

September 30, 2021

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](mailto:stee461@ecy.wa.gov)

RE: ***September 2021 Groundwater & Seep Monitoring 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 & Seep Monitoring Report*** presenting results of sampling and analysis activities conducted on September 10, 2021 at the above-referenced site in Olympia, Washington (Site). Currently, on-Site monitoring wells are sampled on a 15-month frequency, and seep locations at the seep source (SEEP) and downgradient of the filter sock (SEEP-POST) are sampled semi-annually. However, a third location (at the downgradient catchbasin, SEEP-CB) was also sampled during this event as the catchbasin is the point of compliance for discharge into surface water. The location of the Site is illustrated on Figure 1, *Site Vicinity Map*. Locations of Site features, monitoring wells, and groundwater gradients determined at the time of this sampling event are detailed in Figure 2, *Groundwater Elevation Contour Map 09/10/2021*.

**WORK PERFORMED [September 2021]:**

- Obtained depth to groundwater data from five groundwater wells (MW-6, MW-9, MW-11, MW-13, and MW-14).
- Purged and sampled three groundwater monitoring wells (MW-9, MW-11, and MW-14).
- Sampled the seep at the source (SEEP), downgradient of the filter sock (SEEP-POST), and at the catchbasin (SEEP-CB).

**WORK PROPOSED [December 2021 – Seep Monitoring]:**

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

**September 2021 Groundwater & Seep Monitoring Report**

Olympia Dry Cleaners (Former), Olympia Washington

AEG Project No. 19-222

September 30, 2021

**GROUNDWATER SUMMARY:**

| Sampling Event:                               | September 10, 2021     | Values                                                                                 |
|-----------------------------------------------|------------------------|----------------------------------------------------------------------------------------|
| Range of Depths to Groundwater:               | 0.00 to 3.50           | Feet below top of well casing (Table 1, <i>Summary of Groundwater Elevations</i> )     |
| Range of Groundwater Elevations:              | 20.00 to 27.06         | 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-6, MW-9, MW-11, MW-13, and MW-14. |
| Measureable NAPL Detected:                    | No                     |                                                                                        |
| Measureable NAPL Thickness:                   | N/A                    |                                                                                        |
| Current Remedial Action:                      | Performance Monitoring |                                                                                        |

**GROUNDWATER DISCUSSION:**

Constituents of concern (COCs) were detected in monitoring wells MW-9 and MW-14. 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*.

| September 10, 2021           |            |            |                    |                      |                       |
|------------------------------|------------|------------|--------------------|----------------------|-----------------------|
| Well ID                      | PCE (µg/l) | TCE (µg/l) | cis-1,2-DCE (µg/l) | trans-1,2-DCE (µg/l) | Vinyl Chloride (µg/l) |
| MW-9                         | <1.0       | <0.4       | <b>1.2</b>         | <1.0                 | <b>7.0</b>            |
| MW-14                        | <1.0       | <0.4       | <b>3.8</b>         | <1.0                 | <b>0.58</b>           |
| 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

**MW-9:** Vinyl chloride was detected **above** the MTCA Method A cleanup level. Cis-1-2-DCE was detected **below** the MTCA Method B cleanup level.

**MW-14:** Vinyl chloride was detected **above** the MTCA Method A cleanup level. Cis-1-2-DCE was detected **below** the MTCA Method B cleanup level.

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The groundwater flow direction for the September 2021 sampling event is primarily towards the north with an approximate gradient of 0.04 ft/ft (Figure 2, *Groundwater Elevation Contour Map 09/10/2021*).

**SEEP DISCUSSION:**

COCs were detected in seep samples SEEP and SEEP-POST. Detected concentrations are summarized below. Analytical results for this sampling event, and historical analytical results, are presented in the attached Table 1, *Summary of Groundwater Seep Analytical Results*.

|                              | June 2021 |      |             |               |                |
|------------------------------|-----------|------|-------------|---------------|----------------|
| Sample ID                    | PCE       | TCE  | cis-1,2-DCE | trans-1,2-DCE | Vinyl chloride |
| SEEP                         | <1.0      | 1.2  | 20          | <1.0          | 5.2            |
| SEEP-POST                    | <1.0      | <0.4 | 3.9         | <1.0          | 1.6            |
| SEEP-CB                      | <1.0      | <0.4 | <1.0        | <1.0          | <0.2           |
| Surface Water Cleanup Levels | 3.3       | 30   | NA          | 10,000        | 2.4            |

µg/L = micrograms per liter

PCE = Tetrachloroethylene

TCE = Trichloroethylene

DCE = Dichloroethylene

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

**SEEP:** Vinyl chloride was detected **above** the surface water cleanup level. TCE and cis-1-2-DCE were detected **below** their respective surface water cleanup levels.

**SEEP-POST:** cis-1-2-DCE and vinyl chloride were detected **below** their respective surface water cleanup levels.

**SEEP-CB:** All COCs were non-detect.

**CLOSING:**

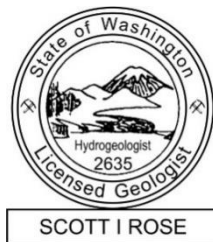
AEG appreciates the opportunity to provide environmental consulting services for this Site. Should you have questions or require additional information, please contact our office at 360-352-9835.

Sincerely,

**Associated Environmental Group, LLC**



Scott Rose, L.H.G.  
Senior Hydrogeologist



Attachments: Figure 1, *Site Vicinity Map*

Figure 2, *Groundwater Elevation Contour Map 09/10/2021*

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**



|                                                                                                                         |                                                                 |                                       |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------|
|  Associated Environmental Group, LLC | <b>Former Olympia Dry Cleaners Site<br/>Olympia, Washington</b> | <b>Figure 1<br/>Site Vicinity Map</b> |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------|

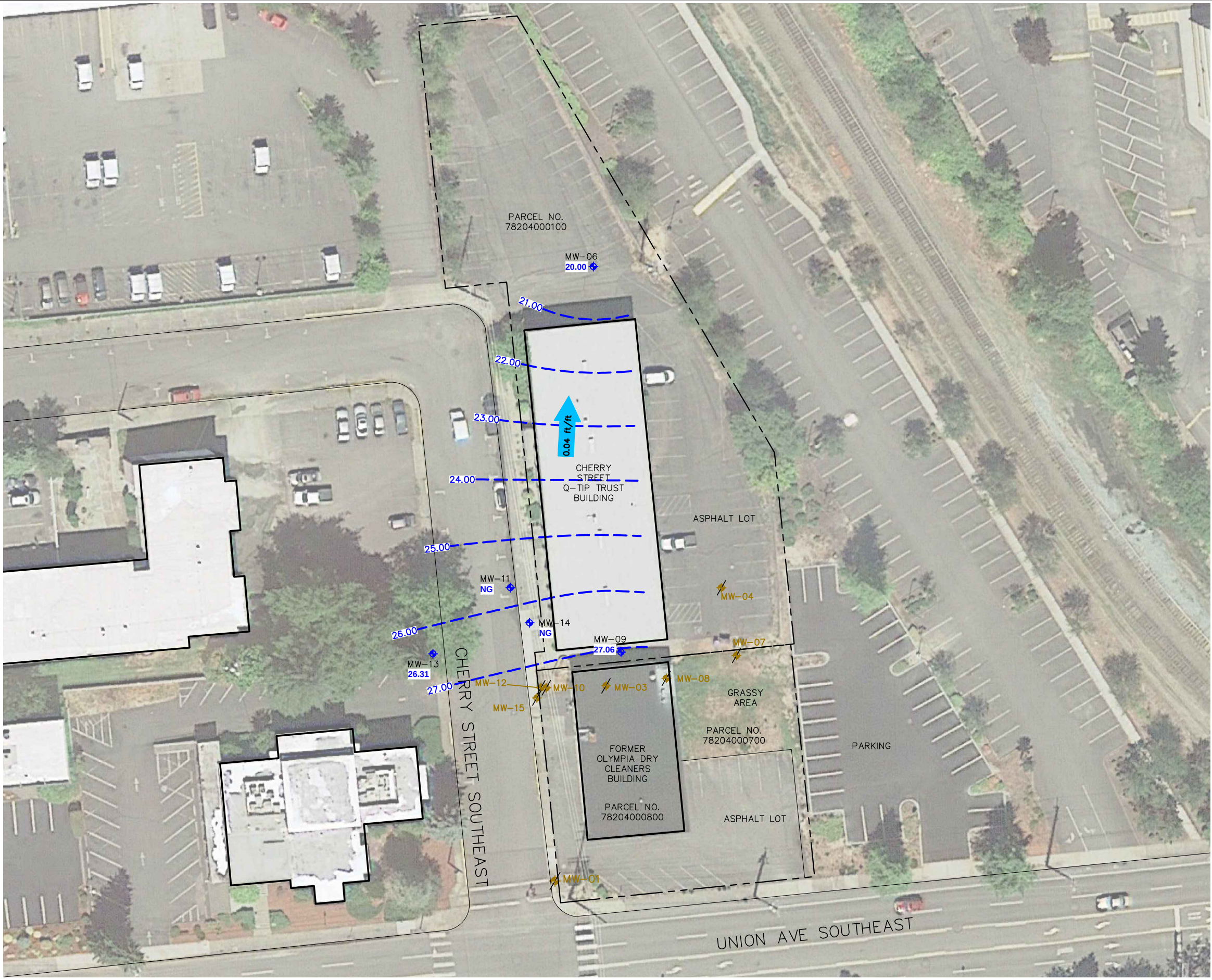
PROJECT  
NUMBER 19-222

APPROVED BY  
JS 9/27/2021

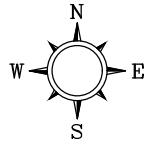
CHECKED BY  
JS 9/27/2021

DRAWN BY  
ICD 9/27/2021

FILENAME  
19-222-2103-2.DWG



SOURCE: 2020 AERIAL PHOTOGRAPHY; © GOOGLE



LEGEND

- PARCEL BOUNDARY
- MW-11 MONITORING WELL
- MW-07 ABANDONED MONITORING WELL
- 26.31 GROUNDWATER ELEVATION (FEET)
- 25.00 INFERRED GROUNDWATER ELEVATION CONTOUR (FEET)
- CONTOUR INTERVAL=1.00 FEET
- 0.04 ft/ft APPROXIMATE GROUNDWATER GRADIENT DIRECTION (ft/ft)
- NG NOT GAUGED

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.

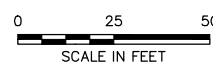


FIGURE 2  
GROUNDWATER ELEVATION CONTOUR MAP  
09/10/2021

FORMER OLYMPIA DRY CLEANERS  
606 UNION AVE  
OLYMPIA, WASHINGTON

## **TABLES**

**Table 1 - Summary of Groundwater Elevations**

Olympia Dry Cleaners

Olympia, Washington

| Well No./<br>TOC<br>Elevation <sup>1,2</sup> | Date       | Depth to<br>Water | Actual Groundwater<br>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                |
|                                              | 9/10/2021  | 0.12              | 20.00                           | 0.64                |
| 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                |
|                                              | 6/11/2020  | 4.28              | 26.28                           | -0.97               |
|                                              | 9/10/2021  | 3.50              | 27.06                           | 0.78                |
| MW-11 <sup>3</sup>                           | 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                |
|                                              | 6/11/2020  | 0.00              | 24.66                           | 0.00                |
|                                              | 9/10/2021  | 0.00              | 24.66                           | 0.00                |
| 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                |
|                                              | 9/10/2021  | 0.07              | 26.31                           | 0.03                |
| MW-14 <sup>3</sup>                           | 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                |
|                                              | 6/11/2020  | 0.00              | 26.00                           | 0.00                |
|                                              | 9/10/2021  | 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

\* Ceased monitoring of this well as of 6/2/20.

<sup>1</sup> Top of well casing survey information from SoundEarth Strategies, Inc.<sup>2</sup> Elevations reported in North American Vertical Datum of 1988.<sup>3</sup> 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 <sup>1</sup>          | Date Collected | PCE  | TCE         | cis-1,2-DCE | trans-1,2-DCE | 1,1-DCE | Vinyl Chloride |
|--------------------|------------------------------|----------------|------|-------------|-------------|---------------|---------|----------------|
| MW-06 <sup>3</sup> | Pre-Remediation <sup>1</sup> | 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 | <0.4        | <1.0        | <1.0          | <0.5    | <0.20          |
| MW-09              | Pre-Remediation              | 8/13/2013      | <1.0 | <1.0        | <b>4.1</b>  | <1.0          | <1.0    | <b>2.7</b>     |
|                    | Post-Remediation             | 3/12/2016      | <1.0 | <b>2.2</b>  | <b>11</b>   | <1.0          | <1.0    | <b>5.0</b>     |
|                    |                              | 6/9/2016       | <1.0 | <b>3.2</b>  | <b>26</b>   | <1.0          | <1.0    | <b>9.8</b>     |
|                    |                              | 9/29/2016      | <1.0 | <b>2.8</b>  | <b>27</b>   | <1.0          | <1.0    | <b>11</b>      |
|                    |                              | 12/20/2016     | <1.0 | <b>0.69</b> | <b>10</b>   | <1.0          | <1.0    | <b>6.9</b>     |
|                    |                              | 3/10/2017      | <1.0 | <b>0.61</b> | <b>6.2</b>  | <1.0          | <1.0    | <b>2.6</b>     |
|                    |                              | 10/31/2017     | <1.0 | <b>1.7</b>  | <b>12</b>   | <1.0          | <1.0    | <b>6.0</b>     |
|                    |                              | 3/30/2018      | <1.0 | <b>2.1</b>  | <b>6.2</b>  | <1.0          | <1.0    | <0.20          |
|                    |                              | 3/3/2020       | <1.0 | <b>1.8</b>  | <b>15.0</b> | <1.0          | <1.0    | <b>6.7</b>     |
|                    |                              | 6/11/2020      | <1.0 | <0.4        | <b>3.9</b>  | <1.0          | <0.5    | <b>4.8</b>     |
|                    |                              | 9/10/2021      | <1.0 | <0.4        | <b>1.2</b>  | <1.0          | <0.5    | <b>7.0</b>     |
| 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 | <b>0.60</b> | <1.0        | <1.0          | <1.0    | <0.20          |
|                    |                              | 3/3/2020       | <1.0 | <0.50       | <1.0        | <1.0          | <1.0    | <0.20          |
|                    |                              | 6/11/2020      | <1.0 | <0.4        | <1.0        | <1.0          | <0.5    | <0.20          |
|                    |                              | 9/10/2021      | <1.0 | <0.4        | <1.0        | <1.0          | <0.5    | <0.20          |
| MW-13 <sup>3</sup> | 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 | <0.4        | <1.0        | <1.0          | <0.5    | <0.20          |

**Table 2 - Summary of Groundwater Monitoring Analytical Results**  
Olympia Dry Cleaners  
Olympia, Washington

| Sample Location             | Status <sup>1</sup> | 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 <sup>2</sup>   | 99   | 34      | 33          | <1.0          | <1.0    | 2.8            |
|                             |                     | 9/29/2016               | 96   | 40      | 42          | <1.0          | <1.0    | <0.20          |
|                             |                     | 12/20/2016 <sup>2</sup> | 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          |
|                             |                     | 6/11/2020               | <1.0 | <0.4    | <1.0        | <1.0          | <0.5    | <0.20          |
|                             | 9/10/2021           | <1.0                    | <0.4 | 3.8     | <1.0        | <0.5          | 0.58    |                |
| PQL                         |                     |                         | 1.0  | 0.4/0.5 | 1.0         | 1.0           | 0.5/1.0 | 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

<sup>1</sup>Pre-remediation groundwater monitoring data collected by SoundEarth Strategies, Inc.

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

<sup>3</sup>Ceased monitoring of this well as of 6/2/20.

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 <sup>1</sup> | 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            |
|                              |                              | 6/2/2020       | 0.63 J                                 | 1.3   | 26          | <1.0          | 4.8            |
|                              |                              | 12/18/2020     | 3.0                                    | 2.6   | 40          | <1.0          | 3.8            |
|                              |                              | 6/21/2021      | 1.6                                    | 1.4   | 29          | <1.0          | 2.3            |
|                              |                              | 9/10/2021      | <1.0                                   | 1.2   | 20          | <1.0          | 5.2            |
| SEEP-CB <sup>2</sup>         | Pre-Remediation              | 10/15/2008     | <2.0                                   | <1.0  | <1.0        | <1.0          | <1.0           |
|                              | Post-Remediation             | 6/9/2016       | <1.0                                   | <0.5  | 1.8         | <1.0          | <0.2           |
|                              |                              | 3/22/2017      | <1.0                                   | 0.72  | 1.3         | <1.0          | <0.2           |
|                              |                              | 3/30/2018      | <1.0                                   | <0.5  | <1.0        | <1.0          | <0.2           |
|                              |                              | 6/21/2021      | <1.0                                   | <0.4  | <1.0        | <1.0          | <0.2           |
|                              |                              | 9/10/2021      | <1.0                                   | <0.4  | <1.0        | <1.0          | <0.2           |
| SEEP-POST <sup>3</sup>       | 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         | <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           |
|                              |                              | 6/2/2020       | <1.0                                   | 0.41  | 12          | <1.0          | 1.3            |
|                              |                              | 12/18/2020     | <1.0                                   | <1.0  | 5.8         | <1.0          | <0.20          |
|                              |                              | 6/21/2021      | <1.0                                   | <0.4  | 5.1         | <1.0          | 0.44           |
|                              |                              | 9/10/2021      | <1.0                                   | <0.4  | 3.9         | <1.0          | 1.6            |
| 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

<sup>1</sup>Pre-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.

<sup>2</sup>Sample 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."

<sup>3</sup>Sample 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

September 14, 2021

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

Dear Mr. Rose:

Please find enclosed the analytical data report for the 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 within 30 days unless we are contacted to arrange long term storage.

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

Sincerely,

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

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

# Libby Environmental, Inc.

FORMER OLYMPIA DRY CLEANERS PROJECT  
AEG, LLC  
Olympia, Washington  
Libby Project # L210910-3  
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<br>Blank | MW-9      | MW-11     | MW-14     | SEEP-1    | SEEP-<br>POST |
|--------------------------|--------|-----------------|-----------|-----------|-----------|-----------|---------------|
| Date Sampled             |        | N/A             | 9/10/2021 | 9/10/2021 | 9/10/2021 | 9/10/2021 | 9/10/2021     |
| Date Analyzed            | PQL    | 9/13/2021       | 9/13/2021 | 9/13/2021 | 9/13/2021 | 9/13/2021 | 9/13/2021     |
|                          | (µg/L) | (µg/L)          | (µg/L)    | (µg/L)    | (µg/L)    | (µg/L)    | (µg/L)        |
| Vinyl Chloride (VC)      | 0.2    | nd              | 7.0       | nd        | 0.58      | 5.2       | 1.6           |
| 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              | 1.2       | nd        | 3.8       | 20        | 3.9           |
| Trichloroethene (TCE)    | 0.4    | nd              | nd        | nd        | nd        | 1.2       | nd            |
| Tetrachloroethene (PCE)  | 1.0    | nd              | nd        | nd        | nd        | nd        | nd            |
| Surrogate Recovery       |        |                 |           |           |           |           |               |
| Dibromofluoromethane     |        | 123             | 127       | 124       | 125       | 125       | 123           |
| 1,2-Dichloroethane-d4    |        | 122             | 124       | 127       | 129       | 127       | 129           |
| Toluene-d8               |        | 98              | 98        | 97        | 99        | 104       | 102           |
| 4-Bromofluorobenzene     |        | 96              | 95        | 98        | 99        | 98        | 98            |

"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: Matthew Hansen

# Libby Environmental, Inc.

FORMER OLYMPIA DRY CLEANERS PROJECT  
AEG, LLC  
Olympia, Washington  
Libby Project # L210910-3  
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       |        | SEEP-<br>CATCH |
|--------------------------|--------|----------------|
| Date Sampled             |        | 9/10/2021      |
| Date Analyzed            | PQL    | 9/13/2021      |
|                          | (µg/L) | (µg/L)         |
| Vinyl Chloride (VC)      | 0.2    | nd             |
| 1,1-Dichloroethene       | 0.5    | nd             |
| trans-1,2-Dichloroethene | 1.0    | nd             |
| cis -1,2-Dichloroethene  | 1.0    | nd             |
| Trichloroethene (TCE)    | 0.4    | nd             |
| Tetrachloroethene (PCE)  | 1.0    | nd             |
| Surrogate Recovery       |        |                |
| Dibromofluoromethane     |        | 124            |
| 1,2-Dichloroethane-d4    |        | 129            |
| Toluene-d8               |        | 103            |
| 4-Bromofluorobenzene     |        | 98             |

"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: Matthew Hansen

# Libby Environmental, Inc.

FORMER OLYMPIA DRY CLEANERS PROJECT  
AEG, LLC  
Olympia, Washington  
Libby Project # L210910-3  
Client Project # 19-222

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

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

| Matrix Spike Sample Identification: L210910-5 |                           |                          |                           |                       |                        |            |                           |              |
|-----------------------------------------------|---------------------------|--------------------------|---------------------------|-----------------------|------------------------|------------|---------------------------|--------------|
| Date Analysed: 9/13/2021                      |                           |                          |                           |                       |                        |            |                           |              |
|                                               | Spiked<br>Conc.<br>(µg/L) | MS<br>Response<br>(µg/L) | MSD<br>Response<br>(µg/L) | MS<br>Recovery<br>(%) | MSD<br>Recovery<br>(%) | RPD<br>(%) | Limits<br>Recovery<br>(%) | Data<br>Flag |
| Vinyl Chloride (VC)                           | 5.0                       | 4.8                      | 4.8                       | 97                    | 95                     | 1.8        | 65-135                    |              |
| 1,1-Dichloroethene                            | 5.0                       | 6.4                      | 6.4                       | 128                   | 129                    | 0.3        | 65-135                    |              |
| trans-1,2-Dichloroethene                      | 5.0                       | 5.9                      | 5.8                       | 118                   | 116                    | 1.3        | 65-135                    |              |
| cis-1,2-Dichloroethene                        | 5.0                       | 5.6                      | 5.8                       | 112                   | 116                    | 3.1        | 65-135                    |              |
| Trichloroethene (TCE)                         | 5.0                       | 4.9                      | 5.1                       | 98                    | 102                    | 4.2        | 65-135                    |              |
| Tetrachloroethene (PCE)                       | 5.0                       | 3.6                      | 3.6                       | 72                    | 72                     | 0.5        | 65-135                    |              |
| Surrogate Recovery (%)                        |                           |                          |                           | MS                    | MSD                    |            |                           |              |
| Dibromofluoromethane                          |                           |                          |                           | 131                   | 133                    | 65-135     |                           |              |
| 1,2-Dichloroethane-d4                         |                           |                          |                           | 133                   | 135                    | 65-135     |                           |              |
| Toluene-d8                                    |                           |                          |                           | 101                   | 102                    | 65-135     |                           |              |
| 4-Bromofluorobenzene                          |                           |                          |                           | 102                   | 103                    | 65-135     |                           |              |

ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Matthew Hansen

## Laboratory Control Sample

| Date Analyzed: 9/13/2021 |                           |                           |                        |                               |              |
|--------------------------|---------------------------|---------------------------|------------------------|-------------------------------|--------------|
|                          | Spiked<br>Conc.<br>(µg/L) | LCS<br>Response<br>(µg/L) | LCS<br>Recovery<br>(%) | LCS<br>Recovery<br>Limits (%) | Data<br>Flag |
| Vinyl Chloride (VC)      | 5.0                       | 4.7                       | 95                     | 80-120                        |              |
| 1,1-Dichloroethene       | 5.0                       | 6.0                       | 119                    | 80-120                        |              |
| trans-1,2-Dichloroethene | 5.0                       | 5.9                       | 117                    | 80-120                        |              |
| cis-1,2-Dichloroethene   | 5.0                       | 5.3                       | 106                    | 80-120                        |              |
| Trichloroethene (TCE)    | 5.0                       | 5.6                       | 111                    | 80-120                        |              |
| Tetrachloroethene (PCE)  | 5.0                       | 4.6                       | 92                     | 80-120                        |              |
| Surrogate Recovery       |                           |                           |                        |                               |              |
| Dibromofluoromethane     |                           |                           | 121                    | 65-135                        |              |
| 1,2-Dichloroethane-d4    |                           |                           | 121                    | 65-135                        |              |
| Toluene-d8               |                           |                           | 100                    | 65-135                        |              |
| 4-Bromofluorobenzene     |                           |                           | 103                    | 65-135                        |              |

ANALYSES PERFORMED BY: Matthew Hansen

# Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

Phone: (360) 352-2110

FAX: (360) 352-4154

Email: libbyenv@gmail.com

FORMER OLYMPIA DRY CLEANERS PROJECT

AEG, LLC

Libby Project # L210910-3

Date Received 9/10/21 14:19

Received By JC

## 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>6.8 °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

3322 South Bay Road NE

Ph: 360-352-2110

Olympia, WA 98506

Fax: 360-352-4154

Date: 9/10/21

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) 352-4835

Fax: (360) 352-8164

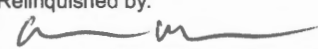
Collector: Andrew Unser

Date of Collection: 9/10/21

Client Project # 19-222

Email: srose@AEGWA.Con

| Sample Number | Depth | Time | Sample Type | Container Type |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  | Field Notes |
|---------------|-------|------|-------------|----------------|----------|----------------------|----------|----------------------|------------|---------------|----------|---------------|---------------|----------|---------------|--|--|--|-------------|
|               |       |      |             |                | VOC 8260 | PCE & Daughter Prod. | NWTPH-Gx | BTEX (8260) / (8021) | NWTPH-HCID | NWTPH-Dx / Dx | PCB 8082 | MTCA 5 Metals | RCRA 8 Metals | PAH 8270 | Semi Vol 8270 |  |  |  |             |
| 1 MW-9        | ~     | 1212 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 2 MW-11       | -     | 1310 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 3 MW-14       | ~     | 1243 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 4 SEEP-1      | ~     | 1030 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 5 SEEP-POST   | -     | 1045 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 6 SEEP-CATCH  | -     | 1100 | Grab        | VOA            | X        |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 7             |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 8             |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 9             |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 10            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 11            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 12            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 13            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 14            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 15            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 16            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |
| 17            |       |      |             |                |          |                      |          |                      |            |               |          |               |               |          |               |  |  |  |             |

|                                                                                    |              |                                                                                     |              |                                                                                                                  |                                                     |
|------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Relinquished by:                                                                   | Date / Time  | Received by:                                                                        | Date / Time  | <b>Sample Receipt</b><br>Good Condition? Y N<br>Cooler Temp. °C<br>Sample Temp. °C<br>Total Number of Containers | Remarks:<br><br><br><br><b>TAT: 24HR 48HR 5-DAY</b> |
|  | 9/10/21 1415 |  | 9/10/21 1419 |                                                                                                                  |                                                     |
| Relinquished by:                                                                   | Date / Time  | Received by:                                                                        | Date / Time  |                                                                                                                  |                                                     |
| Relinquished by:                                                                   | Date / Time  | Received by:                                                                        | Date / Time  |                                                                                                                  |                                                     |

LEGAL ACTION CLAUSE: In the event of default of payment and/or failure to pay, Client agrees to pay the costs of collection including court costs and reasonable attorney fees to be determined by a court of law.

Distribution: White - Lab, Yellow - Originator