PES Environmental, Inc.
Engineering & Environmental Services

June 6, 2011

920.071.01

Weyerhaeuser NR Company
PO Box 9777
Mail Stop EC2 2C1
Federal Way, Washington 98063

Attention: Mr. Ken Johnson

GROUNDWATER SAMPLING RESULTS – DECEMBER 2010 & MARCH 2011
WEYERHAEUSER EVERETT EAST SITE
EVERETT, WASHINGTON
CONSENT DECREE 97-2027738

Dear Mr. Johnson:

PES Environmental, Inc. (PES) has prepared this letter to document the results of the December 2010 and March 2011 groundwater sampling activities conducted at the Weyerhaeuser NR Company (Weyerhaeuser) Everett East Site. The groundwater sampling events were conducted to comply with the State of Washington Department of Ecology's (Ecology's) request to conduct eight consecutive quarters of confirmational monitoring from one remaining on-site groundwater monitoring well (MW-RA-8-3). The following information summarizes the results of our work.

Site Background. Weyerhaeuser Everett East site is comprised of a 72-acre parcel located along the western bank of the Snohomish River in Everett, Washington. The site was formerly occupied by a lumber and sawmill complex. Weyerhaeuser entered into a Consent Decree (No. 97-2027738) with Ecology in 1997, which required environmental investigation, remediation, and confirmational groundwater monitoring to be conducted at the site. Environmental activities in compliance with the Consent Decree, including groundwater monitoring, were conducted between 1997 and 2005. In August 2005, with Ecology's approval, eight of the nine site groundwater monitoring wells were abandoned. One well, MW-RA-8-3, was left in place due to periodic detections of pentachlorophenol (PCP) that exceeded the applicable cleanup level of 7.29 micrograms per liter (µg/L). To comply with the conditions set forth in the Consent Decree, Ecology requested that groundwater sampling be conducted until PCP concentrations remain below the cleanup level of 7.29 µg/L for eight consecutive quarters. In April 2009, Ecology approved Weyerhaeuser's request to resume quarterly monitoring in well MW-RA-8-3 for PCP as the sole contaminant of concern.

Quarterly Groundwater Sampling Activities. The seventh and eighth quarterly groundwater monitoring events were conducted on December 29, 2010 and March 22, 2011, respectively. During each monitoring event, one groundwater sample (identified as "MW-RA-8-3-[date]") was collected from monitoring well MW-RA-8-3. The samples were collected using United States Environmental

Protection Agency (USEPA) low flow protocols, including the collection of field measurements for pH, conductivity, dissolved oxygen, and temperature to ensure that the sample was representative of aquifer conditions. Field measurements collected during the events are presented on Groundwater Sampling Forms (Attachment A).

Laboratory Analytical Results. The groundwater samples were delivered for quantitative analysis to Weyerhaeuser Analysis and Testing Services (WATS), a state-approved laboratory located in Federal Way, Washington. The December 2010 sample (identified as "MW-RA-8-3-122910") and the March 2011 sample (identified as "MW-RA-8-3-032211") were delivered to WATS on December 29, 2010 and March 22, 2011, respectively. Laboratory analysis was performed for PCP by USEPA Method 8270C. The laboratory analytical data was reviewed in accordance with USEPA data validation guidelines. Copies of the WATS analytical laboratory reports (10-1935 and 11-0418) and data validation memoranda are included in Attachment B.

Laboratory analytical results indicate that PCP was not detected at or above the Method Reporting Limit (MRL) of 5.0 µg/L in the December 2010 and March 2011 groundwater samples. The December 2010 and March 2011 analytical results are presented in Table 1, along with a summary of additional PCP sampling results obtained since 2005.

Summary of Results and Notification of Completion. PCP was not detected above the MRL (5.0 µg/L) in the groundwater samples collected from MW-RA-8-3 on December 29, 2010 and March 22, 2011.

The December 2010 and March 2011 results represent the seventh and eighth consecutive quarters of sampling in which the groundwater PCP concentrations were below both the MRL (0.5 µg/L) and the applicable PCB cleanup level of 7.29 µg/L. This fulfills Ecology's requirement for eight consecutive quarters of groundwater results below the cleanup level. Thus, the March 2011 activities conclude the groundwater sampling program at the site. PES believes that with the completion of the groundwater sampling program, the final conditions of the Consent Decree have been satisfied and as such, the Consent Decree can be terminated.

PES appreciates the opportunity to assist Weyerhaeuser with this project. Please call one of the undersigned at (206) 529-3980 if you have any questions.

Sincerely,

PES ENVIRONMENTAL, INC.

Daniel A. Balbiani, P.E.
Principal Engineer

Holly Corner for
Erin Shaver, L.G.
Project Geologist

Enclosures: Table 1: Summary of Analytical Data
Attachment A: Groundwater Sampling Forms – MW-RA-8-3
Attachment B: Laboratory Analytical Data Reports and Data Validation Memos

cc: Mr. Ronald Timm
Mr. Erik Gerking

TABLES

Table 1

Pentachlorophenol Concentration in Groundwater
Everett East Site, Everett, Washington
Weyerhaeuser NR Company

Sample Location	Date Collected	Pentachlorophenol (PCP) ug/L
MW-RA-8-3	9/28/2005[a]	13
	9/14/2006[a]	3J
	9/21/2007[a]	<5.0
	9/23/2008[a]	<5.0
	6/2/2009	<5.0
	9/8/2009	<5.0
	12/16/2009	<5.0
	3/4/2010	<5.0
	6/8/2010	<5.0J
	9/8/2010	<5.0
	12/29/2010	<5
	3/22/2011	<5
	Cleanup Level[b]	7.9

Notes: a) Samples collected by Delta Environmental Consultants, Inc.
b) Washington State Department of Ecology Model Toxics Cleanup Act (MTCA) Method A Cleanup Level.
J = Indicates analyte detected at a concentration below the method reporting limit of 5.0 ug/L or has been qualified based on the data validation review.
ug/L = micrograms per liter

ATTACHMENT A

Groundwater Sampling Forms – MW-RA-8-3

PES Environmental, Inc.

Engineering & Environmental Services

Page:	of
Date/Time:	12/29/10
Project Name:	EAST Everett
Job No:	
Recorded By:	
Sampled By:	

GROUNDWATER SAMPLING FORM

Well Type:	☑ Monitoring	☐ Extraction	☐ Other	Well No: MW-RA-B-3
Well Material:	☑ PVC	☐ Stainless Steel	☐ Other	

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____

Total Depth of Casing (TD in feet below top of casing): _____

Water-Level Depth (WL in feet below top of casing): 7.01

Pump rate: approximately ~150 mL/minute

PURGING METHOD

☐ Bailer - type: _____

☐ Submersible ☐ Centrifugal ☐ Bladder

☑ Peristaltic - Type: Masterflex

PUMP INTAKE SETTING

☑ Bottom ☐ Top ☐ Middle: _____

Depth in feet (BTOC): ~81

Screen interval feet (BTOC) from _____ to _____

FIELD PARAMETER MEASUREMENTS

START TIME: _____ STOP TIME: _____ TOTAL GALLONS REMOVED: _____

Time	Gallons Removed	pH	Conductivity (µmhos/cm)	Temperature (°C)	DTW (feet bgs)	DO	Observations (color, well condition, odor, cloudiness, etc.)
910		9.36	1514	9.6	7.05	1.87	Water Color Clear
915		8.51	925	9.0	NM	0.28	very low TURBidity
920		8.01	860	9.0	NM	0.24	
925		8.01	869	9.0	7.06	0.24	
930		8.01	871	9.0	7.07	0.23	

Notes:

WELL SAMPLING

☐ Bailer ☐ Peristaltic

Sample No.	Time	Volume	Analyses	Bottle Type	Preservative
MW-RA-B-3-122910	930	2 Bottles	PCP	Amber	NO

QUALITY CONTROL SAMPLES

Duplicate Sample No.	Time	Volume	Analyses	Bottle Type	Preservative

Field Blank Sample No.	Time	Volume	Analyses	Bottle Type	Preservative

PES Environmental, Inc.

Engineering & Environmental Services

Page:	1 of
Date/Time:	3/22/11
Project Name:	Everett East
Job No:	
Recorded By:	L Doody
Sampled By:	L Doody

GROUNDWATER SAMPLING FORM

Well Type:	☑ Monitoring	☐ Extraction	☐ Other	Well No: MW-RA-8-3
Well Material:	☐ PVC	☑ Stainless Steel	☐ Other	

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches)

☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____

Total Depth of Casing (TD in feet below top of casing): 11.30

Water-Level Depth (WL in feet below top of casing): 6.93

Pump rate: approximately 200 mL/minute

Duplicate

PURGING METHOD

☐ Bailer - type: _____

☐ Submersible ☐ Centrifugal ☐ Bladder

☑ Peristaltic - Type: MASTERFLEX

PUMP INTAKE SETTING

☐ Bottom ☐ Top ☑ Middle: _____

Depth in feet (BTOC): 28

Screen interval feet (BTOC) from 5 to 10

FIELD PARAMETER MEASUREMENTS

START TIME: _____ STOP TIME: _____ TOTAL GALLONS REMOVED: _____

Time	Gallons Removed	pH	Conductivity (µmhos/cm)	Temperature (°C)	DTW (feet bgs)	DO mg/L	Observations (color, well condition, odor, cloudiness, etc.)
938	41	7.96	391.6	8.7	6.97	1.86	
943		7.52	336.1	8.5	6.97	1.80	Water appears
949		7.35	309.1	8.5	6.97	1.71	Slightly Turbid
952		7.28	300.1	8.5	NM	1.69	
956		7.25	294.4	8.7	NM	1.67	
959		7.25	294.2	8.7	6.97	1.68	

Notes:

WELL SAMPLING

☐ Bailer ☐ Peristaltic

Sample No.	Time	Volume	Analyses	Bottle Type	Preservative
MW-RA-8-3-032211	1020				
MW-RA-8-3-032211	1030	1	Double Filtered AR	Poly	HNO_3

QUALITY CONTROL SAMPLES

Duplicate Sample No.	Time	Volume	Analyses	Bottle Type	Preservative
Field Blank Sample No.	**Time**	**Volume**	**Analyses**	**Bottle Type**	**Preservative**

ATTACHMENT B

Laboratory Analytical Data Reports and Data Validation Memos

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 10-1935
WA Cert. # C1219

Report
Everett East Site - December 2010

Client ID		**MW-RA-8-3-122910**	Method Blank 1/3/2011
Sample Date and Time		12/29/2010 09:30	
Lab ID		10-1935-001	PSBL1W1_010311
		ug/L	ug/L
Analyte	**CAS**		
Pentachlorophenol	87-86-5	<5	<5
Surrogates	**Limits**	%Rec	%Rec
2-Fluorophenol	49-105	65%	66%
Phenol-d5	61-105	73%	75%
Nitrobenzene-d5	59-109	66%	66%
2-Fluorobiphenyl	59-99	70%	70%
2,4,6-Tribromophenol	56-105	**108%***	92%
Terphenyl-d14	64-136	85%	81%
2-Chlorophenol-d4	63-106	72%	75%
1,2-Dichlorobenzene-d4	54-87	59%	62%
Date Extracted		1/3/2010	1/3/2010
Date Analyzed		1/5/2011	1/5/2011

***: Surrogate recovery outside lab QC limits.**

Method: EPA 8270C
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 1/6/2011

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 10-1935
WA Cert. # C1219

Report
Everett East Site - December 2010

Client ID			MW-RA-8-3-122910 Spike	Blank Spike 1/3/2011
Sample Date and Time			12/29/2010 09:30	
Lab ID			10-1935-001MS	PSLC1W1_010311
			% rec	% rec
Analyte	**CAS**	Lab Limits		
Phenol	108-95-2	56-106	76%	77%
2-Chlorophenol	95-57-8	66-100	70%	81%
1,4-Dichlorobenzene	106-46-7	55-80	55%	74%
n-Nitrosodi-n-propylamine	621-64-7	65-107	84%	93%
1,2,4-Trichlorobenzene	120-82-1	56-88	66%	76%
4-Chloro-3-methylphenol	59-50-7	49-117	100%	91%
Acenaphthene	83-32-9	71-103	82%	96%
4-Nitrophenol	100-02-7	58-110	80%	94%
2,4-Dinitrotoluene	121-14-2	63-117	90%	107%
Pentachlorophenol	87-86-5	63-111	98%	96%
Pyrene	129-00-0	67-139	84%	95%
Surrogate		Lab Limits	% rec	% rec
2-Fluorophenol		49-105	69%	75%
Phenol-d5		61-105	80%	82%
Nitrobenzene-d5		59-109	71%	79%
2-Fluorobiphenyl		59-99	73%	83%
2,4,6-Tribromophenol		56-105	**106%***	105%
Terphenyl-d14		64-136	77%	83%
2-Chlorophenol-d4		63-106	75%	85%
1,2-Dichlorobenzene-d4		54-87	70%	73%
Date Extracted			1/3/2010	1/3/2010
Date Analyzed			1/5/2011	1/5/2011

***: Surrogate recovery outside lab QC limits.**

Method: EPA 8270C
Approved: Randy Eatherton Date: 1/6/2011
Telephone: (253) 924-6431

Weyerhaeuser

Service Request

Analytical Chemistry and Microstructure

10-1935

Title: Everett East Site - December 2010

Samples: 1 ***Tests:*** 2 ***Last Samp:*** 001	***Project Number:***	***PO:***
SAP Order Number: 90-0000-2504	***Order Desc:*** 2760-Everett B-Analy Test WY	
Date Received: 12/29/10	***Date Desired:*** 01/19/11	***Date Completed:***
Submitter: Shaver, Erin	***Location:*** Seattle, WA	***Phone:*** (206) 529-3980
Reviewer: Catalano, Dennis	***Location:*** WTC 2F25	***Phone:*** (253) 924-6242
Copy To:		
Record Book:	***Ref Request:*** 10-1390	***Disposal:***
Comments:		

Group	*Analysis*	*Test Description*	*Comp List*	*Component List Description*
CHROM	1-EXT3520B	BNA in Water prep Continuous Liq/Liq 4-P-3520C		
CHROM	BNAW-8270C	BNA in Water by EPA 8270C	BNA-PENTA	BNA 8270C - Pentachlorophenol Only

Sample ID - Date Sampled - Status Customer Sample Description / ID	Analysis: 1-EXT3520B	Analysis: BNAW-8270C
	Component List:	BNA-PENTA
	1	1
10-1935-001 - 12/29/010 0930 - Available MW-RA-8-3-122910	V	V

Form AT200
Rev. Dec 28, 2008

Printed on: Dec 29, 2010 11:00 PM
Data Retrieved: Dec 29, 2010 11:00 PM

Entered by: Catalano, Dennis
Entered on: Dec 29, 2010 1:05 PM

Weyerhaeuser

Service Request

Analytical Chemistry and Microstructure

10-1935

Title: Everett East Site - December 2010

Group	Analysis	Component List	Test Description	No. Tests	Mult	Charge Amount	Line Total
CHROM	1-EXT3520B		BNA in Water prep Continuous Liq/Liq 4-P-3520C	1	1.00	0.00	0.00
CHROM	BNAW-8270C	BNA-PENTA	BNA in Water by EPA 8270C	1	1.00	303.00	303.00

Total charges for CHROM group ($) 303.00

Total charges for Service Request 10-1935 ($) 303.00

Printed on: Dec 29, 2010 11:00 PM
Data Retrieved: Dec 29, 2010 11:00 PM

Entered by: Catalano, Dennis
Entered on: Dec 29, 2010 1:05 PM

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

Sample Analysis Request and Chain of Custody Record

10+1935

Date	12/29
Project Title	East Everett Site
page	1 of 1
Client's Name	PES Environmental
Account Number/Project Number	920.071.01.041
Client's Address	1215 4th Ave Suite 1350 Seattle 98161
Client's Phone Number	206 914 5055
Client's FAX Number	206 829 3985
Client's e-mail address	eshaver@pesenv.com
Project manager (print)	ERIN SHAVER
Sampler Name (print)	Leila Doody
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	PCP
	MW-RA-8-3-122910	12/29/10	09 30	X								X			2	X

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): PCP. Notes:

"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: ERIN SHAVER eshaver@pesenv.com
cc:

report type
- [x] 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
G NEWKIRK 12/29/10 11:38AM

Sample Chain of Custody and Shipping Method Record

Relinquished by Sampler (signature)	Date	Time	Received by (Signature)
[signature]	12/29		[signature]
Relinquished by (signature)	**Date**	**Time**	**Received by Laboratory (Signature)**
			[signature]
Airbill Number	**Cooler Temp**	**Date Received**	**Time Received**
	4°C	12/29/10	1130

Form 16307 (R 9/03)

MEMORANDUM

TO: Weyerhaeuser – Everett East
Project File 920.071.01.001

DATE: March 4, 2011

FROM: Jerry Harris

RE: Review of Water Quality Monitoring Data for Weyerhaeuser Everett East Site, Everett, Washington (Well MW-RA-8-3), December 29, 2010

This report summarizes a review of analytical results for a groundwater sample collected by PES personnel on December 29, 2010 from well MW-RA-8-3, located at the Weyerhaeuser Everett East site in Everett, Washington. A laboratory analysis for pentachlorophenol by United States Environmental Protection Agency (USEPA) Method 8270C was performed on the sample. The analysis was performed by Weyerhaeuser Analysis and Testing Services (WATS), in Federal Way, Washington. WATS report 10-1935 was reviewed.

DATA QUALIFICATIONS

The comments in this review refer to the laboratory's performance in meeting the data review criteria of USEPA's Contract Laboratory Program National Functional Guidelines for Organics Data Review (USEPA, 1999) and method-specific QC guidelines (USEPA, 1983, 1986, 1991).

No data qualifiers were assigned to data in this report.

Data Package

The data package was checked for transcription errors, omissions, or other anomalies. None were noted.

Holding Times and Preservation

The sample was collected using recommended handling and preservation procedures. The sample receipt information provided by the analytical laboratory indicated that the sample in data package 10-1935 was received at a cooler temperature of 4.0 degrees Centigrade (°C). This temperature was within the recommended preservation temperature range of

4.0°C ± 2.0°C. No qualifications to the data in package 10-1935 were made based on the temperature of the sample.

The sample was extracted within five days of sample collection and analyzed within seven days of collection. USEPA Method 8270C holding times for water samples are seven days for extraction and 40 days for analysis. No qualifications were made due to holding time exceedances.

Reporting Limits

The method reporting limit (MRL) for pentachlorophenol was 5.0 micrograms per liter (µg/L). The MRL is acceptable for the intended use of the data. No data was qualified based upon MRLs.

Laboratory Method Blanks

USEPA guidelines recommend the analysis of laboratory method blanks for each type of analysis and matrix at a frequency of one for every 12-hour period, or one per batch. A method blank analysis was performed at the appropriate frequency and no analytes were detected at or above the MRL. No data was qualified.

Surrogate Recovery Results

USEPA guidelines recommend spiking samples analyzed for organic analytes with non-target surrogate compounds and analyzing them to evaluate laboratory performance on individual samples. Surrogate analyses were performed at the recommended frequency. Percent recoveries (%Rs) of surrogate compounds were within laboratory quality control (QC) criteria limits for all surrogates in the project sample and associated QC samples with the following exceptions:

The 2,4,6-tribromophenol surrogate in the project sample had a percent recovery (%R) that exceeded the upper control limit, indicating a potential high bias in the sample results. No target analytes were detected in the project sample; therefore, the potential high bias was not realized. No qualifications were warranted due to the surrogate exceedance.

The 2,4,6-tribromophenol surrogate in the project matrix spike sample had a percent recovery (%R) that exceeded the upper control limit, indicating a potential high bias in the MS sample results. The %R for all spiked target analytes were within the control limits; therefore, the potential high bias was not realized. No qualifications were warranted due to the surrogate exceedance in the MS.

Matrix Spike and Duplicate Matrix Spike Results

USEPA guidelines recommend spiking a sample analyzed for organic or inorganic compounds with target analytes (i.e., a matrix spike [MS]) and analyzing it to evaluate laboratory accuracy, and acceptable compound recovery. A duplicate matrix spike (DMS) is analyzed to evaluate the precision of the laboratory. USEPA guidelines recommend one MS analysis for each 20 organic samples of similar matrix.

A matrix spike sample was prepared from the project sample. The %R for all spiked analytes were within the laboratory control criteria. No qualifications were warranted.

Due to insufficient sample, a matrix spike duplicate was not prepared from the project sample. The lack of a matrix spike duplicate or a sample duplicate under these conditions is not sufficient cause to warrant qualification of the data.

Laboratory Control Sample Results

A laboratory control sample (LCS) is spiked with target analytes and analyzed to provide information on laboratory and analytical method accuracy. The laboratory identified the LCS as a blank spike on the laboratory report. USEPA guidelines recommend analyzing one LCS with each batch and for each method for organic analyses. The LCS analysis was performed at the appropriate frequency and the LCS results were all within the laboratory QC criteria for phenols. No qualifiers were assigned.

Duplicate Results

A sample duplicate or matrix spike duplicate were not prepared due to insufficient sample volume. The lack of a duplicate analysis under these circumstances in not considered sufficient cause to qualify the data. No qualifications were made due to the lack of duplicate results.

OVERALL ASSESSMENT OF DATA QUALITY

The data were judged to be acceptable for their intended use. No data qualifiers were assigned.

REFERENCES

USEPA. 1983. Methods for chemical analysis of water and wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. EPA-530/SW-846.

USEPA. 1991. U.S. Environmental Protection Agency contract laboratory program, statement of work for inorganics and organics analyses, multi-media, multi-concentration. U.S. Environmental Protection Agency.

USEPA. 1999. U.S. Environmental Protection Agency contract laboratory program, national functional guidelines for organics data review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency. EPA 540/R-99/008, October.

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 11-0418
WA Cert. # C1219

Report
Everett East Site - March 2011

Client ID		**MW-RA-8-3-032211**	Method Blank 3/24/2011
Sample Date and Time		3/22/2011 10:20	
Lab ID		11-0418-001	PSBL1W1_032411
		ug/L	ug/L
Analyte	**CAS**		
Pentachlorophenol	87-86-5	<5	<5
Surrogates	**Limits**	%Rec	%Rec
2-Fluorophenol	56-106	64%	66%
Phenol-d5	64-109	83%	80%
Nitrobenzene-d5	61-106	69%	85%
2-Fluorobiphenyl	64-96	74%	69%
2,4,6-Tribromophenol	69-108	93%	**64%***
Terphenyl-d14	70-139	86%	87%
2-Chlorophenol-d4	66-108	74%	73%
1,2-Dichlorobenzene-d4	52-86	63%	69%
Date Extracted		3/24/2011	3/24/2011
Date Analyzed		4/4/2011	4/4/2011

***: Surrogate recovery outside lab QC limits.**

Method: EPA 8270C
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 4/5/2011

Weyerhaeuser Analytical & Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 11-0418
WA Cert. # C1219

Report
Everett East Site - March 2011

Client ID			Blank Spike
			3/24/2011
Sample Date and Time			
Lab ID			PSLC1W1_032411
			% rec
Analyte	**CAS**	Lab Limits	
Phenol	108-95-2	57-99	77%
2-Chlorophenol	95-57-8	63-104	79%
1,4-Dichlorobenzene	106-46-7	51-82	72%
n-Nitrosodi-n-propylamine	621-64-7	64-101	74%
1,2,4-Trichlorobenzene	120-82-1	55-84	68%
4-Chloro-3-methylphenol	59-50-7	58-111	**56%****
Acenaphthene	83-32-9	71-101	76%
4-Nitrophenol	100-02-7	51-118	81%
2,4-Dinitrotoluene	121-14-2	74-113	85%
Pentachlorophenol	87-86-5	70-109	99%
Pyrene	129-00-0	73-133	94%

Surrogate	Lab Limits	% rec
2-Fluorophenol	56-106	72%
Phenol-d5	64-109	81%
Nitrobenzene-d5	61-106	74%
2-Fluorobiphenyl	64-96	72%
2,4,6-Tribromophenol	69-108	73%
Terphenyl-d14	70-139	96%
2-Chlorophenol-d4	66-108	80%
1,2-Dichlorobenzene-d4	52-86	78%

Date Extracted	3/24/2011
Date Analyzed	4/4/2011

****: Spike recovery outside lab QC limits.**

Method: EPA 8270C
Approved: Randy Eatherton
Telephone: (253) 924-6431

Date: 4/5/2011

Weyerhaeuser

Service Request

Analytical Chemistry and Microstructure

11-0418

Title: Everett East Site - March 2011

Samples: 3 ***Tests:*** 6 ***Last Samp:*** 003	***Project Number:***	***PO:***
SAP Order Number: 90-0000-2504	***Order Desc:*** 2760-Everett B-Analy Test WY	
Date Received: 03/22/11	***Date Desired:*** 04/12/11	***Date Completed:***
Submitter: Shaver, Erin	***Location:*** Seattle, WA	***Phone:*** (206) 529-3980
Reviewer: Catalano, Dennis	***Location:*** WTC 2F25	***Phone:*** (253) 924-6242
Copy To:		
Record Book:	***Ref Request:*** 10-1935	***Disposal:***
Comments: Samples were a split with the State.		

Group	*Analysis*	*Test Description*	*Comp List*	*Component List Description*
CHROM	1-EXT3520B	BNA in Water prep Continuous Liq/Liq 4-P-3520C		
CHROM	BNAW-8270C	BNA in Water by EPA 8270C	BNA-PENTA	BNA 8270C - Pentachlorophenol Only
METALS	3-GM-W2008	AM E-200.8M Water Digest for ICPMS		
METALS	3-HG-W	AM E-245 Hg Prep 245.1 - Water		
METALS	HG	Mercury - AM E-245	WATER	Total Mercury in Water
METALS	ICPMS	ICP-MS Metals - AM E-200.8M	W7ASCDCRC2	W-As,Cd,Cr,Cu,Pb,Sb,Tl

Sample ID - Date Sampled - Status Customer Sample Description / ID	Component List		BNA-PENTA			W7ASCDCRC	WATER
	Analysis	1-EXT3520B	BNAW-8270C	3-GM-W2008	3-HG-W	ICPMS	HG
		1	1	1	1	1	1
11-0418-001 - 03/22/011 1020 - Available MW-RA-8-3-032211		V	V	V	V	V	V
11-0418-002 - 03/22/011 1020 - Available MW-RA-8-3-032211 dissolved				V	V	V	V
11-0418-003 - 03/22/011 1030 - Available MW-RA-8-3-032211 double dissolved				V	V	V	V

Printed on: Mar 22, 2011 11:01 PM
Data Retrieved: Mar 22, 2011 11:01 PM

Entered by: Catalano, Dennis
Entered on: Mar 22, 2011 3:41 PM

Weyerhaeuser

Service Request

Analytical Chemistry and Microstructure

11-0418

Title: Everett East Site - March 2011

Group	Analysis	Component List	Test Description	No. Tests	Mult	Charge Amount	Line Total
CHROM	1-EXT3520B		BNA in Water prep Continuous Liq/Liq 4-P-3520C	1	1.00	0.00	0.00
CHROM	BNAW-8270C	BNA-PENTA	BNA in Water by EPA 8270C	1	1.00	303.00	303.00

Total charges for CHROM group ($) 303.00

Group	Analysis	Component List	Test Description	No. Tests	Mult	Charge Amount	Line Total
METALS	3-GM-W2008		AM E-200.8M Water Digest for ICPMS	3	1.00	46.00	138.00
METALS	3-HG-W		AM E-245 Hg Prep 245.1 - Water	3	1.00	46.00	138.00
METALS	HG	WATER	Mercury - AM E-245	3	1.00	0.00	0.00
METALS	ICPMS	W7ASCDCRC2	ICP-MS Metals - AM E-200.8M	3	1.00	69.00	207.00

Total charges for METALS group ($) 483.00

Total charges for Service Request 11-0418 ($) 786.00

Printed on: Mar 22, 2011 11:01 PM
Data Retrieved: Mar 22, 2011 11:01 PM

Entered by: Catalano, Dennis
Entered on: Mar 22, 2011 3:41 PM

Weyerhaeuser

Weyerhaeuser Analytical Chemistry
c/o SLM 216 (253) 924-6293
32901 Weyerhaeuser Way South
Federal Way, WA 98001

11-0418

Sample Analysis Request and Chain of Custody Record

Date	Project Title	Page
3/22	Everett EAST SITE	1 of 1

Client's Name	Account Number/Project Number
PES Environmental	920.071.01

Client's Address	Client's Phone Number	Client's FAX Number
1215 4th Ave 1350 Seattle WA 98161	2065293990	2065293985

Client's E-Mail Address:

Project Manager (Print)	Sampler Name (Print)	Recorded By (Signature)
ERIN SHAVER	Laura Doody	

SAMPLE DESCRIPTION				MATRIX				PRESERVATION								ANALYSIS REQUESTED (WRITE/TYPE IN PARAMETER)				NOTES
METHOD	FIELD SAMPLE ID (15 CHARACTER MAX) (REQUIRED)	DATE (REQUIRED)	TIME	WATER	SOIL/SED	OIL		HCl	H_2SO_4	HNO_3	$Na_2S_2O_3$	4°C	FROZEN	FILTERED	# of Containers	PCB 8270	Dissolved As, SB, Pb, Cd, Cr, Hg	Total As, SB Pb, Cd, Cr, Hg, TICs		
	MW-RA-8-3-032211	3/22	1020	X												X	X	X		
	MW-RA-8-3-032211	3/22	1030	X													X			*Sampled Double filtered

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

ESTIMATED CONCENTRATION RANGE

Percent														
ppm														
ppb														
ppt														

Turnaround Time Required
- ☐ 24 hours
- ☐ 48 hours
- ☐ 7 days
- ☑ ~~2-3~~ weeks, due:
- ☐ Return unused samples
- ☐ IRS Qualified R&D?

Results To: ERIN Shaver

cc:

Report Type
- ☐ Electronic Report
- ☐ Disk Deliverables
- ☐ NPDES/Regulatory
- ☐ Other:

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)
	3/22	1519	
Relinquished By (Signature)	Date	Time	Received By Laboratory (Signature)
Air bill Number	Cooler Temp.	Date Received	Time Received
	4.1	3/22/11	1519

E Form 16307 (9/08)

MEMORANDUM

TO: Weyerhaeuser – Everett East
Project File 920.071.01.001

DATE: May 9, 2011

FROM: Jerry Harris

RE: Review of Water Quality Monitoring Data for Weyerhaeuser Everett East Site, Everett, Washington (Well MW-RA-8-3), March 22, 2011

This report summarizes a review of analytical results for a groundwater sample collected by PES personnel on March 22, 2011 from well MW-RA-8-3, located at the Weyerhaeuser Everett East site in Everett, Washington. A laboratory analysis for pentachlorophenol (PCP) by United States Environmental Protection Agency (USEPA) Method 8270C was performed on the sample. The analysis was performed by Weyerhaeuser Analysis and Testing Services (WATS), in Federal Way, Washington. WATS report 11-0418 was reviewed.

DATA QUALIFICATIONS

The comments in this review refer to the laboratory's performance in meeting the data review criteria of USEPA's Contract Laboratory Program National Functional Guidelines for Organics Data Review (USEPA, 1999) and method-specific QC guidelines (USEPA, 1983, 1986, 1991).

No data qualifiers were assigned to data in this report.

Data Package

The data package was checked for transcription errors, omissions, or other anomalies. None were noted.

Holding Times and Preservation

The sample was collected using recommended handling and preservation procedures. The sample receipt information provided by the analytical laboratory indicated that the sample in data package 11-0418 was received at a cooler temperature of 4.1 degrees Centigrade (°C). This temperature was within the recommended preservation temperature range of

4.0°C ± 2.0°C. No qualifications to the data in package 10-1935 were made based on the temperature of the sample.

The sample was extracted within two days of sample collection and analyzed within 13 days of collection. USEPA Method 8270C holding times for water samples are seven days for extraction and 40 days for analysis. No qualifications were made due to holding time exceedances.

Reporting Limits

The method reporting limit (MRL) for pentachlorophenol was 5.0 micrograms per liter (µg/L). The MRL is acceptable for the intended use of the data. No data was qualified based upon MRLs.

Laboratory Method Blanks

USEPA guidelines recommend the analysis of laboratory method blanks for each type of analysis and matrix at a frequency of one for every 12-hour period, or one per batch. A method blank analysis was performed at the appropriate frequency and no analytes were detected at or above the MRL. No data was qualified.

Surrogate Recovery Results

USEPA guidelines recommend spiking samples analyzed for organic analytes with non-target surrogate compounds and analyzing them to evaluate laboratory performance on individual samples. Surrogate analyses were performed at the recommended frequency. Percent recoveries (%Rs) of surrogate compounds were within laboratory quality control (QC) criteria limits for all surrogates in the project sample and associated QC samples with the following exceptions:

The 2,4,6-tribromophenol surrogate in the method blank had a %R that was below the lower control limit, indicating a potential high low for associated target analytes. However, because the 2-fluorophenol and phenol-d6 surrogates were within the control limits; the low 2,4,6-tribromophenol exceedance is not considered sufficient cause to warrant qualification of the method blank result.

Matrix Spike and Duplicate Matrix Spike Results

USEPA guidelines recommend spiking a sample analyzed for organic or inorganic compounds with target analytes (i.e., a matrix spike [MS]) and analyzing it to evaluate laboratory accuracy, and acceptable compound recovery. A duplicate matrix spike (DMS) is analyzed to evaluate the precision of the laboratory. USEPA guidelines recommend one MS analysis for each 20 organic samples of similar matrix.

Due to insufficient sample, a MS was not prepared from the project sample. According the to laboratory, the project sample was on the only sample in the batch run by the laboratory, so a batch MS also could not be analyzed. The lack of a MS under these conditions is not sufficient cause to warrant qualification of the data.

Laboratory Control Sample Results

A laboratory control sample (LCS) is spiked with target analytes and analyzed to provide information on laboratory and analytical method accuracy. The laboratory identified the LCS as a blank spike on the laboratory report. USEPA guidelines recommend analyzing one LCS with each batch and for each method for organic analyses. The LCS analysis was performed at the appropriate frequency. The LCS results were within the laboratory QC criteria for all LCS target analytes except 4-Chloro-3-methylphenol. PES specifically notes that pentachlorophenol was an LCS target analyte and the %R for PCP was within the control limits. Based upon this result, the 4-Chloro-3-methylphenol exceedance is not considered sufficient cause to warrant qualification of the data No qualifiers were assigned.

Duplicate Results

A sample duplicate or matrix spike duplicate were not prepared due to insufficient sample volume. The lack of a duplicate analysis under these circumstances in not considered sufficient cause to qualify the data. No qualifications were made due to the lack of duplicate results.

OVERALL ASSESSMENT OF DATA QUALITY

The data were judged to be acceptable for their intended use. No data qualifiers were assigned.

REFERENCES

USEPA. 1983. Methods for chemical analysis of water and wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. EPA-530/SW-846.

USEPA. 1991. U.S. Environmental Protection Agency contract laboratory program, statement of work for inorganics and organics analyses, multi-media, multi-concentration. U.S. Environmental Protection Agency.

USEPA. 1999. U.S. Environmental Protection Agency contract laboratory program, national functional guidelines for organics data review. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency. EPA 540/R-99/008, October.