November 13, 2023

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

RE: TECHNICAL MEMORANDUM
Vapor Assessment
Lacey Urban Center
7239 Martin Way East
Olympia, Washington 98516
AEG Project No. 18-236

Dear Ms. Woo:

AEG Atlas, LLC (AEG) has prepared this Technical Memorandum for the purpose of presenting a summary of the vapor assessment activities at the *Lacey Urban Center* property, located at the above-referenced address in Olympia, Washington (Site). This effort was performed in response to an opinion letter, dated April 3, 2023, from the Washington State Department of Ecology (Ecology). Figure 1, *Vicinity Map*, presents the general vicinity of the Site. The Site's current layout and sampling locations can be seen in Figure 2, *Site Map*.

VAPOR PIN INSTALLATION AND FOLLOW-UP VAPOR ASSESSMENT

On October 13, 2023, after the sub-slab depressurization (SSD) system had been turned off for about a week, AEG and subcontractor Holocene Drilling installed three additional sub-slab vapor pins (SS-3 through SS-5), and AEG performed a follow-up round of indoor air sampling. The additional vapor pins were installed to expand the network of sub-slab vapor points throughout the building slab to monitor for the potential build-up of vapors associated with tetrachloroethylene (PCE)-impacted soils detected beneath the building. Concurrent with the sub-slab vapor sampling, AEG collected two indoor air samples, and one ambient outdoor air sample. One indoor air sample was collected in the employee office room, one inside the laundry facility, and the ambient sample was collected upwind and away from any known contamination. The samples were analyzed for PCE and daughter products by Method TO-15 SIM. The sampling locations are illustrated in Figure 2, *Site Map*.

Indoor air and sub-slab vapor samples were collected pursuant to the protocols established by Ecology and the U.S. Environmental Protection Agency (EPA). Indoor and ambient air samples were collected in 6-liter Summa canisters equipped with 8-hour pressure regulators. Sub-slab vapor samples were collected in 1-liter Summa canisters equipped with 10-minute regulators. To ensure

quality control of the indoor air and sub-slab vapor samples, canisters with an initial pressure greater than -25 inches of mercury (Hg) were used. The canisters were collected, and the pressure regulators were closed after the final pressures were noted as less than -10 inches Hg but before the canister vacuum reached 0 inches Hg. The samples were delivered to Libby Environmental Laboratory in Olympia, Washington, for analyses following industry standard chain-of-custody procedures.

Analytical results of both indoor air samples indicated the presence of PCE at concentrations below MTCA Method B cleanup levels. One indoor air sample indicated the presence of trichloroethylene (TCE) at a concentration below MTCA Method B cleanup levels. All other constituents analyzed for were non-detect.

Analytical results of the sub-slab vapor samples indicated the presence of PCE at concentrations below MTCA Method B cleanup levels. All other constituents analyzed for were non-detect.

Analytical results of the samples are summarized in Table 1, *Summary of Soil Gas & Sub-Slab Vapor Analytical Results.* Analytical results of the indoor and outdoor air samples are summarized in Table 2, *Summary of Indoor Air Analytical Results.* The laboratory analytical reports are provided in Appendix A, *Laboratory Reports*.

CONCLUSIONS AND RECOMMENDATIONS

AEG expanded the monitoring network for sub-slab vapor as recommended by Ecology. Vapor assessment activities performed at the Site to date have identified the presence of PCE in only one soil gas sample (in 2018) and one sub-slab vapor sample (in 2020) at concentrations exceeding the MTCA Method B screening level of 1,500 micrograms per cubic meter ($\mu g/m^3$) for commercial workers. All other results have been below the MTCA Method B screening level. Further, no exceedances were detected during this latest October 2023 investigation, which was performed after the SSD system had been turned off for at least a week.

To date, PCE has been detected in soil above the MTCA Method A cleanup level in six samples out of 66 soil samples. The concentrations above the MTCA Method A cleanup level of 0.05 milligrams per kilogram (mg/kg) ranged from 0.06 to 0.25 mg/kg, which are well below the MTCA Method B cleanup level of 480 mg/kg for protection of direct contact. Analytical results of soil samples collected to date are summarized in Table 3, *Summary of Soil Analytical Results.*

For MTCA Method B cleanup levels to be applicable for Site closure, the leaching to groundwater and soil to vapor pathways need to also be considered. Neither PCE nor any of its daughter products have been detected in either shallow or deep groundwater above MTCA Method A cleanup levels to date. Analytical results of groundwater samples collected to date are summarized in Table 4, *Summary of Groundwater Analytical Results.* Further, as summarized above, the limited residual soil

impacts do not appear to be generating enough vapor to create a potential vapor intrusion scenario, especially a commercial worker exposure scenario.

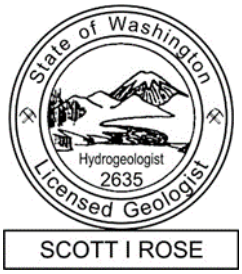
As such, based on the work performed to date at the Site, MTCA cleanup standards have been achieved for all media, and continued operation of the SSD system does not appear warranted. AEG recommends submitting this memo to Ecology for review in consideration of a No Further Action (NFA) determination.

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

Sincerely,

AEG Atlas, LLC

Scott Rose, L.H.G.
Director of Technical Services



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

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

Appendix A – *Laboratory Datasheets*

FIGURES

2633 Parkmont Lane SW, Suite A • Olympia, WA • 98502-5751
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

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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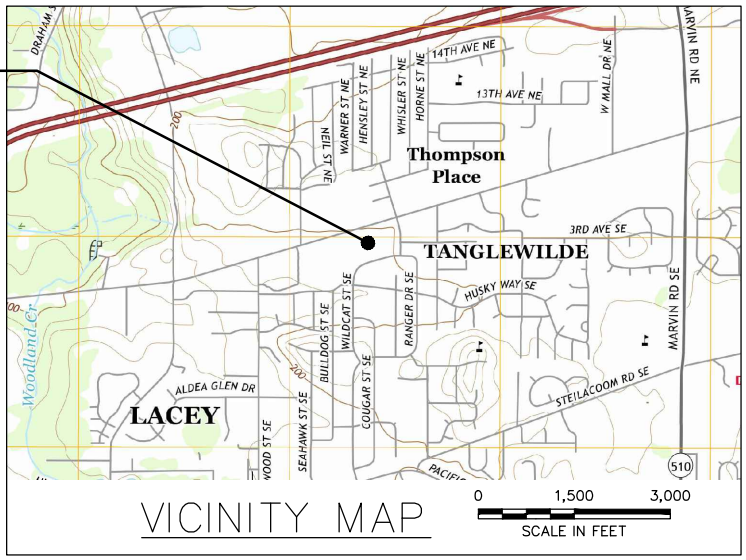
PROJECT LOCATION



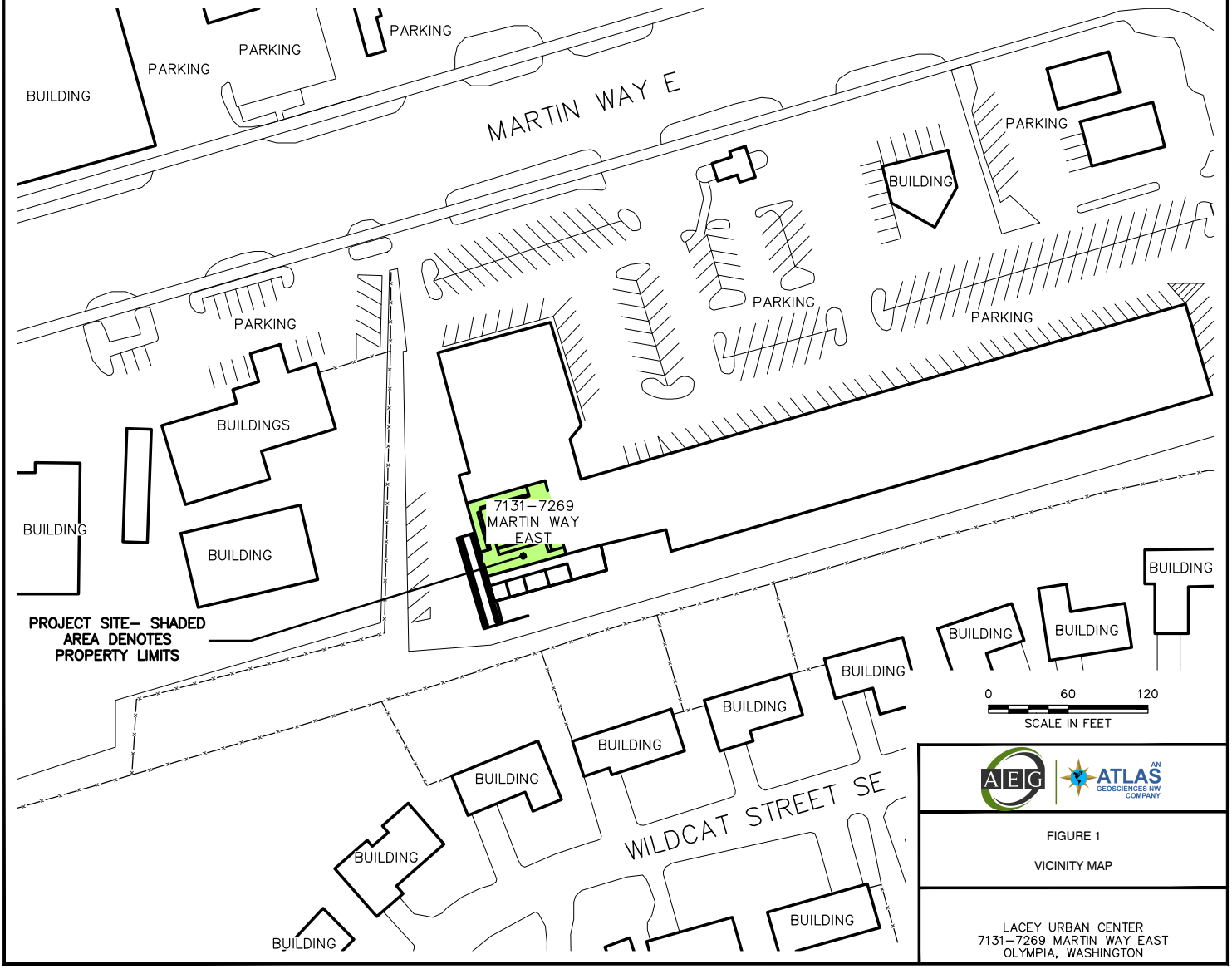
VICINITY MAP

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



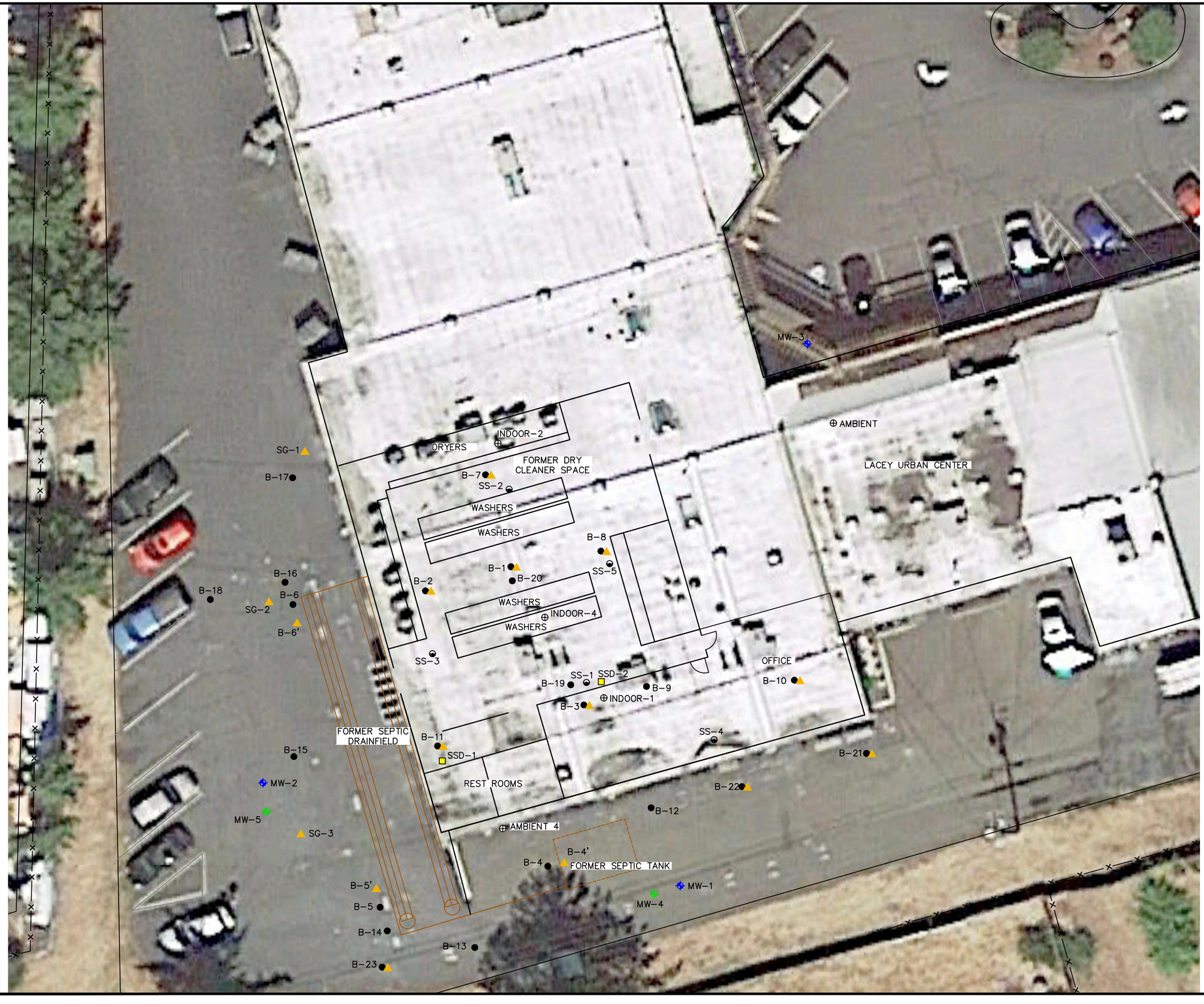
AEG | AN ATLAS GEOSCIENCES NW COMPANY

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 10/31/2023	ERM 10/31/2023	ERM 10/31/2023	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
—— x ——	FENCE

0 10 20
SCALE IN FEET

AEG | AN ATLAS GEOSCIENCES NW COMPANY

FIGURE 2

SITE MAP

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

TABLES

2633 Parkmont Lane SW, Suite A • Olympia, WA • 98502-5751
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Table 1 - 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 - Sub-Slab Vapor						
SS-1	10/29/2020	**1,600**	<3.8	<14	<14	<8.9
	10/13/2023	**326**	<0.215	<0.793	<2.38	<0.102
SS-2	10/29/2020	**410**	<0.75	<2.8	<2.8	<1.8
	10/13/2023	**83.9**	<0.215	<0.793	<2.38	<0.102
SS-3	10/13/2023	**12.9**	<0.215	<0.793	<2.38	<0.102
SS-4	10/13/2023	**508**	**2.34**	<0.793	<2.38	<0.102
SS-5	10/13/2023	**29.4**	<0.215	<0.793	<2.38	<0.102
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 2 - Summary of Indoor Air Analytical Results
Lacey Urban Center (18-236)
Olympia, Washington

Sample ID	Date Collected	TO-15 - Volatile Organic Compounds				
		PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
Indoor-1	11/20/2019	**1.29**	<0.269	<0.198	<0.198	<0.128
Indoor-2	11/20/2019	**2.10**	<0.269	<0.198	<0.198	<0.128
Ambient	11/20/2019	<0.269	<0.269	<0.198	<0.198	<0.128
Indoor-1	10/29/2020	<6.8	<0.11	<0.4	<0.4	<0.26
Indoor-2	10/29/2020	<6.8	<0.11	<0.4	<0.4	<0.26
Ambient	10/29/2020	<6.8	<0.11	<0.4	<0.4	<0.26
Indoor-3	3/9/2022	**0.439**	<0.0537	<0.396	<0.198	<0.0256
Indoor-4	10/12/2022	**0.257**	<0.0537	<0.396	<0.198	<0.0256
Ambient-4	10/12/2022	<0.0678	<0.0537	<0.396	<0.198	<0.0256
Indoor-1	10/13/2023	**1.85**	**0.209**	<0.198	<0.595	<0.0256
Indoor-4	10/13/2023	**5.33**	<0.0537	<0.198	<0.595	<0.0256
Ambient	10/13/2023	**0.452**	<0.0537	<0.198	<0.595	<0.0256
Method B Indoor Air Cleanup Level		9.62*	0.334*	NL	NL	0.284*
Method B Indoor Air Cleanup Level - Commercial Workers		44.9*	2.85*	NL	NL	1.33*

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

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

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethene

Table 3 - 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 3 - 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 4 - 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

APPENDIX A

Laboratory Datasheets

2633 Parkmont Lane SW, Suite A • Olympia, WA • 98502-5751
Phone: 360-352-9835 • Fax: 360-352-8164 • Email: admin@aegwa.com

Libby Environmental, Inc.

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

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

October 26, 2023

Scott Rose
AEG an Atlas Geosciences NW Company
2633 Parkmont Lane SW, Suite A
Olympia, WA 98502

RE: Lacey Urban Center
Work Order Number: L23J075

Enclosed are the results of analyses for samples received by our laboratory on 10/16/2023.

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 feel free to contact us. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry Chilcutt
Senior Chemist

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: 10/13/23 Page: 1 of: 2

Laboratory Project No (Internal):

Special Remarks:

Client: ~~LIBBY~~ AEG

Project Name: Lacey Urban

Project No: 18-236

Address:

Location: 7131-7269 Martin Way E. Olympia, WA

City, State, Zip:

Collected by: Paul Hitch

Telephone:

Reports to (PM): Scott Rose

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@AEG-WA.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		Comments	Internal: Final Pressure ("Hg)
1	SS-1	1454 / FC-29	S	BV	150CC/MIN	10/13/23 1016	29"Hg	10/13/23 1022	4"Hg		X										
2	SS-2	1455 / FC-12	S	BV	150CC/MIN	10/13/23 1027	30"Hg	10/13/23 1037	6"Hg												
3	SS-3	7576 / FC-6	S	BV	150CC/MIN	10/13/23 1047	30"Hg	10/13/23 1055	4"Hg												
4	SS-4	7577 / FC-22	S	BV	150CC/MIN	10/13/23 1002	30"Hg	10/13/23 1008	4"Hg												
5	SS-5	1458 / FC-1	S	BV	150CC/MIN	~~1058~~ 10/13/23 1058	30"Hg	10/13/23 1107	4"Hg												

* 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

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.

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

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x Paul Hitch	Paul Hitch	10/16/23 (1145)	x [signature]	Jodie Childress	10/16/23 11:45
x			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: 10/13/23 Page: 2 of: 2

Laboratory Project No (Internal):

Client: ~~LIBBY~~ AEG

Project Name: Lacey Urban

Project No: 18-236

Address:

Location: 7131 - 7269 Martin Way E. Olympia, WA

City, State, Zip:

Collected by: Paul Hitch

Special Remarks:

Telephone:

Reports to (PM): Scott Rose

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

	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		Comments	Internal: Final Pressure ("Hg)
1	Indoor - 4	15894 Canister / FR8-34 Flow Reg	IA	6L	8HR	10/13/23 Date / 0833 Time	30" Pressure	10/13/23 Date / 1522 Time	6"Hg Pressure		X										
2	Indoor - 1	17234 Canister / FR8-24 Flow Reg	IA	6L	8HR	10/13/23 Date / 0833 Time	30" Pressure	10/13/23 Date / 1529 Time	6"Hg Pressure												
3	Ambient - 4	17237 Canister / FR8-19 Flow Reg	OA	6L	8HR	10/13/23 Date / 0833 Time	30" Pressure	10/13/23 Date / 1532 Time	6"Hg Pressure												
4		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure												
5		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure												

* 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

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.

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

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x Paul Hitch	Paul Hitch	10/16/23 (1145)	x Julie Chalfant	Julie Chalfant	10/16/23 1145
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

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 Project
AEG an Atlas Geosciences NW Company
Libby Work Order # L23J075
Date Received 10/16/2023
Time Received 11:45 AM

Received By JC

Sample Receipt Checklist

Chain of Custody

1. Is the Chain of Custody is 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)	n/a °C		
8. Temperature of sample(s) (0°C to 8°C recommended)	n/a °C		
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. Summas

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
Work Order Number: 2310300

October 25, 2023

Attention Sherry Chilcutt:

Fremont Analytical, Inc. received 8 sample(s) on 10/18/2023 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: *10/25/2023*

CLIENT: Libby Environmental
Project: Lacey Urban
Work Order: 2310300

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2310300-001	SS-1	10/13/2023 10:16 AM	10/18/2023 9:25 AM
2310300-002	SS-2	10/13/2023 10:27 AM	10/18/2023 9:25 AM
2310300-003	SS-3	10/13/2023 10:47 AM	10/18/2023 9:25 AM
2310300-004	SS-4	10/13/2023 10:02 AM	10/18/2023 9:25 AM
2310300-005	SS-5	10/13/2023 10:58 AM	10/18/2023 9:25 AM
2310300-006	Indoor-4	10/13/2023 8:33 AM	10/18/2023 9:25 AM
2310300-007	Indoor-1	10/13/2023 8:33 AM	10/18/2023 9:25 AM
2310300-008	Ambient	10/13/2023 8:33 AM	10/18/2023 9:25 AM

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

Original

Case Narrative

WO#: **2310300**
Date: **10/25/2023**

CLIENT: Libby Environmental
Project: Lacey Urban

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

II. GENERAL REPORTING COMMENTS:
Air samples are reported in ppbv and ug/m3.

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 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.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

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: 2310300
Project: Lacey Urban

Client Sample ID: SS-1
Lab ID: 2310300-001A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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	10/21/2023	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	48.1	326	0.0400	0.271		EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.600	<2.38	0.600	2.38		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	95.1 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: SS-2
Lab ID: 2310300-002A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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	10/21/2023	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	12.4	83.9	0.0400	0.271		EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.600	<2.38	0.600	2.38		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	96.8 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: SS-3
Lab ID: 2310300-003A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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	10/21/2023	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	12.9	87.5	0.0400	0.271		EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.600	<2.38	0.600	2.38		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	96.0 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: SS-4
Lab ID: 2310300-004A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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	10/22/2023	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/22/2023	LB
Tetrachloroethene (PCE)	74.9	508	0.400	2.71		EPA-TO-15	10/24/2023	LB
trans-1,2-Dichloroethene	<0.600	<2.38	0.600	2.38		EPA-TO-15	10/22/2023	LB
Trichloroethene (TCE)	0.435	2.34	0.0400	0.215		EPA-TO-15	10/22/2023	LB
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/22/2023	LB
Surr: 4-Bromofluorobenzene	97.3 %Rec	--	70-130	--		EPA-TO-15	10/22/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: SS-5
Lab ID: 2310300-005A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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	10/22/2023	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	10/22/2023	LB
Tetrachloroethene (PCE)	4.34	29.4	0.0400	0.271		EPA-TO-15	10/22/2023	LB
trans-1,2-Dichloroethene	<0.600	<2.38	0.600	2.38		EPA-TO-15	10/22/2023	LB
Trichloroethene (TCE)	<0.0400	<0.215	0.0400	0.215		EPA-TO-15	10/22/2023	LB
Vinyl chloride	<0.0400	<0.102	0.0400	0.102		EPA-TO-15	10/22/2023	LB
Surr: 4-Bromofluorobenzene	95.8 %Rec	--	70-130	--		EPA-TO-15	10/22/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: Indoor-4
Lab ID: 2310300-006A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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)	<0.0100	<0.0397	0.0100	0.0397		EPA-TO-15	10/21/2023	LB
cis-1,2-Dichloroethene	<0.0500	<0.198	0.0500	0.198		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	0.786	5.33	0.0100	0.0678	I	EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.150	<0.595	0.150	0.595		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	<0.0100	<0.0537	0.0100	0.0537	I	EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0100	<0.0256	0.0100	0.0256		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	101 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

NOTES:
I - Internal standards were outside of acceptance criteria. Re-analysis and/or matrix spike samples yielded the same result indicating a possible matrix effect.

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: Indoor-1
Lab ID: 2310300-007A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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)	<0.0100	<0.0397	0.0100	0.0397		EPA-TO-15	10/21/2023	LB
cis-1,2-Dichloroethene	<0.0500	<0.198	0.0500	0.198		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	0.273	1.85	0.0100	0.0678		EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.150	<0.595	0.150	0.595		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	0.0390	0.209	0.0100	0.0537		EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0100	<0.0256	0.0100	0.0256		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	100 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

Client: **Libby Environmental**
WorkOrder: 2310300
Project: Lacey Urban

Client Sample ID: Ambient
Lab ID: 2310300-008A
Sample Type: Summa Canister

Date Sampled: 10/13/2023
Date Received 10/18/2023

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)	<0.0100	<0.0397	0.0100	0.0397		EPA-TO-15	10/21/2023	LB
cis-1,2-Dichloroethene	<0.0500	<0.198	0.0500	0.198		EPA-TO-15	10/21/2023	LB
Tetrachloroethene (PCE)	0.0666	0.452	0.0100	0.0678		EPA-TO-15	10/21/2023	LB
trans-1,2-Dichloroethene	<0.150	<0.595	0.150	0.595		EPA-TO-15	10/21/2023	LB
Trichloroethene (TCE)	<0.0100	<0.0537	0.0100	0.0537		EPA-TO-15	10/21/2023	LB
Vinyl chloride	<0.0100	<0.0256	0.0100	0.0256		EPA-TO-15	10/21/2023	LB
Surr: 4-Bromofluorobenzene	95.7 %Rec	--	70-130	--		EPA-TO-15	10/21/2023	LB

Work Order: 2310300
CLIENT: Libby Environmental
Project: Lacey Urban

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **LCS-R87355**	SampType: **LCS**	Units: **ppbv**	Prep Date: **10/21/2023**	RunNo: **87355**
Client ID: **LCSW**	Batch ID: **R87355**		Analysis Date: **10/21/2023**	SeqNo: **1823004**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	1.83	0.0100	2.000	0	91.7	70	130				
1,1-Dichloroethene (DCE)	1.94	0.0100	2.000	0	97.1	70	130				
trans-1,2-Dichloroethene	1.91	0.150	2.000	0	95.7	70	130				
cis-1,2-Dichloroethene	1.84	0.0500	2.000	0	92.1	70	130				
Trichloroethene (TCE)	1.90	0.0100	2.000	0	95.2	70	130				
Tetrachloroethene (PCE)	1.92	0.0100	2.000	0	95.8	70	130				
Surr: 4-Bromofluorobenzene	4.16		4.000		104	70	130				

Sample ID: **MB-R87355**	SampType: **MBLK**	Units: **ppbv**	Prep Date: **10/21/2023**	RunNo: **87355**
Client ID: **MBLKW**	Batch ID: **R87355**		Analysis Date: **10/21/2023**	SeqNo: **1823005**

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	0.150									
cis-1,2-Dichloroethene	ND	0.0500									
Trichloroethene (TCE)	ND	0.0100									
Tetrachloroethene (PCE)	ND	0.0100									
Surr: 4-Bromofluorobenzene	3.76		4.000		94.0	70	130				

Sample ID: **2310300-001AREP**	SampType: **REP**	Units: **ppbv**	Prep Date: **10/21/2023**	RunNo: **87355**
Client ID: **SS-1**	Batch ID: **R87355**		Analysis Date: **10/21/2023**	SeqNo: **1823011**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.0400						0		25	
1,1-Dichloroethene (DCE)	ND	0.0400						0		25	
trans-1,2-Dichloroethene	ND	0.600						0		25	
cis-1,2-Dichloroethene	ND	0.200						0		25	
Trichloroethene (TCE)	ND	0.0400						0		25	
Tetrachloroethene (PCE)	47.3	0.0400						48.11	1.68	25	
Surr: 4-Bromofluorobenzene	15.4		16.00		96.0	70	130		0		

Work Order: 2310300
CLIENT: Libby Environmental
Project: Lacey Urban

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **2310300-001AREP**	SampType: **REP**			Units: **ppbv**		Prep Date: **10/21/2023**		RunNo: **87355**		
Client ID: **SS-1**	Batch ID: **R87355**					Analysis Date: **10/21/2023**		SeqNo: **1823011**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **LCS-R87400**	SampType: **LCS**			Units: **ppbv**		Prep Date: **10/24/2023**		RunNo: **87400**		
Client ID: **LCSW**	Batch ID: **R87400**					Analysis Date: **10/24/2023**		SeqNo: **1823779**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene (PCE)	1.94	0.0100	2.000	0	97.0	70	130				
Surr: 4-Bromofluorobenzene	4.09		4.000		102	70	130				

Sample ID: **MB-R87400**	SampType: **MBLK**			Units: **ppbv**		Prep Date: **10/24/2023**		RunNo: **87400**		
Client ID: **MBLKW**	Batch ID: **R87400**					Analysis Date: **10/24/2023**		SeqNo: **1823780**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene (PCE)	ND	0.0100									
Surr: 4-Bromofluorobenzene	3.76		4.000		94.0	70	130				

Sample ID: **2310300-004AREP**	SampType: **REP**			Units: **ppbv**		Prep Date: **10/25/2023**		RunNo: **87400**		
Client ID: **SS-4**	Batch ID: **R87400**					Analysis Date: **10/25/2023**		SeqNo: **1823782**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene (PCE)	80.2	0.400						74.88	6.90	25	
Surr: 4-Bromofluorobenzene	149		160.0		93.4	70	130		0		

Fremont Analytical
An Alliance Technical Group Company

Sample Log-In Check List

Client Name:	LIBBY	Work Order Number:	2310300
Logged by:	Matt Langston	Date Received:	10/18/2023 9:25:00 AM

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. 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:			

17. Additional remarks:

Item Information

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

Fremont Analytical

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

Air Chain of Custody Record & Laboratory Services Agreement

Date: 10/13/23 Page: 1 of: 2

Laboratory Project No (internal): 2310300

Special Remarks:

Project Name: Lacey Urban

Project No: 13-236

Location: 7131-7209 Martin Way E Olympia, WA

Collected by: Paul Hitch

Reports to (PM): [redacted] Sherry Chilcutt

Email (PM): [redacted] libbyenv@gmail.com

Client: LIBBY

Address:

City, State, Zip:

Telephone:

Fax:

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

	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)	Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		Comments	Internal: Final Pressure "Hg
1	SS-1	1454 / FC-29	S	BV	150CC/MIN	10/13/23 1016	29"Hg	10/13/23 1022	4"Hg		X										6
2	SS-2	1455 / FC-12	S	BV	150CC/MIN	10/13/23 1027	30"Hg	10/13/23 1037	6"Hg												3
3	SS-3	7576 / FC-6	S	BV	150CC/MIN	10/13/23 1047	30"Hg	10/13/23 1053	4"Hg												2
4	SS-4	7577 / FC-22	S	BV	150CC/MIN	10/13/23 1002	30"Hg	10/13/23 1008	4"Hg												6
5	SS-5	1458 / FC-1	S	BV	150CC/MIN	10/13/23 1053	30"Hg	10/13/23 1059	4"Hg		✓										2

* 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 [signature]	Paul Hitch	10/16/23 (1145)	x [signature]	Steve Childress	10/16/23 1145
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x [signature]		10/18/23 0925

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

Air Chain of Custody Record & Laboratory Services Agreement

Date: 10/ 3/23 Page: 2 of: 2

Laboratory Project No (Internal): 2310300

Special Remarks:

Project Name: Lacey Urban

Project No: [illegible]

Client: LIBBY

Address:

City, State, Zip:

Telephone:

Fax:

Location: 7131 - 7269 Martin Way E, Olympia WA

Collected by: [illegible]

Reports to (PM): [redacted] Sherry Chilcutt

Email (PM): [redacted] libbyenv@gmail.com

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

	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)	Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		Comments	Internal: Final Pressure ("Hg)
1	[illegible] - 4	15894 / FR8-34	IA	6L	8HR	10/13/23 [illegible]	30"	10/13/23 1522	6" Hg		X										7
2	[illegible]	17234 / FR8-24	IA	6L	8HR	10/13/23 [illegible]	30"	10/13/23 1529	6" Hg												8
3	[illegible] 4	17237 / FR8-19	OA	6L	8HR	10/13/23 [illegible]	30"	10/13/23 1532	6" Hg												6
4																					
5																					

* 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

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Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x [signature]	Paul Hitch	10/16/23 1145	x [signature]	Jake Chelless	10/16/23 11:45
x			[signature]		10/18/23 0925