November 8, 2022

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

Project: ***Vapor Assessment Monitoring Event & NFA Request***
Lacey Urban Center
7239 Martin Way East
Lacey, Washington 98516
VCP ID No.: SW1745

Dear Ms. Woo:

AEG Atlas, LLC (AEG) has prepared this Technical Memorandum to document the most recent vapor assessment results for the *Lacey Urban Center*, located at the above-referenced address in Lacey, Washington (Site). This memorandum includes a summary of the recent sampling results, and recommendations for consideration of a No Further Action (NFA) determination for the Site. Figure 1, *Vicinity Map*, presents the general vicinity of the Site. The Site's current layout, including testing locations, are illustrated in Figure 2, *Site Map.*

Vapor Assessment

On October 12, 2022, AEG sampled the indoor air at the Site to determine whether conditions had changed since the previous sampling rounds where analytical results did not indicate the presence of impacts above Model Toxics Control Act (MTCA) Method B cleanup levels. AEG also collected samples of the sub-slab vapor being redirected to the outdoor air via two sub-slab depressurization (SSD) systems installed at the Site in December 2021. Samples were collected via the sampling port installed in each SSD system. Sample locations are illustrated in Figure 2, *Site Map*.

Specific tasks associated with sampling activities included the following:

- Obtained access to the spaces to be tested.
- Collected one indoor air sample using a 6-liter (L) Summa canister with an 8-hour regulator. An ambient air sample was collected at the same time, placed outside and upgradient of any suspected contamination.
- Collected sub-slab vapor samples from the two SSD system sampling ports using 1-L Summa canisters with a 10-minute regulator.

- All samples were submitted to a State-accredited analytical laboratory, following industry-standard chain-of-custody procedures, for the following laboratory analyses:
    - Tetrachloroethylene (PCE) & Daughter Products via Method TO-15.

Analytical results indicated the presence of PCE in the indoor air sample at a concentration below the MTCA Method B cleanup level. PCE was also detected in both SSD system vapor samples, but at concentrations below Method B Sub-Slab Screening Levels for Commercial Workers. All other constituents were non-detect. Analytical results are presented in Table 4, *Summary of Soil Gas & Sub-Slab Vapor Analytical Results*, and Table 5, *Summary of Indoor Air Analytical Results.*

NFA Request

Based on the work performed to date at the Site, including the data summarized in this report as well as documents previously submitted to the Washington State Department of Ecology (Ecology), it is AEG's professional opinion that this Site qualifies for an NFA determination without the need for an environmental covenant based on the following:

- All soil detections to date are well below their respective MTCA Method B cleanup levels for direct contact exposure. Analytical results of all soil samples collected to date are presented in Table 1, *Summary of Soil Analytical Results*.
- All groundwater monitoring results from both shallow and deep wells to date have either been non-detect or below MTCA cleanup levels. This indicates that groundwater has not been impacted by the historical release, and that the data empirically demonstrates that soil detections are not leaching into groundwater. Analytical results of all groundwater samples collected to date are presented in Table 2, *Summary of Groundwater Analytical Results*.
- One soil gas sample and one sub-slab vapor sample collected to date exceeded the MTCA Method B screening level for a commercial worker scenario for PCE. This means that PCE has the *potential* to migrate into indoor air. However, indoor air results collected to date for PCE have been well below the MTCA Method B cleanup level, and all other PCE daughter products have been non-detect. This includes indoor air samples collected both before and after the SSD systems were installed. Analytical results of all soil gas/sub-slab vapor and indoor air samples collected to date are presented in Table 4, *Summary of Soil Gas & Sub-Slab Vapor Analytical Results*, and Table 5, *Summary of Indoor Air Analytical Results*, respectively.
- The SSD systems were installed to address any perceived concerns by Site workers associated with potential impacts to indoor air as part of the Site investigation. However, indoor air data collected to date (both before and after the SSD systems were installed) have shown indoor air is not being impacted by any soil impacts exceeding MTCA Method A cleanup levels, or by soil gas or sub-slab vapor detections. As such, under a commercial

worker scenario, continued operation of the SSD systems (under an environmental covenant) is not needed to ensure PCE doesn't migrate into indoor air at some point in the future.

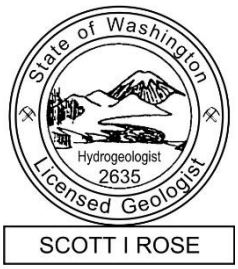
Recommendations

AEG recommends submitting this report to Ecology for review in consideration of an NFA determination without the need for an environmental covenant.

If you have comments or questions, please contact our office at your convenience at 360.352.9835.

Sincerely,

AEG Atlas, LLC



Scott Rose, L.H.G.
Senior Hydrogeologist

Attachments: Figure 1 – *Vicinity Map*
Figure 2 – *Site Map*

Table 1 – *Summary of Soil Analytical Results*
Table 2 – *Summary of Groundwater Analytical Results*
Table 3 – *Summary of Groundwater Elevations*
Table 4 – *Summary of Soil Gas & Sub-Slab Vapor Analytical Results*
Table 5 – *Summary of Indoor Air Analytical Results*

Appendix A – Supporting Documents
Laboratory Datasheets

FIGURES

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

N
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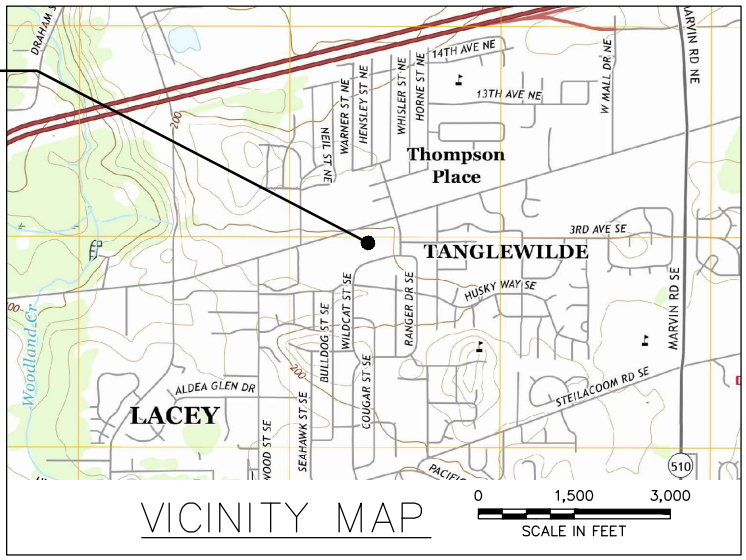
PROJECT LOCATION



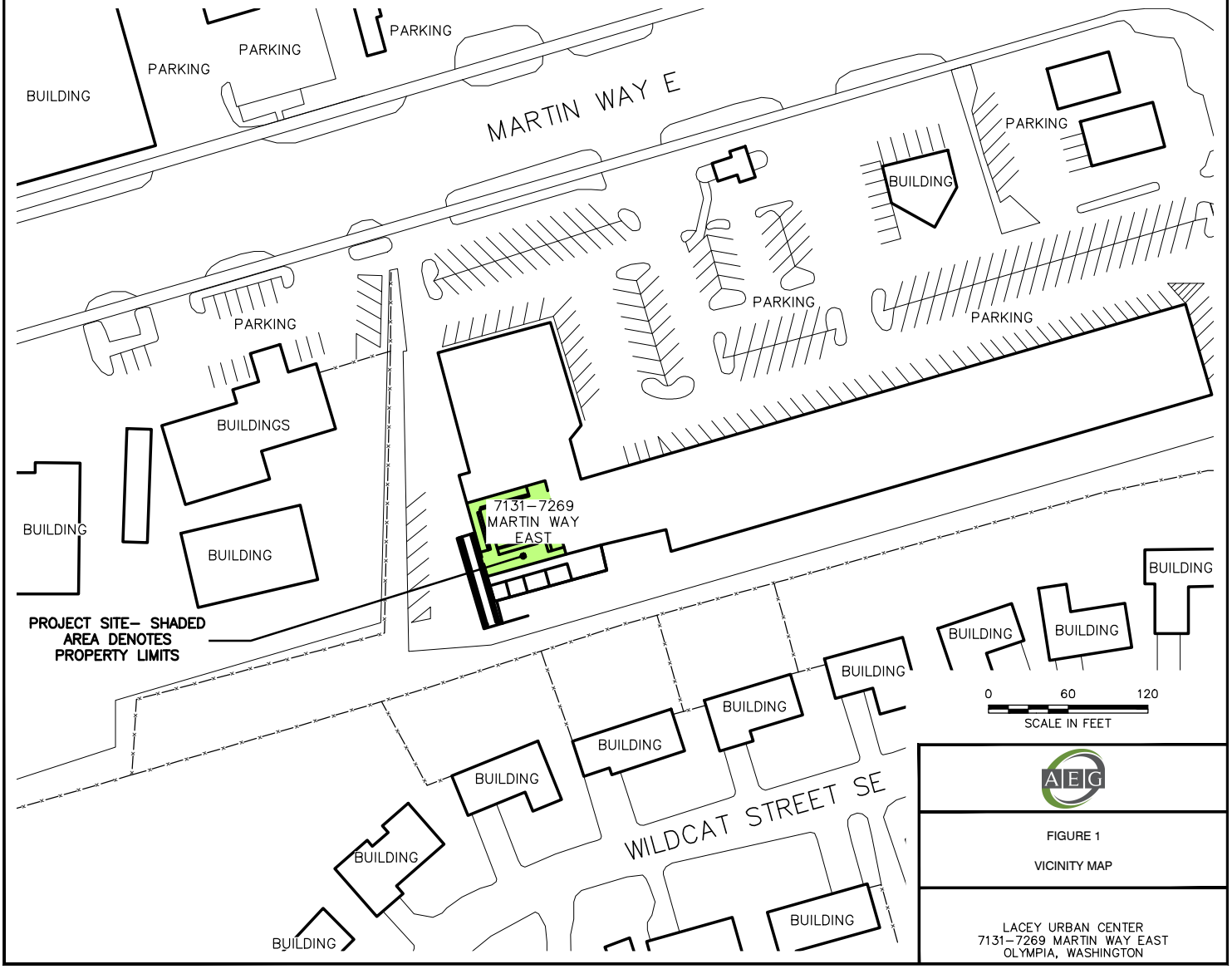
VICINITY MAP

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



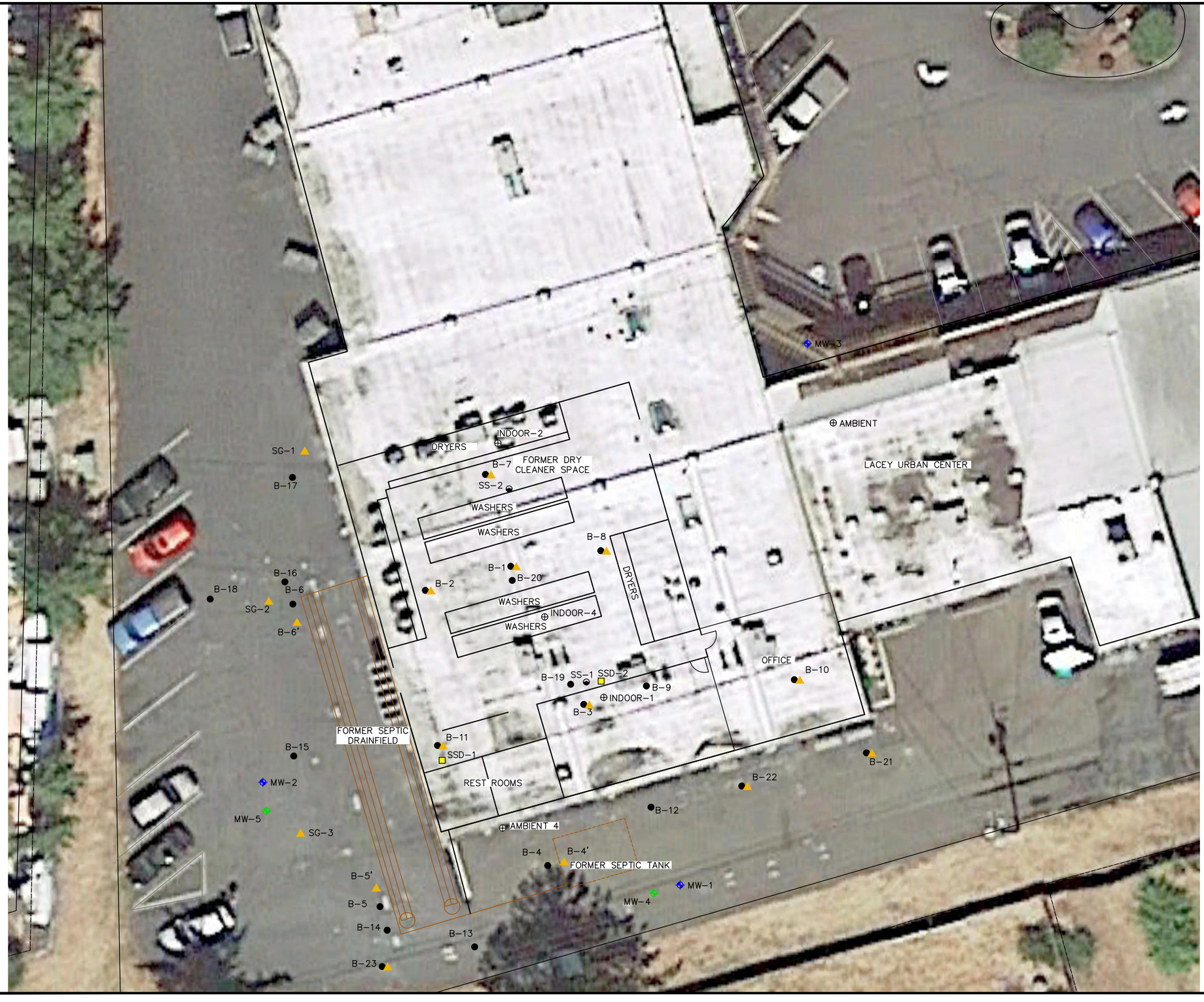
AEG

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_CS.DWG	FR 10/25/2022	ERM 10/25/2022	ERM 10/25/2022	18-236



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LEGEND

MW-1	SHALLOW MONITORING WELL LOCATION
MW-4	DEEP MONITORING WELL LOCATION
SG-1	SOIL GAS SAMPLE LOCATION
B-1	SOIL BORING LOCATION
SS-1	SUB-SLAB VAPOR SAMPLE LOCATION
SSD-1	SUB-SLAB DEPRESSURIZATION SYSTEM
AMBIENT	AIR SAMPLE LOCATION
----------	FENCE

0 10 20
SCALE IN FEET

AEG

FIGURE 2

SITE MAP

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

TABLES

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Table 1 - Summary of Soil Analytical Results
Lacey Urban Center (18-236)
Olympia, Washington

Sample Number	Depth (feet)	Date Collected	Chlorinated Volatile Organic Compounds				
			PCE	TCE	cis-1,2 DCE	trans-1,2-DCE	Vinyl Chloride
Envitechnology, 2018							
B1-2	2	7/20/2018	**0.04**	<0.03	<0.15	<0.15	<0.15
B1-5	5	7/20/2018	**0.06**	<0.03	<0.15	<0.15	<0.15
B2-2	2	7/20/2018	**0.02**	<0.03	<0.15	<0.15	<0.15
B2-5	5	7/20/2018	**0.02**	<0.03	<0.15	<0.15	<0.15
B3-2	2	7/20/2018	**0.19**	<0.03	<0.15	<0.15	<0.15
B3-5	5	7/20/2018	**0.24**	<0.03	<0.15	<0.15	<0.15
B4-5	5	7/20/2018	**0.04**	<0.03	<0.15	<0.15	<0.15
B4-20	20	7/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B5-5	5	7/20/2018	**0.25**	<0.03	<0.15	<0.15	<0.15
B5-20	20	7/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B6-20	20	7/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B7-5	5	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B8-5	5	8/20/2018	**0.03**	<0.03	<0.15	<0.15	<0.15
B9-5	5	8/20/2018	**0.07**	<0.03	<0.15	<0.15	<0.15
B9-10	10	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B9-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B10-2	2	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B10-5	5	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B11-2	2	8/20/2018	**0.05**	<0.03	<0.15	<0.15	<0.15
B11-5	5	8/20/2018	**0.04**	<0.03	<0.15	<0.15	<0.15
B12-5	5	8/20/2018	**0.19**	<0.03	<0.15	<0.15	<0.15
B12-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B13-5	5	8/20/2018	**0.02**	<0.03	<0.15	<0.15	<0.15
B13-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B14-10	10	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B14-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B14-25	25	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B15-5	5	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B15-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B16-10	10	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B16-29	29	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B17-5	5	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B17-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B18-5	5	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
B18-15	15	8/20/2018	<0.05	<0.03	<0.15	<0.15	<0.15
AEG, 2020							
B19-9	9	7/22/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B20-9	9	7/22/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B21-6	6	7/28/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B21-11	11	7/28/2020	<0.05	<0.03	<0.15	<0.15	<0.15

Table 1 - Summary of Soil Analytical Results
Lacey Urban Center (18-236)
Olympia, Washington

Sample Number	Depth (feet)	Date Collected	Chlorinated Volatile Organic Compounds				
			PCE	TCE	cis-1,2 DCE	trans-1,2-DCE	Vinyl Chloride
B22-6	6	7/28/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B22-11	11	7/28/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B23-6	6	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B23-11	11	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW1-6	6	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW1-11	11	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW2-6	6	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW2-11	11	7/29/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW3-6	6	7/30/2020	<0.05	<0.03	<0.15	<0.15	<0.15
MW3-11	11	7/30/2020	<0.05	<0.03	<0.15	<0.15	<0.15
B24-5/MW4-5	5	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-10/MW4-10	10	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-16/MW4-16	16	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-21/MW4-21	21	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-26/MW4-26	26	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-31/MW4-31	31	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-36/MW4-36	36	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-41/MW4-41	41	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-45/MW4-45	45	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-56/MW4-56	56	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-60/MW4-60	60	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-74/MW4-74	74	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-78/MW4-78	78	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
B24-81/MW4-81	81	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
MW5-40	40	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
MW5-60	60	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
MW5-75	75	10/30/2020	<0.03	<0.02	<0.03	<0.03	<0.02
Laboratory PQL			0.03/0.05	0.02/0.03	0.03/0.15	0.03/0.15	0.02/0.15
MTCA Method A Cleanup Levels			0.05	0.03	NE	NE	NE
MTCA Method B Cleanup Levels for Direct Contact Exposure			480	40	160	1,600	0.67

Notes:
All values are presented in milligrams per kilogram (mg/kg)
< = Not detected at the listed laboratory detection limits
PQL = Practical Quantification Limit (laboratory detection limit)
Red Bold indicates the detected concentration exceeds MTCA cleanup level
Bold indicates the detected concentration is below MTCA cleanup level
PCE = Tetrachloroethylene
TCE = Trichloroethylene
DCE = Dichloroethylene
NE = Method A cleanup level not established

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	**0.6 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-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)

J = Result is less than the PQL but greater than the MDL. Reported value is approximate.

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

Table 3 - 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 4 - Summary of Soil Gas & Sub-Slab Vapor Analytical Results
Lacey Urban Center (18-236)
Olympia, Washington

Sample Number	Date Collected	Chlorinated Volatile Organic Compounds				
		PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
Envitechnology, 2018 - Soil Gas						
SG1-5 (B-1)	7/20/2018	**180**	**6.6**	<4.0	<4.0	<2.6
SG2-5 (B-2)	7/20/2018	**140**	**3.8**	<4.0	<4.0	<2.6
SG3-5 (B-3)	7/20/2018	**1,800**	<2.7	<4.0	<4.0	<2.6
SG4-5 (B-4')	7/20/2018	**430**	<2.7	<4.0	<4.0	<2.6
SG5-5 (B-5')	7/20/2018	**610**	<2.7	<4.0	<4.0	<2.6
SG6-5 (B-6')	7/20/2018	**350**	<2.7	<4.0	<4.0	<2.6
SG7-5 (B-7)	8/21/2018	**450**	**1.7**	<4.0	<4.0	<2.6
SG8-5 (B-8)	8/21/2018	**450**	**3.3**	<4.0	<4.0	<2.6
SG10-5 (B-10)	8/21/2018	**120**	**7.3**	<4.0	<4.0	<2.6
SG11-5 (B-11)	8/21/2018	**780**	**3.5**	<4.0	<4.0	**6.2**
AEG, 2020 - Soil Gas						
SG-1	7/29/2020	**60**	<1.8	<2.7	<2.7	<1.7
SG-2	7/29/2020	**180**	<1.8	<2.7	<2.7	<1.7
SG-3	7/29/2020	**90**	<1.8	<2.7	<2.7	<1.7
SG-4	7/29/2020	**72**	**2.4**	<2.7	<2.7	<1.7
SG-5	7/29/2020	**270**	<3.5	<5.2	<5.2	<3.3
SG-6	7/29/2020	**76**	<1.9	<2.8	<2.8	<1.8
AEG, 2020 - Sub-Slab Vapor						
SS-1	10/29/2020	**1,600**	<3.8	<14	<14	<8.9
SS-2	10/29/2020	**410**	<0.75	<2.8	<2.8	<1.8
AEG, 2022 - Sub-Slab Depressurization System Effluent						
SSD-1	10/12/2022	**523**	<0.215	<1.59	<0.793	<0.102
SSD-2	10/12/2022	**406**	<0.215	<1.59	<0.793	<0.102
MTCA Method B Sub-Slab Screening Levels		320*	11*	NL	NL	9.5*
MTCA Method B Sub-Slab Screening Levels Commercial Worker		1,500*	95*	NL	NL	44*

Notes:

All values presented in micrograms per cubic meter ($\mu g/m^3$)

< = Not detected above the laboratory practical quantitation limit (PQL)

* Cancer cleanup/screening level (all other constituents listed have non-cancer values)

Red Bold indicates the detected concentration exceeds MTCA Method B screening levels

Bold indicates the detected concentration is below MTCA Method B screening levels

NL = Not Listed; no screening level has been promulgated for these constituents

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethene

Table 5 - Summary of Indoor Air Analytical Results
Lacey Urban Center
Olympia, Washington

Sample ID		Indoor-1	Indoor-2	Ambient	Indoor-1	Indoor-2	Ambient		Indoor-3	Indoor-4	Ambient-4	Method B Indoor Air Cleanup Level	Method B Indoor Air Cleanup Level Commercial Worker
Date Collected		11/20/2019	11/20/2019	11/20/2019	10/29/2020	10/29/2020	10/29/2020		3/9/2022	10/12/2022	10/12/2022		
TO-15 - Volatile Organic Compounds	Vinyl Chloride	<0.128	<0.128	<0.128	<0.26	<0.26	<0.26	SSD Systems Installed 12/8/21	<0.0256	<0.0256	<0.0256	0.284*	1.33*
	trans-1,2-Dichloroethylene	<0.198	<0.198	<0.198	<0.4	<0.4	<0.4		<0.198	<0.198	<0.198	NL	NL
	cis-1,2-Dichloroethylene	<0.198	<0.198	<0.198	<0.4	<0.4	<0.4		<0.396	<0.396	<0.396	NL	NL
	Trichloroethylene	<0.269	<0.269	<0.269	<0.11	<0.11	<0.11		<0.0537	<0.0537	<0.0537	0.334*	2.85*
	Tetrachloroethylene	**1.29**	**2.10**	<0.269	<6.8	<6.8	<6.8		**0.439**	**0.257**	<0.0678	9.62*	44.9*

Notes:

All values presented in micrograms per cubic meter ($\mu g/m^3$)

-- = Not analyzed for constituent

< = Not detected above laboratory limits

* Cancer cleanup/screening level (all other constituents listed have non-cancer values)

Bold indicates the detected concentration is below Ecology MTCA Method B cleanup or screening levels

Red Bold indicates the detected concentration exceeds Ecology MTCA Method B cleanup or screening levels

SSD = Sub-Slab Depressurization System

NL = Not Listed; no cleanup/screening levels have been promulgated for these constituents

APPENDIX A

Supporting Documents:

Laboratory Datasheets

2633 Parkmont Lane SW, Suite A • Olympia, WA • 98502
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

Libby Environmental, Inc.
3322 South Bay Road NE • Olympia, WA 98506-2957

October 24, 2022

Scott Rose
AEG an Atlas Geosciences NW Company
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 Lacey, 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,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Phone (360) 352-2110 • Fax (360) 352-4154 • libbyenv@gmail.com

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Libby Environmental
Sherry Chilcutt
3322 South Bay Road NE
Olympia, WA 98506

RE: Lacey Urban Center
Work Order Number: 2210195

October 21, 2022

Attention Sherry Chilcutt:

Fremont Analytical, Inc. received 4 sample(s) on 10/13/2022 for the analyses presented in the following report.

Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *10/21/2022*

CLIENT: Libby Environmental
Project: Lacey Urban Center
Work Order: 2210195

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2210195-001	Ambient	10/11/2022 9:21 AM	10/13/2022 9:48 AM
2210195-002	Indoor	10/11/2022 9:15 AM	10/13/2022 9:48 AM
2210195-003	SSD-2	10/11/2022 9:44 AM	10/13/2022 9:48 AM
2210195-004	SSD-1	10/11/2022 9:28 AM	10/13/2022 9:48 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2210195**
Date: **10/21/2022**

CLIENT: Libby Environmental
Project: Lacey Urban Center

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Client: **Libby Environmental**
WorkOrder: 2210195
Project: Lacey Urban Center

Client Sample ID: Ambient
Lab ID: 2210195-001A
Sample Type: Summa Canister

Date Sampled: 10/11/2022
Date Received: 10/13/2022

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
Volatile Organic Compounds by EPA Method TO-15								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1-Dichloroethene (DCE)	0.0147	0.0584	0.0100	0.0397		EPA-TO-15	10/20/2022	TC
cis-1,2-Dichloroethene	<0.100	<0.396	0.100	0.396		EPA-TO-15	10/20/2022	TC
Tetrachloroethene (PCE)	<0.0100	<0.0678	0.0100	0.0678		EPA-TO-15	10/20/2022	TC
trans-1,2-Dichloroethene	<0.0500	<0.198	0.0500	0.198		EPA-TO-15	10/20/2022	TC
Trichloroethene (TCE)	<0.0100	<0.0537	0.0100	0.0537		EPA-TO-15	10/20/2022	TC
Vinyl chloride	<0.0100	<0.0256	0.0100	0.0256		EPA-TO-15	10/20/2022	TC
Surr: 4-Bromofluorobenzene	101 %Rec	--	70-130	--		EPA-TO-15	10/20/2022	TC

Client: **Libby Environmental**
WorkOrder: 2210195
Project: Lacey Urban Center

Client Sample ID: Indoor
Lab ID: 2210195-002A
Sample Type: Summa Canister

Date Sampled: 10/11/2022
Date Received: 10/13/2022

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
Volatile Organic Compounds by EPA Method TO-15								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1-Dichloroethene (DCE)	0.0144	0.0569	0.0100	0.0397		EPA-TO-15	10/20/2022	TC
cis-1,2-Dichloroethene	<0.100	<0.396	0.100	0.396		EPA-TO-15	10/20/2022	TC
Tetrachloroethene (PCE)	0.0379	0.257	0.0100	0.0678		EPA-TO-15	10/20/2022	TC
trans-1,2-Dichloroethene	<0.0500	<0.198	0.0500	0.198		EPA-TO-15	10/20/2022	TC
Trichloroethene (TCE)	<0.0100	<0.0537	0.0100	0.0537		EPA-TO-15	10/20/2022	TC
Vinyl chloride	<0.0100	<0.0256	0.0100	0.0256		EPA-TO-15	10/20/2022	TC
Surr: 4-Bromofluorobenzene	95.8 %Rec	--	70-130	--		EPA-TO-15	10/20/2022	TC

Client: **Libby Environmental**
WorkOrder: 2210195
Project: Lacey Urban Center

Client Sample ID: SSD-2
Lab ID: 2210195-003A
Sample Type: Summa Canister

Date Sampled: 10/11/2022
Date Received: 10/13/2022

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
Volatile Organic Compounds by EPA Method TO-15								
1,1-Dichloroethene (DCE)	<0.0400	<0.159	0.0400	0.159		EPA-TO-15	10/20/2022	TC
cis-1,2-Dichloroethene	<0.400	<1.59	0.400	1.59		EPA-TO-15	10/20/2022	TC
Tetrachloroethene (PCE)	59.9	406	0.0400	0.271		EPA-TO-15	10/20/2022	TC
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/20/2022	TC
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/20/2022	TC
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/20/2022	TC
Surr: 4-Bromofluorobenzene	108 %Rec	--	70-130	--		EPA-TO-15	10/20/2022	TC

Client: **Libby Environmental**
WorkOrder: 2210195
Project: Lacey Urban Center

Client Sample ID: SSD-1
Lab ID: 2210195-004A
Sample Type: Summa Canister

Date Sampled: 10/11/2022
Date Received: 10/13/2022

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
Volatile Organic Compounds by EPA Method TO-15								
	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1-Dichloroethene (DCE)	<0.0400	<0.159	0.0400	0.159		EPA-TO-15	10/21/2022	TC
cis-1,2-Dichloroethene	<0.400	<1.59	0.400	1.59		EPA-TO-15	10/21/2022	TC
Tetrachloroethene (PCE)	77.1	523	0.0400	0.271		EPA-TO-15	10/21/2022	TC
trans-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/21/2022	TC
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/21/2022	TC
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/21/2022	TC
Surr: 4-Bromofluorobenzene	105 %Rec	--	70-130	--		EPA-TO-15	10/21/2022	TC

Work Order: 2210195
CLIENT: Libby Environmental
Project: Lacey Urban Center

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **LCS-R79201** SampType: **LCS** Units: **ppbv** Prep Date: **10/20/2022** RunNo: **79201**
Client ID: **LCSW** Batch ID: **R79201** Analysis Date: **10/20/2022** SeqNo: **1631075**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	1.96	0.0100	2.000	0	98.1	70	130				
1,1-Dichloroethene (DCE)	1.87	0.0100	2.000	0	93.4	70	130				
trans-1,2-Dichloroethene	2.07	0.0500	2.000	0	103	70	130				
cis-1,2-Dichloroethene	2.02	0.100	2.000	0	101	70	130				
Trichloroethene (TCE)	1.86	0.0100	2.000	0	93.2	70	130				
Tetrachloroethene (PCE)	2.07	0.0100	2.000	0	104	70	130				
Surr: 4-Bromofluorobenzene	4.29		4.000		107	70	130				

Sample ID: **MB-R79201** SampType: **MBLK** Units: **ppbv** Prep Date: **10/20/2022** RunNo: **79201**
Client ID: **MBLKW** Batch ID: **R79201** Analysis Date: **10/20/2022** SeqNo: **1631076**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.0100									
1,1-Dichloroethene (DCE)	ND	0.0100									
trans-1,2-Dichloroethene	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.100									
Trichloroethene (TCE)	ND	0.0100									
Tetrachloroethene (PCE)	ND	0.0100									
Surr: 4-Bromofluorobenzene	3.84		4.000		95.9	70	130				

Sample ID: **2210100-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **10/20/2022** RunNo: **79201**
Client ID: **BATCH** Batch ID: **R79201** Analysis Date: **10/20/2022** SeqNo: **1631078**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	39.9	0.100						36.47	9.10	25	
1,1-Dichloroethene (DCE)	62.1	0.100						56.61	9.20	25	
trans-1,2-Dichloroethene	ND	0.500						0		25	
cis-1,2-Dichloroethene	4.29	1.00						3.722	14.2	25	
Trichloroethene (TCE)	ND	0.100						0		25	
Tetrachloroethene (PCE)	0.991	0.100						0.9972	0.674	25	
Surr: 4-Bromofluorobenzene	36.0		40.00		90.0	70	130		0		

Work Order: 2210195
CLIENT: Libby Environmental
Project: Lacey Urban Center

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **2210100-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **10/20/2022** RunNo: **79201**
Client ID: **BATCH** Batch ID: **R79201** Analysis Date: **10/20/2022** SeqNo: **1631078**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	**LIBBY**	Work Order Number:	**2210195**
Logged by:	**Gabrielle Coeuille**	Date Received:	**10/13/2022 9:48:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐	
2.	How was the sample delivered?	UPS			

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐	
		Air samples			
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑	
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑	
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☐	No ☐	NA ☑	
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐		
10.	Are samples properly preserved?	Yes ☑	No ☐		
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐	
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑	
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐		
14.	Does paperwork match bottle labels?	Yes ☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐		
16.	Is it clear what analyses were requested?	Yes ☑	No ☐		
17.	Were all holding times able to be met?	Yes ☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑	

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/12/22 Page: 1 of: 1

Project Name: Lacey Urban Center

Project No: 18-236

Location: Lacey, WA

Collected by: Paul Hitch

Reports to (PM): Scott Rose AEG

Email (PM): srose@aegwa.com

Laboratory Project No (Internal):

Special Remarks:

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

Client: Libby Environmental

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis: Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260	PCE & Daughters	Comments	Internal: Final Pressure ("Hg)
1	Ambient	15422 / FR8-39	AA	6L		10/11/22 ~~1027~~ 0921	30	10/11/22 1617	9										X		
2	Indoor	17640 / FR8-25	IA	6L		10/11/22 0915	18	10/11/22 1615	0										X		
3	SSD-2	4685 / FC-19	S	1L		10/11/22 ~~1040~~ 0944	25	10/11/22 0953	4										X		
4		4693																		unused	
5	SSD-1	4879 / FC-29	S	1L		10/11/22 ~~1028~~ 0928	30	10/11/22 ~~1037~~ 0937	3										X		

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE L = Landfill D = Digester

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

*** Select one: ☐ BTEXN & APH ☐ PCE & Breakdown ☐ Other, specify in comments

Turn-Around Time:
☐ Standard ☐ Next Day
☐ 3 Day ☐ Same Day
☐ 2 Day specify

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Paul Hitch	10/12/22 (1248)		Jenny Anderson	10.12.22 1248
x					

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/12/22 Page: 1 of: 1

Laboratory Project No (Internal): 2210195

Special Remarks:

Client: Libby Environmental

Project Name: Lacey Urban Center

Project No:

Address:

Location: Lacey, WA

City, State, Zip:

Collected by: Paul Hitch

Telephone:

Reports to (PM): ~~Scott Rose~~ Sherry Childers KO

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

Fax:

Email (PM): ~~srose@aegwa.com~~ KO Libbyenv@Gmail.com

Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis: Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260	PCE & Naphthalene	Comments	Internal: Final Pressure ("Hg)
1 Ambient	15422 FR8-39	AA	6L		10/11/22 ~~1021~~ 1021	30	10/11/22 1617	9										X		11
2 Indoor	17640 FR8-25	IA	6L		10/11/22 0915	18	10/11/22 1615	0										X		9
3 SSD-2	4685 FC-19	S	1L		10/11/22 ~~1040~~ 0944	25	10/11/22 0953	4										X		11
4	4693																		unused	
5 SSD-1	4879 FC-29	S	1L		10/11/22 ~~1028~~ 0928	30	10/11/22 ~~1037~~ 0937	3										X		7

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE L = Landfill D = Digester

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

*** Select one: ☐ BTEXN & APH ☐ PCE & Breakdown ☐ Other, specify in comments

Turn-Around Time: ☐ Standard ☐ Next Day ☐ 3 Day ☐ Same Day ☐ 2 Day ☐ specify

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Paul Hitch	10/12/22 (1248)	x	Jenny Anderson	10.12.22 1248
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			Clara O'Connor	Clara O'Connor	10/13/22 9:48