



October 26, 2016

Mr. Han Chang  
10121 Highway 12  
Naches, Washington 98937-9785

RE: ***September 2016 Groundwater Sampling Results Report***  
Naches Pit Stop  
10121 Highway 12  
Naches, Washington 98937-9785  
Ecology Facility/Site ID: 505

Dear Mr. Chang:

Associated Environmental Group, LLC (AEG) has prepared this ***Groundwater Sampling Results Report***, presenting results of groundwater sampling and analysis conducted on September 28, 2016 at the above-referenced Site in Naches, Washington (Figure 1, *Site Area Map, Vicinity Map*). Locations of Site features, monitoring wells, and groundwater gradients determined at the time of this sampling event are detailed in Figure 2, *September 2016 Groundwater Contour Map*.

**WORK PERFORMED [September 28, 2016]:**

- Obtained depth to groundwater data in seven groundwater wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8).
- Purged and sampled seven groundwater monitoring wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8).

**WORK PROPOSED [January 2016]:**

- Obtain depth to groundwater data in seven groundwater wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8).
- Purge and sample seven groundwater monitoring wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8).

**SUMMARY:**

Sampling Event:	September 2016	Values
Range of Depths to Groundwater:	10.04 to 11.57	Feet below top of well casing (Table 1, <i>Summary of Groundwater Elevations</i> )
Range of Groundwater Elevations:	1453.16 to 1455.34	Feet above Mean Sea Level (Table 1, <i>Summary of Groundwater Elevations</i> )
Groundwater Gradient: (Direction / Magnitude)	Southeast / 0.018	Feet per foot (ft/ft), Determined using data from MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8
Measureable NAPL Detected:	No	
Measureable NAPL Thickness:	N/A	
Current Remedial Action:	None	

**DISCUSSION:**

No constituents of concern were detected above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels from the groundwater samples collected from the monitoring wells on Site on September 28, 2016. Total lead was detected below the MTCA Method A cleanup level of 15 micrograms per liter ( $\mu\text{g/l}$ ) in monitoring well MW-7 at a concentration of 6.4  $\mu\text{g/l}$ . Analytical results for this sampling event, and historical analytical results, are presented in the attached Table 2, *Summary of Groundwater Analytical Results*.

The calculated groundwater gradient for the September 2016 sampling event is primarily towards the southeast, with an approximate gradient of 0.018 feet per foot (Figure 2, *September 2016 Groundwater Contour Map*).

**CLOSING:**

AEG has completed this monitoring event at the Site. Thank you for the opportunity to provide you with environmental consulting services. Should you have questions or require additional information, please contact our office at 360-352-9835.

Sincerely,

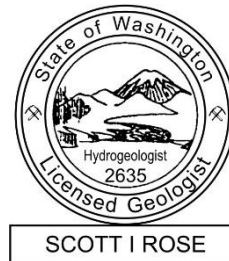
**Associated Environmental Group, LLC**



Nicolas Pushckor, R.S.A.  
Staff Geologist



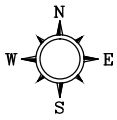
Scott Rose, L.H.G.  
Senior Hydrogeologist



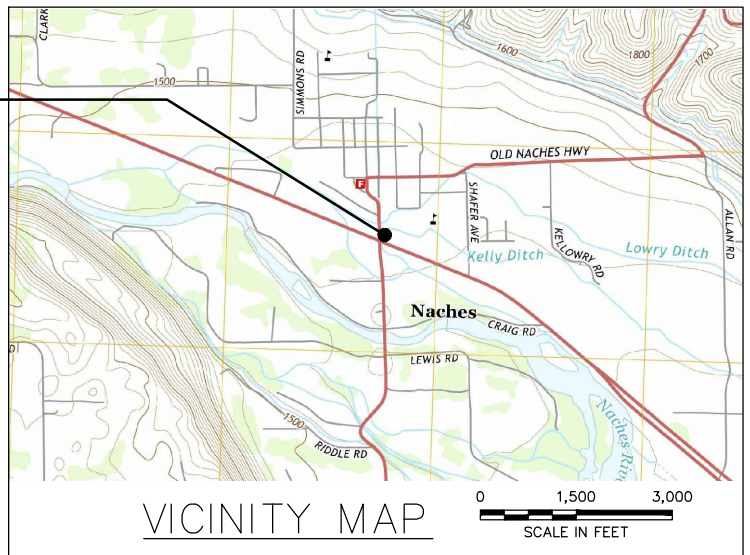
- Attachments: Figure 1 – *Site Area Map, Vicinity Map*  
Figure 2 – *September 2016 Groundwater Contour Map*
- Table 1 – *Summary of Groundwater Elevations*  
Table 2 – *Summary of Groundwater Analytical Results*
- Appendix A – *Laboratory Datasheets*

## **FIGURES**

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-102_1504.DWG	ICD	BD	BD	16-102
	2/1/2016	2/1/2016	2/1/2016	



**PROJECT LOCATION**

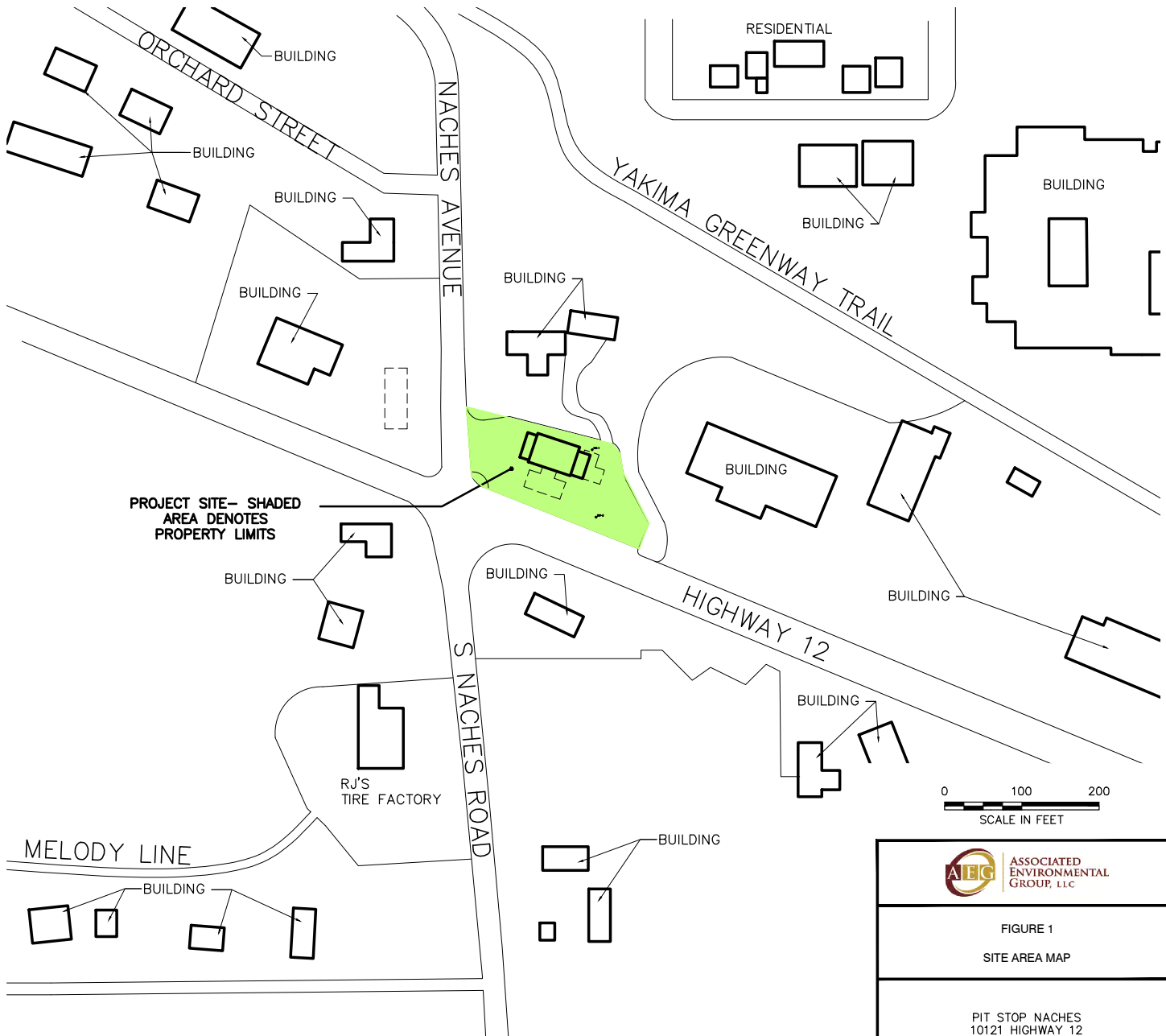


**NOTES**

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

**REFERENCE**

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.  
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY-2013, 7.5 MINUTE QUADRANGLE MAP NACHES, WASHINGTON



**AIEG** ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1  
SITE AREA MAP

PIT STOP NACHES  
10121 HIGHWAY 12  
NACHES, WASHINGTON

FILENAME 16-102\_1504\_1.DWG  
 DRAWN BY ICD 10/19/2016  
 CHECKED BY BD 10/19/2016  
 APPROVED BY BD 10/19/2016  
 PROJECT NUMBER 16-102

NACHES AVENUE

BUILDING

BUILDING

HIGHWAY 12

SIGN

MW-3

MW-7

MW-4

MW-8

EXCAVATION  
MAY 1998

1454.1

1454.3

1454.5

1454.7

1454.9

1453.9

1453.7

1453.5

1453.3

MW-2

MW-6

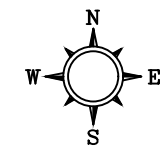
MW-5

MW-1

UST NEST

CANOPY

FLOWER STAND



LEGEND

- MW-1 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-3 SOIL SAMPLING LOCATION
- ELECTRIC LINE
- WATER LINE

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.
3. ELEVATIONS ARE DEPTH TO WATER FROM TOP OF CASING ELEVATION POINT MEASURED FROM SURVEY CONDUCTED BY PLSA IN OCTOBER 2016
4. GROUNDWATER CONTOURS MADE WITH MONITORING WELLS MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, AND MW-8

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC. VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY-2013, 7.5 MINUTE QUADRANGLE MAP NACHES, WASHINGTON



FIGURE 2  
SEPTEMBER 2016  
GROUNDWATER CONTOUR MAP

PIT STOP NACHES  
10121 HIGHWAY 12  
NACHES, WASHINGTON

## **TABLES**

**Table 1 - Summary of Groundwater Elevations**  
 Naches Pit Stop  
 Naches, Washington

Well No./ TOC Elevation	Date	Depth to Water	Depth to Free Product	Free Product Thickness	Apparent Groundwater Elevation	Actual Groundwater Elevation	Change in Elevation
MW-1	5/27/2016	10.60	--	--	--	1454.47	--
1465.07	9/28/2016	10.36	--	--	--	1454.71	0.24
MW-2	5/27/2016	10.83	--	--	--	1453.65	--
1464.48	9/28/2016	10.67	--	--	--	1453.81	0.16
MW-4	5/27/2016	10.79	--	--	--	1454.86	--
1465.65	9/28/2016	10.68	--	--	--	1454.97	0.11
MW-5	5/27/2016	10.83	--	--	--	1453.25	--
1464.08	9/28/2016	10.68	--	--	--	1453.40	0.15
MW-6	5/27/2016	11.84	--	--	--	1452.89	--
1464.73	9/28/2016	11.57	--	--	--	1453.16	0.27
MW-7	5/27/2016	10.43	--	--	--	1454.81	--
1465.24	9/28/2016	10.33	--	--	--	1454.91	0.10
MW-8	5/27/2016	10.14	--	--	--	1455.24	--
1465.38	9/28/2016	10.04	--	--	--	1455.34	0.10

Notes:

All values in feet

TOC = Top of casing elevation relative to assigned benchmark.

-- = Not measured, not available, or not applicable

\* = Ceased groundwater monitoring/sampling activities at this well



**Table 2 - Summary of Groundwater Analytical Results**  
 Naches Pit Stop  
 Naches, Washington

Sample Number	Date Collected	Volatile Organic Compounds				Total Petroleum Hydrocarbons (TPH)			Total Lead	Dissolved Lead	Cadmium	Chromium	Arsenic	Mercury	EDC	EDB	Total Naphthalenes	MTBE (µg/l)
		Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil										
MW-1	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--	--
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
MW-2	1/21/2016	<1.0	<1.0	<1.0	<3.0	<b>3,000</b>	<b>61,000</b>	<500	--	--	--	--	--	--	--	--	--	--
	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--	--
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
MW-4	5/27/2016	<1.0	<1.0	<1.0	<2.0	<100	<200	<400	<b>84</b>	--	<0.5	<5.0	<3.0	<0.5	<1.0	<0.01	<5.0	<5.0
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
MW-5	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--	--
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
MW-6	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--	--
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
MW-7	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<b>102</b>	--	<0.5	<5.0	<3.0	<0.5	<1.0	<0.01	<5.0	<5.0
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<b>6.4</b>	<5.0	--	--	--	--	--	--	--	--
MW-8	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--	--
	9/28/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	<5.0	<5.0	--	--	--	--	--	--	--	--
PQL (µg/l)		1.0	1.0 / 2.0	1.0	2.0 / 3.0	100	200	400	5.0	5.0	0.5	5.0	3.0	0.5	1.0	0.01	5.0	5.0
MTCA Method A Cleanup Levels (µg/l)		5.0	1,000	700	1,000	1000*	500	500	15	15	2	19	20	2	5	0.01	160	20

Notes:  
 All values in micrograms per liter (µg/L)  
 -- = Not analyzed for constituent  
 < = Not detected at the listed laboratory detection limits  
 EDC = 1,2-Dichloroethane  
 EDB = 1,2-Dibromoethane  
 MTBE = Methyl tert-butyl ether  
 PQL = Practical Quantification Limit (laboratory detection limit)  
**Red Bold** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level  
**Bold** indicates the detected concentration is below Ecology MTCA Method A cleanup levels  
 \* TPH-Gasoline Cleanup Level with no presence of Benzene anywhere at the Site

## **APPENDIX A**

### **LABORATORY DATASHEETS**



# Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

October 10, 2016

Nicolas Pushckor  
Associated Environmental Group, LLC  
605 11<sup>th</sup> Avenue SE, Suite 201  
Olympia, WA 98501

Dear Mr. Pushckor:

Please find enclosed the analytical data report for the Naches Pit Stop Project located in Naches, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt  
*Senior Chemist*  
*Libby Environmental, Inc.*

# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
AEG, LLC  
Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
FAX: (360) 352-4154  
Email: libbyenv@aol.com

## Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Water

Sample Number	Date Analyzed	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Gasoline (ug/l)	Surrogate Recovery (%)
Method Blank	10/4/16	nd	nd	nd	nd	nd	120
LCS	10/4/16	123%	117%				106
MW-5	10/4/16	nd	nd	nd	nd	nd	119
MW-2	10/4/16	nd	nd	nd	nd	nd	112
MW-6	10/4/16	nd	nd	nd	nd	nd	128
MW-1	10/4/16	nd	nd	nd	nd	nd	89
MW-7	10/4/16	nd	nd	nd	nd	nd	126
MW-4	10/4/16	nd	nd	nd	nd	nd	99
MW-8	10/4/16	nd	nd	nd	nd	nd	108
MW-8 Dup	10/4/16	nd	nd	nd	nd	nd	118
MW-8 MS	10/4/16	112%	104%				106
MW-8 MSD	10/4/16	114%	99%				102
Practical Quantitation Limit		1.0	2.0	1.0	2.0	100	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
AEG, LLC  
Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
FAX: (360) 352-4154  
Email: libbyenv@aol.com

## Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ( $\mu\text{g/l}$ )	Oil ( $\mu\text{g/l}$ )
Method Blank	10/3/16	90	nd	nd
MW-5	10/3/16	67	nd	nd
MW-2	10/3/16	93	nd	nd
MW-6	10/3/16	82	nd	nd
MW-1	10/3/16	92	nd	nd
MW-7	10/3/16	87	nd	nd
MW-4	10/3/16	90	nd	nd
MW-8	10/3/16	84	nd	nd
MW-8 Dup	10/3/16	85	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
AEG, LLC  
Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
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Email: libbyenv@aol.com

## Analyses of Total Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead $\mu\text{g/L}$
Method Blank	10/9/16	nd
MW-5	10/9/16	nd
MW-2	10/9/16	nd
MW-6	10/9/16	nd
MW-1	10/9/16	nd
MW-7	10/9/16	6.4
MW-4	10/9/16	nd
MW-8	10/9/16	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
AEG, LLC  
Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
FAX: (360) 352-4154  
Email: libbyenv@aol.com

## QA/QC for Total Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	10/9/16	96%
L160927-1 MS	10/9/16	103%
L160927-1 MSD	10/9/16	101%
RPD	10/9/16	2%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%  
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
AEG, LLC  
Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

4139 Libby Road NE  
Olympia, WA 98506  
Phone: (360) 352-2110  
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Email: libbyenv@aol.com

## Analyses of Dissolved Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead $\mu\text{g/L}$
Method Blank	10/9/16	nd
MW-5	10/9/16	nd
MW-2	10/9/16	nd
MW-6	10/9/16	nd
MW-1	10/9/16	nd
MW-7	10/9/16	nd
MW-4	10/9/16	nd
MW-8	10/9/16	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson



# Libby Environmental, Inc.

NACHES PIT STOP PROJECT  
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Naches, Washington  
Libby Project # L160929-2  
Client Project # 16-102

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Phone: (360) 352-2110  
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## QA/QC for Dissolved Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	10/9/16	96%
L160927-1 MS	10/9/16	103%
L160927-1 MSD	10/9/16	101%
RPD	10/9/16	2%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%

ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

