70439

Weyerhaeuser

PO Box 2999, CH1L28
Tacoma, Washington 98477-2999
Ship to: 33663 Weyerhaeuser Way S
Federal Way, Washington 98003
Tel (253) 924-2729
Fax (253) 924-2013
E-mail: shari.brown@weyerhaeuser.com

October 11, 1999

Ms. Judy Aitken
Northwest Regional Office
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

Re: Weyerhaeuser Everett West Site - 1999 Annual Evaluation including Fourteenth Round Compliance Ground Water Monitoring Data

Dear Ms. Aitken:

Enclosed are two copies of the report titled " 1999 Annual Evaluation including Fourteenth Round Compliance Monitoring Ground Water Sampling Results - Weyerhaeuser Everett West Site" and a computer floppy disk containing sample results.

This data is being submitted according to the terms and schedule outlined in the Consent Decree between Ecology and Weyerhaeuser. Compliance ground water monitoring at the Everett West Site began in January 1995. The sampling and analytical methods, data evaluation, and report format were performed according to methods specified in the Ecology-approved Ground Water Compliance Monitoring Plan for Weyerhaeuser Everett West Site (March 2, 1995).

Weyerhaeuser has completed the groundwater monitoring schedule as specified in the Groundwater Compliance Monitoring Plan. During the five year monitoring schedule, all of the samples collected had concentrations below the TPH-D and dissolved arsenic cleanup levels as specified in the Consent Decree. Based on these results, Weyerhaeuser requests amending the Consent Decree, per the Groundwater Compliance Monitoring Plan, to discontinue groundwater compliance monitoring at the Everett West Site.

Should you require further information or would like to discuss our request to discontinue groundwater monitoring at this site, please contact me at (253) 924-2729.

Sincerely,

Shari Brown

Shari Brown
Associate Environmental Manager

Enclosures: " 1999 Annual Evaluation including Fourteenth Round Compliance Monitoring Ground Water Sampling Results - Weyerhaeuser Everett West Site" (2 copies) and computer floppy disk containing sample results.

cc: Glen Wyatt WTC2G2 - Floppy disk without result data
Mike Elmer - NWPE – Result data without floppy disk

1999 ANNUAL EVALUATION INCLUDING FOURTEENTH ROUND COMPLIANCE MONITORING GROUNDWATER SAMPLING RESULTS - WEYERHAEUSER EVERETT WEST SITE

This report summarizes the 1999 annual results and the fourteenth round sampling event (August 1999) for compliance monitoring groundwater sampling activities performed at the Weyerhaeuser Everett West Site (West Site), at 101 East Marine View Drive in Everett, Washington.

QUARTERLY SAMPLING ACTIVITIES (FOURTEENTH ROUND)

IT Corporation (formerly EMCON) collected groundwater samples from six West Site monitoring wells (MW-1201, MW-1202, MW-1203, MW-1301, MW-1302, and MW-1501) during this fourteenth round sampling event. All samples were collected on August 5, 1999. One field duplicate sample was collected from monitoring well MW-1202 and designated 90804WSG-1902. One field blank was prepared and designated 90804WSG-1901. The samples were submitted to Weyerhaeuser Analytical Testing Services (WATS) for analyses. A site map including the six groundwater monitoring well locations is shown in Figure 1.

Monitoring well MW-1701 was inadvertently abandoned on February 13, 1998. The Washington State Department of Ecology (Ecology) was notified, and Weyerhaeuser agreed to perform additional assessment if elevated concentrations of total petroleum hydrocarbons as diesel (TPH-D) and as heavy oil (TPH-O) were observed in MW-1202 located downgradient of the former location of MW-1701.

QUARTERLY LABORATORY ANALYSES

Six groundwater samples, one field duplicate, and one field blank were analyzed for TPH-D and TPH-O by Ecology Method WTPH-D extended and for dissolved arsenic by U.S. Environmental Protection Agency Method 200.9. The dissolved arsenic samples were filtered in the field prior to laboratory submittal.

Weyerhaeuser field sampling data sheets were completed at the time of sampling. Copies of the field sampling data sheets, chain-of-custody and request for analyses forms, and laboratory reports are included as attachments. Also included is one diskette with data files for submittal to Ecology.

QUARTERLY LABORATORY RESULTS

Table 1 shows the depth to water measurements taken from each well before sampling. Table 2 summarizes the groundwater quality field parameters obtained at the time of sampling. Table 3 summarizes the laboratory results in the GIS/Key™ format.

TPH-D was reported in all of the groundwater samples, including the duplicate and the field blank, at concentrations ranging from 0.34 to 0.56 milligrams per liter (mg/L). TPH-O was not detected at or above the method reporting limit (MRL) in any of the groundwater samples. Dissolved arsenic was reported in three samples at concentrations ranging from 5 to 32 micrograms per liter (µg/L).

IT Corporation performed data validation on the WATS laboratory data. A copy of the data validation report is attached at the back of this report.

A decrease in TPH-O and arsenic concentrations were noted in the laboratory results for the fourteenth round of compliance groundwater monitoring. The elevated TPH-D concentrations in all of the groundwater samples are estimated due to the elevated concentration in the field blank.

ANNUAL EVALUATION

Time-trend plots for TPH-D, TPH-O, and dissolved arsenic concentrations reported for groundwater samples from West Site monitoring wells are presented on Figures 2, 3, and 4, respectively. Time-trend plots for West Site groundwater elevations are presented on Figure 5.

The 1999 West Site compliance groundwater monitoring results were evaluated and the highest values for each parameter were compared to site historic reference values identified in the Consent Decree. During the 1999 monitoring period, TPH-D, TPH-O, and dissolved arsenic concentrations did not exceed the parameter-specific reference values by a factor of five. In general, detections during the 1999 sampling event were consistent with data associated with past groundwater monitoring results at the West Site. The elevated TPH-D concentrations in all of the groundwater samples were likely due to contaminant crossover occurring in the field or laboratory.

Weyerhaeuser has completed the groundwater monitoring schedule as specified in the Groundwater Compliance Monitoring Plan. None of the TPH-D or dissolved arsenic concentrations in samples collected during the five-year monitoring schedule exceeded cleanup levels as specified in the Weyerhaeuser Consent Decree. Based on these results, we recommend discussions with Ecology to amend the Consent Decree per the Groundwater Compliance Monitoring Plan and that no further groundwater compliance monitoring be performed.

This report was prepared by IT Corporation. For additional information, contact IT Corporation at (425) 485-5000.

Michelle Macias
Project Geologist

Steve Nelson, R.G.
Senior Project Hydrogeologist

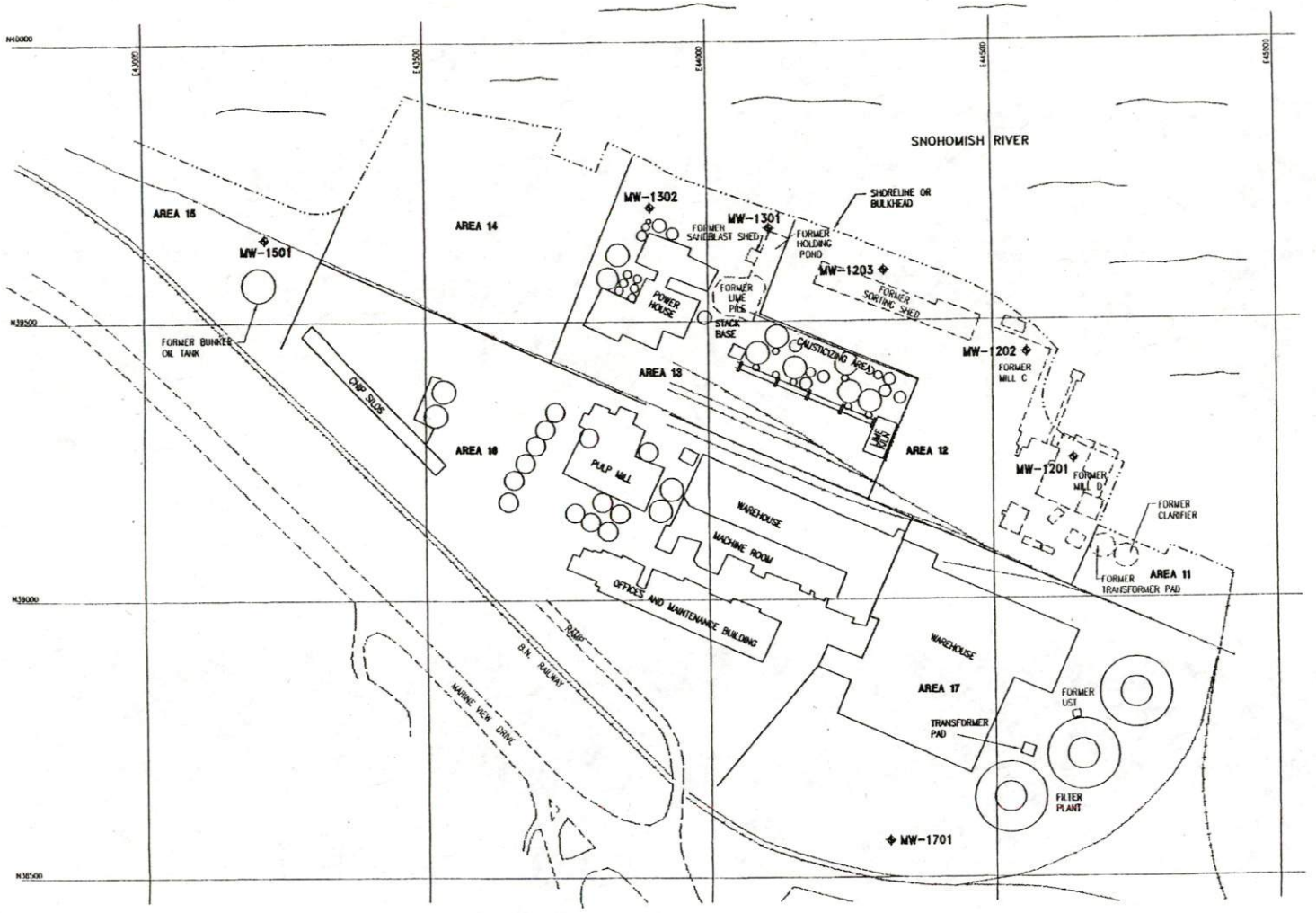
Attachments: Limitations

Figure 1	-	Site Map and Monitoring Well Locations
Figure 2	-	TPH-D Concentrations
Figure 3	-	TPH-O Concentrations
Figure 4	-	Dissolved Arsenic Concentrations
Figure 5	-	Groundwater Elevations
Table 1	-	Depth to Groundwater Measurements
Table 2	-	Summary of Groundwater Field Parameters
Table 3	-	August 1999 Sample Results
Table 4	-	August 1999 Field Blank Sample Results
Attachment A	-	Field Sampling Data Sheets, Chain-of-Custody and Request for Analyses Forms, Laboratory Reports, and Data Validation Report
Diskette	-	Data Files for Submittal to Ecology

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.



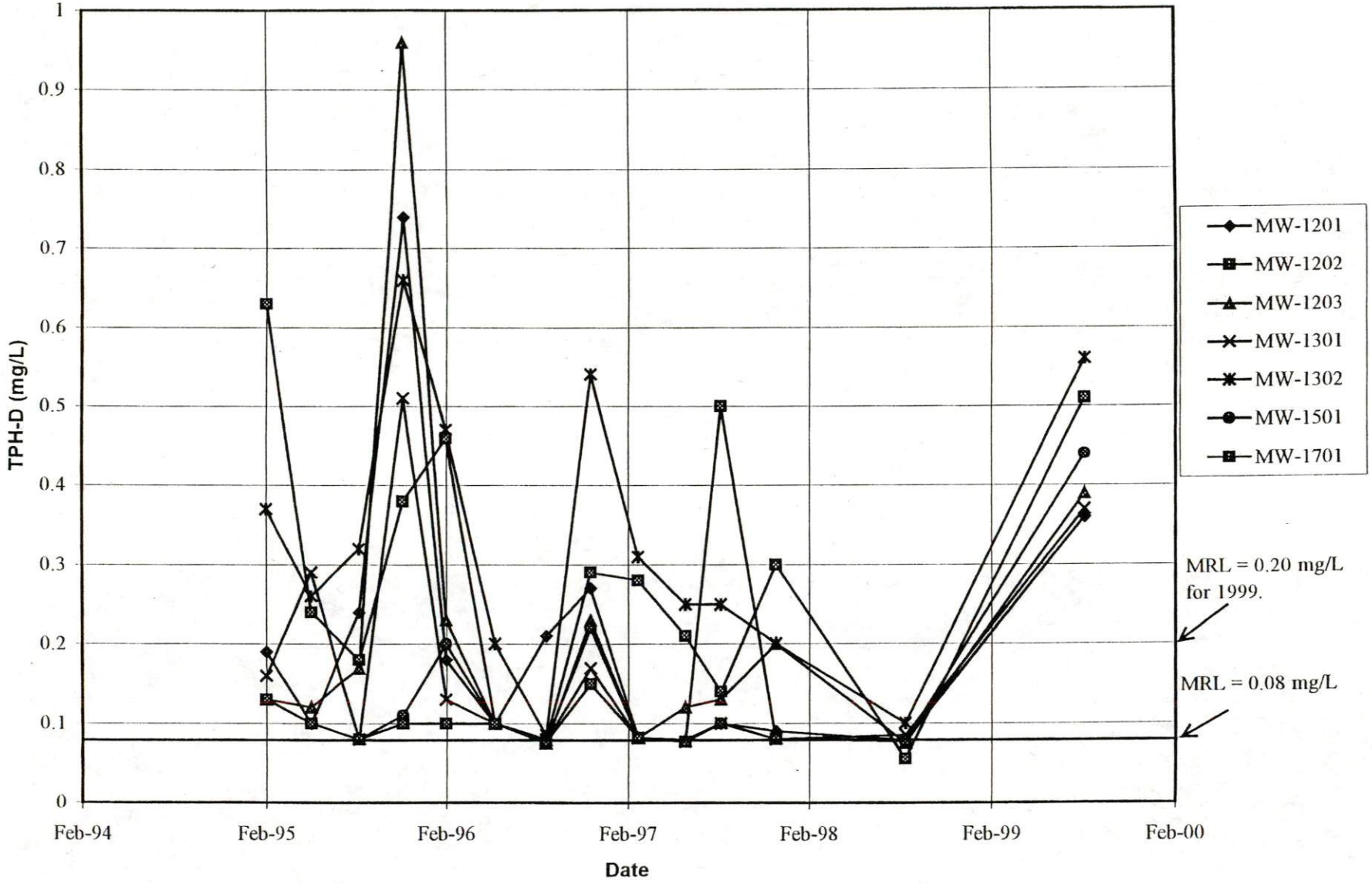
emcon

DATE 8-96
DWN. MLP
REV.
APPR.
PROJECT NO.
40141-037.085

Figure 1
WEYERHAEUSER EVERETT WEST SITE
EVERETT, WASHINGTON
SITE MAP AND MONITORING WELL LOCATIONS

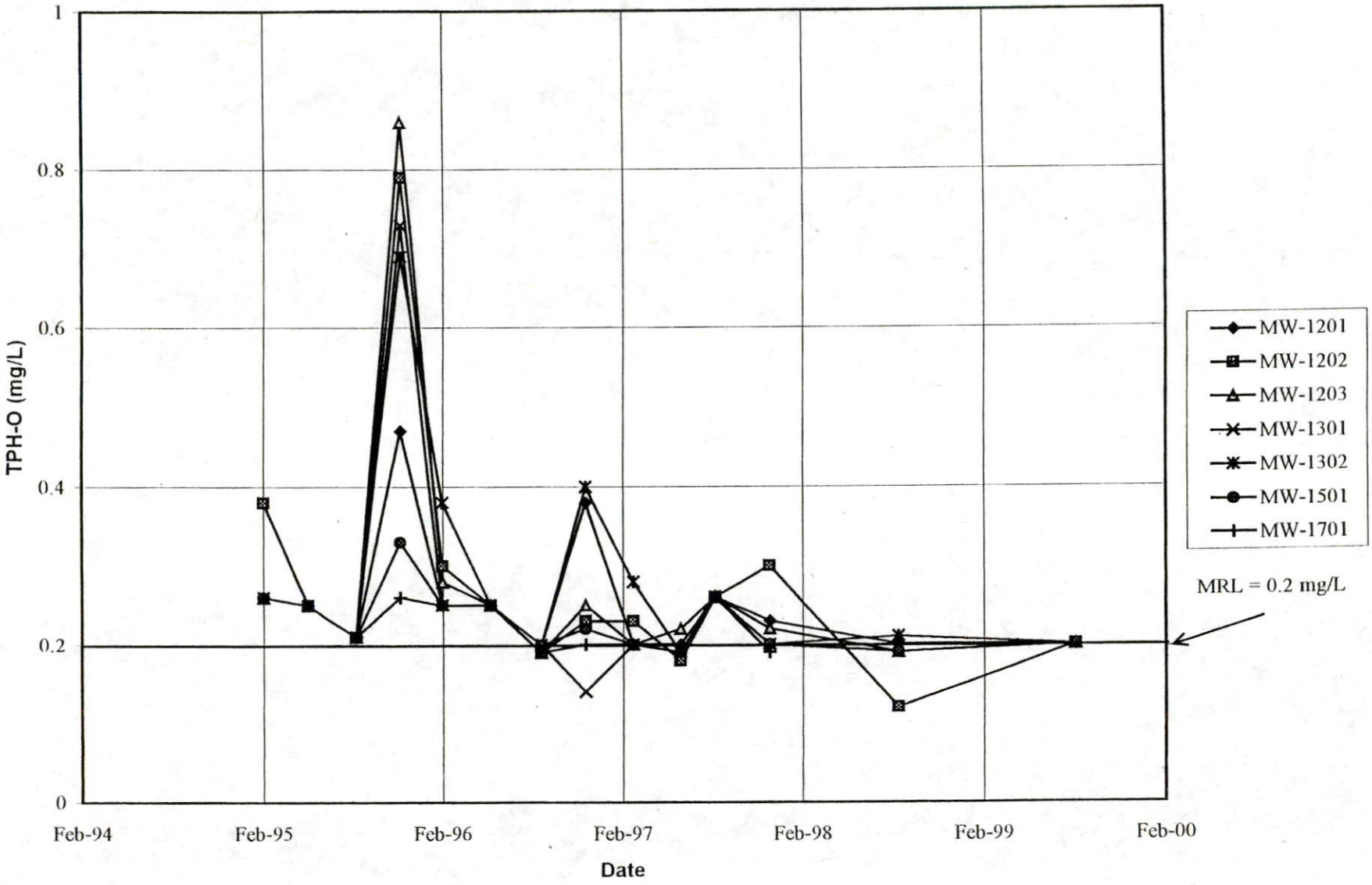
IMAGE Files: <No Images>
XREF Files: <No Xrefs>
/ N:\DWG\40141037\B0085R01.DWG Mon, 27/Sep/99 03:38pm mportocio
Software Project: N:\SOFT\PROJ\<none> Dimscale: 100 Linscale: 86.7 Paperspace: 0

FIGURE 2
WEYERHAEUSER EVERETT WEST SITE
GROUNDWATER COMPLIANCE MONITORING
TPH-D CONCENTRATIONS



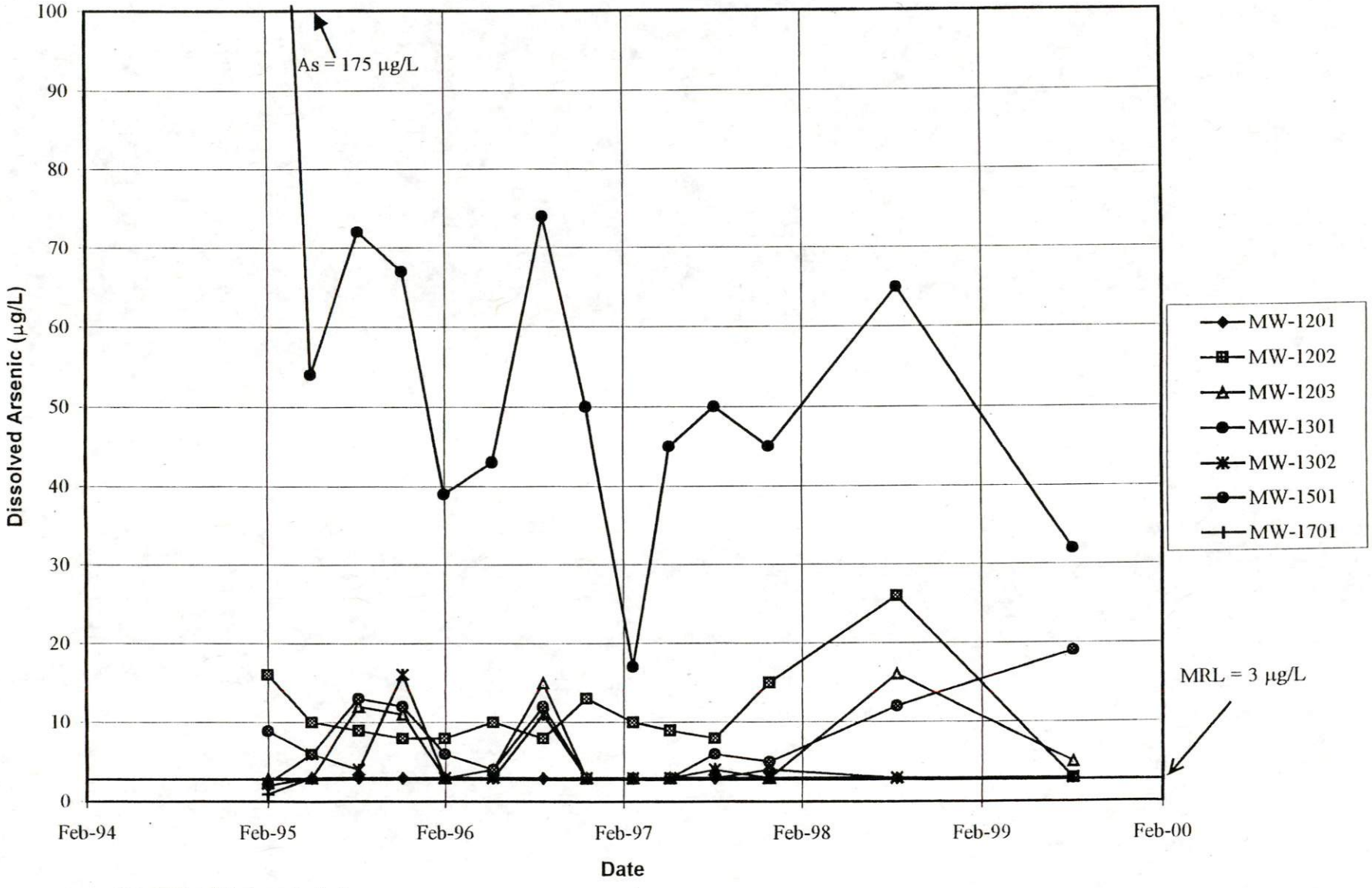
Note: MRL = Method reporting limit

FIGURE 3
WEYERHAEUSER EVERETT WEST SITE
GROUNDWATER COMPLIANCE MONITORING
TPH-O CONCENTRATIONS



Note: MRL = Method reporting limit

FIGURE 4
WEYERHAEUSER EVERETT WEST SITE
GROUNDWATER COMPLIANCE MONITORING
DISSOLVED ARSENIC CONCENTRATIONS



Note: MRL = Method reporting limit

FIGURE 5
WEYERHAEUSER EVERETT WEST SITE
GROUNDWATER COMPLIANCE MONITORING
GROUNDWATER ELEVATIONS

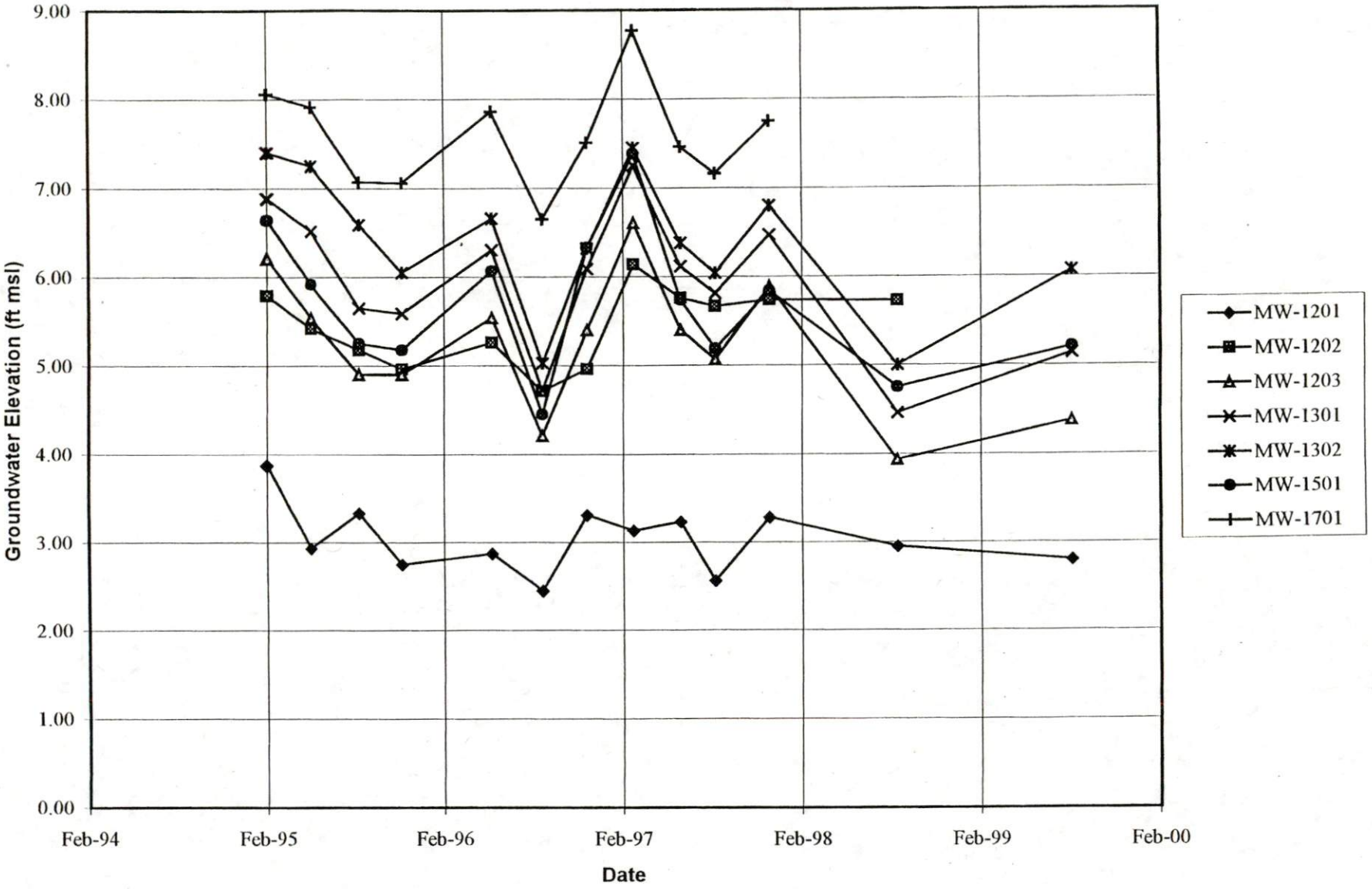


Table 1
Depth to Groundwater Measurements
Weyerhaeuser Everett West Site
August 5, 1999

Well Number	Date Collected	Time	Depth to Water (feet)
MW-1201	08/05/99	1325	12.63
MW-1202	08/05/99	NM	NM
MW-1203	08/05/99	1150	6.37
MW-1301	08/05/99	1500	6.41
MW-1302	08/05/99	1535	6.22
MW-1501	08/05/99	1404	4.98

NOTE: NM = unable to measure water level due to poor condition of well casing.

Table 2

Summary of Groundwater Field Parameters
Weyerhaeuser Everett West Site
August 5, 1999

Monitoring Well	Sample Designation	Date Collected	Time	pH	Conductivity (µmhos)	Temperature (°C)	Dissolved Oxygen (mg/L)
MW-1201	90804WSG-1201	08/05/99	1400	7.03	573	13.7	1.02
MW-1202	90804WSG-1202	08/05/99	1310	6.79	495	15.9	1.57
MW-1203	90804WSG-1203	08/05/99	1225	6.65	655	18.7	1.09
MW-1301	90804WSG-1301	08/05/99	1530	6.70	314	15.5	1.08
MW-1302	90804WSG-1302	08/05/99	1400	6.54	1,360	16.7	1.13
MW-1501	90804WSG-1501	08/05/99	1430	6.67	440	18.3	1.03
Field Dup.[a]	90804WSG-1902	08/05/99	1045	6.79	495	15.9	1.57

[a] Duplicate of MW-1202.

Table 3

August 1999 Sample Results
Weyerhaeuser Everett West Site

SITE	DATE	RESULT TYPE	TPH (as diesel) (mg/l)	TPH (as motor oil) (mg/l)	Dissolved Arsenic (mg/l)
MW-1201	08/05/99	Prim	0.36 J	<0.20	<0.003
MW-1202	08/05/99	Prim	0.51 J	<0.20	<0.003
MW-1202	08/05/99	Dup 1	0.49 J	<0.20	<0.003
MW-1203	08/05/99	Prim	0.39 J	<0.20	0.005
MW-1301	08/05/99	Prim	0.37 J	<0.20	0.032
MW-1302	08/05/99	Prim	0.56 J	<0.20	<0.003
MW-1501	08/05/99	Prim	0.44 J	<0.20	0.019

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

mg/l = milligrams per liter; TPH = total petroluem hydrocarbons

J = estimated value due to field blank contamination

Table 4

August 1999 Field Blank Sample; TPH Results
Weyerhaeuser Everett West Site

SAMPLING EVENT: 99-WEST (08/01/99 to 08/30/99)
SAMPLE TYPE: Water
TCL ID: WEST-ALL
PF CODE: Total
LAB ID: WEYCO

	SAMPLE INFORMATION	FIELD BLANK 1			
	CASE ID	1770			
	BLANK ID	FIELD			
	FIELD SAMPLE ID	90804-WSG-1901			
	LAB SAMPLE ID	99-1770-008			
COMPOUNDS		(mg/l)			
TPH (as diesel)		0.34			
TPH (as motor oil)		<0.20			

< = Not detected at indicated reporting limit

BLANK ID: Field Blank = Field Blank Id
Rinsate Blank = SDG No
Travel Blank = Custody Id
Method Blank = Batch No
Lab Blank = Batch No

Table 4

August 1999 Field Blank Sample; Dissolved Arsenic Results
Weyerhaeuser Everett West Site

Date: 09/24/99

SAMPLING EVENT: 99-WEST (08/01/99 to 08/30/99)
SAMPLE TYPE: Water
TCL ID: WEST-AS
PF CODE: Total
LAB ID: WEYCO

	SAMPLE INFORMATION	FIELD BLANK 1			
	CASE ID	1770			
	BLANK ID	FIELD			
	FIELD SAMPLE ID	90804-WGD-1901			
	LAB SAMPLE ID	99-0852-008			
COMPOUNDS		(mg/l)			
Arsenic		<0.003			

< = Not detected at indicated reporting limit

BLANK ID: Field Blank = Field Blank Id
Rinsate Blank = SDG No
Travel Blank = Custody Id
Method Blank = Batch No
Lab Blank = Batch No

ATTACHMENT A

FIELD SAMPLING DATA SHEETS, CHAIN-OF-CUSTODY AND REQUEST FOR ANALYSES FORMS, LABORATORY REPORTS, AND DATA VALIDATION REPORT

DATA VALIDATION REPORT
WEYERHAEUSER EVERETT WEST SITE
FOURTEENTH ROUND GROUNDWATER COMPLIANCE MONITORING
AUGUST 1999

DATA QUALIFICATIONS

The following report summarizes the Weyerhaeuser Everett West Site data validation review for six groundwater samples, plus one field duplicate and one field blank, collected on August 5, 1999. Samples were analyzed by Weyerhaeuser Analytical and Testing Services in Tacoma, Washington and reported under service request number 99-1770. All of the groundwater samples were analyzed for dissolved arsenic and total petroleum hydrocarbons as diesel (TPH-D) and as heavy oil (TPH-O). Data validation was conducted following procedures specified in the Compliance Monitoring Plan. Samples were generally labeled as directed by Weyerhaeuser, except the monitoring well designation was omitted and the sample labels indicate that the samples were collected on August 4, 1999 instead of August 5, 1999 (e.g., the sample from monitoring well MW-1201 was labeled "90804WSG-1201" instead of "90805WSGMW-1201"). The field duplicate sample, collected from well MW-1202, was labeled "90804WSG-1902." The field blank sample was labeled "90804WSG -1901."

HOLDING TIMES

All arsenic and TPH analyses were conducted within holding time limits.

METHOD BLANKS AND FIELD BLANKS

TPH and dissolved arsenic were not detected at or above the method reporting limit (MRL) in the laboratory method blank. TPH-O and dissolved arsenic were not detected at or above the MRL in the field blank. TPH-D was detected in the field blank at a concentration of 0.34 milligrams per liter (mg/L). TPH-D was also detected in all the groundwater samples at concentrations ranging from 0.37 to 0.56 mg/L. Based on USEPA guidelines, an estimated (J) qualifier was added to all of the TPH-D groundwater results for the August 5, 1999 sampling results based on field blank contamination.

SURROGATE RECOVERY

All of the surrogate recoveries reported for the TPH analyses were within QC criteria.

DUPLICATE RESULTS

A field duplicate sample was collected from MW-1202 (90804WSG-1202 and 90804WSG-1902). Results were within QC criteria.

Laboratory duplicate analysis of dissolved arsenic was within USEPA guidelines.

OVERALL ASSESSMENT OF DATA

All requested analyses were conducted and the data are 100 percent complete. Estimated (J) qualifiers were added to all TPH-D sample results based on field blank results. The data are judged to be acceptable for their intended use with the qualification.

Weyerhaeuser

32901 Weyerhaeuser Way South
Federal Way WA 98003
Tel (253) 924-6872
Fax (253) 924-6654

September 1, 1999

Ms. Kelly Rankich
EMCON
18912 North Creek Parkway, Suite 100
Bothell, WA 98011

Dear Kelly:

Please find attached a copy of our final report for the samples you requested we analyze for Everett West Site. These are from our service request number 99-1770. These results were sent to you via E-Mail this afternoon. 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

H:\ADMIN\ADMIN\CVRLTR\rankich.DMC.doc

SR Title : Everett West Site water samples 40141-090.001(9)
Number of Samples : 8

Submitter Name : Rankich, Kelly
Submitter Address : Bothell, WA
Submitter Phone : 425-485-5000
Charge Number : 046-5648
PO Number : OOE# 70439

Date Received : 08/06/99
Date Desired : 08/27/99
Hardcopy Format :
Disk Format :

Reviewer : Catalano, Dennis
Reviewer Address : WTC 2F25
Reviewer Phone : 6242

ORB Number :
Date Completed :

Copy to :
Comments/Notes : samples labeled 8/4 actually sampled 8/5

Reference SR : 98-0852

Revisions :

Test Name	Test Description	Component List
1-TPHDNW-W	NWTPH-D/Water Prep	
3-GM-W3020	GF/ICPMS Tot Dig W	
DIESEL-NW	Diesel in H2O NWTPHD	
GFAA-AS AS-DIS-W	Arsenic by GFAA	Dissolved Arsenic on Water

Lab ID	Client Sample ID	Date Sampled	Test Name	
001	90804-WSG-1203	08/05/99 1225	1-TPHDNW-W	
			3-GM-W3020	
			DIESEL-NW	
			GFAA-AS	AS-DIS-W
002	90804-WSG-1202	08/05/99 1310	1-TPHDNW-W	
			3-GM-W3020	
			DIESEL-NW	
			GFAA-AS	AS-DIS-W
003	90804-WSG-1201	08/05/99 1400	1-TPHDNW-W	

			3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W
004	90804-WSG-1501	08/05/99 1430	1-TPHDNW-W 3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W
005	90804-WSG-1902	08/05/99 1045	1-TPHDNW-W 3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W
006	90804-WSG-1301	08/05/99 1530	1-TPHDNW-W 3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W
007	90804-WSG-1302	08/05/99 1630	1-TPHDNW-W 3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W
008	90804-WSG-1901	08/05/99 1645	1-TPHDNW-W 3-GM-W3020 DIESEL-NW GFAA-AS	 AS-DIS-W

Group	Test Name	No. of Samples	Cost per Sample($)	Cost Mult	Line Total
CHROM	1-TPHDNW-W	8	0.00	1.00	0.00
CHROM	DIESEL-NW	8	79.00	1.00	632.00
	Total CHROM Charges ($)				632.00
METALS	3-GM-W3020	8	30.00	1.00	240.00
METALS	GFAA-AS AS-DIS-W	8	10.00	1.00	80.00
	Total METALS Charges ($)				320.00

Ref #	Group	Memo Charge Description	Notes/PO Number	Line Total($)

Cost Summary

Total Test Charges ($)	952.00
Total Memo Charges ($)	0.00
Total Charges for Service Request ($)	952.00

Weyerhaeuser

Analytical & Testing Services

Date: 8/99

Sample Analysis Request/Chain of Custody Form

Page 1 of 1

Facility: Everette - West

Sampler's Project No.: 110411-090.001(9)

Weyerhaeuser Account No.: WO# OOE#: 70479

Sampled by:
- ☐ Facility
- ☐ E&AS/WTC
- ☐ E&AS/NB

Consultant: Encon - 18912 N. Creek Parkway
Address: Bothell, WA. 98011-8016
Phone No.: (425) 485-5000 FAX: (425) 486-9766

Project Manager (print): Kelly Rankich

Sampler Name (print): Greg Sandberg

Recorded By (signed): Greg Sandberg

Sample Description (ID, Date, Time are Required)

Method	Field Sample ID (15 characters max.)	Date (m/d/y)	Time (hh:mm)	Depth (ft / m)	Matrix: Water	Soil/Sed	Oil	Preservative: HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$		Filtered	Number of Containers
	90804-WSG-1203	8-4-99	1225	—	X					X			AS	2
	" " -1202		1310	—	X					X			AS	2
	" " -1201		1400	—	X					X			AS	2
	" " -1501		1430	—	X					X			AS	2
	" " -1902		1015	—	X					X			AS	2
	" " -1301		1530	—	X					X			AS	2
	" " -1302		1550	—	X					X			AS	2
	" " -1901	↓	1645	—	X					X			AS	2

Method: G, grab; D, depth composite; T, time composite. Depth required for soil or sediment samples.

Analyses Requested (circle or write in parameters)

pH Cond TDS TSS Color Tannins	Volatile Organics / BTEX	Semi-volatile Organics	TPH: 418.1 TPH-G WTPH-DX	Ca Mg Na K Fe Mn	Metals (list below)	NH_3 HCO_3 CO_3 Cl F NO_3 SO_4	AOX	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	Dissolved Arsenic (200.9)				Notes
			X										X				
			X										X				
			X										X				
			X										X				
			X										X				
			X										X				
			X										X				
			X										X				

Remarks/Detection Limit Requirements

- Dissolved Arsenic was field filtered (Method 200.9)
- WTPH-Dx
- HNO_3 in Diss Arsenic

(Note - All Samples labeled 8/4, but actually Sampled 8/5 - GS)

☒ Samples on Ice or Blue Ice

Lab Turn-Around Time
- ☐ 24 Hr ☐ 48 Hr ☒ 7 Day
- ☐ 2-3 wk Date Due: 2 WK

Reporting and QA/QC Requirements

RESULTS TO: Kelly Rankich - Encon

cc: PDMS

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

Laboratory
- ☒ WATS/WTC ☐ WATS/NB
- ☐ Other:

Lab SR#:

Case ID:

SDG ID:

Sample Chain of Custody and Shipping Method Record

	Date	Time		
Relinquished By Sampler (signature):	8/6/99	0920	Received By (signature): R Wilson	Shipping Method
Relinquished By (signature):	Date	Time	Received By (signature):	Airbill No.
Relinquished By (signature):	Date	Time	Received For Laboratory By (signature): Victoria Kennedy	8/6/99 10:00a

Samples Received Intact: OK

Cooler Temp: 4 °C

WATS/WTC: 32901 Weyerhaeuser Way South, Federal Way, WA 98003 (206-924-6293)

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

Form 16307 (2/96) Printing Services TP Tacoma

253

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

Service Request 99-1770

Report

Everett/EMCON West Site Water Samples

Client ID	Date Sampled	Time Sampled	Lab ID	Dissolved As
				(µg/L)
90804-WSG-1203	08/05/99	1225	001	5
90804-WSG-1202	08/05/99	1310	002	< 3
90804-WSG-1201	08/05/99	1400	003	< 3
90804-WSG-1501	08/05/99	1430	004	19
90804-WSG-1902	08/05/99	1045	005	< 3
90804-WSG-1301	08/05/99	1530	006	32
90804-WSG-1302	08/05/99	1630	007	< 3
90804-WSG-1901	08/05/99	1645	008	< 3
Method Blank				< 3

Quantitation Limit: 3
Method Number: AM1-3020/3113B
Date Analyzed: 8/18-19/99

Approved: Mary Beth Lanza
Telephone: (253) 924-6013

Revised Date: 08/23/99

08-23-99

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

Service Request 99-1770

Report

Everett/EMCON West Site Water Samples

Duplicate Report

Element	Sample 001 Found	Duplicate 001 Found	RPD
		µg/L	
As	5	5	0

Water Laboratory Control Sample Report

Element	Sample Found	True Value	Lower Limit	Upper Limit	% Recovery
			µg/L		
As	43.7	47.5	39.4	55.6	92

Spike Recovery Report

Element	Sample 002 Found	Spike 002 Found	Net Spike	Spike Level	% Recovery
			µg/L		
As	< 3	19.5	20	20	98

Approved: Mary Beth Lanza
Telephone: (253) 924-6013

Date: 08/23/99

08-23-99

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

Service Request 99-1770

Report
Weyerhaeuser Everett West Site Water Samples

Client ID	90804-WSG-1203	90804-WSG-1202	90804-WSG-1201
Sample Date and Time	8/5/99 12:25	8/5/99 13:10	8/5/99 14:00
Lab ID	001	002	003
	mg/L	mg/L	mg/L
Analyte			
Diesel Fuel Range	0.39	0.51	0.36
Motor Oil Range	< 0.20	< 0.20	< 0.20
Reporting Limit	mg/L	mg/L	mg/L
Diesel Fuel Range	< 0.078	< 0.078	< 0.078
Motor Oil Range	< 0.20	< 0.20	< 0.20
Surrogate (%recovery)			
o-Terphenyl	97%	100%	102%
Date Extracted	8/9/99	8/9/99	8/9/99
Date Analyzed	8/16/99	8/16/99	8/16/99

Method: WTPH-D

Approved: Dennis Catalano
Telephone: (253)-924-6242 Date: 9/1/99

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

Service Request 99-1770

Report
Weyerhaeuser Everett West Site Water Samples

Client ID	90804-WSG-1501	90804-WSG-1902	90804-WSG-1301
Sample Date and Time	8/5/99 14:30	8/5/99 10:45	8/5/99 15:30
Lab ID	004	005	006
	mg/L	mg/L	mg/L
Analyte			
Diesel Fuel Range	0.44	0.49	0.37
Motor Oil Range	< 0.20	< 0.20	< 0.20
Reporting Limit	mg/L	mg/L	mg/L
Diesel Fuel Range	< 0.078	< 0.078	< 0.078
Motor Oil Range	< 0.20	< 0.20	< 0.20
Surrogate (%recovery)			
o-Terphenyl	103%	98%	101%
Date Extracted	8/9/99	8/9/99	8/9/99
Date Analyzed	8/16/99	8/16/99	8/16/99

Method: WTPH-D

Approved: Dennis Catalano
Telephone: (253)-924-6242 Date: 9/1/99

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

Service Request 99-1770

Report
Weyerhaeuser Everett West Site Water Samples

Client ID	90804-WSG-1302	90804-WSG-1901	Blank
Sample Date and Time	8/5/99 16:30	8/5/99 16:45	
Lab ID	007	008	DBL1_S030499
	mg/L	mg/L	mg/L
Analyte			
Diesel Fuel Range	0.56	0.34	< 0.078
Motor Oil Range	< 0.20	< 0.20	< 0.20
Reporting Limit	mg/L	mg/L	mg/L
Diesel Fuel Range	< 0.078	< 0.078	< 0.078
Motor Oil Range	< 0.20	< 0.20	< 0.20
Surrogate (%recovery)			
o-Terphenyl	102%	94%	100%
Date Extracted	8/9/99	8/9/99	8/9/99
Date Analyzed	8/16/99	8/16/99	8/16/99

Method: WTPH-D

Approved: Dennis Catalano
Telephone: (253)-924-6242 Date: 9/1/99

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

Service Request 99-1770

Report
Weyerhaeuser Everett West Site Water Samples

Client ID	Fortified Blank
Sample Date and Time	
Lab ID	DLC1_S030499
	% Recovery
Analyte	
Diesel Fuel Range	99%
Motor Oil Range	-
Reporting Limit	mg/L
Diesel Fuel Range	< 0.078
Motor Oil Range	< 0.20
Surrogate (%recovery)	
o-Terphenyl	96%
Date Extracted	8/9/99
Date Analyzed	8/16/99

Method: WTPH-D

Approved: Dennis Catalano
Telephone: (253)-924-6242 Date: 9/1/99

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T Other:	Facility Snake-Hart	Site ID MW-1201
	Project No. 90141-090(201)(9)	Date (m/d/y) 8.4.99

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

Air Temp: 70° ☐ °C ☑ °F	Weather: Sunny / Pc Cloudy
Well Locked? ☑ yes ☐ no	Damaged/Repairs Needed: – replaced lock (Rusted Shut)
☑ TOC ☐ MP Description: Stickup	
TOC/MP Stickup: ☑ ft ☐ m above/below ground	Well Inside Diameter (ID): ☑ 2-inch ☐ 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☑ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 19.8

☑ E-Tape, #_____ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1325						
Depth to Water	12.63						
Tape Correction	—						
Water Level (WL)	12.63						
Product Thickness	—						
Product Recovery ☐ gallons ☐ liters	NA						

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: ≈ 16' bgs ☐ Grab ☐ Bailer ☑ Pump Description: Point Inlet

Casing Volume: [19.8 (TD) - 12.63 (WL)] • [7.17 (Well ID)]² • [.163 (Conversion Factor)] = 1.16 ☑ 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	1.54 l/min					(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)	1339	1342	1345	1348				
pH (Temperature Corrected? ☐)	7.30	7.26	7.10	7.03			YSI-3	
Temperature ☐°C ☐°F	13.8	13.9	13.6	13.7			YSI	
Dissolved Oxygen mg/L	1.14	1.03	1.03	1.02			YSI	
☐ SC or ☑ EC µS/cm	573	574	573	573			YSI	
Turbidity ☐ NTU	clear w/	larger sand size	silica Particulates					
Color/Tint	clear	"	"	"				
Odor	NIO	"	"	NIO				

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: ≈ 16' bgs ☐ Grab ☐ Bailer ☑ Pump Description: Point Inlet

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
90804-WSH-1201	P0	8.4.99	1400	2	AK				

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.

Sampler's Name (print) Lance Smathers	Signature

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T	Facility Everett West	Site ID MW-1202
Other:	Project No. 40X11-090.001 (A)	Date (m/d/y) 8/13/99

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: ☐ ft ☐ m above/below ground	Well Inside Diameter (ID): ☐ 2-inch ☐ 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data
Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 20'

☒ E-Tape, #___ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1230						
Depth to Water	→ Well	clocked/bit @		5.48 bgs (TOC) - Not able			
Tape Correction	to get water	meter through, but able to get					
Water Level (WL)	following &		sample				
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: ≈ 15' bgs ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [20 (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	< .5 L/min					(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)	1253	1257	1300	1304				
pH (Temperature Corrected? ☒)	7.38	6.91	6.83	6.79				
Temperature ☐°C ☐°F	16.4	16.1	15.9	15.9				
Dissolved Oxygen mg/L	2.01	1.84	1.69	1.57				
☐ SC or ☒ EC µS/cm	490	496	496	495				
Turbidity ☐ NTU	Slightly turbid		"	"				
Color/Tint	Brown Particulates	"	"					
Odor	NNO	"	NNO	NNO				

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: ☐ Grab ☐ Bailer ☐ Pump Description:

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
90804-WEG-1202	P0	8-4-99	1310	2	As				
90804-WEG-1902		8.4.99	1045	2	As				Trip blank

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.

Sampler's Name (print) Greg Gundlberg	Signature [signature]

Form 18900 (R9/95) Dierickx Printing Services Tukwila

Date Entered into Database ________ By ____

Page ___ of ___

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T Other:	Facility Everette - West	Site ID MW-1203
	Project No. 0114-090.001.(19)	Date (m/d/y) 8/5/99

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

Air Temp: 65 ☐ °C ☒ °F	Weather: PC, Cloudy/Sun
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed: N - OK
☒ TOC ☐ MP Description: Flush mount	
TOC/MP Stickup: ☐ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 9.4

☒ E-Tape, #_____ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1150						
Depth to Water	6.37						
Tape Correction	—						
Water Level (WL)	6.37						
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: ≈8' bmp ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [9.4 (TD) - 6.37 (WL)] • [3.03 (Well ID)]² • [.1163 (Conversion Factor)] = .49 ☒ 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	0.5 L/min					(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)	1207	1210	1213	1216				
pH (Temperature Corrected? ☒)	6.08	6.46	6.57	6.65			DSPH3	
Temperature ☒ °C ☐ °F	17.9	18.1	18.3	18.7			ORION	
Dissolved Oxygen mg/L	1.23	1.11	1.06	1.09			ORION	
☐ SC or ☒ EC µS/cm	687	669	657	655			DSP4.3	
Turbidity ☐ NTU	clear w/ a few small sized	"	"	algae chunks				
Color/Tint	colorless	"	"	Colorless				
Odor	NNO	"	"	NNO				

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: ≈8' Bmp ☐ 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
90804-W54-1203	PO	8/5/99	1225	2	met.				
[redacted]									BF

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.

Sampler's Name (print) Jason Swallberg	Signature

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T Other:	Facility Everett - West	Site ID MW-1301
	Project No. 10141-090.001 (9)	Date (m/d/y) 8-3-99

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

Air Temp: 70°	☐ °C ☒ °F	Weather: Sunny
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed: No	
☐ TOC ☐ MP Description: flushmount		
TOC/MP Stickup: ☒ ft ☐ m above/below ground	Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:	
Site Remarks (nearby wells pumping, tide, stream stage, etc.)		

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 9.40

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1580						
Depth to Water	6.41						
Tape Correction	—						
Water Level (WL)	6.41						
Product Thickness	N/A						
Product Recovery ☐ gallons ☐ liters	N/A						

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: ≈ 7.5' bgs ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [9.41 (TD) - 6.41 (WL)] = [2.99 (Well ID)]^2 • [.163 (Conversion Factor)] = .48 ☒ 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 (hh:mm; 24-hr clock)	1509	1513	1516					
pH (Temperature Corrected? ☒)	7.04	6.77	6.70					
Temperature ☒ °C ☐ °F	15.7	15.5	15.5					
Dissolved Oxygen mg/L	1.20	1.09	1.08					
☐ SC or ☒ EC µS/cm	311	311	314					
Turbidity ☐ NTU	Slightly turbid - light colored	"	"	Sand sized	Particulates			
Color/Tint	Clear/light	"	"					
Odor	N/O.	N/O	N/O.					

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: ≈ 7.5' bgs ☐ 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
990804-WS4-1301	P0	8-4-99	1530	2	DISS AS.				

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.

Sampler's Name (print) Lou Soundberg	Signature

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T Other:	Facility Everett West	Site ID MW-302
	Project No. 40141-090.001/9	Date (m/d/y) 8-5-99

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

Air Temp: 70° ☐ °C ☒ °F	Weather: Sunny
Well Locked? ☒ yes ☐ no	Damaged/Repairs Needed: Lid Locker - Replaced
☐ TOC ☐ MP Description: Flush mount	
TOC/MP Stickup: ☑ ft ☐ m above/below ground	Well Inside Diameter (ID): ☐ 2-inch ☐ 4-inch Other:
Site Remarks (nearby wells pumping, tide, stream stage, etc.)	

Water Level Data Measurement Units: ☑ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 9.4

☐ E-Tape, #_____ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1535						
Depth to Water	6.22						
Tape Correction	—						
Water Level (WL)	6.22						
Product Thickness	0						
Product Recovery ☐ gallons ☐ liters	N/A						

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: 8' bgs ☐ Grab ☐ Bailer ☑ Pump Description: Peristaltic

Casing Volume: [9.4 (TD) - 6.22 (WL)] • [3.18 (Well ID)]² • [.163 (Conversion Factor)] = .52 ☒ 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
	1.5 L/min							
Time (hh:mm; 24-hr clock)	1545	1549	1552	1556				
pH (Temperature Corrected? ☒)	6.46	6.51	6.52	6.51			DSM3	
Temperature ☒ °C ☐ °F	17.1	16.8	16.8	16.7			ORION	
Dissolved Oxygen mg/L	1.14	1.09	1.12	1.13			ORION	
☐ SC or ☒ EC µS/cm	1170	1280	1331	1360			DSM3	
Turbidity ☐ NTU	Clear w/a few rust	sand size	Above	Particulates				
Color/Tint	colorless	w/ rust	Particulates	"				
Odor	NNO	"	"	NNO				

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: 8' bgs ☐ 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
90804-WSH-1302	PO	8-4-99	1400	2	Bags				

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.

Sampler's Name (print) Greg Goodhart	Signature

Date Entered into Database_____ By_____

WEYERHAEUSER GROUNDWATER SAMPLING RECORD

Sampled By ☐ Facility Personnel ☐ ES&T	**Facility** Plymouth - West	**Site ID** 1501
Other:	**Project No.** 40141-090.00 (a)	**Date (m/d/y)** 8/4/99

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

Air Temp: 70° ☐ °C ☒ °F Weather: Sunny

Well Locked? ☒ yes ☒ no Damaged/Repairs Needed: Monument 1/2 bolt missing tube broken - replace monument

☐ TOC ☐ MP Description:

TOC/MP Stickup: ☒ ft ☐ m above/below ground Well Inside Diameter (ID): ☒ 2-inch ☐ 4-inch Other:

Site Remarks (nearby wells pumping, tide, stream stage, etc.)

Water Level Data Measurement Units: ☒ ft ☐ m Well or Borehole Total Depth (TD) from MP or TOC: 9.5

☒ E-Tape, #___ ☐ Steel Tape ☐ Other	Pre-Purge Initial	Pre-Purge Confirmation	Purging Start	During Purging	Purging End	After Sampling	Remarks
Time (hh:mm; 24-hr clock)	1404						
Depth to Water	4.98						
Tape Correction	—						
Water Level (WL)	4.98						
Product Thickness	—						
Product Recovery ☐ gallons ☐ liters	N/A						

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: ≈ 7.5' bgs ☐ Grab ☐ Bailer ☒ Pump Description: Peristaltic

Casing Volume: [9.5 (TD) - 4.98 (WL)] • [4.52 (Well ID)]² • [.163 (Conversion Factor)] = .73 ☒ gal ☐ liters — Well Goes Dry While Purging ☐

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

☐ Cum. Vol. Purged ☒ Pumping Rate	.25L/min					(Final)	Meter Type	Remarks
Time (hh:mm; 24-hr clock)	1418	1421	1425					
pH (Temperature Corrected? ☐)	6.60	6.64	6.67			DSP4.3		
Temperature ☒ °C ☐ °F	17.7	18.1	18.3			ORION		
Dissolved Oxygen mg/L	1.01	1.00	1.03			ORION		
☐ SC or ☒ EC µS/cm	413	410	410			DSP4.3		
Turbidity ☐ NTU	Very Slightly turbid		(Cloudy)					
Color/Tint	Slight brown tint		"					
Odor	N/NO	N/NO	N/NO.					

Record time purging starts and ends in "Purging Start" and "Purging End" columns in Water Level Data section. Cum. Vol. Purged: cumulative volume 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 before sampling or average 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: ≈ 7.5' bgs ☐ 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
90804-[illegible]-1501	P0	8-4-99	1430	2	Dis.As				

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.

Sampler's Name (print) Greg [illegible] Signature [signature]

Form 18900 (R9/95) Dierickx Printing Services Tukwila Date Entered into Database _____ By _____ Page 1 of __