we analyze for the Snoqualmie AST/UST. These are from our service request number 04-0800. Invoicing for this work will be directly to Weyerhaeuser. If you have any questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for using our laboratory for this analysis and we look forward to working with you on future projects.

Sincerely,

Dennis Catalano, Project Manager
Weyerhaeuser Analytical and Testing Services

Attachments

cc: Aaron Moldver Shaw Environmental

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-0800

Title: Snoqualmie AST/UST - March 2004

Samples: 2 **Tests:** 6 **Last Samp:** 002	**Project Number:** 703-7071	**PO:**
Date Received: 03/12/04	**Date Desired:** 04/02/04	**Date Completed:**
Submitter: Peters, Brian	**Location:** Bothell, WA	**Phone:** (425) 485-5000
Reviewer: Catalano, Dennis	**Location:** WTC 2F25	**Phone:** (253) 924-6242
Copy To: Aaron Moldver		
Record Book:	**Ref Request:** 03-2983	**Disposal:** Dispose of samples
Comments:		

Group	Analysis	Test Description	Comp List	Component List Description
CHROM	1-AS-TPH	Acid/Silica Gel Cleanup		
CHROM	1-TPHDNW-W	Prep for NWTPH-D in Water		
CHROM	1-TPHGNW-W	Prep for NWTPH-G in Water		
CHROM	DIESEL-NW	Diesel/Motor Oil in Water by NWTPH-D		
CHROM	GAS-NW	Gasoline in Water by NWTPH-G		
VOA_HIRES	VOA8260LBT	BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)		

Test Schedules being used: **1-DIESELNW**
1-GAS-NW

Sample ID - Date Sampled - Status Customer Sample Description / ID	Component List						
	Analysis	1-AS-TPH	1-TPHDNW-W	1-TPHGNW-W	DIESEL-NW	GAS-NW	VOA8260LBT
		1	1	1	1	1	1
04-0800-001 - 03/10/04 1240 - Available A1-9-0304		V	C	C	C	C	A
04-0800-002 - - Completed Trip Blank							A

Form AT100
VERSION 25April2002

Printed on: 04/01/04 2301
Data Retrieved: 04/01/04 2301

Entered by: Downs, Kelly
Entered on: 03/12/04 0956

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-0800

Title: Snoqualmie AST/UST - March 2004

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
CHROM	1-AS-TPH		Acid/Silica Gel Cleanup	1	1.00	12.00	12.00
CHROM	1-TPHDNW-W		Prep for NWTPH-D in Water	1	1.00	0.00	0.00
CHROM	1-TPHGNW-W		Prep for NWTPH-G in Water	1	1.00	0.00	0.00
CHROM	DIESEL-NW		Diesel/Motor Oil in Water by NWTPH-D	1	1.00	95.00	95.00
CHROM	GAS-NW		Gasoline in Water by NWTPH-G	1	1.00	95.00	95.00

Total charges for CHROM group ($) 202.00

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
VOA_HIRES	VOA8260LBT		BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)	2	1.00	149.00	298.00

Total charges for VOA_HIRES group ($) 298.00

Total charges for Service Request 04-0800 ($) 500.00

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

04-0800

Sample Analysis Request and Chain of Custody Record

Date: 3-10-04	Project Title: Snoqualmie Mill AST/UST	page 1 of 1	
Client's Name: SHAW Environmental	Account Number/Project Number: 102813 (04)	DOE # 70370	
Client's Address: 19909 120th Ave NE, Bothell, WA 98011	Client's Phone Number: 425-485-5000	Client's FAX Number: 425-488-9766	
	Client's e-mail address: brian.peters@shawgrp.com		
Project manager (print): Brian Peters	Sampler Name (print): Aaron Moldan	Recorded By (signature):	

Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Matrix: Water	Soil/Sed	Oil		Preservation: HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	Analysis Requested: 8260	TPH-G	WTPH-Dx with Silica Gel	Sulfuric Acid cleanup	Notes
	A1-9-0304	3-10-04	1240	X				X							14	X	X	X		Dup
	Trip Blank																			

"G"rab "D"epth composite, or "T"ime composite

Estimated Concentration Range	Report Basis
Percent	As Rcd.
ppm	OD
ppb	Volume
ppt	Wt.

turnaround time required
- 24 hours
- 48 hours
- 7 days
- X 2-3 weeks -due: /
- return unused samples
- IRS qualified R&D?

Results to: Brian Peters
cc:

report type
- Electronic Report
- Disk Deliverables
- Other:
- NPDES/Regulatory

Remarks/Detection Limit Requirements

Sample Chain of Custody and Shipping Method Record

Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
	3-11-04	1840	
Relinquished by (signature)	**Date**	**Time**	**Received by Laboratory (Signature)**
	3/12/04	8:30	
Airbill Number	**Cooler Temp**	**Date Received**	**Time Received**
	4°C	3/12/04	0830

Form 16307 (R 9/03)

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-0800
WA Cert. # C020

Report
Snoqualmie AST/UST - March 2004

Client ID		A1-9-0304	Trip Blank	Trip BlankDL	Method Blank	Method Blank
Sample Date		03/10/04	NA	NA	NA	NA
Sample Time		1240	NA	NA	NA	NA
Lab ID		001	002	002DL	VBLKW1	VBLKW2
Analyte	CAS	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	71-43-2	6	< 0.5	< 1	< 0.5	< 0.5
Toluene	108-88-3	0.3 J	< 0.5	< 1	< 0.5	< 0.5
Ethylbenzene	100-41-4	1	< 0.5	< 1	< 0.5	< 0.5
m,p-Xylene	108-38-3 / 106-42-3	0.3 J	< 0.5	< 1	< 0.5	< 0.5
o-Xylene	95-47-6	< 0.5	< 0.5	< 1	< 0.5	< 0.5
Surrogates (%recovery)	QC Limits					
1,2-Dichloroethane-d4	(80-120)	105 %	122 % *	105 %	111 %	109 %
Toluene-d8	(80-120)	102 %	100 %	98 %	98 %	98 %
Bromofluorobenzene	(80-120)	93 %	89 %	93 %	92 %	93 %
Date Analyzed		03/12/04	03/12/04	03/15/04	03/12/04	03/15/04

* Surrogate out of range. Re-analyzed trip blank with remaining volume as a dilution.

J: Value is reported below calibrated range.

Analyst: Tom Wasnock
Approved: Randy Eatherton

Date: 03/26/04

Method: EPA 8260

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-0800
WA Cert. # C020

QC Report - Form III VOA
Snoqualmie AST/UST - March 2004

Matrix spike sample: Shift QC Client ID: NA

Date Analyzed 03/12/04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC #	QC LIMITS REC.
Benzene	10.0	0.0	10.1	96	76-127
Toluene	10.0	0.0	10.4	98	76-125
1,1-Dichloroethene	10.0	0.0	11.5	108	61-145
Trichloroethene	10.0	0.0	10.1	98	71-120
Chlorobenzene	10.0	0.0	10.2	96	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	10.0	10.1	96	0	11	76-127
Toluene	10.0	10.4	98	0	13	76-125
1,1-Dichloroethene	10.0	11.6	108	0	14	61-145
Trichloroethene	10.0	10.1	97	1	14	71-120
Chlorobenzene	10.0	10.3	95	1	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

Analyst: Tom Wasnock
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 03/26/04

Method: EPA 8260

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-0800
WA Cert.# C020

Report
Snoqualmie AST/UST - March 2004
Unit in mg/L
Method - NWTPH-D

Client ID	Sample Date	Sample Time	Lab ID		Diesel Fuel Range 624-92-0	Motor Oil Range 74-93-1	o-terphenyl Surrogate % Rec	Date Extracted	Date Analyzed
A1-9-0304	03/10/04	12:40	001	mg/L	<0.050	<0.20	99%	03/15/04	03/26/04
A1-9-0304	03/10/04	12:40	001DUP	mg/L	<0.050	<0.20	110%	03/15/04	03/26/04
Method Blank			BLANK	mg/L	<0.050	<0.20	94%	03/15/04	03/26/04
Lab Control Spike (% Recovery)			LCS	% Rec	108%	NA	109%	03/15/04	03/26/04

Note: Samples were analyzed with acid/silica gel cleanup

Approved: Randy Eatherton Date: 04/02/04
Telephone: (253) 924-6431

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-0800
WA Cert.# C020

Report
Snoqualmie AST/UST - March 2004
Unit in mg/L
Method - NWTPH-G

	Sample		Lab		Surrogates		
Client ID	Date	Time	ID	Gasoline Range	Trifluoro toluene % Rec	Bromofluoro benzene % Rec	Date Analyzed
A1-9-0304	03/10/04	12:40	001	0.063	109%	108%	03/15/04
A1-9-0304	03/10/04	12:40	001DUP	0.065	109%	107%	03/15/04
Method Blank			BLANK	<0.050	109%	110%	03/15/04
Lab Control Spike			LCS	78%	118%	108%	03/15/04

Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 04/02/04

Analysis & Testing Services

Weyerhaeuser
The future is growing™

P.O. Box 9777, WTC 2F25
Federal Way, WA 98063
32901 Weyerhaeuser Way South
Federal Way, WA 98001
Tel 253 924-6872
Fax 253 924-6654

July 13, 2004

Mr. Brian Peters
Shaw Environmental
19909 120th Avenue NE Suite # 101
Bothell, WA 98011

Dear Brian:

Please find attached a copy of our final report for the samples you requested we analyze for the Snoqualmie AST/UST – June 2004. These are from our service request number 04-1924. Invoicing for this work will be directly to Weyerhaeuser. If you have any questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for using our laboratory for this analysis and we look forward to working with you on future projects.

Sincerely,

Dennis Catalano, Project Manager
Weyerhaeuser Analytical and Testing Services

Attachments

cc: Aaron Moldver Shaw Environmental

Research and Development - Analysis and Testing
Service Request

Weyerhaeuser

04-1924

Title: Snoqualmie AST/UST - June 2004

Samples: 2 **Tests:** 6 **Last Samp:** 002	**Project Number:** 703-7071	**PO:**
Date Received: 06/23/04	**Date Desired:** 07/10/04	**Date Completed:**
Submitter: Peters, Brian	**Location:** Bothell, WA	**Phone:** (425) 485-5000
Reviewer: Catalano, Dennis	**Location:** WTC 2F25	**Phone:** (253) 924-6242
Copy To: Aaron Moldver		
Record Book:	**Ref Request:** 04-0800	**Disposal:** Dispose of samples
Comments:		

Group	Analysis	Test Description	Comp List	Component List Description
CHROM	1-AS-TPH	Acid/Silica Gel Cleanup		
CHROM	1-TPHDNW-W	Prep for NWTPH-D in Water		
CHROM	1-TPHGNW-W	Prep for NWTPH-G in Water		
CHROM	DIESEL-NW	Diesel/Motor Oil in Water by NWTPH-D		
CHROM	GAS-NW	Gasoline in Water by NWTPH-G		
VOA_HIRES	VOA8260LBT	BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)		

Test Schedules being used: **1-DIESELNW**
1-GAS-NW

Sample ID - Date Sampled - Status Customer Sample Description / ID	Component List					
	Analysis	1-AS-TPH	1-TPHDNW-W	1-TPHGNW-W	DIESEL-NW	GAS-NW	VOA8260LBT
		1	1	1	1	1	1
04-1924-001 - 06/23/04 0930 - Available A1-9-0604		V	V	V	V	V	V
04-1924-002 - - Available Trip Blank							V

Form AT100
VERSION 25April2002

Printed on: 06/29/04 2301
Data Retrieved: 06/29/04 2301

Entered by: Downs, Kelly
Entered on: 06/23/04 1756

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-1924

Title: Snoqualmie AST/UST - June 2004

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
CHROM	1-AS-TPH		Acid/Silica Gel Cleanup	1	1.00	12.00	12.00
CHROM	1-TPHDNW-W		Prep for NWTPH-D in Water	1	1.00	0.00	0.00
CHROM	1-TPHGNW-W		Prep for NWTPH-G in Water	1	1.00	0.00	0.00
CHROM	DIESEL-NW		Diesel/Motor Oil in Water by NWTPH-D	1	1.00	95.00	95.00
CHROM	GAS-NW		Gasoline in Water by NWTPH-G	1	1.00	95.00	95.00
			Total charges for CHROM group ($)				202.00

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
VOA_HIRES	VOA8260LBT		BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)	2	1.00	149.00	298.00
			Total charges for VOA_HIRES group ($)				298.00

Total charges for Service Request 04-1924 ($) 500.00

Form AT100
VERSION 25April2002

Printed on: 06/29/04 2301
Data Retrieved: 06/29/04 2301

Entered by: Downs, Kelly
Entered on: 06/23/04 1756

Weyerhaeuser

04-1924

Sample Analysis Request and Chain of Custody Record

Date 6-23-04	Facility Snoqualmie Mill AST/UST	Page 1 of 1
Sampler's Project Number 102813 (04)	Weyerhaeuser Account Number COE# 70370	
Sampled By ☐ Facility ☐ E&AS/WTC ☐ E&AS/NB	Consultant's Name SHAW Environmental	
Consultant's Address 19909 120th Ave NE Bothell, WA 98011	Consultant's Phone Number 425-485-5000	Consultant's Fax 486-9766
Project Manager (print) Brian Peters	Sampler Name (print) Aaron Meldver	Recorded By (signature)

Method	Field Sample ID (15 characters max.) (required)	Date (mm/dd/yy) (required)	Time (hh:mm) (required)	Depth (ft/m)	MATRIX: Water	Soil/Sed	Oil	PRESERVATIVE: HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	Filtered	# of Containers
	A1-9-0604	6-23-04	0930		X								14
	Trip Blank	—	—										

ANALYSES REQUESTED (circle or write in parameters)

pH	Cond	TDS	TSS	Color	Tannins	Volatile Organics (8240, 8260) / BTEX	Semi-volatile organics	TPH: 418.1 TPH-G TPH-D	O + G	Metals (list below)	NH_3 CO_3 Cl F NO_3 SO_4	AOX / AOX<1000	TCLP: Metals VOA SVOA Pest Herb PCBs	Dioxin: Total / 2,3,7,8-TCDD / 2,3,7,8-TCDF	CN	BOD P-ortho	TKN P-total TOC COD	NOTES
						X		X									X NWTPH-Dx with Silica Gel Sulfuric Acid Cleanup	

"G"rab, "D"epth composite, or "T"ime composite

Required for soil or sediment samples

Remarks/Detection Limit Requirements

Laboratory Data

- ☐ Samples on ice or blue ice

Lab Turn-Around Time
- ☐ 24 hours
- ☐ 48 hours
- ☐ 7 days
- ☒ 2-3 weeks - date due: __/__/__

- ☐ WATS/WTC
- ☐ WATS/NB
- ☐ Other: _____

Lab SR#

Case ID

SDG ID

Reporting and QA/QC Requirements

- ☐ CLP Package
- ☐ NPDES Permit
- ☐ Other: _____
- ☐ Electronic Report

Results To: Brian Peters

CC:

Sample Chain of Custody and Shipping Method Record

Relinquished By Sampler (signature)	Date	Time	Received By (signature)	Shipping Method
	6-23-04	1625		
Relinquished By (signature)	Date	Time	Received By (signature)	Airbill Number
Relinquished By (signature)	Date	Time	Received For Laboratory By (signature)	Cooler Temp (°C)
	6/23/04	1625	Samples Received Intact: Y	4°

Form 16307 (R 4/98)

WATS/WTC: 32901 Weyerhaeuser Way S, Federal Way, WA 98003 (253-924-6293)

WATS/NB: New Bern R&D Field Station, Hwy 43 N, New Bern, NC 28563 (919-633-7238)

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-1924
WA Cert. # C020

Report
Snoqualmie AST/UST - June 2004

Client ID		**A1-9-0604**	**Trip Blank**	**Method Blank**
Sample Date		**06/23/04**	**NA**	**NA**
Sample Time		**0930**	**NA**	**NA**
Lab ID		**001**	**002**	**VBLKW1**
Analyte	CAS	ug/L	ug/L	ug/L
Benzene	71-43-2	7	< 0.5	< 0.5
Toluene	108-88-3	0.3 J	< 0.5	< 0.5
Ethylbenzene	100-41-4	1	< 0.5	< 0.5
m,p-Xylene	108-38-3 / 106-42-3	0.4 J	< 0.5	< 0.5
o-Xylene	95-47-6	< 0.5	< 0.5	< 0.5
Surrogates (%recovery)	QC Limits			
1,2-Dichloroethane-d4	(80-120)	103%	111%	115%
Toluene-d8	(80-120)	103%	100%	100%
Bromofluorobenzene	(80-120)	97%	96%	98%
Date Analyzed		06/24/04	06/24/04	06/24/04

J: Value is reported below calibrated range.

Analyst: Tom Wasnock
Approved: Randy Eatherton

Method: EPA 8260

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-1924
WA Cert. # C020

QC Report - Form III VOA
Snoqualmie AST/UST - June 2004

Matrix spike sample: Shift QC Client ID: NA

Date Analyzed 06/24/04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC #	QC LIMITS REC.
Benzene	10.0	0.0	9.51	95	76-127
Toluene	10.0	0.0	9.62	96	76-125
1,1-Dichloroethene	10.0	0.0	10.5	105	61-145
Trichloroethene	10.0	0.0	9.78	98	71-120
Chlorobenzene	10.0	0.0	9.78	98	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	10.0	9.57	96	1	11	76-127
Toluene	10.0	9.61	96	0	13	76-125
1,1-Dichloroethene	10.0	10.7	107	2	14	61-145
Trichloroethene	10.0	9.94	99	2	14	71-120
Chlorobenzene	10.0	9.62	96	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD:	0	out of 5 outside limits
Spike Recovery:	0	out of 10 outside limits

Analyst: Tom Wasnock
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 07/08/04

Method: EPA 8260

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-1924
WA Cert.# C020

Report
Snoqualmie AST/UST - June 2004
Unit in mg/L
Method - NWTPH-G

	Sample		Lab	Gasoline	Surrogates: Trifluoro toluene	Surrogates: Bromofluoro benzene	
Client ID	Date	Time	ID	Range	% Rec	% Rec	Date Analyzed
A1-9-0604	6/23/2004	9:30	001	0.065	107%	102%	06/29/04
A1-9-0604	6/23/2004	9:30	001DUP	0.066	99%	94%	06/29/04
Method Blank			BLANK	<0.050	91%	92%	06/29/04
Lab Control Spike			LCS	<0.050	91%	92%	06/29/04

Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 07/12/04

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-1924
WA Cert.# C020

Report
Snoqualmie AST/UST - June 2004
Unit in mg/L
Method - NWTPH-D

Client ID	Sample Date	Sample Time	Lab ID		Diesel Fuel Range 624-92-0	Motor Oil Range 74-93-1	o-terphenyl Surrogate % Rec	Date Extracted	Date Analyzed
A1-9-0604	6/23/2004	9:30	001		<0.050	<0.20	81%	06/28/04	06/30/04
Method Blank			BLANK	mg/L	<0.050	<0.20	86%	06/28/04	06/30/04
Lab Control Spike (% Recovery)			LCS	% Rec	80%	NA	79%	06/28/04	06/30/04

Note: Samples were analyzed with acid/silica gel cleanup

Approved: Randy Eatherton Date: 07/12/04
Telephone: (253) 924-6431

Analysis & Testing Services

Weyerhaeuser
The future is growing™

P.O. Box 9777, WTC 2F25
Federal Way, WA 98063
32901 Weyerhaeuser Way South
Federal Way, WA 98001
Tel 253 924-6872
Fax 253 924-6654

October 19, 2004

Mr. Aaron Moldver
Shaw Environmental
19909 120th Avenue NE Suite # 101
Bothell, WA 98011

Dear Aaron:

Please find attached a copy of our final report for the samples you requested we analyze for the Snoqualmie AST/UST. These are from our service request number 04-2896. Invoicing for this work will be directly to Weyerhaeuser. If you have any questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for using our laboratory for this analysis and we look forward to working with you on future projects.

Sincerely,

Dennis Catalano, Project Manager
Weyerhaeuser Analytical and Testing Services

Attachments

Cc: Brian Peters

H:\ADMIN\ADMIN\CVRLTR\moldver.dmc.doc

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-2896

Title: Snoqualmie AST/UST - September 2004

Samples: 2 **Tests:** 6 **Last Samp:** 002	**Project Number:** 703-7071	**PO:**
Date Received: 09/28/04	**Date Desired:** 10/19/04	**Date Completed:**
Submitter: Moldver, Aaron	**Location:** Bothell, WA	**Phone:** (425) 485-5000
Reviewer: Catalano, Dennis	**Location:** WTC 2F25	**Phone:** (253) 924-6242
Copy To: Brian Peters		
Record Book:	**Ref Request:** 04-1924	**Disposal:** Dispose of samples
Comments:		

Group	Analysis	Test Description	Comp List	Component List Description
CHROM	1-AS-TPH	Acid/Silica Gel Cleanup		
CHROM	1-TPHDNW-W	Prep for NWTPH-D in Water		
CHROM	1-TPHGNW-W	Prep for NWTPH-G in Water		
CHROM	DIESEL-NW	Diesel/Motor Oil in Water by NWTPH-D		
CHROM	GAS-NW	Gasoline in Water by NWTPH-G		
VOA_HIRES	VOA8260LBT	BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)		

Test Schedules being used: **1-DIESELNW**
1-GAS-NW

Sample ID - Date Sampled - Status Customer Sample Description / ID	Component List						
	Analysis	1-AS-TPH	1-TPHDNW-W	1-TPHGNW-W	DIESEL-NW	GAS-NW	VOA8260LBT
		1	1	1	1	1	1
04-2896-001 - 09/28/04 1140 - Available A-1-9-0904		V	C	C	C	C	A
04-2896-002 - - Completed Trip Blank							A

Form AT100
VERSION 25April2002

Printed on: 10/18/04 2302
Data Retrieved: 10/18/04 2302

Entered by: Chappel, Bonnie
Entered on: 09/28/04 1408

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-2896

Title: Snoqualmie AST/UST - September 2004

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
CHROM	1-AS-TPH		Acid/Silica Gel Cleanup	1	1.00	12.00	12.00
CHROM	1-TPHDNW-W		Prep for NWTPH-D in Water	1	1.00	0.00	0.00
CHROM	1-TPHGNW-W		Prep for NWTPH-G in Water	1	1.00	0.00	0.00
CHROM	DIESEL-NW		Diesel/Motor Oil in Water by NWTPH-D	1	1.00	95.00	95.00
CHROM	GAS-NW		Gasoline in Water by NWTPH-G	1	1.00	95.00	95.00

Total charges for CHROM group ($) 202.00

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
VOA_HIRES	VOA8260LBT		BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)	2	1.00	149.00	298.00

Total charges for VOA_HIRES group ($) 298.00

Total charges for Service Request 04-2896 ($) 500.00

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

04-2896

Sample Analysis Request and Chain of Custody Record

Date	Project Title	page
9-28-04	Snoqualmie Mill AST/UST	1 of 1

Client's Name	Account Number/Project Number	
SHAW Environmental Inc	102813 (04)	COE# 70370

Client's Address	Client's Phone Number	Client's FAX Number
19409 120th Ave NE #101 Bothell, WA 98011	425-402-3205	386-9786

Client's e-mail address	
brian.peters@shawgrp.com	

Project manager (print)	Sampler Name (print)	Recorded By (signature)
Brian Peters	Aaron Moldver	

Sample Description				Matrix			Preservation								Analysis Requested (write/type in parameter)			Notes
Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Water	Soil/Sed	Oil	HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	X TPH-G / 8260	X WTPH-D by w/silicagel Sulfuric Acid cleanup		
	A-1-9-0904	9/28/04	1140	X			X							9				
	also rec'd TRIP BLANK													1				

→ "G"rab "D"epth composite, or "T"ime composite

Estimated Concentration Range	Report Basis
Percent	As Rcd.
ppm	OD
ppb	Volume
ppt	Wt.

turnaround time required	Results to:	report type
24 hours	Brian Peters	Electronic Report
48 hours		Disk Deliverables
7 days	cc:	Other:
X 2-3 weeks -due: /		NPDES/Regulatory
return unused samples		
IRS qualified R&D?		

Sample Chain of Custody and Shipping Method Record

Remarks/Detection Limit Requirements	Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
		9-28-04	130	
	Relinquished by (signature)	Date	Time	Received by Laboratory (Signature)
				Chappel
	Airbill Number	Cooler Temp 2/	Date Received 9-28-04	Time Received 1330

Form 16307 (R 9/03)

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-2896
WA Cert.# C020

Report
Snoqualmie AST/UST - September 2004
Unit in mg/L
Method - NWTPH-G

Client ID	Sample Date	Sample Time	Lab ID	Gasoline Range	Surrogates: Trifluoro toluene % Rec	Surrogates: Bromofluoro benzene % Rec	Date Analyzed
A-1-9-0904	9/28/2004	11:40	001	<0.050	108%	108%	10/02/04
A-1-9-0904	9/28/2004	11:40	001DUP	<0.050	112%	111%	10/02/04
Method Blank			BLANK	<0.050	103%	116%	10/02/04
Lab Control Spike			LCS	72%	120%	97%	10/02/04

Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 10/18/04

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-2896
WA Cert.# C020

Report
Snoqualmie AST/UST - September 2004
Unit in mg/L
Method - NWTPH-D

Client ID	Sample Date	Sample Time	Lab ID		Diesel Fuel Range 624-92-0	Motor Oil Range 74-93-1	o-terphenyl Surrogate % Rec	Date Extracted	Date Analyzed
A-1-9-0904	9/28/2004	11:40	001		<0.050	<0.20	84%	10/01/04	10/13/04
A-1-9-0904	9/28/2004	11:40	001	DUP	<0.050	<0.20	84%	10/01/04	10/13/04
Method Blank			BLANK	mg/L	<0.050	<0.20	91%	10/01/04	10/13/04
Lab Control Spike (% Recovery)			LCS	% Rec	79%	NA	87%	10/01/04	10/13/04

Note: Samples were analyzed with acid/silica gel cleanup

Approved: Randy Eatherton
Telephone: (253) 924-6431

10/18/04

Date: 10/18/04

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-2896
WA Cert. # C020

Report
Snoqualmie AST/UST - September 2004

Client ID		**A-1-9-0904**	**Trip Blank**	**Method Blank**
Sample Date		**09/28/04**	**NA**	**NA**
Sample Time		**1140**	**NA**	**NA**
Lab ID		**001**	**002**	**VBLKW1**
Analyte	CAS	ug/L	ug/L	ug/L
Benzene	71-43-2	5	< 0.5	< 0.5
Toluene	108-88-3	0.4 J	< 0.5	< 0.5
Ethylbenzene	100-41-4	0.5	< 0.5	< 0.5
m,p-Xylene	108-38-3 / 106-42-3	0.3 J	< 0.5	< 0.5
o-Xylene	95-47-6	< 0.5	< 0.5	< 0.5
Surrogates (%recovery)	QC Limits			
1,2-Dichloroethane-d4	(80-120)	112%	110%	112%
Toluene-d8	(80-120)	98%	95%	96%
Bromofluorobenzene	(80-120)	97%	96%	95%
Date Analyzed		09/28/04	09/28/04	09/28/04

J: Value is reported below calibrated range.

Analyst: Tom Wasnock
Approved: Randy Eatherton

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-2896
WA Cert. # C020

QC Report - Form III VOA
Snoqualmie AST/UST - September 2004

Matrix spike sample: Shift QC Client ID: NA

Date Analyzed 09/28/04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC #	QC LIMITS REC.
Benzene	10.0	0.0	9.68	96.8	76-127
Toluene	10.0	0.0	10.4	104	76-125
1,1-Dichloroethene	10.0	0.0	10.7	107	61-145
Trichloroethene	10.0	0.0	10.2	102	71-120
Chlorobenzene	10.0	0.0	10.4	104	75-130
			3	30	

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	10.0	9.28	92.8	4	11	76-127
Toluene	10.0	9.91	99.1	5	13	76-125
1,1-Dichloroethene	10.0	10.4	104	3	14	61-145
Trichloroethene	10.0	9.84	98.4	4	14	71-120
Chlorobenzene	10.0	9.99	99.9	4	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD:	0	out of 5 outside limits
Spike Recovery:	0	out of 10 outside limits

Analyst: Tom Wasnock
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 10/01/04

Method: EPA 8260

ORIGINAL IS IN PROJECT FILE

RECEIVED
JAN 10 2005

Analysis & Testing Services

Weyerhaeuser
The future is growing™

P.O. Box 9777, WTC 2F25
Federal Way, WA 98063
32901 Weyerhaeuser Way South
Federal Way, WA 98001
Tel 253 924-6872
Fax 253 924-6654

January 6, 2005

Mr. Aaron Moldver
Shaw Environmental
19909 120th Avenue NE Suite # 101
Bothell, WA 98011

Dear Aaron:

Please find attached a copy of our final report for the samples you requested we analyze for the AST/UST. These are from our service request number 04-3808. Invoicing for this work will be directly to Weyerhaeuser. If you have any questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for using our laboratory for this analysis and we look forward to working with you on future projects.

Sincerely,

Dennis Catalano, Project Manager
Weyerhaeuser Analytical and Testing Services

Attachments

Cc: Brian Peters

H:\ADMIN\ADMIN\CVRLTR\moldver.dmc.doc

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-3808

Title: Snoqualmie AST/UST - December 2004

Samples: 2 **Tests:** 6 **Last Samp:** 002	**Project Number:** 703-7071	**PO:**
Date Received: 12/17/04	**Date Desired:** 01/05/05	**Date Completed:**
Submitter: Moldver, Aaron	**Location:** Bothell, WA	**Phone:** (425) 485-5000
Reviewer: Catalano, Dennis	**Location:** WTC 2F25	**Phone:** (253) 924-6242
Copy To: Brian Peters		
Record Book:	**Ref Request:** 04-2896	**Disposal:** Dispose of samples
Comments:		

Group	Analysis	Test Description	Comp List	Component List Description
CHROM	1-AS-TPH	Acid/Silica Gel Cleanup		
CHROM	1-TPHDNW-W	Prep for NWTPH-D in Water		
CHROM	1-TPHGNW-W	Prep for NWTPH-G in Water		
CHROM	DIESEL-NW	Diesel/Motor Oil in Water by NWTPH-D		
CHROM	GAS-NW	Gasoline in Water by NWTPH-G		
VOA_HIRES	VOA8260LBT	BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)		

Test Schedules being used: **1-DIESELNW**
1-GAS-NW

Sample ID - Date Sampled - Status Customer Sample Description / ID	Component List					
	Analysis	1-AS-TPH	1-TPHDNW-W	1-TPHGNW-W	DIESEL-NW	GAS-NW	VOA8260LBT
		1	1	1	1	1	1
04-3808-001 - 12/16/04 1000 - Completed A-1-9-1204		A	A	A	A	A	A
04-3808-002 - - Completed Trip Blank							A

Form AT100
VERSION 25April2002

Printed on: 01/06/05 1533
Data Retrieved: 01/06/05 1533

Entered by: Downs, Kelly
Entered on: 12/17/04 1404

Weyerhaeuser

Research and Development - Analysis and Testing
Service Request

04-3808

Title: Snoqualmie AST/UST - December 2004

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
CHROM	1-AS-TPH		Acid/Silica Gel Cleanup	1	1.00	12.00	12.00
CHROM	1-TPHDNW-W		Prep for NWTPH-D in Water	1	1.00	0.00	0.00
CHROM	1-TPHGNW-W		Prep for NWTPH-G in Water	1	1.00	0.00	0.00
CHROM	DIESEL-NW		Diesel/Motor Oil in Water by NWTPH-D	1	1.00	95.00	95.00
CHROM	GAS-NW		Gasoline in Water by NWTPH-G	1	1.00	95.00	95.00

Total charges for CHROM group ($) 202.00

Group	*Analysis*	*Component List*	*Test Description*	*No. Tests*	*Mult*	*Charge Amount*	*Line Total*
VOA_HIRES	VOA8260LBT		BTEX in Water by EPA 8260B - Low Detection Limits (25 mL Purge)	2	1.00	149.00	298.00

Total charges for VOA_HIRES group ($) 298.00

Total charges for Service Request 04-3808 ($) 500.00

Weyerhaeuser Analytical Chemistry
c/o SLM 216
32901 Weyerhaeuser Way South
Federal Way, WA 98001

04-3808

Sample Analysis Request and Chain of Custody Record

Date	Project Title	page
12-16-04	Snoqualmie AST/UST	1 of 1

Client's Name	Account Number/Project Number
SHAW Environmental	OOE# 70370 / 102813(04)

Client's Address	Client's Phone Number	Client's FAX Number
19909 120th Ave NE Bothell, WA 98011	425-402-3305	

Client's e-mail address: brian.peters@shawgrp.com

Project manager (print)	Sampler Name (print)	Recorded By (signature)
Brian Peters	Jeff Neuschwander	

Method	Field Sample ID (15 character Max) (Required)	Date (mm/dd/yy) (Required)	Time (hh:mm)	Matrix: Water	Soil/Sed	Oil	Preservation: HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	Frozen	Filtered	# of Containers	Analysis Requested (write/type in parameter): TPH-G / 8260	WTPH-Dx w/ silica gel, sulfuric acid cleanup.	Notes
	A-1-9-1204	12-16-04	1000	X			X							8	X	X	

"G"rab "D"epth composite, or "T"ime composite

Estimated Concentration Range: Percent / ppm / ppb / ppt

Report Basis: As Rcd. / OD / Volume / Wt.

turnaround time required
- [ ] 24 hours
- [ ] 48 hours
- [ ] 7 days
- [X] 2-3 weeks -due: /
- [ ] return unused samples
- [ ] IRS qualified R&D?

Results to: Brian Peters

cc:

report type
- [ ] Electronic Report
- [ ] Disk Deliverables
- [ ] Other:
- [ ] NPDES/Regulatory

Remarks/Detection Limit Requirements

Sample Chain of Custody and Shipping Method Record

Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
	12-17-04	0900	
Relinquished by (signature)	Date	Time	Received by Laboratory (Signature)
Airbill Number	Cooler Temp	Date Received	Time Received
	4	12/17/04	1100

Form 16307 (R 9/03)

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-3808
WA Cert.# C020

Report
Snoqualmie AST/UST - December 2004
Unit in mg/L
Method - NWTPH-D

Client ID	Sample Date	Time	Lab ID		Diesel Fuel Range 624-92-0	Motor Oil Range 74-93-1	o-terphenyl Surrogate % Rec	Date Extracted	Date Analyzed
A-1-9-1204	12/16/2004	10:00	001		<0.050	<0.20	68%	12/22/04	01/05/05
A-1-9-1204	12/16/2004	10:00	001	DUP	<0.048	<0.19	70%	12/22/04	01/05/05
Method Blank			BLANK		<0.050	<0.20	84%	12/22/04	01/05/05
Lab Control Spike (% Recovery)			LCS	% Rec	58%	NA	72%	12/22/04	01/05/05

Note: Samples were analyzed with acid/silica gel cleanup

Approved: Randy Eatherton Date: 01/06/05
Telephone: (253) 924-6431

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-3808
WA Cert.# C020

Report
Snoqualmie AST/UST - December 2004
Unit in mg/L
Method - NWTPH-G

Client ID	Sample Date	Sample Time	Lab ID	Gasoline Range	Surrogates Trifluoro-toluene % Rec	Surrogates Bromofluoro-benzene % Rec	Date Analyzed
A-1-9-1204	12/16/04	10:00	001	0.086	126%	109%	12/28/04
A-1-9-1204	12/16/04	10:00	001Dup	0.086	134%	112%	12/28/04
Method Blank			BLANK	<0.050	94%	105%	12/28/04
Lab Control Spike			LCS	70%	126%	93%	12/28/04

Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 01/06/05

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-3808
WA Cert. # C020

Report
Snoqualmie AST/UST - December 2004

Client ID		A-1-9-1204	Trip Blank	Method Blank
Sample Date		12/16/04	NA	NA
Sample Time		1000	NA	NA
Lab ID		001	002	VBLKW1
Analyte	CAS	ug/L	ug/L	ug/L
Benzene	71-43-2	10	< 0.5	< 0.5
Toluene	108-88-3	0.4 J	< 0.5	< 0.5
Ethylbenzene	100-41-4	1	< 0.5	< 0.5
m,p-Xylene	108-38-3 / 106-42-3	0.5 J	< 0.5	< 0.5
o-Xylene	95-47-6	< 0.5	< 0.5	< 0.5
Surrogates (%recovery)	QC Limits			
1,2-Dichloroethane-d4	(80-120)	98%	104%	101%
Toluene-d8	(80-120)	95%	98%	98%
Bromofluorobenzene	(80-120)	98%	96%	96%
Date Analyzed		12/20/04	12/20/04	12/20/04

J: Value is reported below calibrated range.

Analyst: Tom Wasnock
Approved: Randy Eatherton
Telephone: (253) 924-6431 Date: 12/21/04 Method: EPA 8260

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98003

Service Request 04-3808
WA Cert. # C020

QC Report - Form III VOA
Snoqualmie AST/UST - December 2004

Matrix spike sample: 04-3808-001 Client ID: A-1-9-1204

Date Analyzed 12/20/04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS % REC #	QC LIMITS REC.
Benzene	10.0	10.1	21.2	111.0	76-127
Toluene	10.0	0.434	8.86	84.3	76-125
1,1-Dichloroethene	10.0	0.0	13.4	134.0	61-145
Trichloroethene	10.0	0.0	11.5	115.0	71-120
Chlorobenzene	10.0	0.0	8.09	80.9	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONC. (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	10.0	22.3	122.0	9	11	76-127
Toluene	10.0	9.40	89.7	6	13	76-125
1,1-Dichloroethene	10.0	12.7	127.0	5	14	61-145
Trichloroethene	10.0	11.6	116.0	1	14	71-120
Chlorobenzene	10.0	8.61	86.1	6	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of qc limits

RPD:	0	out of 5 outside limits
Spike Recovery:	0	out of 10 outside limits

Analyst: Tom Wasnock
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 12/21/04

Method: EPA 8260

Weyerhaeuser
The future is growing™

Mail to: PO Box 9777, EC2-2C1
Federal Way, Washington 98063-9777
Ship to: 33663 Weyerhaeuser Way S
Federal Way, Washington 98003
Tel (253) 924-3746
Fax (253) 924-2013
E-mail: jennifer.bariska@weyerhaeuser.com

March 11, 2005

Mr. John Bails
Toxic Cleanup Program
Northwest Regional Office
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Weyerhaeuser Snoqualmie Mill Site, 38800 SE Mill Pond Road, Snoqualmie
Underground Storage Tank #3915
Submittal of additional information relating to site cleanup activities

Dear Mr. Bails:

Enclosed is a resubmission of the following report:

- 2004 Annual Groundwater Sampling Report, Weyerhaeuser Snoqualmie Mill Former Underground Fuel Storage Tank and Aboveground Road Oil Storage Tank Areas, Snoqualmie, Washington, prepared by Shaw Environmental/ February 17, 2005.

I apologize for any inconvenience with the previous report. Should you require further information, please contact me at (253) 924-3746.

Sincerely,

Jennifer Bariska
Environmental Manager

Enclosures