

August 9, 2021

Ms. Keum Woo
6730 Troon Lane SE
Olympia, Washington 98501-5179
keumwoo@hotmail.com / 360.923.4136

RE: ***July 2021 Groundwater Sampling Results Report***
Lacey Urban Center
7239 Martin Way East
Olympia, Washington 98516
AEG Project No. 18-236

Dear Ms. Woo:

Associated Environmental Group, LLC (AEG) has prepared this ***July 2021 Groundwater Sampling Results Report***, presenting a summary of groundwater sampling and analysis conducted on July 19, 2021 (Figure 1, *Vicinity Map*). Locations of Site features, monitoring wells, and groundwater gradients determined at the time of this sampling event are detailed in Figure 2, *Groundwater Elevation Contour Map 07/19/2021*.

WORK PERFORMED [July 2021]:

- Obtained depth to groundwater data in five groundwater wells (MW-1, MW-2, MW-3, MW-4, and MW-5).
- Purged and sampled five groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, and MW-5).

SUMMARY:

Sampling Event:	July 2021	Values
Range of Depths to Groundwater:	24.52 to 30.58	Feet below top of well casing (Table 1, <i>Summary of Groundwater Elevations</i>)
Range of Groundwater Elevations:	168.57 to 174.13	Feet above Mean Sea Level (Table 1, <i>Summary of Groundwater Elevations</i>)
Groundwater Gradient: (Direction / Magnitude)	South-Southwest / 0.05	Feet per foot (ft/ft)
Measurable NAPL Detected:	No	
Measurable NAPL Thickness:	N/A	
Current Remedial Action:	None	

July 2021 Groundwater Sampling Results Report

Lacey Urban Center, Olympia, Washington

AEG Project No. 18-236

August 9, 2021

DISCUSSION:

Constituents of concern were not detected in any monitoring wells during the July 2021 sampling event. Analytical results for this sampling event, and historical analytical results, are presented in the attached Table 2, *Summary of Groundwater Analytical Results*. Full laboratory analytical results for this sampling are presented in the attached Appendix A, Laboratory Datasheets.

The calculated groundwater gradient for the July 2021 sampling event is primarily towards the south-southwest, with an approximate gradient of 0.05 feet per foot (Figure 2, *Groundwater Elevation Contour Map 07/19/2021*).

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,

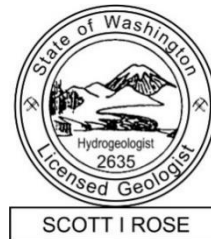
Associated Environmental Group, LLC



John Schenk
Staff Scientist



Scott Rose, L.H.G.
Senior Hydrogeologist

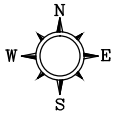


Attachments: Figure 1 – *Vicinity Map*
Figure 2 – *Groundwater Elevation Contour Map 07/19/2021*
Table 1 – *Summary of Groundwater Elevations*
Table 2 – *Summary of Groundwater Analytical Results*
Appendix A – Laboratory Datasheets

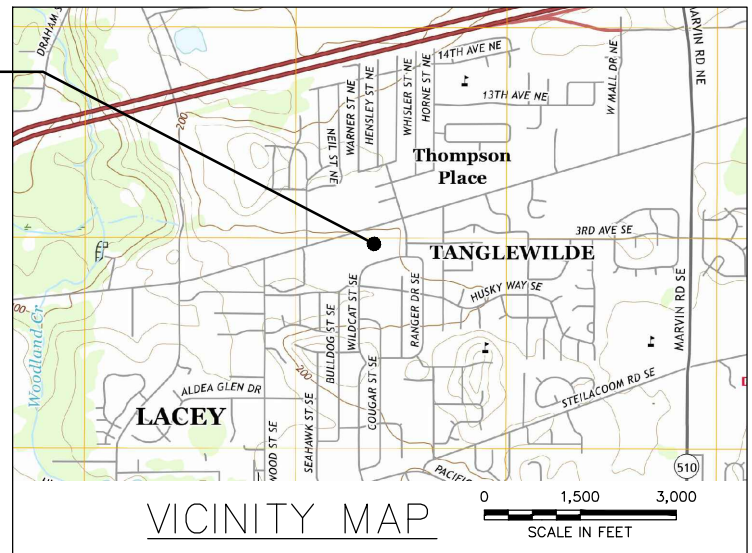
FIGURES

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
18-236_1804.DWG	ICD	12/26/2018	BD	12/26/2018

18-236



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-2017, 7.5 MINUTE QUADRANGLE MAP OLYMPIA, WASHINGTON



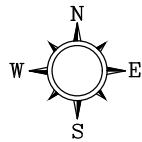
FIGURE 1

VICINITY MAP

LACEY URBAN CENTER
7131-7269 MARTIN WAY EAST
OLYMPIA, WASHINGTON



FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
18-236_2103.DWG	ICD	JS	JS	18-236
	8/03/2021	8/03/2021	8/03/2021	



LEGEND

- MW-1 SHALLOW MONITORING WELL LOCATION
- MW-4 DEEP MONITORING WELL LOCATION
- FENCE
- 174.13 GROUNDWATER ELEVATION (FEET)
- 174.00 INFERRED GROUNDWATER ELEVATION CONTOUR LINE (FEET)
- CONTOUR INTERVAL=1.00 FEET
- APPROXIMATE GROUNDWATER GRADIENT DIRECTION (ft/ft)
- * NOT USED IN CONTOURING

NOTES

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REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.

0 10 20
SCALE IN FEET



FIGURE 2

GROUNDWATER ELEVATION CONTOUR MAP
07/19/2021

LACEY URBAN CENTER
7131-7269 MARTIN WAY EAST
OLYMPIA, WASHINGTON

TABLES

Table 1 - Summary of Groundwater Elevations
Lacey Urban Center (18-236)
Olympia, Washington

Well No./ TOC Elevation	Well Screen Interval	Date	Depth to Water	Depth to Free Product	Free Product Thickness	Apparent Groundwater Elevation	Actual Groundwater Elevation	Change in Elevation
MW-1	25-35	7/30/2020	31.00	--	--	--	168.15	--
199.15		10/16/2020	24.20	--	--	--	174.95	6.80
		1/7/2021	20.89	--	--	--	178.26	3.31
		4/6/2021	28.48	--	--	--	170.67	-7.59
		7/19/2021	30.58	--	--	--	168.57	-2.10
MW-2	25-35	7/30/2020	31.00	--	--	--	167.33	--
198.33		10/16/2020	24.18	--	--	--	174.15	6.82
		1/7/2021	20.60	--	--	--	177.73	3.58
		4/6/2021	27.42	--	--	--	170.91	-6.82
		7/19/2021	26.82	--	--	--	171.51	0.60
MW-3	25-35	7/30/2020	30.00	--	--	--	168.65	--
198.65		10/16/2020	21.80	--	--	--	176.85	8.20
		1/7/2021	17.44	--	--	--	181.21	4.36
		4/6/2021	21.91	--	--	--	176.74	-4.47
		7/19/2021	24.52	--	--	--	174.13	-2.61
MW-4	75-80	1/7/2021	24.82	--	--	--	174.33	--
199.15		4/6/2021	24.54	--	--	--	174.61	0.28
		7/19/2021	26.62	--	--	--	172.53	-2.08
MW-5	70-75	1/7/2021	23.90	--	--	--	174.43	--
198.33		4/6/2021	27.73	--	--	--	170.60	-3.83
		7/19/2021	29.67	--	--	--	168.66	-1.94

Notes:

All values reported in feet

TOC = Top of casing elevation relative to assigned benchmark.

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

Table 2 - Summary of Groundwater Analytical Results

Lacey Urban Center (18-236)

Olympia, Washington

Sample/Well Number	Date Collected	Halogenated Volatile Organic Compounds				
		PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
Boring Groundwater Results (Envitechnology)						
W14	8/20/2018	<1.0	<0.4	<1.0	<1.0	<0.2
Boring Groundwater Results (AEG)						
B21-W	7/28/2020	0.6	<0.4	<1.0	<1.0	<0.2
B22-W	7/29/2020	1.6	<0.4	<1.0	<1.0	<0.2
B23-W	7/30/2020	1.3	<0.4	<1.0	<1.0	<0.2
Monitoring Well Results (AEG)						
MW-1	7/30/2020	0.82	<0.4	<1.0	<1.0	<0.2
	10/16/2020	0.7 J	<0.4	<1.0	<1.0	<0.2
	1/7/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	4/6/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	7/19/2021	<1.0	<0.4	<1.0	<1.0	<0.2
MW-2	7/30/2020	0.66	<0.4	<1.0	<1.0	<0.2
	10/16/2020	0.6J	<0.4	<1.0	<1.0	<0.2
	1/7/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	4/6/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	7/19/2021	<1.0	<0.4	<1.0	<1.0	<0.2
MW-3	7/30/2020	<1.0	<0.4	<1.0	<1.0	<0.2
	10/16/2020	<1.0	<0.4	<1.0	<1.0	<0.2
	1/7/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	4/6/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	7/19/2021	<1.0	<0.4	<1.0	<1.0	<0.2
MW-4	1/7/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	4/6/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	7/19/2021	<1.0	<0.4	<1.0	<1.0	<0.2
MW-5	1/7/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	4/6/2021	<1.0	<0.4	<1.0	<1.0	<0.2
	7/19/2021	<1.0	<0.4	<1.0	<1.0	<0.2
PQL		1.0	0.4/1.0	1.0	1.0	0.2
MTCA Method A Cleanup Levels		5	5	16*	160*	0.2

Notes:

All values reported in micrograms per liter (µg/L)

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds MTCA cleanup levels

Bold indicates the detected concentration is below MTCA cleanup levels

* MTCA Method B cleanup level; Method A cleanup level not established

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

APPENDIX A

LABORATORY DATASHEETS



Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

July 21, 2021

Scott Rose
Associated Environmental Group, LLC
2633 Parkmont Lane SW, Suite A
Olympia, WA 98502

Dear Mr. Rose:

Please find enclosed the analytical data report for the Lacey Urban Center Project located in Olympia, 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 within 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,

A handwritten signature in black ink, appearing to read "Sherry L. Chilcutt".

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Libby Environmental, Inc.

LACEY URBAN CENTER PROJECT
AEG, LLC
Olympia, Washington
Libby Project # L210719-2
Client Project # 18-236

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		Method Blank	MW-1	MW-1 Dup	MW-2	MW-3	MW-4
Date Sampled		N/A	7/19/2021	7/19/2021	7/19/2021	7/19/2021	7/19/2021
Date Analyzed	PQL	7/20/2021	7/20/2021	7/20/2021	7/20/2021	7/20/2021	7/20/2021
	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Vinyl Chloride (VC)	0.2	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	0.5	nd	nd	nd	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	nd	nd	nd	nd	nd
Trichloroethene (TCE)	0.4	nd	nd	nd	nd	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		111	111	104	109	111	111
1,2-Dichloroethane-d4		106	107	99	108	111	106
Toluene-d8		96	97	115	94	94	98
4-Bromofluorobenzene		94	97	114	92	100	104

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

LACEY URBAN CENTER PROJECT
AEG, LLC
Olympia, Washington
Libby Project # L210719-2
Client Project # 18-236

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

Volatile Organic Compounds by EPA Method 8260D in Water

Sample Description		MW-5
Date Sampled		7/19/2021
Date Analyzed	PQL	7/20/2021
	(µg/L)	(µg/L)
Vinyl Chloride (VC)	0.2	nd
1,1-Dichloroethene	0.5	nd
trans-1,2-Dichloroethene	1.0	nd
cis-1,2-Dichloroethene	1.0	nd
Trichloroethene (TCE)	0.4	nd
Tetrachloroethene (PCE)	1.0	nd
Surrogate Recovery		
Dibromofluoromethane		109
1,2-Dichloroethane-d4		103
Toluene-d8		95
4-Bromofluorobenzene		99

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

LACEY URBAN CENTER PROJECT
AEG, LLC
Olympia, Washington
Libby Project # L210719-2
Client Project # 18-236

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

QA/QC for Volatile Organic Compounds by EPA Method 8260D in Water

Matrix Spike Sample Identification: MW-1								
Date Analyzed: 7/20/2021								
	Spiked Conc. (µg/L)	MS Response (µg/L)	MSD Response (µg/L)	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Limits Recovery (%)	Data Flag
Vinyl Chloride (VC)	5.0	4.2	4.7	84	93	10.4	65-135	
1,1-Dichloroethene	5.0	4.3	4.9	85	99	14.8	65-135	
trans-1,2-Dichloroethene	5.0	4.2	4.8	84	95	12.1	65-135	
cis-1,2-Dichloroethene	5.0	4.1	5.6	82	111	30.1	65-135	
Trichloroethene (TCE)	5.0	5.1	4.3	103	87	16.8	65-135	
Tetrachloroethene (PCE)	5.0	3.9	4.9	79	99	22.9	65-135	
Surrogate Recovery (%)				MS	MSD			
Dibromofluoromethane				102	102		65-135	
1,2-Dichloroethane-d4				92	91		65-135	
Toluene-d8				108	95		65-135	
4-Bromofluorobenzene				102	106		65-135	

ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

Laboratory Control Sample

Date Analyzed: 7/20/2021					
	Spiked Conc. (µg/L)	LCS Response (µg/L)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Vinyl Chloride (VC)	5.0	5.0	100	80-120	
1,1-Dichloroethene	5.0	5.3	107	80-120	
trans-1,2-Dichloroethene	5.0	5.3	107	80-120	
cis-1,2-Dichloroethene	5.0	5.5	111	80-120	
Trichloroethene (TCE)	5.0	4.5	91	80-120	
Tetrachloroethene (PCE)	5.0	5.7	113	80-120	
Surrogate Recovery					
Dibromofluoromethane			101	65-135	
1,2-Dichloroethane-d4			73	65-135	
Toluene-d8			67	65-135	
4-Bromofluorobenzene			113	65-135	

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@gmail.com

LACEY URBAN CENTER PROJECT

AEG, LLC

Libby Project # L210719-2

Date Received 7/19/21 11:50

Received By KD

Sample Receipt Checklist

Chain of Custody

- | | | | |
|--------------------------------------|--|------------------------------------|----------------------------------|
| 1. Is the Chain of Custody complete? | ☒ Yes | ☐ No | |
| 2. How was the sample delivered? | ☒ Hand Delivered | ☐ Picked Up | ☐ Shipped |

Log In

- | | | | |
|---|---|--|------------------------------|
| 3. Cooler or Shipping Container is present. | ☒ Yes | ☐ No | ☐ N/A |
| 4. Cooler or Shipping Container is in good condition. | ☒ Yes | ☐ No | ☐ N/A |
| 5. Cooler or Shipping Container has Custody Seals present. | ☐ Yes | ☒ No | ☐ N/A |
| 6. Was an attempt made to cool the samples? | ☒ Yes | ☐ No | ☐ N/A |
| 7. Temperature of cooler (0°C to 8°C recommended) | <u>2.5 °C</u> | | |
| 8. Temperature of sample(s) (0°C to 8°C recommended) | <u>4.5 °C</u> | | |
| 9. Did all containers arrive in good condition (unbroken)? | ☒ Yes | ☐ No | |
| 10. Is it clear what analyses were requested? | ☒ Yes | ☐ No | |
| 11. Did container labels match Chain of Custody? | ☒ Yes | ☐ No | |
| 12. Are matrices correctly identified on Chain of Custody? | ☒ Yes | ☐ No | |
| 13. Are correct containers used for the analysis indicated? | ☒ Yes | ☐ No | |
| 14. Is there sufficient sample volume for indicated analysis? | ☒ Yes | ☐ No | |
| 15. Were all containers properly preserved per each analysis? | ☒ Yes | ☐ No | |
| 16. Were VOA vials collected correctly (no headspace)? | ☒ Yes | ☐ No | ☐ N/A |
| 17. Were all holding times able to be met? | ☒ Yes | ☐ No | |

Discrepancies/ Notes

- | | | | |
|---|------------------------------|-----------------------------|---|
| 18. Was client notified of all discrepancies? | ☐ Yes | ☐ No | ☒ N/A |
|---|------------------------------|-----------------------------|---|

Person Notified: _____

Date: _____

By Whom: _____

Via: _____

Regarding: _____

19. Comments. _____

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE

Ph: 360-352-2110

Olympia, WA 98506

Fax: 360-352-4154

Client: **AEG**

Address: **2633 Parkmont Lane SW, Suite A**

City: **Olympia**

State: **WA** Zip: **98502**

Phone: **(360)-352-9835**

Fax: **(360)-352-8164**

Client Project # **18-236**

Date: **7/19/21**

Page: **1** of **1**

Project Manager: **Scott Rose**

Project Name: **Lacey Urban Center**

Location: **7239 Martin Way E** City, State: **Olympia WA**

Collector: **Foster Kaetzel** Date of Collection: **7/19/21**

Email: **SROSE@AEGWA.com**



Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	c PAH 8270	PAH 8270	Semi Vol 8270	Field Notes
1 MW-1		0942	G	VOA	X											
2 MW-2		1019	G	VOA	X											
3 MW-3		0838	G	VOA	X											
4 MW-4		0917	G	VOA	X											
5 MW-5		1050	G	VOA	X											
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																

Relinquished by:	Date / Time: 7/19/21 1150	Received by:	Date / Time: 7/19/21 1150	Sample Receipt Good Condition? Y N Cooler Temp. °C Sample Temp. °C Total Number of Containers 5-DAY	Remarks:
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		
Relinquished by:	Date / Time:	Received by:	Date / Time:		