

September 27, 2013

Mr. David South  
Washington State Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, Washington 98008-5452

**SUBJECT: ATTAINMENT OF GROUNDWATER COMPLIANCE AT EVERETT WEST  
CLEANUP SITE NO. 2902**

Dear Mr. South:

This compliance evaluation report for the Weyerhaeuser Everett West Site (Site) is intended to demonstrate groundwater compliance in accordance with the requirements of Consent Decree No. 94-2-67559-2 (Consent Decree) (State of Washington 1994) between the Weyerhaeuser Company (Weyerhaeuser) and the Washington State Department of Ecology (Ecology), specifically with the requirements of Washington Administrative Code (WAC) 173-340-410 and WAC 173-340-720. The Site is located at 101 East Marine View Drive in Everett, Washington (Figure 1).

Weyerhaeuser has completed eight quarters of groundwater monitoring in accordance with the Groundwater Compliance Monitoring Plan for the Site (Emcon 1995), the Groundwater Compliance Monitoring Plan Addendum (CMP) (Floyd|Snider 2011), and a memorandum clarifying the quarterly reporting requirements (Floyd|Snider 2012a).

Compliance monitoring was performed to meet the monitoring requirements specified in the Consent Decree and the substantive requirements of regulations issued pursuant to the Washington State Model Toxics Control Act (MTCA). The goal of this report is to provide final documentation of site groundwater quality by demonstrating the attainment of the cleanup requirements.

## **COMPLIANCE MONITORING**

After the updating of the groundwater compliance network described in the CMP (Floyd|Snider 2011) and reported in the 2011 annual monitoring report (Floyd|Snider 2012b), Weyerhaeuser performed eight quarterly compliance monitoring events between December 2011, and July 23, 2013, for compliance monitoring wells MW-1202R, MW-1203R, MW-1301R, and MW-1501R (Figure 1).

The field methods used for the compliance monitoring were carried out in accordance with the CMP. The collection of groundwater samples was consistent with the CMP provisions regarding tidal conditions. Groundwater samples were collected with the use of standard low-flow sampling methods, field filtered, and submitted to Weyerhaeuser Analytical Chemistry under chain of custody for dissolved arsenic analysis. A Tier 1 data quality review was performed on all of the analytical results. The results were reported in routine quarterly data reports and annual monitoring reports. The analytical results were submitted to Ecology's Environmental

Information Management (EIM) database. The laboratory analytical reports for 2011 and 2012 were included in the 2011 and 2012 annual monitoring reports (Floyd|Snider 2012b, 2013). The laboratory analytical reports for 2013 monitoring are included as Attachment 1.

## COMPLIANCE EVALUATION

The eight quarters of groundwater monitoring data for dissolved arsenic were evaluated by means of the applicable statistical methods as described in the CMP and in accordance with the requirements in WAC 173-340-720(9)(c) through (e) and the procedures in Ecology guidance (Ecology 1992). The evaluation was performed for the four compliance monitoring wells, MW-1202R, MW-1203R, MW-1301R, and MW-1501R. The results of the evaluation are summarized in Table 1 and described below.

The Site97 module of MTCASat was used to determine whether the data for each monitoring well are distributed lognormally, are distributed normally, or do not clearly match either distribution. MW-1203R was determined to fit best with a lognormal distribution based on the probability plot method with an r-squared of 0.96. The r-squared for a normal distribution was similar (0.94); therefore, the normal distribution and neither distribution were also considered in the evaluation. When a lognormal distribution was assumed, Site97 was used to determine the upper 95 percent confidence limit on the mean based on Land's method. The result was 1.2 micrograms per liter ( $\mu\text{g/L}$ ). When a normal distribution was assumed, Site97 was used to determine the upper 95 percent confidence limit on the mean based on the t-statistic. The result was 1.1  $\mu\text{g/L}$ . If neither distribution is assumed, the guidance (Ecology 1992) indicates that a conservative approach would be a comparison of the highest dissolved arsenic concentration (1.4  $\mu\text{g/L}$ ) to the cleanup level. Using all three approaches, MW-1203R is in compliance with the cleanup level for dissolved arsenic of 5  $\mu\text{g/L}$ .

The statistical tests indicated that the other three wells did not fit either a lognormal distribution or a normal distribution. For MW-1202R and MW-1501R, a comparison of the highest dissolved arsenic concentrations (3.1  $\mu\text{g/L}$  and 1.6  $\mu\text{g/L}$ , respectively) to the cleanup level indicated that these wells meet the compliance requirements.

For MW-1301R, the distribution of the data set could not be determined to be lognormal or normal, and the highest dissolved arsenic concentration (6.9  $\mu\text{g/L}$ ) is greater than the cleanup level. Therefore, Ecology guidance for other distributions with a small sample size (<20 samples) was followed. The guidance (Ecology 1992, Sections 5.2.1.3 and 5.2.1.4) indicates that with Ecology consultation a method may be used to approximate the upper 95 percent confidence limit for small data sets that are not distributed lognormally or normally, using a Z-based statistic. The upper 95 percent confidence limit for MW-1301R calculated using the Z-statistic is 3.21  $\mu\text{g/L}$ , which is less than the cleanup level (5  $\mu\text{g/L}$ ). MW-1301R, therefore, meets this compliance requirement for dissolved arsenic.

Because the arsenic concentration in one of the eight samples collected from MW-1301R exceeded the cleanup level, the data for MW-1301R do not, at first glance, appear to meet the "10 percent rule" (WAC 173-340-720(9)(e)(ii)). However, the groundwater cleanup level of 5  $\mu\text{g/L}$  for dissolved arsenic is based on the 90<sup>th</sup> percentile of background concentrations for Washington state, which necessitates adjustments in the allowable frequency of exceedances that meet the compliance requirements (Ecology 1992). Because of the high probability that more than 10 percent of the compliance monitoring samples at a clean site exceed the 90<sup>th</sup>

percentile, Ecology recommends that the frequency of allowable exceedance of the cleanup level be adjusted upward, consistent with the 5 percent false positive probability rate prescribed in WAC 173-340-720(9)(e)(ii), and in consultation with the Ecology site manager. For relatively small compliance monitoring sample sizes ( $n < 30$ ), it is generally recommended that not more than 20 percent of the samples exceed a cleanup level based on the 90<sup>th</sup> percentile, because the probability of this number of exceedances or more occurring is less than 5 percent.

For MW-1301R, to determine an appropriate criterion for allowable exceedances of the background-based cleanup level, the probability of three or more exceedances of the 90<sup>th</sup> percentile in eight samples was calculated to be 3.9 percent. Therefore, the maximum allowable number of exceedances is two, based on a 0.039-level false positive error rate (Ecology 1992, Figure 12, Technical Attachment 1). Because the arsenic concentration in only one of the eight samples exceeds the cleanup level, MW-1301R meets all of the requirements for compliance monitoring.

## CONCLUSION AND NEXT STEPS

With Ecology's approval, this report will demonstrate complete attainment of compliance with all remaining groundwater compliance monitoring obligations at the Site. The results presented in this memorandum indicate that the four compliance monitoring wells have attained compliance status for dissolved arsenic.

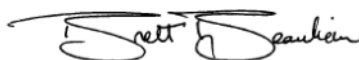
Weyerhaeuser has previously demonstrated attainment of compliance status for diesel- and oil-range total petroleum hydrocarbons (TPH-Dx) in all former compliance monitoring wells and for dissolved arsenic in two wells in the former groundwater compliance monitoring network, MW-1201 and MW-1302 (Floyd|Snider 2011). Weyerhaeuser also completed additional sampling for TPH-Dx in MW-1301R, in accordance with the CMP, to confirm the TPH-Dx compliance status of MW-1301R (Floyd|Snider 2013).

This demonstration of compliance with the dissolved arsenic standards constitutes the final step in the compliance monitoring at the Site. The cleanup standards in the Consent Decree and Consent Decree, Exhibit B, Cleanup Action Plan have been achieved. This step constitutes completion of item #9 in the scope of work listed in Section VI.C., "Work to Be Performed," of the Consent Decree. Future evaluations of groundwater compliance will not revisit the status of these wells with respect to dissolved arsenic or TPH-Dx, except in the circumstances described in Section XXVI.1, "Reopeners," of the Consent Decree. In accordance with the CMP, groundwater monitoring activities at the Site will hereafter be discontinued.

Weyerhaeuser anticipates that the next steps will include the submittal of a request to Ecology to remove the site from the hazardous sites list as described in WAC 173-340-330(7).

Sincerely yours,

FLOYD | SNIDER



Brett Beaulieu, LHG  
Hydrogeologist

Encl.: Table 1: Dissolved Arsenic Groundwater Compliance Evaluation Summary  
Figure 1: Groundwater Compliance Monitoring Wells  
Attachment 1: Laboratory Analytical Reports  
Copies: Ken Johnson, Weyerhaeuser Company

## REFERENCES

- Emcon. 1995. *Groundwater Compliance Monitoring Plan for Weyerhaeuser Everett West Site, Everett, Washington*. Prepared for Weyerhaeuser Company. 2 March.
- Floyd|Snider. 2011. Memorandum to David South: Weyerhaeuser Everett West Groundwater Compliance Monitoring Plan Addendum. November.
- . 2012a. Memorandum to David South: Weyerhaeuser Everett West Groundwater Compliance Monitoring Reporting Clarification. February
- . 2012b. *2011 Weyerhaeuser Everett West Annual Compliance Monitoring Report*. April
- . 2013. *2012 Weyerhaeuser Everett West Annual Compliance Monitoring Report*. March
- National Oceanic and Atmospheric Administration (NOAA). NOAA Tides and Currents. 2013. Everett, Washington Station ID 9447659. <http://tidesandcurrents.noaa.gov/noaatidepredictions/>.
- State of Washington. 1994. *Consent Decree No. 94-2-67559-2 and Exhibits. Ecology v. Weyerhaeuser Company*. October.
- Washington State Department of Ecology 1992. *Statistical Guidance for Ecology Site Managers. Toxics Cleanup Program*. August.

**Weyerhaeuser Everett West**

**Compliance Evaluation Report**

**Table**

**Table 1  
Dissolved Arsenic Groundwater Compliance Evaluation Summary<sup>1</sup>**

<b>Date</b>	<b>MW-1202R (µg/L)</b>	<b>MW-1203R (µg/L)</b>	<b>MW-1301R (µg/L)</b>	<b>MW-1501R (µg/L)</b>
7/23/2013	1.0	1.1	2.5	0.8
4/26/2013	1.3	0.9	0.7	0.9
1/17/2013	1.6	0.9	1.0	0.5
12/21/2012	1.0	0.7	0.9	0.6
9/28/2012	1.3	1.3	6.9	1.6
6/21/2012	3.1	0.7	1.6	0.6
3/22/2012	1.4	0.6	0.8	0.8
12/19/2011	2.7	1.4	1.7	1.6
<b>Distribution</b>	Neither <sup>2</sup>	Lognormal/ Normal/ Neither <sup>3</sup>	Neither <sup>4</sup>	Neither <sup>2</sup>
<b>UCL95 (Land's method)</b>	NA	1.2	NA	NA
<b>UCL95 (t-statistic)</b>	NA	1.1	NA	NA
<b>UCL95 (Z-statistic)</b>	NA	NA	3.2	NA
<b>Largest</b>	3.1	1.4	6.9 <sup>5</sup>	1.6
<b>Cleanup level</b>	5	5	5	5
<b>Compliance status</b>	PASS	PASS	PASS	PASS

Notes:

- 1 Compliance evaluation was conducted in accordance with the Groundwater Compliance Monitoring Plan (Emcon 1995), Groundwater Compliance Monitoring Plan Addendum (CMP)(Floyd|Snider 2011) and WAC 173-340-720(9)(c) through (e). MTCASat Site97 module was used to determine distribution and calculate the UCL95.
- 2 For MW-1202R and MW-1501R, data sets were neither lognormally or normally distributed. In these cases, the highest concentration was compared to the cleanup level.
- 3 For MW-1203R, a lognormal distribution was the best fit based on an r-squared of 0.96, but because the r-squared for a normal distribution was similar (0.94), the UCL95 based on the lognormal distribution (Land's method) and the normal distribution (t-statistic) were both considered in the evaluation. In addition, the highest concentration was compared to the cleanup level.
- 4 For MW-1301R, the data set was neither lognormally nor normally distributed. Because the highest concentration exceeds the cleanup level, the UCL95 was approximated using a Z-based statistic in accordance with Ecology guidance.
- 5 The data for MW-1301R include one exceedance (6.9 µg/L) in eight samples, a rate greater than 10 percent of the number of samples. This is an allowable exceedance of the background-based cleanup level, based on a calculated false-positive error rate in accordance with Washington Administrative Code 173-340-720(9)(e)(ii) and Ecology guidance.

Abbreviations:

- CMP Compliance Monitoring Plan
- Ecology Washington State Department of Ecology
- NA Not applicable
- UCL95 upper 95 percent confidence limit
- µg/L Micrograms per liter


**Weyerhaeuser Everett West**


**Compliance Evaluation Report**


**Figure**




**Legend**

MW-1501R  Point of Compliance Monitoring Well

MW-1701  Upgradient Monitoring Well





Scale in Feet

Orthoimage provided by USGS and Dated 2009.

**FLOYD | SNIDER**  
strategy ■ science ■ engineering

**Compliance Evaluation Report  
Weyerhaeuser Everett West  
Everett, Washington**

**Figure 1  
Groundwater Compliance  
Monitoring Wells**



**Weyerhaeuser Everett West**

**Compliance Evaluation Report**

**Attachment 1**

**Laboratory Analytical Reports**



P.O. Box 9777, WTC 2F25  
Federal Way, WA 98063-9777  
32901 Weyerhaeuser Way South  
Federal Way, WA 98001  
(253) 924-6242  
(253) 924-6654 fax  
Dennis.Catalano@weyerhaeuser.com

January 31, 2013

Brett Beaulieu  
Floyd/Snider  
601 Union St Suite 600  
Seattle, WA 98101

Dear Brett :

Attached is the final report for the Weyer - EW Compliance Monitoring sample(s) that you requested we analyze for you. This work has been performed under our service request number 13-0124 for samples received on 1/18/2013.

If you have any technical questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for the opportunity to be of service to your organization. I hope that we can be of assistance in the future.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dennis Catalano'.

Dennis Catalano  
Operations Manager

Weyerhaeuser Analytical Chemistry and Microstructure  
(253) 924-6242  
Dennis.Catalano@weyerhaeuser.com

Please Note:



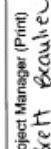

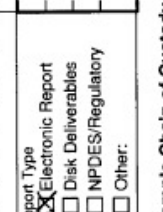
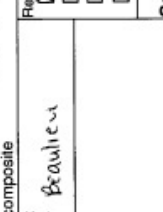
- The results in this report relate only to the items tested or to the sample(s) as received by the laboratory.
- This report shall not be reproduced, except in full, without the written permission of the laboratory.

**Original Paperwork**

13-0124 Sample Analysis Request and Chain of Custody Record

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


**Weyerhaeuser**

Date 11/17/13	Project Title Weyerhaeuser Everett west	Page 1 of 1	NOTES
Client's Name Floyd Snider			ANALYSIS REQUESTED (WRITE/TYPE IN PARAMETER)
Client's Address 601 Union St. Ste 6000 Seattle WA 98125			
Project Manager (Print) Brett Brauhlen			
Sampler Name (Print) Jonny Graves			
Account Number/Project Number			ESTIMATED CONCENTRATION RANGE
Client's Phone Number (206) 292-2678			
Client's FAX Number (206) 682-7807			
Client's E-Mail Address Brett.Brauhlen@flsmaier.com			
Recorded By (Signature) 			Report Basis <input type="checkbox"/> As Recd. <input type="checkbox"/> OD <input type="checkbox"/> Volume <input type="checkbox"/> Wt.
Recorded By (Signature) 			
Recorded By (Signature) 			
Recorded By (Signature) 			
ESTIMATED CONCENTRATION RANGE			
Percent			
ppm			
ppb			
ppt			
Report Type <input checked="" type="checkbox"/> Electronic Report <input type="checkbox"/> Disk Deliverables <input type="checkbox"/> NPDES/Regulatory <input type="checkbox"/> Other:			
Sample Chain of Custody and Shipping Method Record			
Relinquished By Sampler (Signature) 		Date 11/18/13	Time 09:30
Relinquished By (Signature) 		Date	Time
Air bill Number		Cooler Temp. 48	Date Received 11/18/11
			Time Received 15:00
Remarks: Detection Limit Requirements: All samples were field filtered.			



Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

**Data Qualifiers**

<b>Flag</b>	<b>Description</b>
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
D	The sample was diluted.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
I	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
J	The result is an estimated value.
N	The Matrix Spike sample recovery is not within control limits.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
Q	One of more quality control criteria was outside the limits.
S	The reported value was determined by the Method of Standard Additions (MSA).

**Results****Weyer - EW Compliance Monitoring**Customer Sample ID: MW-1501R  
Lab Sample ID: 13-0124-001  
Date Sampled: 01/17/2013Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis: METALS</b>										
As	0.0005		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1601R  
Lab Sample ID: 13-0124-002  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0005		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1202R  
Lab Sample ID: 13-0124-003  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0016		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	





Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1203R  
Lab Sample ID: 13-0124-004  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0009		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1301R  
Lab Sample ID: 13-0124-005  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.001		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



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Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: Method Blank [BLANK]

Lab Sample ID: 13-0124-006

Date Sampled:

Matrix: W

Fraction: Dissolved

Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	ND		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



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Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: Lab Control Sample [LCS]  
Lab Sample ID: 13-0124-007  
Date Sampled:

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0407		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



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32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1501R [DUP]  
Lab Sample ID: 13-0124-008  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0004		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



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Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0124

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1501R [MS]  
Lab Sample ID: 13-0124-009  
Date Sampled: 01/17/2013

Matrix: W  
Fraction: Dissolved  
Date Received: 01/18/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.042		0.0002	mg/L	as recd	AM E-200.8M	1X	01/22/13	01/28/13	



P.O. Box 9777, WTC 2F25  
Federal Way, WA 98063-9777  
32901 Weyerhaeuser Way South  
Federal Way, WA 98001  
(253) 924-6242  
(253) 924-6654 fax  
Dennis.Catalano@weyerhaeuser.com

May 17, 2013

Brett Beaulieu  
Floyd/Snider  
601 Union St Suite 600  
Seattle, WA 98101

Dear Brett :

Attached is the final report for the Weyer- EW Compliance Monitoring sample(s) that you requested we analyze for you. This work has been performed under our service request number 13-0653 for samples received on 4/29/2013.

If you have any technical questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for the opportunity to be of service to your organization. I hope that we can be of assistance in the future.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dennis Catalano'.

Dennis Catalano  
Operations Manager

Weyerhaeuser Analytical Chemistry and Microstructure  
(253) 924-6242  
Dennis.Catalano@weyerhaeuser.com

Please Note:

- The results in this report relate only to the items tested or to the sample(s) as received by the laboratory.
- This report shall not be reproduced, except in full, without the written permission of the laboratory.

**Original Paperwork**

**Weyerhaeuser**

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

**Sample Analysis Request and Chain of Custody Record**

13-0653

ANALYSIS REQUESTED (WRITE/TYPE IN PARAMETER)

NOTES

**Project Title**  
Weyerhaeuser-Everett West

**Account Number/Project Number**  
[Blank]

**Client's Name**  
Floyd Snider

**Client's Address**  
601 Union St Ste 600  
Seattle, WA 98125

**Client's Phone Number**  
206-742-2078

**Client's FAX Number**  
(206) 682-7866

**Client's E-Mail Address**  
Beth.Biscuitte@floyd-snider.com

**Recorded By (Signature)**  
[Signature]

**Field Sample ID (15 CHARACTER MAX) (REQUIRED)**

**DATE (REQUIRED)**

**TIME**

MW-1205R	4/26/13	1235
MW-1202R		1325
MW-1501R		1420
MW-1301R		1515
MW-1601R		1650

**MATRIX**

WATER	X
SOIL/SED	
OIL	
HCl	
H <sub>2</sub> SO <sub>4</sub>	X
HNO <sub>3</sub>	X
Na <sub>2</sub> SO <sub>4</sub>	X
40	X
FROZEN	X
FILTERED	X
# of Containers	1

**SAMPLE DESCRIPTION**

Turnaround Time Required  
 24 hours  
 48 hours  
 7 days  
 2-3 weeks, due:

Remarks: Detection Limit Requirements:  
 All samples were field filtered

**ESTIMATED CONCENTRATION RANGE**

Percent	
ppm	
ppb	
ppt	

**Report Basis**

As Rod  
 OD  
 Volume  
 Wt.

**Sample Chain of Custody and Shipping Method Record**

Relinquished By Sampler (Signature)  
[Signature]

Relinquished By (Signature)  
[Signature]

Air bill Number

**ESTIMATED CONCENTRATION RANGE**

Percent	
ppm	
ppb	
ppt	

**Report Type**

Electronic Report  
 Disk Deliverables  
 NPDES/Regulatory  
 Other:

**Sample Chain of Custody and Shipping Method Record**

Date: 4/29/13 Time: 0900

Date: 4/29/13 Time: 525

Cooler Temp: 4

Received By (Signature)  
[Signature]

Received By Laboratory (Signature)  
[Signature]

Date Received  
[Blank]

Time Received  
[Blank]





Weyerhaeuser Analytical Chemistry and  
Microstructure  
32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0653

**Data Qualifiers**

<b>Flag</b>	<b>Description</b>
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
D	The sample was diluted.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
I	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
J	The result is an estimated value.
N	The Matrix Spike sample recovery is not within control limits.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
Q	One of more quality control criteria was outside the limits.
S	The reported value was determined by the Method of Standard Additions (MSA).

**Results****Weyer- EW Compliance Monitoring**Customer Sample ID: MW-1203R  
Lab Sample ID: 13-0653-001  
Date Sampled: 04/26/2013Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis: METALS</b>										
As	0.0009		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



Weyerhaeuser Analytical Chemistry and  
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32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1202R  
Lab Sample ID: 13-0653-002  
Date Sampled: 04/26/2013

Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0013		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Federal Way, WA 98003

Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1501R  
Lab Sample ID: 13-0653-003  
Date Sampled: 04/26/2013

Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0009		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1301R  
Lab Sample ID: 13-0653-004  
Date Sampled: 04/26/2013

Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0007		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1601R  
Lab Sample ID: 13-0653-005  
Date Sampled: 04/26/2013

Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0011		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: Method Blank [BLANK]

Lab Sample ID: 13-0653-006

Date Sampled:

Matrix: W

Fraction: Total

Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	ND		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	





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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: Lab Control Sample [LCS]

Lab Sample ID: 13-0653-007

Date Sampled:

Matrix: W

Fraction: Total

Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis: METALS</b>										
As	0.0396		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1202R [DUP]

Lab Sample ID: 13-0653-008

Date Sampled: 04/26/2013

Matrix: W

Fraction: Total

Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0014		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



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Service Request: 13-0653

### Weyer- EW Compliance Monitoring

Customer Sample ID: MW-1202R [MS]  
Lab Sample ID: 13-0653-009  
Date Sampled: 04/26/2013

Matrix: W  
Fraction: Total  
Date Received: 04/29/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis: METALS</b>										
As	0.0421		0.0002	mg/L	as recd	AM E-200.8M	1X	04/30/13	05/01/13	



P.O. Box 9777, WTC 2F25  
Federal Way, WA 98063-9777  
32901 Weyerhaeuser Way South  
Federal Way, WA 98001  
(253) 924-6242  
(253) 924-6654 fax  
Dennis.Catalano@weyerhaeuser.com

September 05, 2013

Brett Beaulieu  
Floyd/Snider  
601 Union St Suite 600  
Seattle, WA 98101

Dear Brett :

Attached is the final report for the Weyer - EW Compliance Monitoring sample(s) that you requested we analyze for you. This work has been performed under our service request number 13-1119 for samples received on 7/25/2013.

If you have any technical questions concerning this report, please feel free to contact me at (253) 924-6242.

Thank you for the opportunity to be of service to your organization. I hope that we can be of assistance in the future.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dennis Catalano'.

Dennis Catalano  
Operations Manager

Weyerhaeuser Analytical Chemistry and Microstructure  
(253) 924-6242  
Dennis.Catalano@weyerhaeuser.com

Please Note:

- The results in this report relate only to the items tested or to the sample(s) as received by the laboratory.
- This report shall not be reproduced, except in full, without the written permission of the laboratory.

**Original Paperwork**

13-1119 Sample Analysis Request and Chain of Custody Record

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


**Weyerhaeuser**

ANALYSIS REQUESTED (WRITE/TYPE IN PARAMETER)		NOTES	
ANALYSIS REQUESTED (WRITE/TYPE IN PARAMETER)		NOTES	
ESTIMATED CONCENTRATION RANGE			
Percent		Report Basis	
ppm		<input type="checkbox"/> As Recd.	
ppb		<input type="checkbox"/> OD	
ppt		<input type="checkbox"/> Volume	
		<input type="checkbox"/> Wt.	

SAMPLE DESCRIPTION		DATE (REQUIRED)		TIME	PRESERVATION		MATRIX		REPORT TYPE	
FIELD SAMPLE ID (15 CHARACTER MAX) (REQUIRED)					H <sub>2</sub> O <sub>2</sub>	HNO <sub>3</sub>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	FROZEN	FILTERED	# of Containers
MW-1602R		7/23/13	0730		X	X	X	X	X	1
MW-1301Q			1045		X	X	X	X	X	1
MW-1501R			1135		X	X	X	X	X	1
MW-1202R			1230		X	X	X	X	X	1
MW-1203R			1320		X	X	X	X	X	1

Turnaround Time Required <input type="checkbox"/> 24 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 7 days <input checked="" type="checkbox"/> 2-3 weeks, due:	Results To: Brett Bouhien cc:
Report Type <input checked="" type="checkbox"/> Electronic Report <input type="checkbox"/> Disk Deliverables <input type="checkbox"/> NPDES/Regulatory <input type="checkbox"/> Other:	Date Received By (Signature) Date Received By (Signature)
Return unused samples <input type="checkbox"/> Return unused samples <input type="checkbox"/> IRS Qualified R&D?	Date Received By (Signature) Date Received By (Signature)
Remarks/Detection Limit Requirements: All samples were field filtered.	Date Received By (Signature) Date Received By (Signature)
Air bill Number 400	Date Received 7/24/13
Time Received 1500	Time Received 1500



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32901 Weyerhaeuser Way S.  
Federal Way, WA 98003

Service Request: 13-1119

**Data Qualifiers**

<b>Flag</b>	<b>Description</b>
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
D	The sample was diluted.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.
I	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
J	The result is an estimated value.
N	The Matrix Spike sample recovery is not within control limits.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
Q	One of more quality control criteria was outside the limits.
S	The reported value was determined by the Method of Standard Additions (MSA).

**Results****Weyer - EW Compliance Monitoring**Customer Sample ID: MW-1602R  
Lab Sample ID: 13-1119-001  
Date Sampled: 07/23/2013Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis: METALS</b>										
As	0.0011		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	





Weyerhaeuser Analytical Chemistry and  
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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1301R  
Lab Sample ID: 13-1119-002  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0025		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1501R  
Lab Sample ID: 13-1119-003  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0008		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Federal Way, WA 98003

Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1202R  
Lab Sample ID: 13-1119-004  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.001		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1203R  
Lab Sample ID: 13-1119-005  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0011		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: Method Blank [BLANK]

Lab Sample ID: 13-1119-006

Date Sampled:

Matrix: W

Fraction: Total

Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	ND		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: Lab Control Sample [LCS]  
Lab Sample ID: 13-1119-007  
Date Sampled:

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0421		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1501R [DUP]  
Lab Sample ID: 13-1119-008  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0006		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	



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Service Request: 13-1119

### Weyer - EW Compliance Monitoring

Customer Sample ID: MW-1501R [MS]  
Lab Sample ID: 13-1119-009  
Date Sampled: 07/23/2013

Matrix: W  
Fraction: Total  
Date Received: 07/25/2013

Component	Result	Flags	Quant Limit	Units	Basis	Method	Dilution	Date Prepared	Date Analyzed	Notes
<b>Analysis:</b>		<b>METALS</b>								
As	0.0409		0.0002	mg/L	as recd	AM E-200.8M	1X	08/12/13	08/13/13	