

April 1, 2020

Mr. Steve Teel
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775
stee461@ecy.wa.gov

RE: ***March 2020 Groundwater Sampling Results Report***
Former Olympia Dry Cleaners
606 Union Avenue SE
Olympia, Washington 98501-1430
AEG Project No. 19-222

Dear Mr. Teel:

Associated Environmental Group, LLC (AEG) has prepared the enclosed ***Groundwater Sampling Results Report*** presenting results of groundwater sampling and analysis activities conducted on March 3, 2020, at the above-referenced site in Olympia, Washington (Site). Currently, on-Site monitoring wells are sampled on a semi-annual frequency, and two locations at the seep are sampled quarterly. Locations of Site features, monitoring wells, seep, and groundwater gradients determined at the time of this sampling event are detailed in Figure 2, *Groundwater Elevation Contour Map 03/03/2020*, and Figure 3, *Source Removal Areas and Compliance Monitoring Locations*.

WORK PERFORMED [March 2020]:

- Obtained depth to groundwater data in five groundwater wells (MW-06, MW-09, MW-11, MW-13, and MW-14).
- Purged and sampled five groundwater monitoring wells (MW-06, MW-09, MW-11, MW-13, and MW-14).
- Sampled the seep at the source (SEEP) and downgradient of the filter sock (SEEP-POST).

WORK PROPOSED FOR NEXT QUARTER [June 2020]:

- Sample the seep at the source (SEEP) and downgradient of the filter sock (SEEP-POST).

March 2020 Groundwater Sampling Results Report

Olympia Dry Cleaners (Former), Olympia Washington

AEG Project No. 19-222

April 1, 2020

SUMMARY:

Sampling Event:	March 3, 2020	Values
Range of Depths to Groundwater:	0.00 to 3.31	Feet below top of well casing (Table 1, <i>Summary of Groundwater Elevations</i>)
Range of Groundwater Elevations:	19.36 to 27.25	Feet above Mean Sea Level (Table 1, <i>Summary of Groundwater Elevations</i>)
Groundwater Gradient: (Direction / Magnitude)	North / 0.04	Feet per foot (ft/ft), determined using data from MW-06, MW-09, MW-11, MW-13, and MW-14
Measureable NAPL Detected:	No	
Measureable NAPL Thickness:	N/A	
Current Remedial Action:	Compliance Monitoring	

DISCUSSION:

Constituents of concern (COCs) were detected in monitoring well MW-09. Detected concentrations are summarized below. Analytical results for this sampling event, and historical analytical results, are presented in the attached Table 2, *Summary of Groundwater Monitoring Analytical Results*.

	March 3, 2020				
Well ID	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl chloride
MW-09	<1.0	1.8	15.0	<1.0	6.7
MTCA Method A Cleanup Levels	5	5	16*	160*	0.2

µg/L = micrograms per liter

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

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

No COCs were detected above the laboratory detection limits for monitoring wells MW-06, MW-11, MW-13, or MW-14.

MW-09: Vinyl chloride was detected **above** the MTCA Method A cleanup level. TCE and cis-1,2-DCE were detected **below** their respective MTCA Method A or B cleanup levels.

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Olympia Dry Cleaners (Former), Olympia Washington

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COCs were detected in seep samples SEEP and SEEP-POST below MTCA the cleanup levels for surface water, which have been established for comparison of seep data. Detected concentrations are summarized below. Analytical results for this sampling event, and historical analytical results, are presented in the attached Table 3, *Summary of Groundwater Seep Analytical Results*.

	March 3, 2020				
Seep ID	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
SEEP	2.6	2.8	37.1	<1.0	1.2
SEEP-POST	<1.0	0.77	12.1	<1.0	0.48
Surface Water Cleanup Levels	3.3	30	NA	10,000	2.4

µg/L = micrograms per liter

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

The groundwater flow direction for the March 2020 sampling event is primarily towards the north with an approximate gradient of 0.04 feet per foot (Figure 2, *Groundwater Elevation Contour Map 03/03/2020*).

RECOMMENDATIONS:

Based on an evaluation of the compliance monitoring data collected to date, AEG recommends the following changes to the current monitoring frequency:

- Groundwater monitoring well data has shown that only vinyl chloride remains present at the Site, and is localized to MW-09, which is located within the former source area. Surrounding and downgradient wells show no other impacts. With the anticipated filing of Environmental Covenants for both the former dry cleaner property and the adjacent Q-Tip property to the north, **AEG recommends the sampling frequency of these wells be reduced from semi-annual to every 18 months.** This change continues to account for any seasonal variation in the data while also reducing the financial burden of continued monitoring for our client.
- Seep data has shown a gradual reduction in concentrations since 2018, particularly the seep source data, which has been below the established MTCA cleanup levels for the last four consecutive quarters. The downgradient seep data (SEEP-POST) has been below cleanup levels since March 2017, except for exceedances of PCE and vinyl chloride in March 2019. The reason for this one-time exceedance is not clear as the seep source data was below cleanup levels during this same event. That said, this data would be considered to be statistically in compliance given the exceedances are less than twice the cleanup level, and occurred in less than 10% of the last 2 monitoring events. As such, **AEG recommends the compliance seep sampling at the Site be discontinued altogether.**

CLOSING:

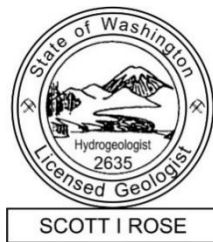
AEG has completed this monitoring event at the Site. Thank you for the opportunity to provide you with environmental consulting services. Should you have questions or require additional information, please contact our office at 360-352-9835.

Sincerely,

Associated Environmental Group, LLC



Scott Rose, L.H.G.
Senior Hydrogeologist

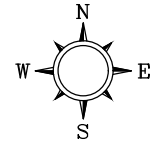
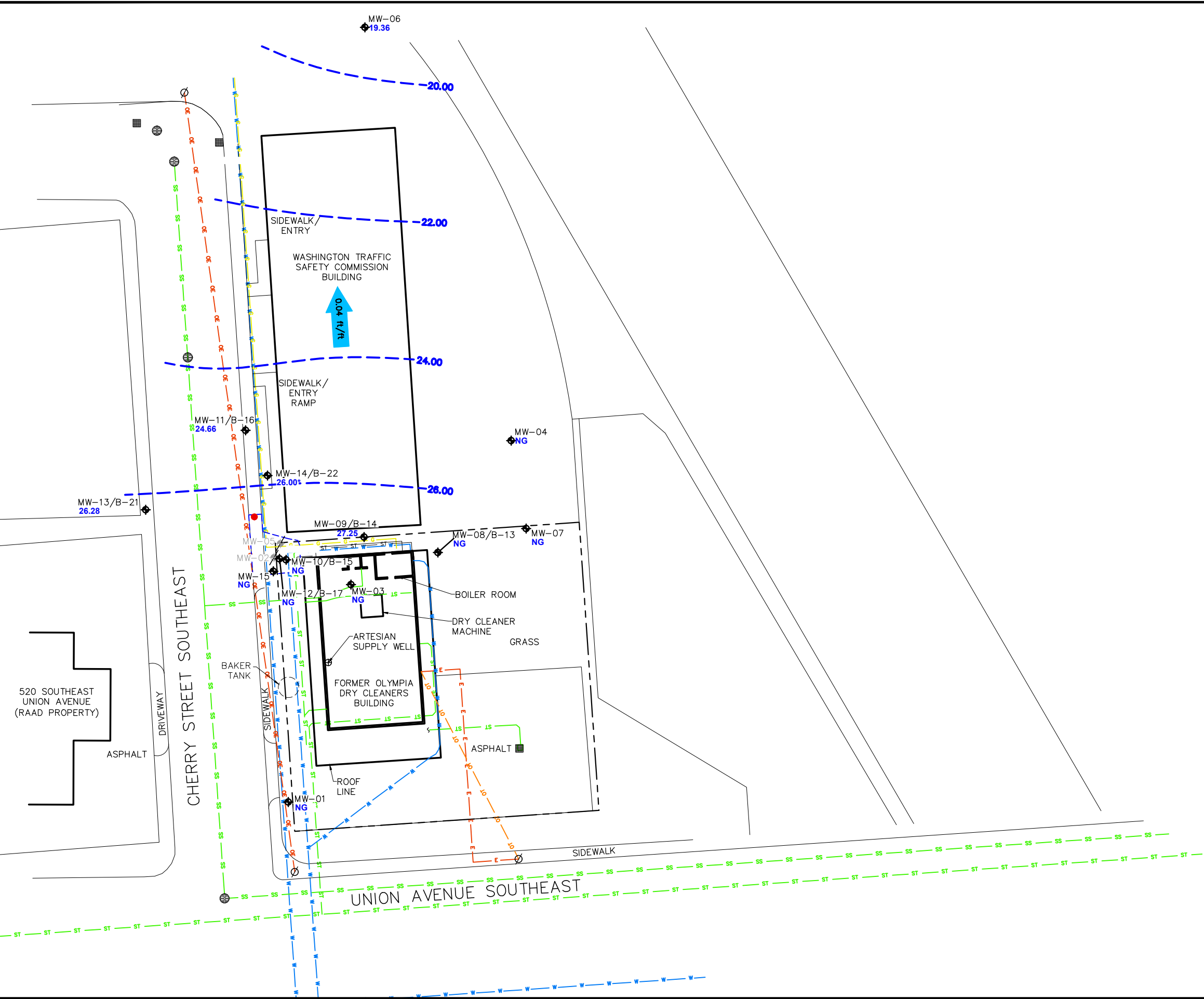


Attachments: Figure 1 – *Site Vicinity Map*
Figure 2 – *Groundwater Elevation Contour Map 03/03/2020*
Figure 3 – *Source Removal Areas and Compliance Monitoring Locations*
Table 1 – *Summary of Groundwater Elevations*
Table 2 – *Summary of Groundwater Monitoring Analytical Results*
Table 3 – *Summary of Groundwater Seep Analytical Results*
Appendix A – Laboratory Datasheets

FIGURES



FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
19-122_2001_1.DWG	ICD	EG	EG	19-122
	3/25/2020	3/25/2020	3/25/2020	



LEGEND

--- PROPERTY BOUNDARY
 ◆ MONITORING WELL LOCATION
 ◆ MW-08/B-13
 ◆ MW-02 FORMER MONITORING WELL LOCATION (ABANDONED SEPTEMBER 2006)

— W — WATER LINE
 — E — ELECTRIC LINE
 — SS — SANITARY SEWER
 — ST — STORM SEWER
 — OE — OVERHEAD ELECTRIC LINE
 — G — GAS LINE
 — OT — OVERHEAD TELEPHONE LINE
 - - - EXCAVATION

● STORM SEWER MANHOLE
 ■ STORM DRAIN/CATCH BASIN
 ○ POWER/UTILITY POLE

19.36 GROUNDWATER ELEVATION (FEET)
 24.00 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
 CONTOUR INTERVAL=2.00 FEET
 0.04 ft/ft APPROXIMATE GROUNDWATER GRADIENT DIRECTION (ft/ft)
 NG NOT GAUGED
 * NOT USED IN CONTOURING

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE

2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT.

REFERENCE

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

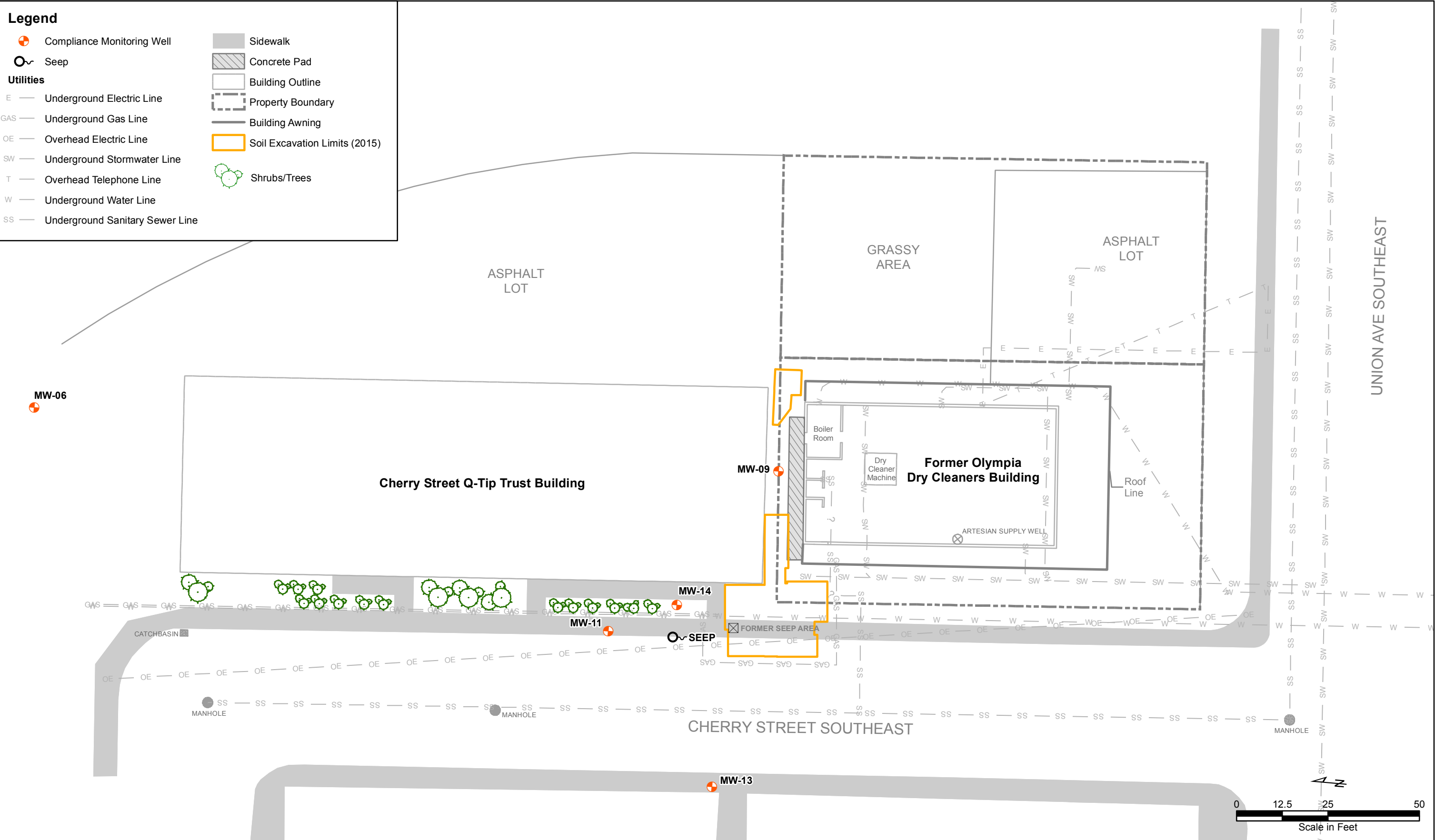
0 20 40
SCALE IN FEET

AEG Associated Environmental Group, LLC

FIGURE 2

GROUNDWATER ELEVATION CONTOUR MAP
03/03/2020

OLYMPIA DRY CLEANERS
606 UNION AVE
OLYMPIA, WASHINGTON



Associated
Environmental
Group, LLC

**Former Olympia Dry Cleaners Site
Olympia, Washington**

Figure 3
Source Removal Areas and
Compliance Monitoring Locations

TABLES

Table 1 - Summary of Groundwater Elevations
Olympia Dry Cleaners
Olympia, Washington

Well No./ TOC Elevation ^{1,2}	Date	Depth to Water	Actual Groundwater Elevation	Change in Elevation
MW-06	3/12/2016	1.46	18.66	--
20.12	6/9/2016	0.86	19.26	0.60
	9/29/2016	0.20	19.92	0.66
	12/20/2016	1.38	18.74	-1.18
	3/10/2017	0.65	19.47	0.73
	10/31/2017	3.83	16.29	-3.18
	3/30/2018	1.62	18.50	2.21
	3/3/2020	0.76	19.36	0.86
MW-09	3/12/2016	2.32	17.80	--
30.56	6/9/2016	3.41	27.15	9.35
	9/29/2016	3.44	27.12	-0.03
	12/20/2016	3.40	27.16	0.04
	3/10/2017	3.22	27.34	0.18
	10/31/2017	3.34	27.22	-0.12
	3/30/2018	3.31	27.25	0.03
	3/3/2020	3.31	27.25	0.00
MW-11 ³	3/12/2016	0.00	20.12	--
24.66	6/9/2016	0.00	20.12	0.00
	9/29/2016	0.00	24.66	4.54
	12/20/2016	0.50	24.16	-0.50
	3/10/2017	0.38	24.28	0.12
	10/31/2017	0.34	24.32	0.04
	3/30/2018	0.39	24.27	-0.05
	3/3/2020	0.00	24.66	0.39
MW-13	3/12/2016	0.07	20.05	--
26.38	6/9/2016	0.17	19.95	-0.10
	9/29/2016	0.42	25.96	6.01
	12/20/2016	0.20	26.18	0.22
	3/10/2017	0.16	26.22	0.04
	10/31/2017	1.33	25.05	-1.17
	3/30/2018	0.18	26.20	1.15
	3/3/2020	0.10	26.28	0.08
MW-14 ³	3/12/2016	0.00	26.00	--
26.00	6/9/2016	0.00	26.00	0.00
	9/29/2016	0.00	26.00	0.00
	12/20/2016	0.00	26.00	0.00
	3/10/2017	0.00	26.00	0.00
	10/31/2017	0.00	26.00	0.00
	3/30/2018	0.00	26.00	0.00
	3/3/2020	0.00	26.00	0.00

Notes:

All values reported in feet

TOC = Top of casing elevation relative to assigned benchmark.

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

¹ Top of well casing survey information from SoundEarth Strategies, Inc.

² Elevations reported in North American Vertical Datum of 1988.

³ Depth to water values of 0.00 indicate a location with artesian groundwater; reported groundwater elevations are considered estimates.

Table 2 - Summary of Groundwater Monitoring Analytical Results

Olympia Dry Cleaners

Olympia, Washington

Sample Location	Status ¹	Date Collected	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCE	Vinyl Chloride
MW-06	Pre-Remediation ¹	8/13/2013	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20
	Post-Remediation	3/12/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		6/9/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		9/29/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		12/20/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/10/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		10/31/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/30/2018	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/3/2020	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
MW-09	Pre-Remediation	8/13/2013	<1.0	<1.0	4.1	<1.0	<1.0	2.7
	Post-Remediation	3/12/2016	<1.0	2.2	11	<1.0	<1.0	5.0
		6/9/2016	<1.0	3.2	26	<1.0	<1.0	9.8
		9/29/2016	<1.0	2.8	27	<1.0	<1.0	11
		12/20/2016	<1.0	0.69	10	<1.0	<1.0	6.9
		3/10/2017	<1.0	0.61	6.2	<1.0	<1.0	2.6
		10/31/2017	<1.0	1.7	12	<1.0	<1.0	6.0
		3/30/2018	<1.0	2.1	6.2	<1.0	<1.0	<0.20
		3/3/2020	<1.0	1.8	15.0	<1.0	<1.0	6.7
MW-11	Pre-Remediation	8/13/2013	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20
	Post-Remediation	3/12/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		6/9/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		9/29/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		12/20/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/10/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		10/31/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/30/2018	<1.0	0.60	<1.0	<1.0	<1.0	<0.20
		3/3/2020	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
MW-13	Pre-Remediation	8/13/2013	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20
	Post-Remediation	3/12/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		6/9/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		9/29/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		12/20/2016	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/10/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		10/31/2017	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/30/2018	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
		3/3/2020	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20

Table 2 - Summary of Groundwater Monitoring Analytical Results

Olympia Dry Cleaners

Olympia, Washington

Sample Location	Status ¹	Date Collected	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCE	Vinyl Chloride
MW-14	Pre-Remediation	8/13/2013	<1.0	<1.0	<1.0	<1.0	<1.0	<0.20
	Post-Remediation	3/8/2016	52	17	23	<1.0	<1.0	2.4
		6/9/2016 ²	99	34	33	<1.0	<1.0	2.8
		9/29/2016	96	40	42	<1.0	<1.0	<0.20
		12/20/2016 ²	23	11	7.3	<1.0	<1.0	0.79
		3/10/2017	38	24	14	<1.0	<1.0	<0.20
		10/31/2017	32	24	15	<1.0	<1.0	2.2
		3/30/2018	1.2	2.0	2.2	<1.0	<1.0	<0.20
		3/3/2020	<1.0	<0.50	<1.0	<1.0	<1.0	<0.20
PQL			1.0	0.50	1.0	1.0	1.0	0.20
MTCA Method A Cleanup Level			5	5	16*	160*	7.7*	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 Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

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

¹Pre-remediation groundwater monitoring data collected by SoundEarth Strategies, Inc.

² Field duplicate taken at this location on this date; the greatest concentration between the two samples is shown.

Data collected between 2016-2018 collected by Floyd Snider.

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

Table 3 - Summary of Groundwater Seep Analytical Results
Olympia Dry Cleaners
Olympia, Washington

Sample Location	Status	Date Collected	Halogenated Volatile Organic Compounds				
			PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
SEEP	Pre-Remediation ¹	7/10/2008	390	580	2,500	12	190
	Post-Remediation	3/8/2016	33	15	110	<1.0	15
		3/30/2016	23	17	160	<1.0	22
		6/9/2016	16	18	170	1.3	20
		9/29/2016	16	30	180	<1.0	16
		12/20/2016	56	44	110	<1.0	10
		3/10/2017	13	7.6	19	<1.0	1.8 J
		6/21/2017	12	8.5	57	<1.0	6.2
		10/31/2017	14	19	74	<1.0	12
		1/4/2018	20	34	138	<1.0	7.6
		3/22/2018	23	17	52	<1.0	2.45
		3/30/2018	19	16	60	<1.0	1.9
		6/23/2018	5.4	5.4	34	<1.0	4.7
		9/30/2018	1.7	5.3	45.7	<1.0	3.6
		3/20/2019	0.96 J	3.4	48	<1.0	1.4
		7/3/2019	<1.0	0.68	8.5	<1.0	0.89
		12/7/2019	2.8	4.0	49.3	<1.0	1.6
		3/3/2020	2.6	2.8	37.1	<1.0	1.2
SEEP-CB ²	Pre-Remediation	10/15/2008	<2.0	<1.0	<1.0	<1.0	<1.0
	Post-Remediation	6/9/2016	<1.0	<0.50	1.8	<1.0	<0.20
		3/22/2017	<1.0	0.72	1.3	<1.0	<0.20
		3/30/2018	<1.0	<0.50	<1.0	<1.0	<0.20
SEEP-POST ³	Post-Remediation	9/29/2016	<1.0	0.55	2.3	<1.0	0.62
		12/20/2016	10	8.0	19	<1.0	2.2
		3/10/2017	3.4 J	2.5	6.3	<1.0	1.3
		3/22/2017	4.8	4.1	10	<1.0	1.3
		3/30/2017	<1.0	<0.50	<1.0	<1.0	<0.20
		6/21/2017	<1.0	<0.50	<1.0	<1.0	<0.20
		10/31/2017	<1.0	0.58	2.5	<1.0	<0.20
		1/8/2018	<1.0	0.76	2.8	<1.0	<0.20
		3/22/2018	<1.0	0.6	2.6	<1.0	<0.20
		3/30/2018	<1.0	<0.50	<1.0	<1.0	<0.20
		6/23/2018	<1.0	<0.50	2.0	<1.0	<0.20
		9/30/2018	<1.0	1.6	14.4	<1.0	1.5
		3/20/2019	4.8	12	112.0	<1.0	3.6
		7/3/2019	<1.0	0.45	6.8	<1.0	0.61
		12/7/2019	0.55 J	1.1	14.5	<1.0	0.43
		3/3/2020	<1.0	0.77	12.1	<1.0	0.48
PQL			1.0	1.0	1.0	1.0	0.2
Surface Water Cleanup Levels			3.3	30	NA	10,000	2.4

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 Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

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

¹Pre-remediation seep samples were collected approximately 16 feet south of the current seep sampling location. However, both pre- and post-remediation samples are representative of the same source of seep water.

²Sample collected at the downstream catch basin. Pre-remediation sample was collected by the Washington State Department of Ecology from approximately the same location and named "Street - 2."

³Sample collected downstream of the carbon filter sock to demonstrate treatment efficiency.

J = The analyte was detected; the concentration is considered to be an estimate.

NA = Not Applicable; no cleanup level has been established for this constituent.

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

APPENDIX A

LABORATORY DATASHEETS



Libby Environmental, Inc.

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

March 10, 2020

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 Former Olympia Dry Cleaners 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 in 30 days unless we are contacted to arrange long term storage.

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

Sincerely,

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

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Libby Environmental, Inc.

FORMER OLYMPIA DRY CLEANERS PROJECT
AEG, LLC
Olympia, Washington
Libby Project # L200304-4
Client Project # 19-222

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-6	MW-6 Dup	MW-9	MW-11	MW-13
Date Sampled		N/A	3/3/2020	3/3/2020	3/3/2020	3/3/2020	3/3/2020
Date Analyzed	PQL (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)
Vinyl Chloride (VC)	0.2	nd	nd	nd	6.7	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	15.0	nd	nd
Trichloroethene (TCE)	0.4	nd	nd	nd	1.8	nd	nd
Tetrachloroethene (PCE)	1.0	nd	nd	nd	nd	nd	nd
Surrogate Recovery							
Dibromofluoromethane		105	99	93	107	105	102
1,2-Dichloroethane-d4		105	97	88	107	105	101
Toluene-d8		88	101	100	94	93	93
4-Bromofluorobenzene		78	82	78	88	72	70

"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.

FORMER OLYMPIA DRY CLEANERS PROJECT
AEG, LLC
Olympia, Washington
Libby Project # L200304-4
Client Project # 19-222

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-14	Seep-1	Seep-Post
Date Sampled		3/3/2020	3/3/2020	3/3/2020
Date Analyzed	PQL (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)	3/6/2020 (µg/L)
Vinyl Chloride (VC)	0.2	nd	1.2	0.48
1,1-Dichloroethene	0.5	nd	nd	nd
trans-1,2-Dichloroethene	1.0	nd	nd	nd
cis-1,2-Dichloroethene	1.0	nd	37.1	12.1
Trichloroethene (TCE)	0.4	nd	2.8	0.77
Tetrachloroethene (PCE)	1.0	nd	2.6	nd
Surrogate Recovery				
Dibromofluoromethane		103	94	107
1,2-Dichloroethane-d4		105	89	114
Toluene-d8		83	87	95
4-Bromofluorobenzene		74	70	72

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

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

Matrix Spike Sample Identification: Seep-Post								
	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	5.1	5.4	102	108	5.7	65-135	
1,1-Dichloroethene	5.0	4.7	5.0	94	100	6.2	65-135	
trans-1,2-Dichloroethene	5.0	4.8	5.0	96	100	4.1	65-135	
cis-1,2-Dichloroethene	5.0	5.2	4.7	104	94	10.1	65-135	
Benzene	5.0	4.9	5.7	98	114	15.1	65-135	
Trichloroethene (TCE)	5.0	5.0	4.8	100	96	4.1	65-135	
Toluene	5.0	5.0	5.2	100	103	3.0	65-135	
Tetrachloroethene (PCE)	5.0	4.6	5.5	92	110	17.8	65-135	
Ethylbenzene	5.0	4.6	5.3	92	106	14.1	65-135	
Total Xylenes	15.0	12.5	17.4	83	116	32.8	65-135	
Surrogate Recovery (%)				MS	MSD			
Dibromofluoromethane				114	98		65-135	
1,2-Dichloroethane-d4				114	95		65-135	
Toluene-d8				99	98		65-135	
4-Bromofluorobenzene				97	95		65-135	
ACCEPTABLE RPD IS 35%								

ANALYSES PERFORMED BY: Sherry Chilcutt

Laboratory Control Sample

	Spiked Conc. (µg/L)	LCS Response (µg/L)	LCS Recovery (%)	LCS Recovery Limits (%)	Data Flag
Vinyl Chloride (VC)	5.0	5.3	106	80-120	
1,1-Dichloroethene	5.0	4.6	92	80-120	
trans-1,2-Dichloroethene	5.0	4.8	96	80-120	
cis-1,2-Dichloroethene	5.0	5.3	106	80-120	
Benzene	5.0	5.6	112	80-120	
Trichloroethene (TCE)	5.0	5.0	100	80-120	
Toluene	5.0	5.0	100	80-120	
Tetrachloroethene (PCE)	5.0	4.1	82	80-120	
Ethylbenzene	5.0	5.6	112	80-120	
Total Xylenes	15.0	12.8	85	80-120	
Surrogate Recovery					
Dibromofluoromethane			106	65-135	
1,2-Dichloroethane-d4			108	65-135	
Toluene-d8			96	65-135	
4-Bromofluorobenzene			97	65-135	

ANALYSES PERFORMED BY: Sherry Chilcutt

Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

FORMER OLYMPIA DRY CLEANERS PROJECT

Phone: (360) 352-2110

AEG, LLC

FAX: (360) 352-4154

Libby Project # L200304-4

Email: libbyenv@gmail.com

Date Received 3/4/2020

Time Received 1:00 PM

Received By SC

Sample Receipt Checklist

Chain of Custody

- | | | | |
|--------------------------------------|--|------------------------------------|----------------------------------|
| 1. Is the Chain of Custody complete? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 2. How was the sample delivered? | <input checked="" type="checkbox"/> Hand Delivered | <input type="checkbox"/> Picked Up | <input type="checkbox"/> Shipped |

Log In

- | | | | |
|---|---|--|------------------------------|
| 3. Cooler or Shipping Container is present. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 4. Cooler or Shipping Container is in good condition. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 5. Cooler or Shipping Container has Custody Seals present. | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A |
| 6. Was an attempt made to cool the samples? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 7. Temperature of cooler (0°C to 8°C recommended) | <u>-0.2 °C</u> | | |
| 8. Temperature of sample(s) (0°C to 8°C recommended) | <u>8.4 °C</u> | | |
| 9. Did all containers arrive in good condition (unbroken)? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 10. Is it clear what analyses were requested? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 11. Did container labels match Chain of Custody? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 12. Are matrices correctly identified on Chain of Custody? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 13. Are correct containers used for the analysis indicated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 14. Is there sufficient sample volume for indicated analysis? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 15. Were all containers properly preserved per each analysis? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |
| 16. Were VOA vials collected correctly (no headspace)? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 17. Were all holding times able to be met? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | |

Discrepancies/ Notes

- | | | | |
|---|------------------------------|-----------------------------|---|
| 18. Was client notified of all discrepancies? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
|---|------------------------------|-----------------------------|---|

Person Notified: _____

Date: _____

By Whom: _____

Via: _____

Regarding: _____

19. Comments. _____

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 3/3/20

Page: 1 of 1

Client: AEG

Project Manager: SCOTT ROSE

Address: 2633 PARKMONT LANE SW, SUITE A

Project Name: FORMER OLYMPIA DRY CLEANERS

City: OLYMPIA State: WA Zip: 98502

Location: 606 UNION AVE SE City, State: OLYMPIA, WA

Phone: (360) 352-9835 Fax: (360) 352-8164

Collector: Foster Knetzel Date of Collection: 3/3/20

Client Project # 19-222

Email: SROSE@AESWA.COM



Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	NWTPH-GX	BTEX 8021	NWTPH-HCID	NWTPH-Dx	NWTPH-Dx/IDx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	PCP w/ DANGEROUS PRODUCTS	Field Notes
1 MW-6		1426	GW	VOA													X	
2 MW-9		1341	GW	VOA													X	
3 MW-11		1226	GW	VOA													X	
4 MW-13		1153	GW	VOA													X	
5 MW-14		1258	GW	VOA													X	
6 Seep-1		1110	GW	VOA													X	
7 Seep-Post		1100	GW	VOA													X	
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		

Relinquished by: [Signature] Date / Time: 3/3/20 1600

Received by: [Signature] Date / Time: 3/3/20 1600

Sample Receipt

Remarks:

Relinquished by: [Signature] Date / Time: 3/4/20 1300

Received by: [Signature] Date / Time: 3-4-201300

Good Condition? Y N

Temp. °C

Seals Intact? Y N N/A

Relinquished by: _____ Date / Time: _____

Received by: _____ Date / Time: _____

Total Number of Containers

TAT: 24HR 48HR 5-DAY