Spring 2017 Groundwater and Surface Water Monitoring

# PACCAR Renton Site

Renton, Washington

**Prepared for**

PACCAR

**September 28, 2017**

**1639-72**

HARTCROWSER

Spring 2017 Groundwater and Surface Water Monitoring

# PACCAR Renton Site

Renton, Washington

**Prepared for**
PACCAR

**September 28, 2017**
**1639-72**

**Prepared by**
Hart Crowser, Inc.

**Roy E. Jensen, LG, LHG**
Senior Associate
Hydrogeologist
Roy.jensen@hartcrower.com

**Michael W. Ehlebracht, LG, LHG**
Principal
Geochemist
Mike.ehlebracht@hartcrowser.com

*3131 Elliott Avenue, Suite 600*
*Seattle, Washington 98121*
*Fax 206.328.5581*
*Tel 206.324.9530*

# Contents

# PACCAR Renton Site

## Renton, Washington

This report provides the Spring 2017 groundwater and surface water monitoring results for the PACCAR Renton National Priorities List (NPL) Site. This monitoring report contains the elements described in the Confirmational Monitoring and Inspection Plan (CMIP; DOF 1997) and the Periodic Review (Ecology 2014) and presents the results of the groundwater, surface water, and structural fill cover monitoring conducted at the site in April 2017.

This report is divided into three sections:

- **Section 1.** Groundwater Monitoring
- **Section 2.** Surface Water Monitoring
- **Section 3.** PACCAR Structural Fill Cover Monitoring Field Inspection and Observation Form

The information in these sections is supplemented by tables and figures presented at the end of the respective sections. In addition, Appendices A and B presents the chemical data quality review for groundwater and surface water, respectively. Appendix C provides the laboratory report, and Appendix D presents groundwater quality summary charts.

# SECTION 1
# Groundwater Monitoring

# SECTION 1
# GROUNDWATER MONITORING

## Introduction

This section presents the results of the groundwater monitoring event conducted in April 2017. Specifically, it includes a tabulation of water level and groundwater quality data, groundwater flow maps, and an assessment of results relative to cleanup levels (CULs) for developing sampling and analysis recommendations consistent with the CMIP and Periodic Review (Ecology 2014).

## Groundwater Monitoring

Groundwater monitoring was completed on April 11, 2017, in accordance with the planned elements described by the Periodic Review (Ecology 2014). The groundwater elevation and chemical test results obtained from this event are compiled in this section.

The CMIP provides compound-specific CULs and hot spot action levels (HSALs) for comparison with the site data. The CULs represent the groundwater remediation goals at the site, while HSALs for groundwater are based on drinking water standards. Planned actions described in this report are based on an interpretation of the updated data relative to the decision-making processes outlined in the CMIP.

Data presented in this report are organized as follows:

- **Monitoring Summary.** An overview of the data collected from each monitoring well is given in Table 1-1. This table lists the wells sampled and identifies the chemicals analyzed in each well.
- **Groundwater Elevation.** Groundwater elevation measurements are compiled in Table 1-2 and contoured on Figures 1-1 and 1-2 for the Upper Sand and Lower Sand units, respectively.
- **Chemical Result Summary.** A summary of groundwater analytical results is provided in Table 1-3. All groundwater samples were analyzed for arsenic and vinyl chloride (Table 1-1). Field parameter measurements including turbidity, temperature, pH, dissolved oxygen, redox potential, and conductivity are also included in Table 1-3.
- **Purge Water Sampling.** Groundwater collected during well purging (before sampling) was analyzed for arsenic, chromium, lead, diesel- and heavy-oil-range hydrocarbons, and volatile organic compounds (VOCs). These data are necessary for future disposal documentation and are presented in Table A-2.
- **Chemical Data Compilation.** Appendix A includes a data validation summary for the groundwater quality results and a compilation of the April 2017 groundwater data (Table A-1) and purge water data (Table A-2). The laboratory report is provided in Appendix C.

- **Groundwater Quality Summary Charts.** Appendix D includes groundwater quality summary charts for each well sampled as part of the April 2017 sampling program. The charts summarize the historical sampling results for these wells.

## *Future Monitoring*

The Periodic Review establishes the groundwater sampling program (Table 1-4) for the site, which consists of:

- Sample groundwater in Spring 2018 and 2019 for arsenic in wells LW-6D, LW-9D, CW-1S, CW-1D, LW-9S, and MW-3I. Groundwater elevations and field parameters will also be measured in these wells.
- Sample groundwater in Spring 2018 and 2019 for vinyl chloride in wells CW-1S and LW-9D.
- Sample groundwater in Spring 2019 in wells SC-1S and SC-2S for arsenic, lead, and chromium. Groundwater elevations and field parameters will also be measured.
- Groundwater elevations will be measured in the PACCAR monitoring well network in Spring 2019.

## *Electronic Groundwater Quality Data*

An electronic copy of the complete groundwater quality database is submitted on CD-ROM with this report for reference and further evaluation, if warranted. The CD contains a Microsoft Access data file in addition to a program that can be used as a viewer to create monitoring summary reports for any well or analyte. Instructions for viewing the data and generating the monitoring summary reports follow.

Instructions for Printing “Monitoring Summary Report” from PACCAR Database.

1. Open ACCESS 2000

2. Select File

    Open database

    CD Drive:\PACCAR Apr-17.mdb

3. The message, “The database ‘PACCAR Apr-17’ is read-only” will appear. Click the OK button.

4. The Reports Menu will appear.

5. Double click on “Monitoring Summary”

6. The Enter Parameter Value box will appear with the prompt, “Enter Well”

    Type in the well name (such as LW-09D).

7. Another Parameter Value box will appear with the prompt, “Enter CAS or Analyte Code”

    Type in analyte name (such as Vinyl Chloride).

8. The report will be displayed on screen.

9. To print, select the print icon.

If an error message appears, you may have entered a well location or analyte name that doesn’t exist in the database. Click OK, select “Well Water Level Analyte Summary” and re-enter the well name and analyte name as indicated above.

## References

Dalton, Olmstead & Fluglevand. 1997. Confirmational Monitoring and Inspections Plans, Former PACCAR Defense Systems Site, Renton, Washington. November 1997.

Washington State Department of Ecology. 2014. Periodic Review. PACCAR, Facility Site ID#: 2065, ISIS Cleanup Site ID# 788. July 2014.

## Table 1-1 – Groundwater Monitoring Program in April 2017

| Well | | VOC[a] | Arsenic |
|---|---|---|---|
| **Confirmation Lower Sand/Delta Deposits** | | | |
| | CW-1D | | X |
| | LW-6D | | X |
| | LW-9D | X | X |
| **Confirmation Upper Sand/Aquitard Wells** | | | |
| | CW-1S | X | X |
| | LW-9S | | X |
| | MW-3I | | X |
| **Stabilized Cell Wells** | | | |
| | SC-1S | | |
| | SC-2S | | |
| **Information Wells** | | | |
| **Quality Control Samples** | | | |
| | | X | X |
| **Purge Water Samples** | | | |
| | | X | X |

[a] VOC is vinyl chloride.

Water elevations measured at approximately 33 wells.

All wells with samples submitted for laboratory analysis have the following parameters measured: temperature, pH, conductivity, turbidity, dissolved oxygen, and redox potential.

Purge water samples analyzed for VOCs, arsenic, lead, total chromium, and TPH.

**Table 1-2 – Groundwater Elevation Data, April 2017**

| Well | Depth to Water in Feet | Reference Elevation in Feet | Water Elevation in Feet |
|---|---|---|---|
| CW-1D | 3.07 | 26.18 | 23.11 |
| CW-1S | 3.01 | 26.14 | 23.13 |
| CW-3D | 7.34 | 32.22 | 24.88 |
| CW-3S | 5.55 | 32.04 | 26.49 |
| DM-2D | 5.66 | 28.40 | 22.74 |
| DM-5D | 7.09 | 40.13 | See note. |
| LW-14S | 19.53 | 31.50 | See note. |
| LW-1D | 2.74 | 25.98 | 23.24 |
| LW-1S | 1.79 | 25.84 | 24.05 |
| LW-2D | 3.75 | 28.78 | 25.03 |
| LW-2S | 4.55 | 28.98 | 24.43 |
| LW-4S | 6.65 | 39.87 | 33.22 |
| LW-6D | 6.52 | 30.58 | 24.06 |
| LW-6S | 6.08 | 29.70 | 23.62 |
| LW-7S | 5.85 | 33.74 | 27.89 |
| LW-9D | 8.61 | 31.95 | 23.34 |
| LW-9S | 8.09 | 32.12 | 24.03 |
| MW-1S(N) | 3.31 | 26.56 | 23.25 |
| MW-2D(R) | 5.47 | 29.43 | 23.96 |
| MW-2S(W) | | 28.85 | Dry |
| MW-3I(N) | 7.85 | 34.39 | 26.54 |
| MW-3S(S) | | 34.39 | Dry |
| OSP-10D | 11.00 | 40.74 | 29.74 |
| OSP-1D | 11.07 | 41.51 | 30.44 |
| OSP-1S | 6.33 | 41.44 | 35.11 |
| OW-4D | 19.65 | 34.77 | See note. |
| OW-4S | 18.36 | 34.83 | See note. |
| R-10D | 6.42 | 38.24 | See note. |
| R-10S | 8.62 | 39.17 | 30.55 |
| SC-1S | 5.00 | 37.78 | 32.78 |
| SC-2S | 13.22 | 40.52 | 27.30 |
| U-1D | 8.58 | 30.82 | 22.24 |
| U-1S | 5.18 | 30.44 | 25.26 |

NL = Not located.
NM = Not measured.
Note: Well monuments were replaced on DM-5D, LW-14S, OW-4S, OW-4D, and R-10D, so reference elevations have changed.

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| **Confirmation Lower Sand/Delta Deposits** | | | | | | | | | | | | | | | | | | |
| CW-01D | 3/24/98 | 4.1 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/98 | 2 U | - | - | 0.5 U | 0.12 J | - | - | 0.24 U | 0.48 U | - | - | - | - | - | - | - | - |
| | 3/4/99 | 3.2 + | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 6.3 | 1 U | 10 U | 0.5 U | 0.2 | - | - | 0.24 U | 0.71 U | - | 14 | 6.8 | - | 580 | - | - | - |
| | 5/18/00 | 6 | - | - | 0.2 U | 0.4 | - | - | 0.25 U | 0.5 U | - | 14 | 6.8 | - | 560 | - | - | - |
| | 3/19/01 | 5.8 | - | - | 0.2 U | 0.2 | - | - | 0.25 U | 0.5 U | - | - | - | - | - | - | - | - |
| | 3/25/02 | 7.9 | - | - | 0.2 U | 0.6 | - | - | 0.25 U | 0.5 U | - | 12 | 7.1 | - | 780 | - | 0.08 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 15.8 | 6.7 | - | 760 | - | 0.18 | - |
| | 4/2/03 | 6.7 | 1 U | 1 U | 0.2 U | 0.2 | 0.15 U | - | 0.25 U | 0.5 U | 4 | 13.2 | 6.8 | 1.18 | 442 | - | 28 | - |
| | 3/31/04 | 8.2 | - | - | 0.2 U | 0.3 | - | - | - | - | 55.5 | 13.4 | 6.2 | 0.01 | 496 | -34 | 12 | 74.5 |
| | 4/13/05 | 6.1 | - | - | - | - | - | - | - | - | 46.4 | 14.4 | 6.5 | 0.1 | 283 | 18 | 0 | 31.5 |
| | 3/28/06 | 5.1 | - | - | - | - | - | - | - | - | 52.5 | 13.9 | 6.2 | 0.26 | 448 | 25 | 0 | 51.9 |
| | 3/27/07 | 6.2 | - | - | - | - | - | - | - | - | 45.2 | 13.3 | 5.2 | 0.11 | 417 | 62 | 0 | 31.6 |
| | 4/1/10 | 5.6 | - | - | - | - | - | - | - | - | 52 | 13.1 | 7.1 | 0.26 | - | -100 | 293 | 54.4 |
| | 3/29/11 | 5.7 | - | - | - | - | - | - | - | - | 43.8 | 12.8 | 6.4 | <0.01 | 270 | - | 10 | 48.2 |
| | 3/22/12 | 5.5 | - | - | - | - | - | - | - | - | 46.4 | 12.9 | 6.1 | <0.01 | 727 | -165 | 16.3 | 40 |
| | 11/15/12 | - | - | - | - | 0.14 | - | - | - | - | 48.4 | 13.9 | 6.3 | 1.15 | 332 | -132 | 21 | 85.4 |
| | 3/12/13 | 5.4 | 0.3 | 1 U | 0.02 U | 0.1 | 0.2 U | 0.25 U | 0.1 U | 0.2 U | 55 | 13.1 | 9.9 | <0.01 | 423 | -13 | 24.9 | 80 |
| | 4/2/14 | 5.8 | - | - | - | 0.1 | - | - | - | - | 49.8 | 12.91 | 6.3 | <0.01 | 410 | -80 | 76.2 | 76.2 |
| | 4/15/15 | 5.4 | - | - | - | - | - | - | - | - | - | 13.99 | 6.2 | <0.01 | 433 | -88 | 13.9 | - |
| | 3/10/16 | 0.4 | - | - | - | 0.02 U | - | - | - | - | - | 13.61 | 6.6 | 0.01 | 797 | -8 | 1.4 | - |
| | 4/11/17 | 6.29 | - | - | - | - | - | - | - | - | - | 13.55 | 6.2 | <0.01 | [c] | -79 | 21 | - |
| CW-02D | 3/24/98 | 2.9 | - | - | 0.5 U | 0.44 J | - | 0.76 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/98 | 2.6 | - | - | 0.5 U | 0.35 J | - | 0.8 U | 0.24 U | 0.48 U | - | - | - | - | - | - | - | - |
| | 3/3/99 | 2.1 | - | - | 0.5 U | 0.27 J | - | 0.8 U | 0.24 U | 0.72 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 2.9 | 1 U | 10 U | 0.5 U | 0.057 U | - | - | 0.48 | 0.71 U | - | 13.3 | 6.7 | - | 460 | - | - | - |
| | 5/18/00 | 5 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 710 | - | - | - |
| | 3/19/01 | 5.2 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.0 | - | 730 | - | 0.26 | - |
| | 3/25/02 | 6.1 | - | - | 0.2 U | 0.5 | - | - | 0.25 | 0.5 U | - | 13 | 6.7 | - | 690 | - | 0.11 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 13.6 | 7.0 | - | 310 | - | 0.09 | - |
| | 4/2/03 | 1.9 | 1 U | 0.6 | 0.2 U | 0.2 U | 0.15 U | 0.25 U | 0.58 | 0.5 U | 4 | 12.4 | 6.9 | 1.02 | 323 | - | 22 | - |
| | 3/31/04 | 6.1 | - | - | 0.2 U | 0.2 J | - | - | - | - | 34.0 | 13.4 | 6.4 | 0 | 280 | 18 | 130 | 197 |
| | 4/13/05 | 3.9 | - | - | - | - | - | - | - | - | 35.6 | 14.2 | 6.6 | 0.14 | 350 | 15 | 30 | 96.4 |
| | 3/28/06 | 3.4 | - | - | - | - | - | - | - | - | 32.3 | 14.3 | 6.4 | 0.27 | 353 | 19 | 25 | 58.2 |
| | 3/28/07 | 3.1 | - | - | - | - | - | - | - | - | 28 | 12.4 | 5.8 | 0.41 | 307 | 110 | 0 | 19.6 |
| | 3/27/08 | 3.2 | - | - | - | - | - | - | - | - | 26.2 | 11.8 | 6.7 | 0.73 | 255 | 32 | 0 | - |
| | 11/15/12 | 4.3 | - | - | - | 0.026 | - | - | - | - | 28 | 12.8 | 6.3 | 1.55 | 238 | -92 | 0.9 | 17.8 |
| | 3/12/13 | 3.7 | 0.1 | 1 U | 0.02 U | 0.025 | 0.2 U | 0.25 U | 0.36 | 0.2 U | 27.7 | 12.63 | 9.6 | <0.01 | 264 | 36 | 5 | 33 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| CW-03D | 3/24/98 | 3.4 | - | - | 0.5 U | 0.23 J | - | 0.76 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/98 | 3.4 | - | - | 0.5 U | 0.15 J | - | 0.8 U | 0.24 U | 0.48 U | - | - | - | - | - | - | - | - |
| | 3/3/99 | 3.3 | - | - | 0.5 U | 0.039 U | - | 0.8 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 6 | 1 U | 10 U | 0.5 U | 0.057 U | - | - | 0.24 U | 0.71 U | - | 14.8 | 6.6 | - | 430 | - | - | - |
| | 5/18/00 | 5 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 760 | - | - | - |
| | 3/19/01 | 5.3 | - | - | 0.2 U | 0.2 | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 590 | - | 0.17 | - |
| | 3/25/02 | 4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.1 | - | 800 | - | 0.11 | - |
| | 4/1/03 | 4.4 | 1 U | 1 U | 0.2 U | 0.2 U | 0.15 U | 0.25 U | 0.25 U | 0.5 U | 4.5 | 14 | 6.8 | 0.44 | 244 | - | 18 | - |
| | 3/28/07 | 3.8 | 1 U | 1 U | 0.2 U | 0.2 U | 0.1 U | 0.5 U | 0.25 U | 0.5 U | 34.2 | 14.1 | 6.2 | 0.01 | 342 | | 65 | 23.6 |
| | 11/15/12 | 3.3 | - | - | - | - | - | - | - | - | 28.6 | 12.3 | 6.3 | 0.84 | 283 | -117 | 2.3 | 44 |
| | 3/14/13 | 3.6 | 0.2 | 0.6 | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 35.4 | 13.68 | 8.5 | <0.01 | 383.6 | 87 | 29.9 | 74.3 |
| LW-06D | 3/26/98 | 11 | - | - | 0.5 U | 0.13 U | - | | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 12 | - | - | 0.5 U | 0.08 J | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 3.1 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 10 | 1 U | 10 U | 0.5 U | 0.099 J | - | - | 0.24 U | 0.71 U | - | 14.1 | 6.4 | - | 530 | - | - | - |
| | 5/23/00 | 9 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.2 | - | 690 | - | - | - |
| | 3/16/01 | 10.8 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.1 | - | 900 | - | 0.14 | - |
| | 3/21/02 | 8.8 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.1 | - | 860 | - | 0.08 | - |
| | 4/3/03 | 3.3 | 1 U | 1 | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 4 | 11.4 | 6.9 | 1.25 | 454 | - | 18 | - |
| | 3/31/04 | 14.2 | - | - | - | - | - | - | - | - | 56.0 | 13.0 | 6.1 | 0.02 | 524 | -2 | 27 | 93.0 |
| | 4/12/05 | 10.2 | - | - | - | - | - | - | - | - | 59.5 | 13.2 | 6.3 | 0.08 | 548 | -15 | 0 | 38.9 |
| | 3/31/06 | 11.2 | - | - | - | - | - | - | - | - | 62.5 | 13.7 | 6.2 | 0.16 | 459 | -10 | 0 | 20.3 |
| | 3/29/07 | 11.1 | - | - | - | - | - | - | - | - | 58.0 | 14.0 | 5.8 | 0.11 | 554 | 107 | 0 | 40.8 |
| | 3/26/08 | 9.8 | - | - | - | - | - | - | - | - | 49.6 | 11.1 | 6.7 | 0.52 | 436 | -35 | 0 | - |
| | 3/26/09 | 10.4 | - | - | - | - | - | - | - | - | 63 | 13.36 | 5.6 | 2.64 | 764 | -118 | 32 | 55 |
| | 4/2/10 | 10.4 | - | - | - | - | - | - | - | - | 62 | 12.5 | 7.1 | <0.01 | 445 | -83 | 160 | 58.4 |
| | 3/31/11 | 9.7 | - | - | - | - | - | - | - | - | 63 | 13 | 6.1 | 0.05 | 382 | -61 | 10 | 70 |
| | 3/23/12 | 9.1 | - | - | - | - | - | - | - | - | 61.5 | 13.3 | 6.0 | <0.01 | 724 | -160 | 6.2 | 54.2 |
| | 3/13/13 | 9.1 | 0.1 U | 1 U | 0.025 | 0.14 | 0.2 U | - | 0.1 U | 0.2 U | 65 | 13.18 | 8.6 | <0.01 | 508 | 57 | 9.9 | 67.8 |
| | 4/2/14 | 7.8 | - | - | - | - | - | - | - | - | 56.5 | 14.01 | 6.3 | 0.01 | 527 | -102 | 115.5 | 34.6 |
| | 4/15/15 | 7.8 | - | - | - | - | - | - | - | - | - | 14.05 | 6.2 | <0.01 | 529 | -189 | 25.4 | - |
| | 3/10/16 | 8.0 | - | - | - | 0.24 | - | - | - | - | - | 13.72 | 6.2 | <0.01 | 533.9 | -11 | 10.9 | - |
| | 4/11/17 | 10.0 | - | - | - | - | - | - | - | - | - | 13.71 | 6.1 | <0.01 | [c] | -101 | 4.0 | - |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| LW-09D | 3/26/98 | 9.5 | - | - | 0.5 U | 0.97 J | - | 0.82 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/21/98 | 7.6 | - | - | 0.5 U | 0.7 J | - | 0.8 U | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/7/99 | 7.9 | - | - | 0.5 U | 0.86 | - | 0.9 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 3.3 | 1 U | 10 U | 0.5 U | 0.4 J | - | - | 0.32 | 0.71 U | - | 14.6 | 7.4 | - | 450 | - | - | - |
| | 5/24/00 | 9 | - | - | 0.2 U | 0.3 | - | - | 0.25 U | 0.5 U | - | 14 | 6.7 | - | 740 | - | - | - |
| | 10/12/00 | - | - | - | 0.2 U | 0.9 | - | - | - | - | - | 14 | 7.2 | - | 640 | - | - | - |
| | 3/15/01 | 9.4 | - | - | 0.2 U | 0.9 | - | - | 0.25 U | 0.5 U | - | 14 | 6.8 | - | 590 | - | 0.14 | - |
| | 10/31/01 | - | - | - | 0.2 U | 0.5 | - | - | - | - | - | 14 | 6.8 | - | 560 | - | 0.14 | - |
| | 3/20/02 | 11.4 | - | - | 0.2 U | 1.6 | - | - | 0.25 U | 0.5 U | - | 13 | 8.0 | - | 910 | - | 0.11 | - |
| | 10/16/02 | - | - | - | 0.2 U | 0.9 | - | - | - | - | 5.8 | 14.1 | 6.9 | 1.1 | 510 | - | 0.14 | - |
| | 4/4/03 | 0.9 | 1 U | 1 U | 0.2 U | 0.2 U | 0.15 U | 0.25 U | 0.25 U | 0.5 U | 3.4 | 12.6 | 7.3 | 0.71 | 389 | - | 12 | - |
| | 10/7/03 | - | - | - | 0.2 U | 0.7 | - | - | - | - | - | 13 | 7.3 | - | 680 | - | 0.18 | - |
| | 3/31/04 | 12.2 | - | - | 0.2 U | 1.1 | - | - | - | - | 54.5 | 12.2 | 6.2 | 0.22 | 523 | -22 | 13 | 77.5 |
| | 10/20/04 | - | - | - | 0.2 U | 1.0 | - | - | - | - | 52 | 12.6 | 6.2 | 0 | 528 | -28 | 0 | 41.5 |
| | 4/12/05 | 8 | - | - | 0.2 U | 1.3 J | - | - | - | - | 54 | 12.5 | 6.4 | 0.05 | 540 | -24 | 1 | 37.5 |
| | 11/3/05 | - | - | - | 0.2 U | 0.8 | - | - | - | - | 52 | 12 | 6.7 | 0.32 | 517 | -42 | 7 | 33.4 |
| | 3/31/06 | 7.7 | - | - | 0.2 U | 0.8 | - | - | - | - | 53.5 | 12.6 | 6.3 | 0.12 | 433 | -20 | 0 | 18.2 |
| | 3/27/07 | 8.5 | - | - | 0.2 U | 0.9 | - | - | - | - | - | 12.2 | 6.0 | 0.19 | 541 | 54 | 0 | - |
| | 3/26/08 | 8.3 | - | - | - | 1.2 | - | - | - | - | 46.7 | 11.7 | 6.8 | 0.48 | 427 | -15 | 0 | - |
| | 3/26/09 | 8.4 | - | - | - | 1.2 | - | - | - | - | 55.5 | 12.24 | 5.7 | 2.56 | 729 | -129 | 48 | 36.4 |
| | 10/27/09 | 8 | - | - | - | 0.71 | - | - | - | - | 52.7 | 12.44 | 9.3 | 3.33 | 617 | -146 | 20 | 51.1 |
| | 4/2/10 | 8.4 | - | - | - | 0.5 | - | - | - | - | 55 | 11.5 | 7.2 | 0 | 428 | -90 | 242 | 41.2 |
| | 3/29/11 | 8.5 | - | - | - | 0.5 | - | - | - | - | 51.5 | 12 | 6.4 | 0.11 | 441 | - | 10 | 54.8 |
| | 3/23/12 | 7.5 | - | - | - | 0.32 | - | - | - | - | 51 | 11.9 | 6.0 | 0 | 666 | -155 | 2.9 | 40 |
| | 3/15/13 | 8 | 0.1 U | 0.7 | 0.02 U | 0.41 | 0.2 U | 0.25 U | 0.1 U | 0.2 U | 54 | 12.31 | 7.2 | 0.02 | 491 | 235 | 59.8 | 62.2 |
| | 4/2/14 | 8.2 | - | - | - | 0.41 | - | - | - | - | 63 | 12.16 | 6.3 | 0.01 | 499.8 | -65 | 27.6 | 27.7 |
| | 4/15/15 | 7.7 | - | - | - | 0.7 | - | - | - | - | - | 12.41 | 6.2 | 0.07 | 481 | -192 | 164.8 | - |
| | 3/10/16 | 9.0 | - | - | - | 0.44 | - | - | - | - | - | 12.42 | 6.2 | <0.01 | 478 | -50 | 6 | - |
| | 4/11/17 | 8.5 | - | - | - | 0.35 | - | - | - | - | - | 12.45 | 6.2 | <0.01 | [c] | -73 | 17.4 | - |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| MW-10 | 3/27/98 | 25 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 26 | - | - | 0.5 U | 0.25 J | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 4.1 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/99 | 21 | 1 U | 10 U | 0.5 U | 0.17 J | - | - | 0.24 U | 0.71 U | - | 13.6 | 7.9 | - | 310 | - | - | - |
| | 5/23/00 | 27 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.2 | - | 930 | - | - | - |
| | 10/12/00 | 25.6 | - | - | - | - | - | - | - | - | - | 14 | 7.2 | - | 720 | - | - | - |
| | 3/16/01 | 5.1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 610 | - | 0.23 | - |
| | 10/31/01 | 27.2 | - | - | - | - | - | - | - | - | - | 15 | 7.1 | - | 810 | - | 0.19 | - |
| | 3/21/02 | 30.4 | - | - | 0.2 U | 0.6 | - | - | 0.25 U | 0.5 U | - | 13 | 6.6 | - | 640 | - | 0.14 | - |
| | 10/16/02 | 30 | - | - | - | - | - | - | - | - | 9.8 | 14.7 | 7.1 | 1.79 | 380 | - | 0.16 | - |
| | 4/3/03 | 8.1 | 1 U | 0.7 | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 3.8 | 13 | 7.3 | 0.71 | 289 | - | 21 | - |
| | 10/7/03 | 30.6 | - | - | - | - | - | - | - | - | - | 14 | 7.1 | - | 660 | - | 0.15 | - |
| | 3/31/04 | 27.5 | - | - | 0.2 U | 0.4 | - | - | - | - | 27.2 | 13.3 | 6.6 | 0.02 | 299 | -42 | 98 | 116 |
| | 10/20/04 | 27.6 | - | - | - | - | - | - | - | - | 27.5 | 14.2 | 6.5 | 0 | 297 | -38 | 11 | 27.8 |
| | 4/13/05 | 25.7 | - | - | - | - | - | - | - | - | 28.7 | 13.6 | 6.8 | 0.15 | 303 | 4 | 5 | 30.8 |
| | 11/3/05 | 26.4 | - | - | - | - | - | - | - | - | 28 | 13.7 | 7.0 | 0.3 | 333 | -57 | 10 | 24.9 |
| | 3/28/06 | 23.4 | - | - | - | - | - | - | - | - | 26.8 | 14.4 | 6.5 | 0.14 | 313 | -86 | 0 | 27.1 |
| | 3/29/07 | 24 | 1 U | 1 U | 0.2 U | 0.4 | 0.1 U | 0.5 U | 0.25 U | 0.5 U | 27.8 | 13.7 | 6.1 | 0.09 | 309 | -36 | 0 | 22.4 |
| | 3/27/08 | 24.9 | - | - | - | - | - | - | - | - | 19.4 | 11.1 | 7.0 | 0.77 | 231 | -40 | 0 | - |
| | 3/26/09 | 24 | - | - | - | - | - | - | - | - | 26.8 | 12.64 | 6.0 | 1.89 | 421 | -131 | 11 | 22.6 |
| | 4/1/10 | 23.7 | - | - | - | - | - | - | - | - | 27.6 | 13.3 | 7.4 | 0 | - | -112 | 422 | 62.5 |
| | 3/29/11 | 22.4 | - | - | - | - | - | - | - | - | 25.6 | 12.1 | 6.8 | 0.06 | 262 | - | 10 | 58.8 |
| | 3/23/12 | 24.2 | - | - | - | - | - | - | - | - | 27.2 | 13.4 | 6.3 | <0.01 | 421 | -171 | 0.6 | 44.4 |
| | 11/14/12 | - | - | - | - | 0.25 | - | - | - | - | 27.6 | 13.6 | 6.4 | 1.7 | 249 | -157 | 1.0 | 28.4 |
| | 3/12/13 | 22.6 | 0.1 U | 1 U | 0.02 U | 0.26 | 0.2 U | - | 0.1 U | 0.2 U | 28.4 | 13.17 | 9.6 | 0.09 | 271.9 | 0 | 4.9 | 34.2 |
| | 4/2/14 | 21.3 | - | - | - | - | - | - | - | - | 28 | 13.57 | 6.6 | 0.01 | 302.5 | -88 | 90.5 | 20.1 |
| OSP-02D | 3/27/98 | 2 U | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 2 U | - | - | 0.5 U | 0.06 U | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 2 U | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/99 | 2 U | 1 U | 10 U | 0.5 U | 0.2 U | - | - | 0.24 U | 0.71 U | - | 14.5 | 7.8 | - | 340 | - | - | - |
| | 5/23/00 | 1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.2 | - | 820 | - | - | - |
| | 3/16/01 | 0.9 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.4 | - | 920 | - | 0.11 | - |
| | 3/21/02 | 1.1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 940 | - | 0.11 | - |
| | 4/2/03 | 2 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 4.6 | 13.1 | 7.4 | 0.84 | 253 | - | 21 | - |
| | 3/29/07 | 1.3 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.1 U | - | 0.25 U | 0.5 U | 0.04 U | 13.9 | 6.7 | 5.63 | 94 | 96 | 0 | 2 U |
| | 3/14/13 | 0.8 | 0.6 | 0.5 U | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 5.6 | 13.27 | 8.6 | 0.07 | 229 | 118 | 8.1 | 11.6 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| OSP-03D | 3/27/98 | 7.3 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 6 | - | - | 0.5 U | 0.06 U | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 4.4 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/99 | 2 U | 1 U | 10 U | 0.5 U | 0.2 U | - | - | 0.24 U | 0.71 U | - | 13.7 | 7.9 | - | 300 | - | - | - |
| | 5/23/00 | 4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 750 | - | - | - |
| | 3/16/01 | 5.1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.8 | - | 840 | - | 0.17 | - |
| | 3/21/02 | 4.3 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.0 | - | 710 | - | 0.14 | - |
| | 4/3/03 | 0.4 | 1 U | 0.5 | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 6 | 12.1 | 7.3 | 0.53 | 238 | - | 18 | - |
| | 3/29/07 | 1.1 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.1 U | - | 0.25 U | 0.5 U | 9.85 | 13.3 | 6.3 | 5.31 | 18 | 45 | 0 | 1 U |
| | 11/14/12 | 3.3 | - | - | - | - | - | - | - | - | 17.8 | 13.4 | 6.5 | 0.76 | 196 | -158 | 1.2 | 22.4 |
| | 3/12/13 | 3.5 | 0.1 U | 1 U | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 18.8 | 13.12 | 9.8 | <0.01 | 222 | -13 | 26 | 31.1 |
| OSP-04D | 3/27/98 | 55 | - | - | 0.5 U | 0.13 U | - | 0.82 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 49 | - | - | 0.5 U | 0.07 J | - | 0.8 U | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 40 | - | - | 0.5 U | 0.039 U | - | 0.9 U | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 15 | 1 U | 10 U | 0.5 U | 0.089 J | - | - | 1.8 | 8.5 | - | 14.3 | 7.8 | - | 500 | - | - | - |
| | 5/23/00 | 42 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.4 | - | 710 | - | - | - |
| | 10/12/00 | 46.8 | - | - | - | - | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 660 | - | - | - |
| | 3/16/01 | 45.8 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.3 | - | 860 | - | 0.09 | - |
| | 10/31/01 | 49.6 | - | - | - | - | - | - | 0.25 U | 0.5 U | - | 14 | 6.4 | - | 760 | - | 0.11 | - |
| | 3/21/02 | 44 | - | - | 0.2 U | 0.2 U | - | - | 0.45 | 0.77 | - | 13 | 6.7 | - | 840 | - | 0.08 | - |
| | 10/16/02 | 53.4 | - | - | - | - | - | - | 0.25 U | 0.5 U | 5.4 | 14.6 | 6.7 | 0.99 | 480 | - | 0.16 | - |
| | 4/3/03 | 18 | 1 U | 0.6 | 0.2 U | 0.2 U | 0.195 | 0.25 U | 0.3 | 0.56 | 3.2 | 13.2 | 7.4 | 0.86 | 344 | - | 11 | - |
| | 10/7/03 | 58.6 | - | - | - | - | - | - | 1.5 | 3.6 | - | 14 | 7.1 | - | 820 | - | 0.16 | - |
| | 4/2/04 | 50.2 | - | - | - | - | 0.1 U | - | 0.25 U | 0.5 U | 9.82 | 14.6 | 7.0 | 0.03 | 413 | -40 | 41 | 42.8 |
| | 10/21/04 | 44.9 | - | - | - | - | 0.1 U | - | 0.25 U | 0.5 U | 10.3 | 14.3 | 6.9 | 0 | 470 | -57 | 1 | 18.4 |
| | 4/11/05 | 45.7 | - | - | - | - | 0.1 U | - | 0.25 U | 0.5 U | 11.8 | 14 | 6.8 | 0.16 | 485 | -70 | 2 | 29.3 |
| | 11/4/05 | 41.7 | - | - | - | - | 0.1 U | - | 0.25 U | 0.5 U | 11.9 | 13.9 | 7.2 | 0.21 | 501 | -66 | 7 | 24.1 |
| | 3/29/06 | 43 | - | - | - | - | - | - | - | - | 10.6 | 14.3 | 6.8 | 0.05 | 407 | -74 | 0 | 21.4 |
| | 10/12/06 | 42 | - | - | - | - | - | - | - | - | 11.6 | 15.8 | 7.1 | 0.01 | 469 | -64 | ~5 | 21.8 |
| | 3/28/07 | 0.5 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.1 U | 0.5 U | 0.25 U | 0.5 U | 16.5 | 13.3 | 6.0 | 0.23 | 243 | 67 | 0 | 11.6 |
| | 10/30/07 | 40.1 | 20 U | 5 U | - | - | - | - | - | - | 10.6 | 14.1 | 6.5 | 0.2 | 425 | -60 | 8 | 22.1 |
| | 3/27/08 | 4.5 | - | - | - | - | - | - | - | - | 2.04 | 13 | 6.9 | 0.78 | 263 | 50 | 0 | - |
| | 3/24/09 | 44.4 | - | - | - | - | - | - | - | - | 10.4 | 13.63 | 6.4 | 2.19 | 556 | -139 | 18 | 24.8 |
| | 10/27/09 | 41.1 | - | - | - | - | - | - | - | - | 9.65 | 14.65 | 9.3 | 2.61 | 502 | - | 28 | 16.1 |
| | 4/2/10 | 42.2 | - | - | - | - | - | - | - | - | 10.7 | 13.5 | 7.8 | <0.01 | - | -97 | 113 | 147 |
| | 10/20/10 | 38.8 | - | - | - | - | - | - | - | - | 9.0 | 14.4 | 6.6 | <0.01 | 600 | -91 | 5 | 34.8 |
| | 3/29/11 | 44 | - | - | - | - | - | - | - | - | 7.37 | 13.7 | 6.4 | 0.03 | 308 | - | 10 | 24 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| OSP-04D | 10/20/11 | 41.3 | - | - | - | - | - | - | - | - | 7.46 | 14.8 | 6.9 | 0 | 270 | -166 | 6.8 | 19.9 |
| | 3/22/12 | 42.1 | - | - | - | - | - | - | - | - | 6.55 | 13.5 | 6.5 | 0 | 555 | -174 | 1.1 | 18.1 |
| | 11/14/12 | 45.3 | - | - | - | - | - | - | - | - | 7.3 | 14 | 6.8 | 1.13 | 251 | -150 | 0.3 | 23.1 |
| | 3/13/13 | 38.9 | 0.4 | 1 U | 0.02 U | 0.02 U | 0.2 U | 0.25 U | 0.1 U | 0.2 U | 7.8 | 13.26 | 8.8 | 0.09 | 296 | 40 | 4.7 | 27 |
| | 4/2/14 | 21.1 | - | - | - | - | - | - | - | - | 3.56 | 13.24 | 6.8 | 0.07 | 305.3 | 27 | 21.1 | 30.6 |
| OSP-05D | 3/27/98 | 4.7 | - | - | 0.5 U | 0.13 U | - | | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 4 | - | - | 0.5 U | 0.42 J | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 3.6 | - | - | 0.5 U | 0.45 | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 3.1 | 1.1 | 10 U | 0.5 U | 0.22 J | - | - | 0.59 | 1.1 | - | 14.5 | 7.7 | - | 530 | - | - | - |
| | 5/23/00 | 4 | - | - | 0.2 U | 0.5 | - | - | 0.25 U | 0.5 U | - | 13 | 7.1 | - | 860 | - | - | - |
| | 10/12/00 | - | - | - | 0.2 U | 0.5 | - | - | - | - | - | 14 | 6.6 | - | 490 | - | - | - |
| | 3/16/01 | 2.4 | - | - | 0.2 U | 0.6 | - | - | 0.25 U | 0.5 U | - | 14 | 7.2 | - | 880 | - | 0.13 | - |
| | 10/31/01 | - | - | - | 0.2 U | 0.6 | - | - | 0.25 U | 0.5 U | - | 14 | 7.1 | - | 840 | - | 0.09 | - |
| | 3/21/02 | 5 | - | - | 0.2 U | 0.9 | - | - | 0.25 U | 0.5 U | - | 12 | 7.2 | - | 680 | - | 0.12 | - |
| | 10/16/02 | - | - | - | 0.2 U | 0.5 | - | - | 0.25 U | 0.5 U | 1.4 | 14.4 | 6.9 | 1.19 | 510 | - | 0.11 | - |
| | 4/4/03 | 0.2 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 4.6 | 13 | 6.9 | 0.5 | 335 | - | 16 | - |
| | 10/7/03 | - | - | - | 0.2 U | 0.3 | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 800 | - | 0.11 | - |
| | 3/31/04 | 4.6 | - | - | 0.2 U | 0.4 | - | - | - | - | 24.3 | 13.3 | 6.4 | 0.07 | 379 | 5 | 4 | 36.0 |
| | 11/14/12 | - | - | - | - | 0.02 U | - | - | - | - | 0.064 | 13.8 | 6.7 | 3.86 | 93 | -43 | 0 | 1.0 |
| | 3/13/13 | 3.5 | 0.2 | 1 U | 0.02 U | 0.23 | 0.2 U | - | 0.1 U | 0.2 U | 23.8 | 13.1 | 8.6 | 2.6 | 109.6 | 132 | 1.6 | 5.6 |
| OSP-06D | 3/27/98 | 11 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 11 | - | - | 0.5 U | 0.06 U | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 13 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 7.5 | 1 U | 10 U | 0.5 U | 0.2 U | - | - | 0.24 U | 0.71 U | - | 14.9 | 7.8 | - | 380 | - | - | - |
| | 5/23/00 | 12 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.1 | - | 880 | - | - | - |
| | 3/16/01 | 12 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 680 | - | 0.11 | - |
| | 3/21/02 | 14.4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 910 | - | 0.11 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 14.4 | 6.8 | - | 620 | - | 0.12 | - |
| | 4/3/03 | 10.9 | 1 U | 1 | 0.2 U | 0.2 U | 0.155 | - | 0.25 U | 0.62 | 3.2 | 10.9 | 7.3 | 1.72 | 382 | - | 30 | - |
| | 4/1/04 | 13.6 | - | - | - | - | 0.1 U | - | - | - | 52.0 | 12.2 | 6.5 | <0.01 | 416 | -31 | 71 | 83.5 |
| | 10/22/04 | - | - | - | - | - | 0.1 U | - | - | - | 47.4 | 12.9 | 6.4 | 0.03 | 416 | -31 | 3 | 69.2 |
| | 4/13/05 | 11 | - | - | - | - | 0.1 U | - | - | - | 50.3 | 13.1 | 6.6 | 0.05 | 417 | -35 | 1 | 49.8 |
| | 11/4/05 | - | - | - | - | - | 0.1 U | - | - | - | 52.5 | 12.3 | 6.8 | 0.22 | 426 | -60 | 16 | 51.1 |
| | 3/29/06 | 10.1 | - | - | - | - | - | - | - | - | 47 | 12.7 | 6.4 | 0.07 | 361 | -57 | 0 | 38.6 |
| | 3/28/07 | 4.7 | - | - | - | - | - | - | - | - | 41.2 | 12.1 | 6.8 | <0.01 | 317 | 30 | 0 | 30.7 |
| | 3/27/08 | 10 | - | - | - | - | - | - | - | - | 39 | 11.6 | 6.8 | 0.55 | 337 | -31 | 0 | - |
| | 3/24/09 | 10.6 | - | - | - | - | - | - | - | - | 1.03 | 12.32 | 6.0 | 0.59 | 573 | -159 | 13 | 55.2 |
| | 4/1/10 | 10.3 | - | - | - | - | - | - | - | - | 49.8 | 11.9 | 7.3 | 0.41 | - | -110 | 48 | 60 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| OSP-06D | 3/29/11 | 10.6 | - | - | - | - | - | - | - | - | 49.4 | 12.2 | 6.5 | 0.16 | 373 | - | 10 | 60 |
| | 3/22/12 | 10.2 | - | - | - | - | - | - | - | - | 49.2 | 12.3 | 6.2 | 0 | 702 | -185 | 32 | 54.3 |
| | 3/12/13 | 10.1 | 0.1 U | 1 U | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 51 | 12.42 | 9.7 | <0.01 | 346 | -25 | 6.3 | 55.1 |
| | 4/2/14 | 8.7 | - | - | - | - | - | - | - | - | 53 | 12.48 | 6.5 | <0.01 | 404.2 | -82 | 5 | 30.1 |
| OSP-07D | 3/26/98 | 2.6 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/21/98 | 2.2 | - | - | 0.5 U | 0.06 U | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/7/99 | 2.4 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 2 | 1 U | 10 U | 0.5 U | 0.14 J | - | - | 0.26 | 0.71 U | - | 14.7 | 6.5 | - | 760 | - | - | - |
| | 5/24/00 | 3 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 6.9 | - | 730 | - | - | - |
| | 3/15/01 | 3.1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.4 | - | 820 | - | 0.16 | - |
| | 3/20/02 | 3.2 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.6 | - | 880 | - | 0.16 | - |
| | 4/3/03 | 1.9 | 1 U | 1 U | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 4.4 | 13.1 | 6.8 | 0.52 | 510 | - | 13 | - |
| U-01D | 3/25/98 | 3.1 | - | - | 0.5 U | 0.13 U | - | 0.82 UJ | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/98 | 2.2 | - | - | 0.5 U | 0.1 J | - | 0.8 U | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/4/99 | 4 | - | - | 0.5 U | 0.039 U | - | 0.8 U | 0.63 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 2 U | 1.5 | 10 U | 0.5 U | 0.057 U | - | - | 0.77 J | 0.87 J | - | 13.6 | 7.1 | - | 690 | - | - | - |
| | 5/19/00 | 2 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.7 | - | 840 | - | - | - |
| | 3/14/01 | 2.4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.7 | - | 610 | - | 0.2 | - |
| | 3/19/02 | 3 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.9 | - | 870 | - | 0.11 | - |
| | 4/2/03 | 0.8 | 1 U | 0.5 U | 0.2 U | 0.2 U | 0.15 U | 0.25 U | 0.25 | 0.5 U | 6.2 | 13.4 | 6.8 | 0.59 | 346 | - | 18 | - |
| | 3/27/07 | 2 | 1 U | 1 U | 0.2 U | 0.2 U | 0.1 U | 0.5 U | 0.25 U | 0.5 U | 18.4 | 13.4 | 6.0 | 0.21 | 347 | -29 | 27 | 18.1 |
| | 3/14/13 | 1.8 | 0.5 U | 0.1 U | 0.02 U | 0.02 U | 0.2 U | 0.25 U | 0.1 U | 0.2 U | 19.1 | 13.24 | 8.5 | <0.01 | 389.4 | 96 | 46.7 | 21 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| **Confirmation Upper Sand/Aquitard Wells** | | | | | | | | | | | | | | | | | | |
| CW-01S | 3/24/98 | 8.7 | - | - | 0.5 U | 0.38 J | - | - | 0.3 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/98 | 6.6 | - | - | 0.62 | 0.86 J | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/4/99 | 4.9 | - | - | 0.5 U | 0.53 | - | - | 0.24 U | 0.72 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 7.1 | 1 U | 10 U | 0.53 | 0.63 J | - | - | 0.24 U | 0.71 U | - | 14.9 | 6.6 | - | 550 | - | - | - |
| | 5/18/00 | 9 | - | - | 0.6 | 0.9 | - | - | 0.25 U | 0.5 U | - | 15 | 7.0 | - | 810 | - | - | - |
| | 3/19/01 | 8.7 | - | - | 0.7 | 1.3 | - | - | 0.25 U | 0.5 U | - | - | - | - | - | - | - | - |
| | 3/25/02 | 11.5 | - | - | 0.7 | 2.4 | - | - | 0.27 | 0.5 U | - | 12 | 7.1 | - | 820 | - | 0.06 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 16.1 | 6.6 | - | 580 | - | 0.14 | - |
| | 4/2/03 | 8.7 | 1 U | 1 | 0.4 | 0.9 | 0.26 U | - | 0.25 U | 0.5 U | 4 | 13.9 | 6.8 | 1.51 | 408 | - | 29 | - |
| | 10/7/03 | - | - | - | 0.2 U | 0.6 | - | - | - | - | - | 14 | 6.9 | - | 770 | - | 0.09 | - |
| | 3/31/04 | 12.0 | - | - | 0.2 | 0.9 | - | - | - | - | 48.2 | 13.5 | 6.2 | 0.06 | 484 | -7 | 30 | 72.5 |
| | 4/13/05 | 8.7 | - | - | 0.2 U | 0.9 | - | - | - | - | 48.4 | 14.8 | 6.4 | 0.1 | 480 | 5 | 2 | 34.4 |
| | 3/28/06 | 8.1 | - | - | 0.2 U | 0.9 | - | - | - | - | 46.6 | 14.2 | 6.5 | 0.2 | 524 | 9 | 0 | 33.5 |
| | 3/27/07 | 8.2 | - | - | 0.2 U | 0.7 | - | - | - | - | 46.2 | 13.1 | 5.8 | 0.02 | 398 | 72 | 0 | 32.8 |
| | 3/27/08 | 8.1 | - | - | - | 0.63 | - | - | - | - | 37.6 | 12.3 | 6.6 | 0.67 | 379 | -7 | 0 | - |
| | 3/24/09 | 8 | - | - | - | 0.54 | - | - | - | - | 0.999 | 12.83 | 5.8 | 2.2 | 665 | -135 | 10 | 40.7 |
| | 4/1/10 | 8.1 | - | - | 0.2 U | 0.4 | - | - | - | - | 49.7 | 13.1 | 7.0 | <0.01 | - | -94 | 333 | 69.6 |
| | 3/29/11 | 8.1 | - | - | | 0.64 | - | - | - | - | 50.5 | 13.2 | 6.4 | <0.01 | 440 | - | 10 | 48.7 |
| | 3/22/12 | 4.7 | - | - | - | 0.3 | - | - | - | - | 22.6 | 13.3 | 6.0 | <0.01 | 441 | -113 | 4.6 | 13.7 |
| | 3/12/13 | 7 | 0.2 | 1 U | 0.023 | 0.62 | 0.2 U | - | 0.16 | 0.2 U | 52.5 | 13.01 | 9.9 | 0.01 | 464.3 | 3 | 1.2 | 48.3 |
| | 4/2/14 | 1.8 | - | - | - | 0.11 | - | - | - | - | 5.95 | 12.99 | 6.1 | 0.08 | 95.65 | 36 | 18 | 7 |
| | 4/15/15 | 3.6 | - | - | - | 0.46 | - | - | - | - | - | 14.4 | 5.9 | 0.08 | 237.5 | -117 | 42.4 | - |
| | 3/10/16 | 0.4 | - | - | - | 0.02 U | - | - | - | - | - | 13.13 | 6.6 | 6.4 | 163 | 71 | 18.1 | - |
| | 4/11/17 | 4.39 | - | - | - | 0.244 | - | - | - | - | - | 13.96 | 5.9 | <0.01 | 374.9 | 7 | 3.6 | - |
| CW-02S | 3/24/98 | 2.9 | - | - | 0.5 U | 0.13 J | - | - | 0.55 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/98 | 3 | - | - | 0.5 U | 0.1 J | - | - | 0.58 | 0.48 U | - | - | - | - | - | - | - | - |
| | 3/3/99 | 2 U | - | - | 0.5 U | 0.039 U | - | - | 0.34 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 3.8 | 1 U | 10 U | 0.5 U | 0.095 J | - | - | 0.54 | 0.71 U | - | 13.9 | 6.8 | - | 380 | - | - | - |
| | 5/18/00 | 3 | - | - | 0.2 U | 0.2 U | - | - | 0.26 | 0.5 U | - | 14 | 6.9 | - | 680 | - | - | - |
| | 3/19/01 | 3 | - | - | 0.2 U | 0.2 U | - | - | 0.5 | 0.5 U | - | 13 | 7.1 | - | 810 | - | 0.14 | - |
| | 3/25/02 | 3.7 | - | - | 0.2 U | 0.3 | - | - | 0.74 | 0.5 U | - | 13 | 6.8 | - | 710 | - | 0.1 | - |
| | 4/2/03 | 2.9 | 1 U | 0.6 | 0.2 U | 0.2 U | 0.15 U | - | 0.56 | 0.5 U | 3.4 | 12.8 | 6.8 | 0.73 | 278 | - | 25 | - |
| | 3/12/13 | 5.1 | 0.1 U | 1 U | 0.02 U | 0.031 | 0.2 U | - | 0.3 | 0.2 U | 26.8 | 12.49 | 9.6 | 0.01 | 250.2 | 24 | 11 | 36.7 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| CW-03S | 3/24/98 | 2 U | - | - | 0.5 U | 0.13 J | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/98 | 2 U | - | - | 0.5 U | 0.1 J | - | - | 0.3 | 0.48 U | - | - | - | - | - | - | - | - |
| | 3/3/99 | 2 U | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 2.3 | 1 U | 10 U | 0.5 U | 0.057 U | - | - | 0.26 | 0.71 U | - | 14.9 | 7.1 | - | 290 | - | - | - |
| | 5/18/00 | 1 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 14 | 7.1 | - | 640 | - | - | - |
| | 3/19/01 | 0.3 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 12 | 7.2 | - | 950 | - | 0.2 | - |
| | 3/25/02 | 0.2 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.9 | - | 740 | - | 0.07 | - |
| | 4/1/03 | 1.7 | 1 U | 0.7 | 0.2 U | 0.2 U | 3.56 | - | 0.25 U | 0.5 U | 4.1 | 14.2 | 7.4 | 0.68 | 204 | - | 13 | - |
| | 3/30/04 | - | - | - | - | - | 0.1 U | - | - | - | 216 | 14.2 | 5.9 | 0.06 | 260 | 1 | 22 | 32.0 |
| | 10/21/04 | - | - | - | - | - | 0.1 U | - | - | - | 18.6 | 15.8 | 6.3 | 0.19 | 247 | 16 | 6 | 7.4 |
| | 4/12/05 | - | - | - | - | - | 0.1 U | - | - | - | 18.9 | 13.9 | 6.3 | 0.1 | 257 | - | 10 | 12.9 |
| | 11/2/05 | - | - | - | - | - | 0.1 U | - | - | - | 19.2 | 15.6 | 6.7 | 0.42 | 267 | -15 | 8 | 6.7 |
| | 3/28/07 | 0.3 | 1 U | 1 U | 0.2 U | 0.2 U | 0.1 U | 0.5 U | 0.25 U | 0.5 U | 23.2 | 14.2 | 6.1 | 0.111 | 288 | 35 | 0 | 9.1 |
| | 3/14/13 | 0.2 | 0.1 U | 0.5 U | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 21.2 | 13.22 | 8.4 | 0.02 | 222 | 106 | 4 | 32.7 |
| LW-06S | 3/26/98 | 4.4 | - | - | 0.5 U | 0.13 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 5.8 | - | - | 0.5 U | 0.06 U | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 2 U | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.72 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 6.9 | 1 U | 10 U | 0.5 U | 0.2 U | - | - | 0.24 U | 0.71 U | - | 14.2 | 6.9 | - | 720 | - | - | - |
| | 5/23/00 | 4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.8 | - | 520 | - | - | - |
| | 3/16/01 | 5.4 | - | - | 0.2 U | 0.2 U | - | - | 0.25 UJ | 0.5 UJ | - | 13 | 6.6 | - | 610 | - | 0.08 | - |
| | 3/21/02 | 4.5 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 6.9 | - | 730 | - | 0.1 | - |
| | 4/3/03 | 5.5 | 1 U | 2.9 | 0.2 U | 0.2 U | 0.15 U | - | 0.25 U | 0.5 U | 3.4 | 11.2 | 7.5 | 0.96 | 242 | - | 16 | - |
| | 3/31/04 | 2.4 | - | - | - | - | - | - | - | - | 6.5 | 11.3 | 6.8 | 0.54 | 243 | 4 | 25 | 8.8 |
| | 4/12/05 | 2.6 | - | - | - | - | - | - | - | - | 9.75 | 12.2 | 6.9 | 0.59 | 238 | 3 | 4 | 5 |
| | 11/14/12 | 4.2 | - | - | - | - | - | - | - | - | 10.4 | 15.2 | 6.8 | 1.4 | 199 | -104 | 4.8 | 21.8 |
| | 3/13/13 | 2.7 | 0.1 | 1.4 | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 10.8 | 11.03 | 8.6 | 0.71 | 209.9 | 72 | 15.1 | 6.9 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| LW-09S | 3/26/98 | 21 | - | - | 0.5 U | 0.13 U | - | - | 0.32 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/21/98 | 17 | - | - | 0.5 U | 0.31 J | - | - | 0.36 | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/7/99 | 10 S | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 18 | 1 U | 10 U | 0.5 U | 0.22 J | - | - | 0.56 | 0.71 U | - | 13.6 | 6.7 | - | 810 | - | - | - |
| | 5/24/00 | 14 | - | - | 0.2 U | 0.2 U | - | - | 0.25 U | 0.5 U | - | 13 | 7.2 | - | 860 | - | - | - |
| | 3/15/01 | 19.2 | - | - | 0.2 U | 0.2 U | - | - | 0.25 | 0.5 U | - | 14 | 6.3 | - | 720 | - | 0.11 | - |
| | 3/20/02 | 19.9 | - | - | 0.2 U | 0.2 U | - | - | 0.38 | 0.5 U | - | 13 | 7.4 | - | 660 | - | 0.08 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 14.1 | 7.0 | - | 600 | - | 0.1 | - |
| | 4/4/03 | 13.4 | 1 U | 2 | 0.2 U | 0.2 U | 0.15 U | - | 0.4 | 0.5 U | 3.8 | 11.5 | 7.5 | 1.12 | 268 | - | 16 | - |
| | 3/30/04 | 17.7 | - | - | - | - | - | - | - | - | 61.5 | 11.1 | 5.9 | 0.39 | 420 | -12 | 49 | 89.0 |
| | 4/12/05 | 11.6 | - | - | - | - | - | - | - | - | 48.8 | 11.4 | 6.6 | 0.07 | 418 | -37 | 10 | 48.4 |
| | 3/30/06 | 8.5 | - | - | - | - | - | - | - | - | 36.2 | 11.9 | 6.5 | 0.3 | 299 | -15 | 0 | 43.6 |
| | 3/28/07 | 14.8 | - | - | - | - | - | - | - | - | 61 | 10.7 | 6.6 | 0.03 | 367 | 92 | 46 | 68.2 |
| | 3/25/08 | 12.8 | - | - | - | - | - | - | - | - | 39 | 10 | 6.4 | 1.08 | 343 | -140 | 62 | - |
| | 3/26/09 | 13.3 | - | - | - | - | - | - | - | - | 57.5 | 11.86 | 6.0 | 2.4 | 612 | -127 | 81 | 46.7 |
| | 4/2/10 | 18.3 | - | - | - | - | - | - | - | - | 65 | 10.4 | 7.6 | <0.01 | 361 | -124 | 77 | 56.4 |
| | 3/31/11 | 17.3 | - | - | - | - | - | - | - | - | 61 | 10.6 | 6.4 | <0.01 | 322 | -152 | 10 | 76 J |
| | 3/23/12 | 14.1 | - | - | - | - | - | - | - | - | 54 | 10.5 | 6.2 | <0.01 | 570 | -190 | 9.2 | 68.1 |
| | 3/15/13 | 13.6 | 0.1 U | 1.8 | 0.02 U | 0.039 | 0.2 U | - | 0.2 | 0.25 | 50 | 11.46 | 7.5 | 0.03 | 360.1 | 201 | 42 | 79.3 |
| | 4/2/14 | 14.6 | - | - | - | - | - | - | - | - | 61 | 11.03 | 6.7 | 0.07 | 417 | -118 | 33.1 | 76.5 |
| | 4/15/15 | 19.2 | - | - | - | - | - | - | - | - | - | 11.72 | 6.5 | 0.01 | 410.5 | -95 | 47.3 | - |
| | 3/10/16 | 14.8 | - | - | - | 0.027 | - | - | - | - | - | 11.59 | 6.4 | <0.01 | 421.6 | -74 | 27.6 | - |
| | 4/11/17 | 15.3 | - | - | - | - | - | - | - | - | - | 11.45 | 6.5 | <0.01 | -- | -111 | 26.8 | - |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| MW-03I | 3/27/98 | 17 | - | - | 0.5 U | 0.13 U | - | | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/22/98 | 15 | - | - | 0.5 U | 0.15 J | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/5/99 | 10 | - | - | 0.5 U | 0.039 U | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/99 | 19 | 1 U | 10 U | 0.5 U | 0.14 J | - | - | 0.34 | 0.71 U | - | 15.7 | 7.3 | - | 430 | - | - | - |
| | 5/23/00 | 14 | - | - | 0.2 U | 0.2 | - | - | 0.25 U | 0.5 U | - | 13 | 7.1 | - | 620 | - | - | - |
| | 3/16/01 | 18 | - | - | 0.2 U | 0.3 | - | - | 0.25 U | 0.5 U | - | 14 | 7.1 | - | 810 | - | 0.19 | - |
| | 3/25/02 | 19.4 | - | - | 0.2 U | 0.5 | - | - | 0.28 | 0.5 U | - | 13 | 7.4 | - | 940 | - | 0.13 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 15.4 | 6.9 | - | 410 | - | 0.08 | - |
| | 4/1/03 | 37.4 | 1 U | 1 | 0.2 U | 0.2 U | 0.15 U | - | 0.29 | 0.5 U | 5.5 | 13.2 | 6.9 | 0.86 | 268 | - | 35 | - |
| | 3/30/04 | 18.2 | - | - | 0.2 U | 0.2 J | - | - | - | - | 49.9 | 13 | 6.0 | 0.35 | 382 | -33 | 19 | 79.5 |
| | 10/20/04 | 19.4 | - | - | - | - | - | - | - | - | 50.5 | 15.4 | 6.4 | 0.01 | 404 | -26 | 1 | 43.5 |
| | 4/12/05 | 14.9 | - | - | - | - | - | - | - | - | 50.5 | 12.8 | 6.5 | 0.16 | 386 | -41 | 0 | 35.2 |
| | 11/2/05 | 17.5 | - | - | - | - | - | - | - | - | 49.3 | 15 | 6.9 | 0.36 | 449 | -40 | 7 | 30 |
| | 3/30/06 | 12.8 | - | - | - | - | - | - | - | - | 51.5 | 13.8 | 6.3 | 0.14 | 316 | -11 | 0 | 51.4 |
| | 3/28/07 | 12.9 | 1 U | 1 U | 0.2 U | 0.2 U | 0.1 U | 0.25 U | 0.25 U | 0.5 U | 46 | 12.6 | 5.7 | 0.1 | 339 | 103 | 0 | 47.7 |
| | 3/25/08 | 18.6 | - | - | - | - | - | - | - | - | 37 | 11.1 | 6.9 | 0.8 | 320 | -31 | 0 | - |
| | 3/26/09 | 13 | - | - | - | - | - | - | - | - | 48 | 11.94 | 5.8 | 2.11 | 504 | -119 | 12 | 27.2 |
| | 4/2/10 | 13.8 | - | - | - | - | - | - | - | - | 50 | 11.5 | 7.4 | 0.15 | 320 | -92 | 33 | 60.5 |
| | 3/31/11 | 14.9 | - | - | - | - | - | - | - | - | 51 | 12.2 | 6.2 | 0.08 | 265 | - | 10 | 98.8 |
| | 3/23/12 | 14.7 | - | - | - | - | - | - | - | - | 54.5 | 12 | 6.0 | <0.01 | 547 | -148 | 3 | 45.1 |
| | 11/15/12 | - | - | - | - | 0.029 | - | - | - | - | 46.2 J | 12.9 | 6.3 | 2.29 | 284 | -105 | 2.6 | 54 |
| | 3/14/13 | 10.9 | 0.1 U | 0.5 | 0.02 U | 0.066 | 0.2 U | - | 0.1 U | 0.2 U | 52.0 | 12.35 | 8.4 | <0.01 | 343 | 77 | 7.1 | 58 |
| | 4/2/14 | 13.2 | - | - | - | - | - | - | - | - | 56.0 | 12.53 | 6.5 | 0.02 | 407.5 | -100 | 3.9 | 33.4 |
| | 4/15/15 | 13.5 | - | - | - | - | - | - | - | - | - | 12.6 | 6.4 | 0.1 | 388.6 | -85 | 5.6 | - |
| | 3/10/16 | 16.9 | - | - | - | 0.077 | - | - | - | - | - | 11.72 | 6.4 | <0.01 | 385.3 | -36 | 9.2 | - |
| | 4/11/17 | 14.7 | - | - | - | - | - | - | - | - | - | 12.59 | 6.3 | <0.01 | [c] | -67 | 8.1 | - |
| OSP-07S | 3/26/98 | 9.1 | 1 U | 10 U | 0.5 U | 0.13 U | - | - | 0.32 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/21/98 | 13 | 1 U | 5 U | 0.5 U | 0.19 J | - | - | 0.36 | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/7/99 | 6.7 + | 1 U | 10 U | 0.5 U | 0.039 U | - | - | 0.26 | 0.72 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 14 | 1 U | 10 U | 0.5 U | 0.057 U | - | - | 0.64 | 0.74 | - | 16.6 | 6.7 | - | 780 | - | - | - |
| | 5/24/00 | 12 | 1 U | 2 U | 0.2 U | 0.3 | - | - | 0.25 U | 0.5 U | - | 14 | 6.6 | - | 810 | - | - | - |
| | 3/15/01 | 13.6 | 1 U | 5 | 0.2 U | 0.3 | - | - | 0.54 | 0.78 | - | 13 | 7.1 | - | 880 | - | 0.08 | - |
| | 3/20/02 | 12.5 | 1 U | 3 | 0.2 U | 0.2 U | - | - | 0.42 | 0.5 U | - | 13 | 7.2 | - | 910 | - | 0.1 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 15.9 | 6.6 | - | 780 | - | 0.13 | - |
| | 4/4/03 | 9.1 | 1 U | 2 | 0.2 U | 0.2 U | 0.15 U | - | 0.49 | 0.5 U | 3.6 | 12.6 | 6.9 | 0.6 | 608 | - | 15 | - |
| | 4/1/04 | 15.5 | - | - | - | - | - | - | - | - | 92.0 | 13.4 | 6.4 | 0.02 | 686 | -31 | 50 | 113 |
| | 4/14/05 | 10.5 | - | - | - | - | - | - | - | - | 56.5 | 14.1 | 6.2 | 0.12 | 476 | 6 | 3 | 46.9 |
| | 3/29/06 | 10.8 | - | - | - | - | - | - | - | - | 72.4 | 13.7 | 6.3 | 0.06 | 533 | -33 | 0 | 60.6 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| U-01S | 3/26/98 | 5.2 | - | - | 0.5 U | 0.13 U | - | - | 0.42 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/21/98 | 6.8 | - | - | 0.5 U | 0.06 U | - | - | 0.43 | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/7/99 | 2 U | - | - | 0.5 U | 0.053 | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 14 | 1 U | 10 U | 0.5 U | 0.057 U | - | - | 0.68 | 0.71 U | - | 14.1 | 6.9 | - | 620 | - | - | - |
| | 5/24/00 | 5 | - | - | 0.2 U | 0.2 U | - | - | 0.39 | 0.5 U | - | 13 | 6.5 | - | 890 | - | - | - |
| | 3/14/01 | 4.6 | - | - | 0.2 U | 0.2 U | - | - | 0.42 | 0.5 U | - | 13 | 6.8 | - | 740 | - | 0.13 | - |
| | 3/19/02 | 4.5 | - | - | 0.2 U | 0.2 U | - | - | 0.5 | 0.5 U | - | 13 | 7.5 | - | 730 | - | 0.06 | - |
| | 4/1/03 | 1.5 | 1 U | 0.7 | 0.2 U | 0.2 U | 0.15 U | - | 0.36 | 0.5 U | 5.2 | 12.4 | 7.0 | 1.12 | 222 | - | 17 | - |
| | 3/27/07 | 2.7 | 1 U | 1 U | 0.2 U | 0.2 U | 0.1 U | 0.5 U | 0.26 | 0.5 U | 19 | 12.7 | 5.2 | 0.11 | 338 | -62 | 0 | 26.8 |
| | 11/14/12 | 5.4 | - | - | - | - | - | - | - | - | 23.6 | 15.9 | 6.4 | 1.27 | 262 | -110 | 1.8 | 16.8 |
| | 3/14/13 | 4 | 0.1 | 0.5 U | 0.02 U | 0.02 U | 0.2 U | - | 0.32 | 0.2 U | 21.4 | 12.77 | 8.5 | <0.01 | 255 | 119 | 57.6 | 49.7 |
| **Stabilized Cell Wells** | | | | | | | | | | | | | | | | | | |
| LW-07S | 3/26/98 | 2.4 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/21/98 | 2 U | 1 U | 5 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/7/99 | 2.7 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/22/99 | 2.7 | 1 U | 10 U | - | - | - | - | - | - | - | 17.6 | 8.2 | - | 270 | - | - | - |
| | 5/24/00 | 1 | 1 U | 0.5 U | - | - | - | - | - | - | - | 13 | 6.7 | - | 960 | - | - | - |
| | 3/15/01 | 2.1 | 1 U | 0.5 U | - | - | - | - | - | - | - | 14 | 7.1 | - | 810 | - | 0.09 | - |
| | 3/20/02 | 1.8 | 1 U | 0.6 | - | - | - | - | - | - | - | 13 | 6.9 | - | 820 | - | 0.09 | - |
| | 4/2/03 | 1.3 | 1 U | 0.5 U | - | - | - | - | - | - | 5 | - | 8.2 | 1.71 | 254 | - | 16 | - |
| | 3/13/13 | 3.9 | 0.1 U | 0.5 U | - | - | - | - | - | - | 0.253 | 11.64 | 8.6 | 2.85 | 166.8 | 113 | 11.7 | 5.6 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| OW-04S | 3/25/98 | 30 | 1 U | 10 U | - | - | - | - | 1.3 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/98 | 20 | 1 U | 5 U | - | - | - | - | 1.4 | 0.8 | - | - | - | - | - | - | - | - |
| | 3/4/99 | 30 | 1 U | 10 U | - | - | - | - | 1.1 | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 26 | 1 U | 10 U | - | - | - | - | 1.3 | 0.71 U | - | 14.6 | 7.1 | - | 540 | - | - | - |
| | 5/19/00 | 12 | 1 U | 2 U | - | - | - | - | 0.64 | 0.5 U | - | 14 | 6.9 | - | 660 | - | - | - |
| | 10/12/00 | 18.6 | - | - | - | - | - | - | 0.6 | 0.5 U | - | 14 | 6.9 | - | 810 | - | - | - |
| | 3/14/01 | 19 | 1 U | 2 | - | - | - | - | 1.1 | 0.5 U | - | 14 | 6.9 | - | 790 | - | 0.14 | - |
| | 10/31/01 | 9 | - | - | - | - | - | - | 0.74 | 0.5 U | - | 12 | 6.7 | - | 610 | - | 0.21 | - |
| | 3/19/02 | 11 | 1 U | 1.8 | - | - | - | - | 1.2 | 0.5 U | - | 13 | 7.1 | - | 840 | - | 0.06 | - |
| | 10/16/02 | 9 | - | - | - | - | - | - | 1.3 | 0.5 U | 9.2 | 13.7 | 6.8 | 1.02 | 560 | - | 0.17 | - |
| | 4/8/03 | 6.2 | 1 U | 1.3 | - | - | - | - | 0.97 | 0.5 U | 4.2 | 13.5 | 7.4 | 0.69 | 266 | - | 14 | - |
| | 10/7/03 | 6.8 | - | - | - | - | - | - | 1.2 | 0.5 U | - | 14 | 7.2 | - | 610 | - | 0.11 | - |
| | 3/30/04 | 6.7 | - | - | - | - | - | - | 0.46 | 0.5 U | 226 | 13.2 | 5.9 | 0.20 | 242 | -36 | 50 | 87.0 |
| | 10/20/04 | - | - | - | - | - | - | - | 0.46 | 0.5 U | 33.9 | 14.4 | 6.5 | 0.03 | 334 | -29 | 12 | 36.9 |
| | 4/13/05 | 6.3 | - | - | - | - | - | - | 0.76 | 0.5 U | 39.5 | 13.4 | 6.7 | 0.42 | 366 | 5 | 5 | 38.2 |
| | 11/2/05 | - | - | - | - | - | - | - | 0.33 | 0.5 U | 40.6 | 13.8 | 6.8 | 0.8 | 384 | -27 | 30 | 32.5 |
| | 3/30/06 | 5.2 | - | - | - | - | - | - | 0.65 | 0.5 U | 35.8 | 13.9 | 6.3 | 0.18 | 274 | -29 | 0 | 39.6 |
| | 3/29/07 | 4.2 | - | - | - | - | - | - | 0.56 | 0.5 U | 39 | 12.3 | 6.3 | 0.01 | 316 | 100 | 0 | 38 |
| | 3/25/08 | 4.2 | - | - | - | - | - | - | - | - | 26 | 12 | 6.8 | 0.67 | 258 | -31 | 0 | - |
| | 3/26/09 | 4.6 | - | - | - | - | - | - | - | - | 45 | 12.74 | 5.8 | 1.98 | 545 | -138 | 28 | 32.9 |
| | 3/15/13 | 3.8 | 0.1 U | 1.2 | - | - | - | - | 0.87 | 0.61 | 42.6 | 12.9 | 7.3 | 0.06 | 350.4 | 225 | 6.8 | 70 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| SC-01S | 3/25/98 | 4.4 | 2.2 | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/21/98 | 3.4 | 1.4 | 5 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/7/99 | 4.7 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/19/99 | 5.8 | 1 U | 10 U | - | - | - | - | - | - | - | 17.2 | 8.2 | - | 190 | - | - | - |
| | 5/24/00 | 5 | 1 U | 0.5 U | - | - | - | - | - | - | - | 13 | 7.0 | - | 740 | - | - | - |
| | 3/15/01 | 5.2 | 1 U | 0.5 U | - | - | - | - | - | - | - | 13 | 6.8 | - | 620 | - | 0.13 | - |
| | 3/20/02 | 5.8 | 1 U | 0.5 U | - | - | - | - | - | - | - | 12 | 7.2 | - | 860 | - | 0.15 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 15.1 | 7.1 | - | 610 | - | 0.11 | - |
| | 4/4/03 | 4.9 | 1 U | 0.5 U | - | - | - | - | - | - | 0.6 | 13.8 | 8.1 | 2.6 | 107 | - | 26 | - |
| | 4/1/04 | 5.4 | - | - | - | - | - | - | - | - | 0.043 | 12.4 | 8.2 | 0.19 | 119 | 162 | 13 | 4.9 |
| | 4/12/05 | 5.1 | - | - | - | - | - | - | - | - | 0.04 U | 12.7 | 8.0 | 0.15 | 123 | -42 | 1 | 1.9 |
| | 3/29/06 | 4.7 | - | - | - | - | - | - | - | - | 0.04 U | 12.8 | 7.7 | 0.32 | 97 | -49 | 0 | 1.8 |
| | 3/29/07 | 4.6 | - | - | - | - | - | - | - | - | 0.04 U | 12.9 | 7.1 | 0.2 | 118 | 93 | 0 | 2.9 |
| | 3/13/13 | 4.6 | 0.1 U | 1 U | - | - | - | - | - | - | 0.046 | 11.72 | 8.7 | 0.09 | 105.7 | 70 | 9.3 | 3.3 |
| SC-02S | 3/26/98 | 4.5 | 1 U | 10 U | - | - | - | | - | - | - | - | - | - | - | - | - | - |
| | 10/21/98 | 4 | 1 U | 5 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/7/99 | 2.6 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/19/99 | 4.7 | 1 U | 10 U | - | - | - | - | - | - | - | 16.5 | - | - | - | - | - | - |
| | 5/24/00 | 4 | 1 U | 2 U | - | - | - | - | - | - | - | 14 | 7.1 | - | 610 | - | - | - |
| | 3/15/01 | 4.1 | 1 U | 2 | - | - | - | - | - | - | - | 13 | 6.3 | - | 810 | - | 0.17 | - |
| | 3/20/02 | 5.7 | 1 U | 3.9 | - | - | - | - | - | - | - | 12 | 6.7 | - | 790 | - | 0.13 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 13.4 | 6.5 | - | 560 | - | 0.09 | - |
| | 4/4/03 | 3.2 | 1 U | 2 | - | - | - | - | - | - | 4.2 | 13 | 7.3 | 1.04 | 340 | - | 21 | - |
| | 4/1/04 | 4.9 | - | - | - | - | - | - | - | - | 36.5 | 12.7 | 6.2 | 0.03 | 386 | 66 | 18 | 23.2 |
| | 3/13/13 | 3.3 | 0.1 U | 2 | - | - | - | - | - | - | 34.8 | 12.85 | 8.6 | 0.05 | 361 | 115 | 22.5 | 1.4 |
| **Information Wells** | | | | | | | | | | | | | | | | | | |
| OSP-01D | 3/25/98 | 2.3 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/20/98 | 2 U | 1.4 | 5 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/4/99 | 2.7 | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/19/99 | 13 | 1 U | 10 U | - | - | - | - | - | - | - | 14.4 | 6.6 | - | 420 | - | - | - |
| | 5/19/00 | 1 U | 1 U | 0.5 U | - | - | - | - | - | - | - | 14 | 7.0 | - | 660 | - | - | - |
| | 3/14/01 | 1.7 | 1 U | 0.5 | - | - | - | - | - | - | - | 14 | 7.2 | - | 730 | - | 0.09 | - |
| | 3/19/02 | 1.7 | 1 U | 2 | - | - | - | - | - | - | - | 12 | 6.8 | - | 790 | - | 0.19 | - |
| | 4/8/03 | 1.3 | 1 U | 0.8 | - | - | - | - | - | - | 5.6 | 12.8 | 7.7 | 1.12 | 349 | - | 23 | - |
| | 11/13/12 | 2.7 | - | - | - | - | - | - | - | - | 7.05 | 14.4 | 6.2 | 2.02 | 281 | -77 | 1.3 | 12.6 |
| | 3/13/13 | 1.3 | 0.2 | 2 | - | - | - | - | - | - | 12.2 | 13.07 | 8.8 | 0.04 | 321 | 87 | 2.9 | 11.4 |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| OSP-01S | 3/25/98 | 2 U | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/20/98 | 2 U | 1 U | 5 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/4/99 | 2 U | 1 U | 10 U | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/19/99 | 2 U | 1.1 | 10 U | - | - | - | - | - | - | - | 14.7 | 6.7 | - | 720 | - | - | - |
| | 5/19/00 | 2 | 1 U | 1 | - | - | - | - | - | - | - | 14 | 6.4 | - | 820 | - | - | - |
| | 3/14/01 | 0.4 | 1 U | 0.5 U | - | - | - | - | - | - | - | 14 | 6.5 | - | 700 | - | 0.18 | - |
| | 3/19/02 | 0.7 | 1 U | 1.5 | - | - | - | - | - | - | - | 13 | 7.2 | - | 610 | - | 0.16 | - |
| | 4/8/03 | 0.3 | 1 U | 0.6 | - | - | - | - | - | - | 3.6 | 13.7 | 7.8 | 0.71 | 303 | - | 12 | - |
| | 11/13/12 | 1.5 | - | - | - | - | - | - | - | - | 0.042 | 13.9 | 6.4 | 1.16 | 273 | -20 | 0 | 1.5 |
| | 3/13/13 | 0.6 | 0.3 | 0.5 U | - | - | - | - | - | - | 0.04 U | 13.22 | 8.6 | 1.79 | 316.3 | 124 | 8.5 | 4 |
| OW-04D | 3/25/98 | 8.7 | - | - | - | - | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/20/98 | 12 | - | - | - | - | - | - | 0.24 U | 0.47 U | - | - | - | - | - | - | - | - |
| | 3/4/99 | 9.6 | - | - | - | - | - | - | 0.24 U | 0.71 U | - | - | - | - | - | - | - | - |
| | 10/19/99 | 12 | 1 U | 10 U | - | - | - | - | 0.24 U | 0.71 U | - | 14.4 | 6.8 | - | 340 | - | - | - |
| | 5/19/00 | 25 | - | - | - | - | - | - | 0.25 U | 0.5 U | - | 14 | 7.0 | - | 710 | - | - | - |
| | 10/12/00 | - | - | - | - | - | - | - | 0.25 U | 0.5 U | - | 14 | 6.8 | - | 760 | - | - | - |
| | 3/14/01 | 8.4 | - | - | - | - | - | - | 0.87 J | 2.6 J | - | 14 | 7.1 | - | 860 | - | 0.26 | - |
| | 3/19/02 | 12 | - | - | - | - | - | - | 0.25 U | 0.5 U | - | 13 | 6.5 | - | 880 | - | 0.08 | - |
| | 10/16/02 | - | - | - | - | - | - | - | - | - | - | 13.9 | 6.9 | - | 480 | - | 0.08 | - |
| | 4/8/03 | 8.8 | - | - | - | - | - | - | 0.28 | 0.54 | 4 | 13.6 | 7.5 | 0.8 | 360 | - | 19 | - |
| | 3/30/04 | 9.8 | - | - | - | - | - | - | - | - | 42.1 | 13.4 | 6.0 | 0.09 | 387 | -25 | 97.1 | 134 |
| | 4/13/05 | 8 | - | - | - | - | - | - | - | - | 45.4 | 13.9 | 6.5 | 0.17 | 454 | -1 | 10 | 48.4 |
| | 3/30/06 | 7.3 | - | - | - | - | - | - | - | - | 41.6 | 14.1 | 6.2 | 0.13 | 374 | -23 | 0 | 51.3 |
| | 3/29/07 | 1.2 | - | - | - | - | - | - | 0.25 U | 0.5 U | 3.61 | 13.3 | 6.0 | 0.23 | 243 | 67 | 0 | 1.3 |
| | 3/25/08 | 0.9 | - | - | - | - | - | - | - | - | 0.174 | 12.1 | 7.3 | 1.15 | 238 | 20 | 0 | - |
| | 3/26/09 | 8.4 | - | - | - | - | - | - | - | - | 43.1 | 12.66 | 5.7 | 2.11 | 613 | -126 | 32 | 36.2 |
| | 4/2/10 | 9.1 | - | - | - | - | - | - | - | - | 42.2 | 11.2 | 7.2 | 0.04 | 336 | -83 | 43 | 37.2 |
| | 3/31/11 | 8.9 | - | - | - | - | - | - | - | - | 43.8 | 12.5 | 6.2 | 0.16 | 318 | -106 | 10 | 62 |
| | 3/23/12 | 8.4 | - | - | - | - | - | - | - | - | 43.3 | 12.9 | 6.0 | <0.01 | 633 | -149 | 7.3 | 57.4 |
| | 3/15/13 | 6.8 | - | - | - | - | - | - | 0.1 U | 0.2 U | 41 | 13.01 | 8.7 | 0.11 | 412 | 87 | 23.1 | 47.2 |
| | 4/2/14 | 8.2 | - | - | - | - | - | - | - | - | 44.2 | 13.03 | 6.3 | 0.01 | 408.1 | -60 | 54.6 | 51.1 |
| | 4/15/15 | 7.6 | - | - | - | - | - | - | - | - | - | 14.07 | 6.2 | <0.01 | 435 | -185 | 36.8 | - |

## Table 1-3 - Summary of Groundwater Analytical Data



| Well | Date | Arsenic in µg/L | Lead in µg/L | Chromium in µg/L | Benzene in µg/L | Vinyl Chloride in µg/L | Total cPAHs[a] in µg/L | PCP in µg/L | Diesel in mg/L | Heavy Oil in mg/L | Ferrous Iron [b] in mg/L | Temp. in °C | pH | Diss. Oxygen in mg/L | Cond. in µmhos /cm | Redox Potential in Eh | Turbidity in NTU | TSS in mg/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CUL: | | 5 | 5 | 80 | 5 | 0.4 | 0.1 | | 1 | 1 | NE | NE | NE | NE | NE | NE | NE | NE |
| HSAL: | | 50 | 50 | 100 | 5 | 2 | NE | | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE |
| R-10S | 3/25/98 | - | - | - | 0.5 U | 8.6 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/20/98 | - | - | - | 0.52 | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3/4/99 | - | - | - | 0.5 U | 1.9 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 10/19/99 | - | - | - | 0.5 U | 0.17 | - | - | - | - | - | 15 | 7.3 | - | 680 | - | - | - |
| | 5/19/00 | - | - | - | 0.2 | 1.2 | - | - | - | - | - | 15 | 6.8 | - | 910 | - | - | - |
| | 10/12/00 | - | - | - | 0.4 | 1.3 | - | - | - | - | - | 13 | 6.4 | - | 420 | - | - | - |
| | 3/14/01 | - | - | - | 0.2 U | 0.4 | - | - | - | - | - | 14 | 7.3 | - | 930 | - | 0.11 | - |
| | 10/31/01 | - | - | - | 0.2 U | 0.2 U | - | - | - | - | - | 13 | 6.9 | - | 680 | - | 0.1 | - |
| | 3/19/02 | - | - | - | 0.2 U | 0.2 U | - | - | - | - | - | 12 | 6.9 | - | 910 | - | 0.11 | - |
| | 10/16/02 | - | - | - | 0.4 | 0.9 | - | - | - | - | 8 | 13.9 | 7.1 | 1.69 | 480 | - | 0.06 | - |
| | 4/4/03 | - | - | - | 0.2 U | 0.3 | - | - | - | - | 1.2 | 10.7 | 8.4 | 0.42 | 302 | - | 16 | - |
| | 10/7/03 | - | - | - | 0.5 | 0.4 | - | - | - | - | - | 14 | 7.6 | - | 910 | - | 0.14 | - |
| | 4/2/04 | - | - | - | 0.2 U | 0.2 | - | - | - | - | 0.246 | 11 | 7.4 | <0.01 | 373 | 35 | 14 | 6 |
| | 3/15/13 | - | - | - | 0.2 U | 0.17 | - | - | - | - | 0.225 | 9.59 | 7.7 | 0.2 | 263 | 237 | 2.2 | 1.1 U |
| LW-1D | 3/14/13 | 1.1 | 0.1 | 0.5 U | 0.02 U | 0.02 U | 0.2 U | - | 0.1 U | 0.2 U | 49.2 | 14.18 | 8.5 | 0.14 | 547 | 105 | 20.5 | 43.4 |
| LW-1S | 3/14/13 | 4.5 | 0.1 U | 0.5 U | 0.65 | 0.02 U | 0.2 U | - | 0.32 | 0.2 U | 2.22 | 10.43 | 8.6 | <0.01 | 234 | 75 | 2.1 | 5.4 |

**Notes:**

[a] cPAHs are benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene (WAC 173-340-200). Total cPAH values presented are based on toxicity equivalency quotient (TEQ) calculation.

[b] Ferrous iron collected in October 2002 and April 2003 were field measurements using HACH kit. Other samples were analyzed in the laboratory using EPA Method SM 3500.

[c] Instrument error - no data

- = Sample not analyzed for specific analyte.
NE = Not established.
J = Estimated value.
U = Not selected at the detection limit noted.

See pages A-3 explanation of data qualifiers.

## Table 1-4 – Groundwater Monitoring Program for Spring 2018 and 2019

| | | 2018 | | 2019 | |
|---|---|---|---|---|---|
| | **Well** | **VOC[a]** | **Arsenic** | **VOC[a]** | **Arsenic** |
| **Confirmation Lower Sand/Delta Deposits** | | | | | |
| | CW-1D | | X | | X |
| | LW-6D | | X | | X |
| | LW-9D | X | X | X | X |
| **Confirmation Upper Sand/Aquitard Wells** | | | | | |
| | CW-1S | X | X | X | X |
| | LW-9S | | X | | X |
| | MW-3I | | X | | X |
| **Stabilized Cell Wells** | | | | | |
| | SC-1S | | | | X[b] |
| | SC-2S | | | | X[b] |
| **Quality Control Samples** | | X | X | X | X |
| **Purge Water Samples** | | X | X | X | X |

[a] VOC is vinyl chloride.

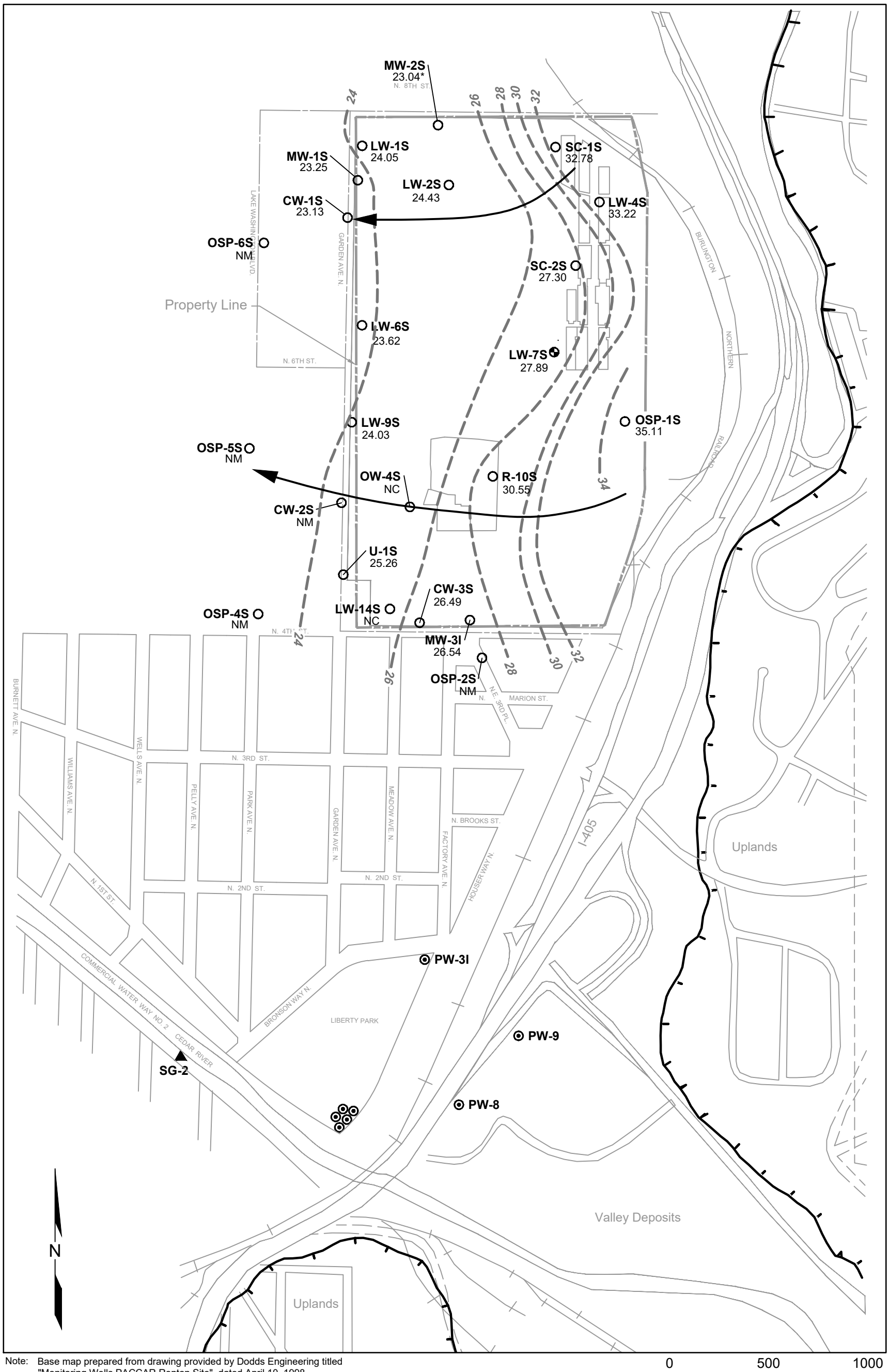
[b] Samples will also be analyzed for lead and total chromium

Water elevations will be measured at approximately 33 wells.

All wells with samples submitted for laboratory analysis will have the following parameters measured: temperature, pH, conductivity, turbidity, dissolved oxygen, and redox potential.

Purge water samples wil be analyzed for VOCs, arsenic, lead, total chromium, and TPH.

# *Groundwater Elevation Contour Map*
## *Shallow Wells - April 2017*




Note: Base map prepared from drawing provided by Dodds Engineering titled "Monitoring Wells PACCAR Renton Site", dated April 10, 1998.

Exploration Location and Number

| | | | | | |
|---|---|---|---|---|---|
| LW-7S ⊕ | Monitoring Well | 34 | Groundwater Elevation Contour in Feet | | Groundwater Flow Direction |
| OW-4S ○ | Piezometer | 35.83 | Groundwater Elevation in Feet | | Upland Boundary |
| PW-8 ⊙ | City of Renton Production Well | NM | Not Measured | | |
| SG-2 ▲ | River Staff Gage | NC | Not Calculated | | |

*Groundwater elevation for MW-2S was not used in developing contours. See report for details

163972-001 (GWS).dwg EAL 06/20/17

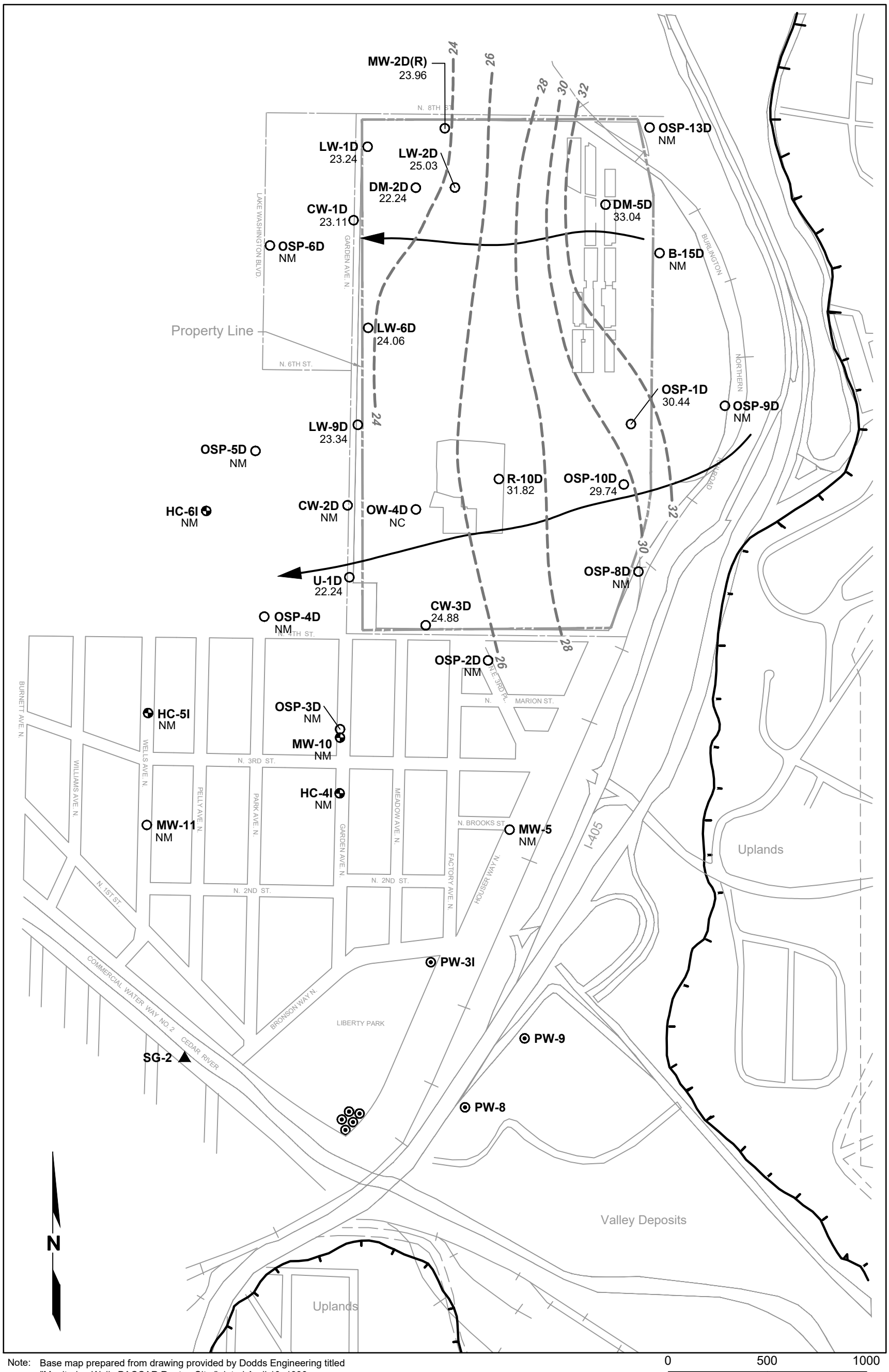
HARTCROWSER

1639-72

6/17

*Figure 1-1*

# *Groundwater Elevation Contour Map*
## *Lower Sand Unit - April 2017*




Note: Base map prepared from drawing provided by Dodds Engineering titled "Monitoring Wells PACCAR Renton Site," dated April 10, 1998.

0 500 1000

Scale in Feet

| Exploration Location and Number | | | | | |
|---|---|---|---|---|---|
| MW-10 | Monitoring Well | 24 | Groundwater Elevation Contour in Feet | | Groundwater Flow Direction |
| OW-4D | Piezometer | 24.23 | Groundwater Elevation in Feet | | Upland Boundary |
| PW-8 | City of Renton Production Well | NM | Not Measured | | |
| SG-2 | River Staff Gage | NC | Not Calculated | | |

163969-002 (GWD).dwg EAL 06/20/17

HARTCROWSER

1639-72

6/17

*Figure 1-2*

# SECTION 2
# Surface Water Monitoring

# SECTION 2
# SURFACE WATER MONITORING

This section presents the results of the surface water monitoring event conducted in accordance with the CMIP and the Periodic Review. Samples were collected from five storm sewer manholes on April 12, 2017. Chemical test results are compiled in Table 2-1, and the sampling locations are shown with the generalized storm sewer configuration on Figure 2-1. The data quality review and laboratory report are provided in Appendices B and C, respectively.

The Periodic Review specifies annual surface water monitoring. Surface water monitoring was conducted in April 2017 for metals (total copper, lead and zinc, and hexavalent chromium) at the five locations identified in the CMIP to assess whether any long-term changes are occurring.

The following notes apply to this monitoring event:

- **Off-Site Conditions.** Monitoring point SW-MH was used to evaluate the quality of stormwater generated off site and upstream of the PACCAR site. As summarized in Table 2-1, metal concentrations detected in the sample from SW-MH are higher or similar to those detected in the sample from SW-3, which is the PACCAR property discharge point located downstream of SW-MH (Figure 2-1).

- **Cleanup Level Compliance at SW-5.** The CMIP specifies that water quality from SW-5 will be compared with CULs for compliance purposes. The detected copper (0.00252 mg/L), lead (0.000372 mg/L) and zinc (0.0144 mg/L) concentrations in the sample from SW-5 did not exceed the CULs.

**Table 2-1 – Analytical Results for Surface Water Samples, April 2017**

| Sample ID | | SW-3 | SW-5 | SW-6 | SW-DP | SW-MD | SW-MH |
|---|---|---|---|---|---|---|---|
| Sample Date | CUL[a] | 4/12/17 | 4/12/17 | 4/12/17 | 4/12/17 | 4/12/17 | 4/12/17 |
| **Total Metals in mg/L** | | | | | | | |
| Copper | 0.007 | 0.00298 | 0.00252 | 0.00687 | 0.00137 | 0.0256 | 0.028 |
| Hexavalent chromium | 0.011 | 0.013 UJ | 0.013 UJ | 0.013 UJ | 0.013 UJ | 0.013 U | 0.013 UJ |
| Lead | 0.001 | 0.000605 | 0.000372 | 0.000917 | 0.000102 | 0.002730 | 0.002780 |
| Zinc | 0.047 | 0.041 | 0.0144 | 0.0546 | 0.0739 | 0.0609 | 0.0725 |

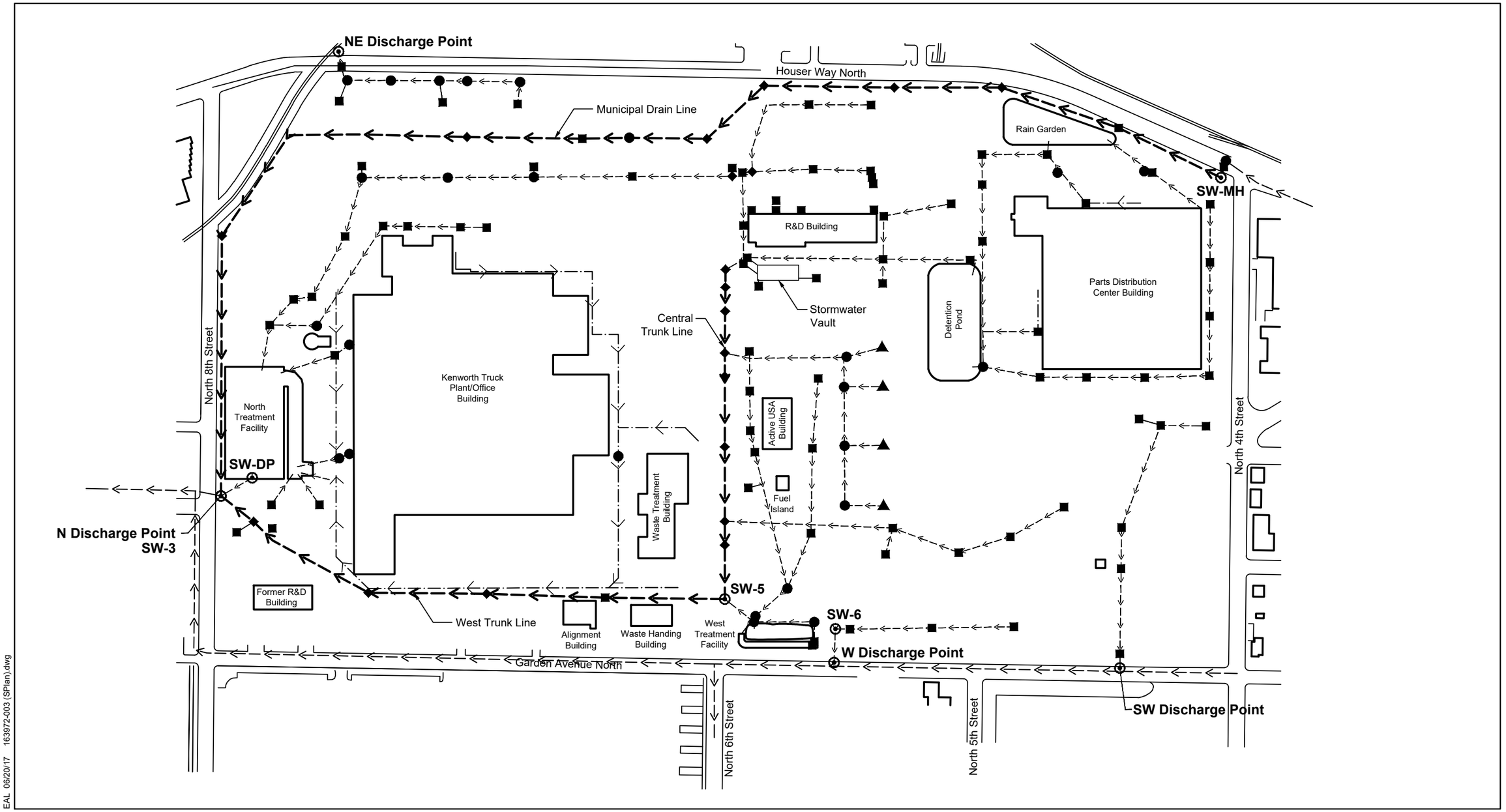
[a] Cleanup levels from CMIP (DOF 1997).

**Notes:**

See page B-3 for definition of data qualifiers.

SW-MD is a duplicate sample of SW-MH.

## *Surface Water Sampling Location Plan*




EAL 06/20/17 163972-003 (SPlan).dwg

- Catch Basin
- Grated Drain
- Manhole and Cleanout
- Square Cover
- SW-MH Surface Water Sample Location and Number
- On-Site Storm Drain
- On-Site Storm Drain
- Off-Site Storm Drain Flow and Direction
- Perimeter Trench Drainage

**Note:**
Surface drainage system was modified in 2016 due to construction of the Parts Distribution Center building.

N

0 250 500

Scale in Feet

HARTCROWSER

*1639-72* *6/17*

***Figure 2-1***

# SECTION 3
# PACCAR Structural Fill Cover Monitoring Field Inspection and Observation Form

# SECTION 3
# PACCAR STRUCTURAL FILL COVER MONITORING FIELD INSPECTION AND OBSERVATION FORM

The structural fill and pavement covers are monitored annually to document their condition and note areas where repair or maintenance is necessary. An engineer or technician conducted a site walk to observe and document the following:

- Conditions of paved area (settlement, ruts, cracks, other) and
- Disturbance in areas of planted cover (erosion, excavation, vegetation, other).

## Field Inspection Observations

| | |
|---|---|
| Date of Field Inspection: | April 11, 2017 |
| Weather Conditions: | Cloudy, Temperature = 52 °F |
| Inspection Personnel: | Brigitte Brown |
| | Staff Engineer |

### *North End of Site*

Areas appear to be in good condition, with no obvious signs of settlement or cracking in asphalt cover.

### *South End of Site*

The area is currently under construction. A new building and soil stockpiles are present. We will evaluate the conditions at the site once construction is completed and site grades have stabilized.

## Recommended Actions and Follow-Up

### *Areas Needing Repair*

Review site conditions in the Spring 2018.

### *Documentation of Repair Completion*

None.

# APPENDIX A
# Data Validation Summary for Groundwater Samples

# APPENDIX A
# DATA VALIDATION SUMMARY FOR GROUNDWATER SAMPLES

## Summary of Data Validation Effort

This appendix provides the quality assurance (QA) review of six groundwater samples, one purge water sample, and one field duplicate collected in accordance with the PACCAR CMIP (DOF 1997) and Periodic Review (Ecology 2014) for the Spring 2017 sampling event. The samples were submitted to Analytical Resources, Inc., (ARI) in Tukwila, Washington, for chemical analysis. The laboratory reported results as ARI Job No. 17D0177 (See Appendix C). The samples were analyzed for one or more of the following:

- Diesel and heavy oil by Ecology Method NWTPH-Dx;
- Total metals (arsenic, chromium, and lead) by EPA Method 200.8; and
- Vinyl chloride by EPA Method 8260C-SIM; and volatile organic compounds (VOCs) by EPA Method 8260C.

The laboratory performed ongoing quality assurance/quality control (QA/QC) reviews of laboratory procedures. Hart Crowser performed the data review, using laboratory quality control results summary sheets, to check that the data met data quality objectives for the project. The following criteria were evaluated in the standard data quality review process:

- Holding times;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs);
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and RPDs;
- Laboratory and field duplicate RPDs;
- Calibration criteria (if reported); and
- Reporting limits (RL).

## Overall Data Quality

The overall data quality objectives (DQOs) as set forth in the quality assurance project plan (QAPP) were met, and the data for this site are acceptable for use as qualified. The completeness for the associated data is 100 percent. Detailed discussions are presented in the following pages.

### *Quality Assurance Objectives*

**Precision.** Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared with their average values. Precision is generally evaluated using LCS/LCSD, MS/MSD, lab duplicate results,

and field duplicate results. The LCS/LCSD, MS/MSD, and lab duplicate results provide information on laboratory (only) precision, while field duplicates provide information on field and laboratory precision combined.

Analytical precision is generally measured through LCS/LCSD and MS/MSD samples for organic analysis, and through laboratory duplicate samples for metals and other inorganic analysis. Analytical precision is quantitatively expressed as the RPD between the LCS/LCSD, MS/MSD, or laboratory duplicates. Analytical precision measurements were carried out on project groundwater samples at a minimum frequency of one in 20 samples. The analytical precision for all analytes was acceptable.

**Accuracy.** Accuracy measures the closeness of the measured value to the true value. The accuracy of chemical test results was assessed by analyzing standard reference materials or by "spiking" samples with known standards (surrogates, LCS, and/or MS) and measuring the percent recovery.

Accuracy measurements for all fractions were carried out in accordance with method requirements for organic and inorganic analyses and at a minimum frequency of one in 20 samples. The analytical accuracy for analytes was acceptable.

**Completeness.** Completeness is defined as the percentage of measurements made that are judged to be valid measurements. The completeness of the data is the ratio of acceptable data points to the total number of data points (expressed as a percent). The target completeness goal for this work was 100 percent. The completeness of the data for this project was 100 percent.

**Comparability.** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Because standard techniques were used for both sample collection and laboratory analysis, the data collected from the same sampling locations and depths should be comparable to both internal data and other data generated.

## No Major Problems Encountered

No major problems were encountered.

## Minor Problems Encountered

**Receiving Samples.** The following issues were encountered:

- The trip blank was not listed on the chain of custody. The trip blank was analyzed for vinyl chloride by EPA Method 8260C-SIM.
- The cooler temperature upon receipt at the laboratory was 11.8°C, above the 2° to 6°C method recommended limits. The laboratory noted that insufficient ice was used to cool the samples. Samples that were collected more than four hours before receipt at the laboratory were subsequently evaluated:

- **Samples CW-1D, CW-1S, LW-6D, LW-9D, LW-9S, and MW-31.** The samples were analyzed for total arsenic by EPA Method 200.8 and vinyl chloride by EPA Method 8260C-SIM. The total arsenic results would not be affected by the temperature exceedance, and results were not qualified. The vinyl chloride results would potentially be affected by the temperature exceedance, and were qualified as estimated (J).

**Vinyl Chloride.** Samples CW-1S and LW-9D were qualified as estimated (J) due to the temperature exceedance.

**Total Arsenic.** No problems were encountered.

**Volatile Organic Analysis.** No problems encountered.

**Diesel- and Heavy-Oil.** No problems were encountered.

## Data Qualifier Definitions

The following data qualifiers are used in the text and tables according to a quality assurance review of the laboratory procedures and results:

**U** Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

**UJ** Indicates the compound or analyte was analyzed for and not detected. Because of quality control deficiencies identified during data validation, the value reported may not accurately reflect the sample quantitation limit.

**J** Indicates the compound or analyte was analyzed for and detected. The associated value is estimated, but the data are usable for decision making processes.

## Table A-1 – Compilation of Chemical Analytical Data for Groundwater Samples

| Sample ID | Cleanup | CW-1D | CW-1S | CW-100S | LW-6D | LW-9D | LW-9S | MW-3I |
|---|---|---|---|---|---|---|---|---|
| Sampling Date | Level | 4/11/2017 | 4/11/2017 | 4/11/2017 | 4/11/2017 | 4/11/2017 | 4/11/2017 | 4/11/2017 |
| **Metals in mg/L** | | | | | | | | |
| Arsenic | 0.005[a] | 0.00629 | 0.00439 | 0.00429 | 0.010 | 0.00851 | 0.0153 | 0.0147 |
| **Volatiles in µg/L** | | | | | | | | |
| Vinyl chloride | 0.4[b] | | 0.244 J | 0.197 J | | 0.35 J | | |

| Sample ID | Cleanup | Trip Blank |
|---|---|---|
| Sampling Date | Level | 4/11/2017 |
| **Metals in mg/L** | | |
| Arsenic | 0.005[a] | |
| **Volatiles in µg/L** | | |
| Vinyl chloride | 0.4[b] | 0.02 UJ |

**Notes:**

[a] HSAL for arsenic is 0.05 mg/L.

[b] HSAL for vinyl chloride is 2 µg/L.

Blank indicates sample not analyzed for specific analyte.

See page A-3 for explanation of data qualifiers.

CW-100S is a duplicate sample from CW-1S.

## Table A-2 – Analytical Results for Purge Water

| Sample ID | KW Tank | |
|---|---|---|
| Sampling Date | 4/11/2017 | |
| **Metals in µg/L** | | |
| Copper | 0.345 | J |
| Lead | 0.100 | U |
| Zinc | 3.72 | J |
| **TPH in mg/L** | | |
| Diesel Range Organics | 0.100 | UJ |
| Lube Oil | 0.200 | UJ |
| **Volatiles in µg/L** | | |
| 1,1,1,2-Tetrachloroethane | 0.20 | U |
| 1,1,1-Trichloroethane | 0.20 | U |
| 1,1,2,2-Tetrachloroethane | 0.20 | U |
| 1,1,2-Trichloroethane | 0.20 | U |
| 1,1-Dichloroethane | 0.20 | U |
| 1,1-Dichloroethene | 0.20 | U |
| 1,1-Dichloropropene | 0.20 | U |
| 1,2,3-Trichlorobenzene | 0.50 | U |
| 1,2,3-Trichloropropane | 0.50 | U |
| 1,2,4-Trichlorobenzene | 0.50 | U |
| 1,2,4-Trimethylbenzene | 0.20 | U |
| 1,2-Dibromo-3-Chloropropane | 0.50 | U |
| 1,2-Dichlorobenzene | 0.20 | U |
| 1,2-Dichloroethane | 0.20 | U |
| 1,2-Dichloropropane | 0.20 | U |
| 1,3,5-Trimethylbenzene | 0.20 | U |
| 1,3-Dichlorobenzene | 0.20 | U |
| 1,3-Dichloropropane | 0.20 | U |
| 1,4-Dichlorobenzene | 0.20 | U |
| 2,2-Dichloropropane | 0.20 | U |
| 2-Chloroethyl vinyl ether | 1.00 | U |
| 2-Chlorotoluene | 0.20 | U |
| 2-Hexanone | 5.00 | U |
| 2-Pentanone | 1.00 | U |
| 4-Chlorotoluene | 0.20 | U |
| 4-Isopropyl Toluene | 0.20 | U |
| Acetone | 5.00 | U |
| Acrolein | 5.00 | U |
| Acrylonitrile | 1.00 | U |
| Benzene | 0.20 | U |
| Bromobenzene | 0.20 | U |
| Bromochloromethane | 0.20 | U |
| Bromoethane | 0.20 | U |
| Bromoform | 0.20 | U |
| Bromomethane | 1.00 | U |
| Carbon Disulfide | 0.20 | U |
| Carbon Tetrachloride | 0.20 | U |
| CFC-11 | 0.20 | U |
| cfc-113 | 0.20 | U |
| Chlorobenzene | 0.20 | U |
| Chlorodibromomethane | 0.20 | U |

| Sample ID | KW Tank | |
|---|---|---|
| Sampling Date | 4/11/2017 | |
| **Volatiles in µg/L** | | |
| Chloroethane | 0.20 | U |
| Chloroform | 0.20 | U |
| Chloromethane | 0.50 | U |
| Cis-1,2-Dichloroethene | 0.20 | U |
| Cis-1,3-Dichloropropene | 0.20 | U |
| Dibromomethane | 0.20 | U |
| Dichlorobromomethane | 0.20 | U |
| Dichlorodifluoromethane | 0.20 | U |
| Ethylbenzene | 0.20 | U |
| ethylene dibromide | 0.20 | U |
| Hexachlorobutadiene | 0.50 | U |
| Iodomethane | 1.00 | U |
| Isopropyl Benzene | 0.20 | U |
| m, p-Xylene | 0.40 | U |
| methyl ethyl ketone | 5.00 | U |
| Methyl isobutyl ketone | 5.00 | U |
| Methyl t-butyl ether | 0.50 | U |
| Methylene Chloride | 1.00 | U |
| Naphthalene | 0.50 | U |
| n-Butylbenzene | 0.20 | U |
| n-Propylbenzene | 0.20 | U |
| o-Xylene | 0.20 | U |
| Sec-Butylbenzene | 0.20 | U |
| Styrene | 0.20 | U |
| tert-butylbenzene | 0.20 | U |
| Tetrachloroethene | 0.20 | U |
| Toluene | 0.20 | U |
| Total Xylenes | 0.60 | U |
| Trans-1,2-Dichloroethene | 0.20 | U |
| Trans-1,3-Dichloropropene | 0.20 | U |
| Trans-1,4-Dichloro-2-butene | 1.00 | U |
| Trichloroethene | 0.20 | U |
| Vinyl Acetate | 0.20 | U |
| Vinyl Chloride | 0.20 | U |

See page A-3 for explanation of data qualifiers.

# APPENDIX B
# Data Validation Summary for Surface Water Samples

# APPENDIX B
# DATA VALIDATION SUMMARY FOR SURFACE WATER SAMPLES

## Summary of Data Validation Effort

This appendix provides the quality assurance (QA) review of five surface water samples and one field duplicate, collected in accordance with the PACCAR CMIP (DOF 1997) and Periodic Review (Ecology 2014) for the Spring 2017 sampling event. The samples were submitted to Analytical Resources, Inc., (ARI) in Tukwila, Washington, for chemical analysis. The laboratory reported results as ARI Job No. 17D0177 (See Appendix C). The samples were analyzed for the following:

- Total metals (copper, lead, and zinc) by EPA Method 200.8; and
- Hexavalent chromium by SM 3500-Cr B.

The laboratory performed ongoing quality assurance/quality control (QA/QC) reviews of laboratory procedures. Hart Crowser performed the data review using laboratory quality control results summary sheets to ensure the data met data quality objectives for the project. The following criteria were evaluated in the standard data quality review process:

- Holding times;
- Method blanks;
- Laboratory control sample (LCS) recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs);
- Standard reference material (SRM) recoveries;
- Laboratory and field duplicate RPDs; and
- Reporting limits (RL).

## Overall Data Quality

The overall data quality objectives (DQOs) as set forth in the quality assurance project plan (QAPP) were met, and the data for this site are acceptable for use as qualified. The completeness for the associated data is 100 percent. Detailed discussions are presented in the following pages.

### *Quality Assurance Objectives*

**Precision.** Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared with their average values. Precision is generally evaluated using LCS/LCSD, MS/MSD, lab duplicate, and field duplicate results. The LCS/LCSD, MS/MSD, and lab duplicate results provide information on laboratory (only) precision, while field duplicates provide information on field and laboratory precision combined.

Analytical precision is generally measured through LCS/LCSD and MS/MSD samples for organic analysis, and through lab duplicate samples for metals and other inorganic analysis. Analytical precision is quantitatively expressed as the RPD between the MS/MSD or duplicates. Analytical

precision measurements were carried out on project surface water samples at a minimum frequency of one in 20 samples. The analytical precision for all analytes was acceptable or not applicable when the sample and duplicate results were less than five times the RL.

**Accuracy.** Accuracy measures the closeness of the measured value to the true value. The accuracy of chemical test results was assessed by analyzing standard reference materials or by "spiking" samples with known standards (surrogates, LCS, SRM, and/or MS) and measuring the percent recovery.

Accuracy measurements for all fractions were carried out in accordance with method requirements for organic and inorganic analyses and at a minimum frequency of one in 20 samples. The analytical accuracy for all analytes was acceptable.

**Completeness.** Completeness is defined as the percentage of measurements made that are judged to be valid measurements. The completeness of the data is the ratio of acceptable data points to the total number of data points (expressed as a percent). The target completeness goal for this work was 100 percent. The completeness of the data for this project was 100 percent.

**Comparability.** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Because standard techniques were used for both sample collection and laboratory analysis, the data collected from the same sampling locations and depths should be comparable to both internal and other data generated.

## No Major Problems Encountered

No major problems were encountered.

## Minor Problems Encountered

**Receiving Samples.** The following issues were encountered.

- The cooler temperature upon receipt at the laboratory was 11.8°C, above the 2° to 6°C method recommended limits. The laboratory noted that insufficient ice was used to cool the samples. Samples that were collected more than four hours before receipt at the laboratory were subsequently evaluated:
    - **Samples SW-3, SW-5, SW-6, SW-DP, and SW-MH.** The samples were analyzed for total copper, lead, and zinc by EPA Method 200.8 and hexavalent chromium by SM 3500-Cr B. The total metals results would not be affected by the temperature exceedance, and results were not qualified. The hexavalent chromium results would potentially be affected by the temperature exceedance, and were qualified as estimated (J).

**Hexavalent Chromium**. Samples SW-3, SW-5, SW-6, SW-DP and SW-MH were qualified as estimated (J) due to the temperature exceedance.

**Total Metals.** No problems were encountered.

## Data Qualifier Definitions

The following data qualifiers are used in the text and tables according to a quality assurance review of the laboratory procedures and results:

**U** Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution by the laboratory.

**UJ** Indicates the compound or analyte was analyzed for and not detected. Because of quality control deficiencies identified during data validation, the value reported may not accurately reflect the sample quantitation limit.

# APPENDIX C
# LABORATORY REPORT
## Analytical Resources, Incorporated

**Analytical Resources, Incorporated**
Analytical Chemists and Consultants

26 April 2017

Roy Jensen
Hart Crowser
3131 Elliott Ave Suite 600
Seattle, WA 98121

RE: Paccar

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

| Associated Work Order(s) | Associated SDG ID(s) |
|---|---|
| 17D0177 | N/A |

---

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the reqirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in it entirety.*

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

# Sample Custody Record

Samples Shipped to: ARI

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • Fax 206.328.5581

HART CROWSER

JOB 1639-72 LAB NUMBER

PROJECT NAME PACCAR

HART CROWSER CONTACT Roy Jenson

SAMPLED BY: BLB/MKG

| LAB NO. | SAMPLE ID | DESCRIPTION | DATE | TIME | MATRIX | REQUESTED ANALYSIS: Metals (T) 200.8 (Cu, Pb, Zn) | Cr(VI) SM 3500-Cr-D | VOCs (8260B) | Dx (NWTPH-Dx) | VC (8260 b SIM) | Metals (T) 200.8 (As) | NO. OF CONTAINERS | OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 1 | 3 | 2 | 3 | 1 | | |
| | SW-DP | | 4/12/17 | 0900 | $H_2O$ | X | X | | | | | 2 | |
| | SW-3 | | | 1110 | | X | X | | | | | 2 | |
| | SW-5 | | | 1040 | | X | X | | | | | 2 | Preservative in metals was washed out. |
| | SW-6 | | | 1205 | | X | X | | | | | 2 | |
| | SW-MH | | | 1130 | | X | X | | | | | 2 | |
| | SW-MD | | | 1200 | | X | X | | | | | 2 | |
| | KW Tank | | | 1025 | | X | | X | X | | | 6 | |
| | LW-9D | | 4/11/17 | 1235 | | ~~X~~ BLB | | | | X | X | 4 | |
| | LW-9S | | | 1315 | | | | | | | X | 1 | |
| | MW-3I | | | 1428 | | | | | | | X | 1 | |
| | LW-6D | | | 0912 | | | | | | | X | 1 | |
| | CW-1D | | | 1056 | | | | | | | X | 1 | |

| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
|---|---|---|---|
| SIGNATURE Brigitte Brown | 4/12/17 | Paul Mark | 4/12/2017 |
| PRINT NAME Brigitte Brown | TIME | PRINT NAME Paul Mark | TIME |
| COMPANY Hart Crowser | 1300 | COMPANY ARI | 1300 |
| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
| SIGNATURE | | SIGNATURE | |
| PRINT NAME | TIME | PRINT NAME | TIME |
| COMPANY | | COMPANY | |

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

* 24 hr hold time on Cr Samples

26 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☒STANDARD
☐72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

# Sample Custody Record

Samples Shipped to: ARI 17D0177-01

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • Fax 206.328.5581

JOB 1639-72 LAB NUMBER

PROJECT NAME PACCAR

HART CROWSER CONTACT Roy Jensen

SAMPLED BY: BLB / MKG

| LAB NO. | SAMPLE ID | DESCRIPTION | DATE | TIME | MATRIX | REQUESTED ANALYSIS: VC (8260 6 sim) | REQUESTED ANALYSIS: Metals (T) 200.8 (As) | NO. OF CONTAINERS | OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3 | 1 | | |
| | CW-1S | | 4/11/17 | 1125 | H2O | X | X | 4 | |
| | CW-100S | | ↓ | 1155 | ↓ | X | X | 4 | |

| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
|---|---|---|---|
| SIGNATURE | 4/12/17 | SIGNATURE | 4/12/2017 |
| PRINT NAME Brigitte Bourn | TIME | PRINT NAME Paul Mark | TIME |
| COMPANY HartCrowser | 1300 | COMPANY ARI | 1300 |
| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
| SIGNATURE | TIME | SIGNATURE | TIME |
| PRINT NAME | | PRINT NAME | |
| COMPANY | | COMPANY | |

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

* 24 hr hold from on Cr samples.

8 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☒STANDARD
☐72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

**WORK ORDER**

17D0177

**Client:** Hart Crowser | **Project Manager:** Kelly Bottem

**Project:** Paccar | **Project Number:** [none]

## Preservation Confirmation

| Container ID | Container Type | pH | |
|---|---|---|---|
| 17D0177-01 A | Small OJ, 500 mL | | |
| 17D0177-01 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-02 A | Small OJ, 500 mL | | |
| 17D0177-02 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-03 A | Small OJ, 500 mL | | |
| 17D0177-03 B | HDPE NM, 500 mL, 1:1 HNO3 | >2 | F |
| 17D0177-04 A | Small OJ, 500 mL | | |
| 17D0177-04 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-05 A | Small OJ, 500 mL | | |
| 17D0177-05 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-06 A | Small OJ, 500 mL | | |
| 17D0177-06 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-07 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 D | Glass NM, Amber, 500 mL | | |
| 17D0177-07 E | Glass NM, Amber, 500 mL | | |
| 17D0177-07 F | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-08 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-09 A | HDPE NM, 500 mL, 1:1 HNO3 | ↓ | ↓ |
| 17D0177-10 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-11 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-12 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-13 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-14 A | VOA Vial, Clear, 40 mL, HCL | | |

P=pass

Reviewed By

Date

**WORK ORDER**

17D0177

| | |
|---|---|
| **Client: Hart Crowser** | **Project Manager: Kelly Bottem** |
| **Project: Paccar** | **Project Number: [none]** |

| | | | |
|---|---|---|---|
| 17D0177-14 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-14 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-14 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | Pass |

PM
Preservation Confirmed By

4/12/2017
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Hart Crowser

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other: _____

Assigned ARI Job No: 17D0177

Tracking No: _____ NA

**Preliminary Examination Phase:**

| | | |
|---|---|---|
| Were intact, properly signed and dated custody seals attached to the outside of to cooler? | YES | (NO) |
| Were custody papers included with the cooler? | (YES) | NO |
| Were custody papers properly filled out (ink, signed, etc.) | (YES) | NO |

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 11.8

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005276

Cooler Accepted by: PM Date: 4/12/2017 Time: 1300

*Complete custody forms and attach all shipping documents*

## Log-In Phase:

| | | | |
|---|---|---|---|
| Was a temperature blank included in the cooler? | | YES | (NO) |
| What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____ | | | |
| Was sufficient ice used (if appropriate)? | NA | YES | (NO) |
| Were all bottles sealed in individual plastic bags? | | (YES) | NO |
| Did all bottles arrive in good condition (unbroken)? | | (YES) | NO |
| Were all bottle labels complete and legible? | | (YES) | NO |
| Did the number of containers listed on COC match with the number of containers received? | | (YES) | NO |
| Did all bottle labels and tags agree with custody papers? | | (YES) | NO |
| Were all bottles used correct for the requested analyses? | | (YES) | NO |
| Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... | NA | (YES) | NO |
| Were all VOC vials free of air bubbles? | NA | (YES) | NO |
| Was sufficient amount of sample sent in each bottle? | | (YES) | NO |
| Date VOC Trip Blank was made at ARI | NA | 4/6/2017 | |

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

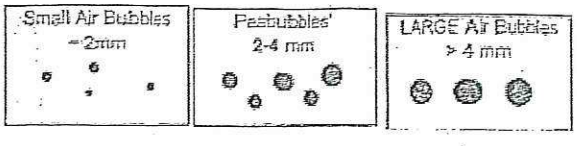
Samples Logged by: PM Date: 4/12/2017 Time: 16:47

*** Notify Project Manager of discrepancies or concerns ***

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

*Additional Notes, Discrepancies, & Resolutions:*

By: Date:




Small → "sm" ( < 2 mm )

Peabubbles → "pb" ( 2 to < 4 mm )

Large → "lg" ( 4 to < 6 mm )

Headspace → "hs" ( > 6 mm )

Analytical Resources, Incorporated
Analytical Chemists and Consultants

# Cooler Temperature Compliance Form

| Cooler#: 1 | Temperature(°C): 11.8 | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| All samples received above 6°C | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Completed by: PM Date: 4/12/2017 Time: 13:05

# Sample Custody Record

Samples Shipped to: ARI

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
**Office:** 206.324.9530 • **Fax** 206.328.5581

JOB 1639-72 LAB NUMBER

PROJECT NAME PACCAR

HART CROWSER CONTACT Roy Jenson

SAMPLED BY: BLB/MKG

| LAB NO. | SAMPLE ID | DESCRIPTION | DATE | TIME | MATRIX | Metals (T) 200.8 (Cu, Pb, Zn) | Cr (VI) SM 3500-Cr D | VOCs (8260B) | Dx (NWTPH-Dx) | VC (8260 b sim) | Metals (T) 200.8 (As) | | | | | | | NO. OF CONTAINERS | OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 1 | 3 | 2 | 3 | 1 | | | | | | | | |
| | SW-DP | | 4/12/17 | 0900 | $H_2O$ | X | X | | | | | | | | | | | 2 | |
| | SW-3 | | | 1110 | | X | X | | | | | | | | | | | 2 | |
| | SW-5 | | | 1040 | | X | X | | | | | | | | | | | 2 | Preservative in metals was washed out |
| | SW-6 | | | 1205 | | X | X | | | | | | | | | | | 2 | |
| | SW-MH | | | 1130 | | X | X | | | | | | | | | | | 2 | |
| | SW-MD | | | 1200 | | X | X | | | | | | | | | | | 2 | |
| | KW Tank | | | 1025 | | X | | X | X | | | | | | | | | 6 | |
| | LW-9D | | 4/11/17 | 1235 | | ~~X~~ BLB | | | | X | X | | | | | | | 4 | |
| | LW-9S | | | 1315 | | | | | | | X | | | | | | | 1 | |
| | MW-3I | | | 1428 | | | | | | | X | | | | | | | 1 | |
| | LW-6D | | | 0912 | | | | | | | X | | | | | | | 1 | |
| | CW-1D | | | 1056 | | | | | | | X | | | | | | | 1 | |

| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
|---|---|---|---|
| SIGNATURE Brigitte Brown | 4/12/17 | SIGNATURE Paul Mark | 4/12/2017 |
| PRINT NAME Brigitte Brown | TIME | PRINT NAME Paul Mark | TIME |
| COMPANY Hart Crowser | 1300 | COMPANY ARI | 1300 |
| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
| SIGNATURE | TIME | SIGNATURE | TIME |
| PRINT NAME | | PRINT NAME | |
| COMPANY | | COMPANY | |

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

* 24 hr hold time on Cr Samples

26 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☒STANDARD
☐72 HOURS OTHER

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

# Sample Custody Record

Samples Shipped to: ARI 17D0177-01

HARTCROWSER

Hart Crowser, Inc.
1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Office: 206.324.9530 • Fax 206.328.5581

JOB 1639-72 LAB NUMBER

PROJECT NAME PACCAR

HART CROWSER CONTACT Roy Jensen

SAMPLED BY: BLB / MKG

| LAB NO. | SAMPLE ID | DESCRIPTION | DATE | TIME | MATRIX | REQUESTED ANALYSIS: VC (8260 6 sim) | REQUESTED ANALYSIS: Metals (T) 200.8 (As) | NO. OF CONTAINERS | OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 3 | 1 | | |
| | CW-1S | | 4/11/17 | 1125 | H2O | X | X | 4 | |
| | CW-100S | | ↓ | 1155 | ↓ | X | X | 4 | |

| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
|---|---|---|---|
| SIGNATURE Brigitte Brown | 4/12/17 | SIGNATURE Paul Mark | 4/12/2017 |
| PRINT NAME Brigitte Brown | TIME | PRINT NAME Paul Mark | TIME |
| COMPANY HartCrowser | 1300 | COMPANY ARI | 1300 |
| RELINQUISHED BY | DATE | RECEIVED BY | DATE |
| SIGNATURE | TIME | SIGNATURE | TIME |
| PRINT NAME | | PRINT NAME | |
| COMPANY | | COMPANY | |

SPECIAL SHIPMENT HANDLING OR STORAGE REQUIREMENTS:

* 24 hr hold from on Cr samples.

8 TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐YES ☐NO ☐N/A
GOOD CONDITION ☐YES ☐NO
TEMPERATURE _____
SHIPMENT METHOD: ☐HAND ☐COURIER ☐OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐48 HOURS ☒STANDARD
☐72 HOURS OTHER _____

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser Gold to Sample Custodian

**WORK ORDER**

17D0177

**Client:** Hart Crowser | **Project Manager:** Kelly Bottem

**Project:** Paccar | **Project Number:** [none]

## Preservation Confirmation

| Container ID | Container Type | pH | |
|---|---|---|---|
| 17D0177-01 A | Small OJ, 500 mL | | |
| 17D0177-01 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-02 A | Small OJ, 500 mL | | |
| 17D0177-02 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-03 A | Small OJ, 500 mL | | |
| 17D0177-03 B | HDPE NM, 500 mL, 1:1 HNO3 | >2 | F |
| 17D0177-04 A | Small OJ, 500 mL | | |
| 17D0177-04 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-05 A | Small OJ, 500 mL | | |
| 17D0177-05 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-06 A | Small OJ, 500 mL | | |
| 17D0177-06 B | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-07 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-07 D | Glass NM, Amber, 500 mL | | |
| 17D0177-07 E | Glass NM, Amber, 500 mL | | |
| 17D0177-07 F | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-08 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-08 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-09 A | HDPE NM, 500 mL, 1:1 HNO3 | ↓ | ↓ |
| 17D0177-10 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-11 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-12 A | HDPE NM, 500 mL, 1:1 HNO3 | | |
| 17D0177-13 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-14 A | VOA Vial, Clear, 40 mL, HCL | | |

P=pass

Reviewed By

Date

**WORK ORDER**

17D0177

| **Client: Hart Crowser** | | **Project Manager: Kelly Bottem** | |
|---|---|---|---|
| **Project: Paccar** | | **Project Number: [none]** | |
| 17D0177-12 A | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-13 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-13 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-14 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-14 B | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-14 C | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-14 D | HDPE NM, 500 mL, 1:1 HNO3 | <2 | P |
| 17D0177-15 A | VOA Vial, Clear, 40 mL, HCL | | |
| 17D0177-15 B | VOA Vial, Clear, 40 mL, HCL | | |

P = pass

PM — Preservation Confirmed By

4/12/2017 — Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Hart Crowser

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other: _____

Assigned ARI Job No: 17D0177

Tracking No: _____ NA

**Preliminary Examination Phase:**

| | | |
|---|---|---|
| Were intact, properly signed and dated custody seals attached to the outside of to cooler? | YES | (NO) |
| Were custody papers included with the cooler? | (YES) | NO |
| Were custody papers properly filled out (ink, signed, etc.) | (YES) | NO |

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 11.8

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005276

Cooler Accepted by: PM Date: 4/12/2017 Time: 1300

*Complete custody forms and attach all shipping documents*

## Log-In Phase:

| | | | |
|---|---|---|---|
| Was a temperature blank included in the cooler? | | YES | (NO) |
| What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____ | | | |
| Was sufficient ice used (if appropriate)? | NA | YES | (NO) |
| Were all bottles sealed in individual plastic bags? | | (YES) | NO |
| Did all bottles arrive in good condition (unbroken)? | | (YES) | NO |
| Were all bottle labels complete and legible? | | (YES) | NO |
| Did the number of containers listed on COC match with the number of containers received? | | (YES) | NO |
| Did all bottle labels and tags agree with custody papers? | | (YES) | NO |
| Were all bottles used correct for the requested analyses? | | (YES) | NO |
| Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... | NA | (YES) | NO |
| Were all VOC vials free of air bubbles? | NA | (YES) | (NO) PM 4/12/2017 |
| Was sufficient amount of sample sent in each bottle? | | (YES) | NO |
| Date VOC Trip Blank was made at ARI | NA | 4/6/2017 | |

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

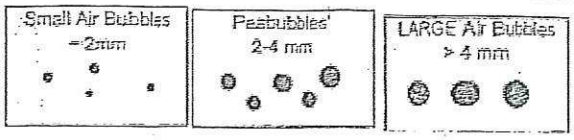
Samples Logged by: PM Date: 4/12/2017 Time: 16:47

*** Notify Project Manager of discrepancies or concerns ***

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

*Additional Notes, Discrepancies, & Resolutions:*

By: Date:




| |
|---|
| Small → "sm" ( < 2 mm ) |
| Peabubbles → "pb" ( 2 to < 4 mm ) |
| Large → "lg" ( 4 to < 6 mm ) |
| Headspace → "hs" ( > 6 mm ) |

Analytical Resources, Incorporated
Analytical Chemists and Consultants

# Cooler Temperature Compliance Form

| Cooler#: 1 | Temperature(°C): 11.8 | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| All samples received above 6°C | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Cooler#: | Temperature(°C): | |
|---|---|---|
| Sample ID | Bottle Count | Bottle Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Completed by: PM Date: 4/12/2017 Time: 13:05

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| SW-DP | 17D0177-01 | Water | 12-Apr-2017 09:00 | 12-Apr-2017 13:00 |
| SW-3 | 17D0177-02 | Water | 12-Apr-2017 11:10 | 12-Apr-2017 13:00 |
| SW-5 | 17D0177-03 | Water | 12-Apr-2017 10:40 | 12-Apr-2017 13:00 |
| SW-6 | 17D0177-04 | Water | 12-Apr-2017 12:05 | 12-Apr-2017 13:00 |
| SW-MH | 17D0177-05 | Water | 12-Apr-2017 11:30 | 12-Apr-2017 13:00 |
| SW-MD | 17D0177-06 | Water | 12-Apr-2017 12:00 | 12-Apr-2017 13:00 |
| KW Tank | 17D0177-07 | Water | 12-Apr-2017 10:25 | 12-Apr-2017 13:00 |
| LW-9D | 17D0177-08 | Water | 11-Apr-2017 12:35 | 12-Apr-2017 13:00 |
| LW-9S | 17D0177-09 | Water | 11-Apr-2017 13:15 | 12-Apr-2017 13:00 |
| MW-3I | 17D0177-10 | Water | 11-Apr-2017 14:28 | 12-Apr-2017 13:00 |
| LW-6D | 17D0177-11 | Water | 11-Apr-2017 09:12 | 12-Apr-2017 13:00 |
| CW-1D | 17D0177-12 | Water | 11-Apr-2017 10:56 | 12-Apr-2017 13:00 |
| CW-1S | 17D0177-13 | Water | 11-Apr-2017 11:25 | 12-Apr-2017 13:00 |
| CW-100S | 17D0177-14 | Water | 11-Apr-2017 11:55 | 12-Apr-2017 13:00 |
| Trip Blanks | 17D0177-15 | Water | 11-Apr-2017 09:12 | 12-Apr-2017 13:00 |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

# Case Narrative

**Volatiles - EPA Method SW8260C**

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high and out of control low for Iodomethane. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits with the exception of analytes flagged on the associated forms.

**Volatiles - EPA Method 8260C-SIM (Selected Ion Monitoring)**

The sample(s) were run within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Diesel Range Organics - WA-Ecology Method NW-TPHD**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

The LCS percent recoveries were within control limits.

**Total Metals - EPA Method 200.8**

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

**Wet Chemistry**

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-DP**

**17D0177-01 (Water)**

## Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 09:00
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 17:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **0.102** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-DP**

**17D0177-01 (Water)**

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 09:00

Instrument: ICPMS2 — Analyzed: 19-Apr-2017 17:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **1.37** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.940 | 4.00 | **73.9** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-DP**

**17D0177-01 (Water)**

## Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 04/12/2017 09:00

Instrument: LACHAT2 — Analyzed: 12-Apr-2017 18:11

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295 — Sample Size: 40 mL
Prepared: 12-Apr-2017 — Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-3

**17D0177-02 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 11:10
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **0.605** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-3

**17D0177-02 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 11:10
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **2.98** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.820 | 4.00 | **41.0** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-3

**17D0177-02 (Water)**

### Wet Chemistry

Method: SM 3500-Cr B-09
Instrument: LACHAT2

Sampled: 04/12/2017 11:10
Analyzed: 12-Apr-2017 18:12

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295
Prepared: 12-Apr-2017
Sample Size: 40 mL
Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-5

**17D0177-03 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 10:40
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **0.372** | ug/L | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-5

**17D0177-03 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 10:40
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **2.52** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.820 | 4.00 | **14.4** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-5

**17D0177-03 (Water)**

### Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 04/12/2017 10:40
Instrument: LACHAT2 — Analyzed: 12-Apr-2017 18:13

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295 — Sample Size: 40 mL
Prepared: 12-Apr-2017 — Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-6

**17D0177-04 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 12:05
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **0.917** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-6

**17D0177-04 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 12:05
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **6.87** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.940 | 4.00 | **54.6** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-6

**17D0177-04 (Water)**

### Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 04/12/2017 12:05
Instrument: LACHAT2 — Analyzed: 12-Apr-2017 18:13

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295 — Sample Size: 40 mL
Prepared: 12-Apr-2017 — Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## SW-MH

**17D0177-05 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 11:30
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **2.78** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-MH**

**17D0177-05 (Water)**

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 11:30

Instrument: ICPMS2 — Analyzed: 19-Apr-2017 19:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **28.0** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.820 | 4.00 | **72.5** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-MH**

**17D0177-05 (Water)**

## Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 04/12/2017 11:30

Instrument: LACHAT2 — Analyzed: 12-Apr-2017 18:14

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295 — Sample Size: 40 mL
Prepared: 12-Apr-2017 — Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-MD**

**17D0177-06 (Water)**

## Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 12:00
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | **2.73** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-MD**

**17D0177-06 (Water)**

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 12:00

Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **25.6** | ug/L | |
| Zinc | 7440-66-6 | 1 | 0.940 | 4.00 | **60.9** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

**SW-MD**

**17D0177-06 (Water)**

## Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 04/12/2017 12:00

Instrument: LACHAT2 — Analyzed: 12-Apr-2017 18:15

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BFD0295 — Sample Size: 40 mL
Prepared: 12-Apr-2017 — Final Volume: 50 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1854-02-99 | 1.25 | 0.013 | ND | mg/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/12/2017 10:25
Instrument: NT2 — Analyzed: 13-Apr-2017 11:25

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0304 — Sample Size: 10 mL
Prepared: 13-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Chloromethane | 74-87-3 | 1 | 0.10 | 0.50 | ND | ug/L | U |
| Vinyl Chloride | 75-01-4 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Bromomethane | 74-83-9 | 1 | 0.25 | 1.00 | ND | ug/L | U |
| Chloroethane | 75-00-3 | 1 | 0.09 | 0.20 | ND | ug/L | U |
| Trichlorofluoromethane | 75-69-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Acrolein | 107-02-8 | 1 | 2.48 | 5.00 | ND | ug/L | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 76-13-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Acetone | 67-64-1 | 1 | 2.06 | 5.00 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Bromoethane | 74-96-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Iodomethane | 74-88-4 | 1 | 0.23 | 1.00 | ND | ug/L | U |
| Methylene Chloride | 75-09-2 | 1 | 0.49 | 1.00 | ND | ug/L | U |
| Acrylonitrile | 107-13-1 | 1 | 0.60 | 1.00 | ND | ug/L | U |
| Carbon Disulfide | 75-15-0 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Vinyl Acetate | 108-05-4 | 1 | 0.07 | 0.20 | ND | ug/L | U |
| 1,1-Dichloroethane | 75-34-3 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 2-Butanone | 78-93-3 | 1 | 0.81 | 5.00 | ND | ug/L | U |
| 2,2-Dichloropropane | 594-20-7 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Chloroform | 67-66-3 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Bromochloromethane | 74-97-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,1,1-Trichloroethane | 71-55-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,1-Dichloropropene | 563-58-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Carbon tetrachloride | 56-23-5 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,2-Dichloroethane | 107-06-2 | 1 | 0.07 | 0.20 | ND | ug/L | U |
| Benzene | 71-43-2 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 1,2-Dichloropropane | 78-87-5 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Bromodichloromethane | 75-27-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Dibromomethane | 74-95-3 | 1 | 0.15 | 0.20 | ND | ug/L | U |
| 2-Chloroethyl vinyl ether | 110-75-8 | 1 | 0.25 | 1.00 | ND | ug/L | U |
| 4-Methyl-2-Pentanone | 108-10-1 | 1 | 0.97 | 5.00 | ND | ug/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/12/2017 10:25
Instrument: NT2 — Analyzed: 13-Apr-2017 11:25

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 10061-01-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Toluene | 108-88-3 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| trans-1,3-Dichloropropene | 10061-02-6 | 1 | 0.08 | 0.20 | ND | ug/L | U |
| 2-Hexanone | 591-78-6 | 1 | 0.90 | 5.00 | ND | ug/L | U |
| 1,1,2-Trichloroethane | 79-00-5 | 1 | 0.13 | 0.20 | ND | ug/L | U |
| 1,3-Dichloropropane | 142-28-9 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Dibromochloromethane | 124-48-1 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 1,2-Dibromoethane | 106-93-4 | 1 | 0.08 | 0.20 | ND | ug/L | U |
| Chlorobenzene | 108-90-7 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.05 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.09 | 0.60 | ND | ug/L | U |
| Styrene | 100-42-5 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Bromoform | 75-25-2 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,2,3-Trichloropropane | 96-18-4 | 1 | 0.13 | 0.50 | ND | ug/L | U |
| trans-1,4-Dichloro 2-Butene | 110-57-6 | 1 | 0.32 | 1.00 | ND | ug/L | U |
| n-Propylbenzene | 103-65-1 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| Bromobenzene | 108-86-1 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Isopropyl Benzene | 98-82-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 2-Chlorotoluene | 95-49-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 4-Chlorotoluene | 106-43-4 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| t-Butylbenzene | 98-06-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,3,5-Trimethylbenzene | 108-67-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 1,2,4-Trimethylbenzene | 95-63-6 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| s-Butylbenzene | 135-98-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 4-Isopropyl Toluene | 99-87-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,3-Dichlorobenzene | 541-73-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,4-Dichlorobenzene | 106-46-7 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| n-Butylbenzene | 104-51-8 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,2-Dichlorobenzene | 95-50-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | 1 | 0.37 | 0.50 | ND | ug/L | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1 | 0.11 | 0.50 | ND | ug/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/12/2017 10:25

Instrument: NT2 — Analyzed: 13-Apr-2017 11:25

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 87-68-3 | 1 | 0.07 | 0.50 | ND | ug/L | U |
| Naphthalene | 91-20-3 | 1 | 0.12 | 0.50 | ND | ug/L | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | 1 | 0.11 | 0.50 | ND | ug/L | U |
| Dichlorodifluoromethane | 75-71-8 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Methyl tert-butyl Ether | 1634-04-4 | 1 | 0.07 | 0.50 | ND | ug/L | U |
| 2-Pentanone | 107-87-9 | 1 | 1.00 | 1.00 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *101* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *95.9* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *80-120 %* | *94.5* | *%* | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | | | | *80-120 %* | *103* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 04/12/2017 10:25
Instrument: FID4 — Analyzed: 19-Apr-2017 12:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFD0278 — Sample Size: 500 mL
Prepared: 13-Apr-2017 — Final Volume: 1 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Diesel Range Organics (C12-C24) | | 1 | 0.100 | ND | mg/L | U |
| Motor Oil Range Organics (C24-C38) | | 1 | 0.200 | ND | mg/L | U |
| *Surrogate: o-Terphenyl* | | | *50-150 %* | *114* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 — Sampled: 04/12/2017 10:25
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Lead | 7439-92-1 | 1 | 0.0680 | 0.100 | ND | ug/L | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## KW Tank

**17D0177-07 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/12/2017 10:25
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Copper | 7440-50-8 | 1 | 0.340 | 0.500 | **0.345** | ug/L | J |
| Zinc | 7440-66-6 | 1 | 0.820 | 4.00 | **3.72** | ug/L | J |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## LW-9D

**17D0177-08 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260C-SIM — Sampled: 04/11/2017 12:35
Instrument: NT15 — Analyzed: 21-Apr-2017 18:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0558 — Sample Size: 10 mL
Prepared: 21-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 5.01 | 20.0 | **350** | ng/L | |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *99.5* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *100* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *75-125 %* | *98.2* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## LW-9D

**17D0177-08 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 12:35
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **8.51** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 13:15
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **15.3** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 14:28
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **14.7** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 09:12
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **10.0** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 10:56
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **6.29** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## CW-1S

**17D0177-13 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260C-SIM — Sampled: 04/11/2017 11:25
Instrument: NT15 — Analyzed: 21-Apr-2017 18:59

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0558 — Sample Size: 10 mL
Prepared: 21-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 5.01 | 20.0 | **244** | ng/L | |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *106* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *100* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *75-125 %* | *96.1* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## CW-1S

**17D0177-13 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 11:25
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 20:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **4.39** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## CW-100S

**17D0177-14 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260C-SIM — Sampled: 04/11/2017 11:55
Instrument: NT15 — Analyzed: 21-Apr-2017 19:21

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0558 — Sample Size: 10 mL
Prepared: 21-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 5.01 | 20.0 | **197** | ng/L | |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *104* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *99.4* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *75-125 %* | *96.6* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## CW-100S

**17D0177-14 (Water)**

### Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED — Sampled: 04/11/2017 11:55
Instrument: ICPMS2 — Analyzed: 19-Apr-2017 21:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BFD0339 — Sample Size: 25 mL
Prepared: 14-Apr-2017 — Final Volume: 25 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | 1 | 0.0220 | 0.200 | **4.29** | ug/L | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Trip Blanks

**17D0177-15 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/11/2017 09:12
Instrument: NT2 — Analyzed: 13-Apr-2017 11:05

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0304 — Sample Size: 10 mL
Prepared: 13-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Chloromethane | 74-87-3 | 1 | 0.10 | 0.50 | ND | ug/L | U |
| Vinyl Chloride | 75-01-4 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Bromomethane | 74-83-9 | 1 | 0.25 | 1.00 | ND | ug/L | U |
| Chloroethane | 75-00-3 | 1 | 0.09 | 0.20 | ND | ug/L | U |
| Trichlorofluoromethane | 75-69-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Acrolein | 107-02-8 | 1 | 2.48 | 5.00 | ND | ug/L | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 76-13-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Acetone | 67-64-1 | 1 | 2.06 | 5.00 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Bromoethane | 74-96-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Iodomethane | 74-88-4 | 1 | 0.23 | 1.00 | ND | ug/L | U |
| Methylene Chloride | 75-09-2 | 1 | 0.49 | 1.00 | ND | ug/L | U |
| Acrylonitrile | 107-13-1 | 1 | 0.60 | 1.00 | ND | ug/L | U |
| Carbon Disulfide | 75-15-0 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Vinyl Acetate | 108-05-4 | 1 | 0.07 | 0.20 | ND | ug/L | U |
| 1,1-Dichloroethane | 75-34-3 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 2-Butanone | 78-93-3 | 1 | 0.81 | 5.00 | ND | ug/L | U |
| 2,2-Dichloropropane | 594-20-7 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Chloroform | 67-66-3 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Bromochloromethane | 74-97-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,1,1-Trichloroethane | 71-55-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,1-Dichloropropene | 563-58-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Carbon tetrachloride | 56-23-5 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,2-Dichloroethane | 107-06-2 | 1 | 0.07 | 0.20 | ND | ug/L | U |
| Benzene | 71-43-2 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 1,2-Dichloropropane | 78-87-5 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Bromodichloromethane | 75-27-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Dibromomethane | 74-95-3 | 1 | 0.15 | 0.20 | ND | ug/L | U |
| 2-Chloroethyl vinyl ether | 110-75-8 | 1 | 0.25 | 1.00 | ND | ug/L | U |
| 4-Methyl-2-Pentanone | 108-10-1 | 1 | 0.97 | 5.00 | ND | ug/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Trip Blanks

**17D0177-15 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/11/2017 09:12
Instrument: NT2 — Analyzed: 13-Apr-2017 11:05

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | 10061-01-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Toluene | 108-88-3 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| trans-1,3-Dichloropropene | 10061-02-6 | 1 | 0.08 | 0.20 | ND | ug/L | U |
| 2-Hexanone | 591-78-6 | 1 | 0.90 | 5.00 | ND | ug/L | U |
| 1,1,2-Trichloroethane | 79-00-5 | 1 | 0.13 | 0.20 | ND | ug/L | U |
| 1,3-Dichloropropane | 142-28-9 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Dibromochloromethane | 124-48-1 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| 1,2-Dibromoethane | 106-93-4 | 1 | 0.08 | 0.20 | ND | ug/L | U |
| Chlorobenzene | 108-90-7 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,1,1,2-Tetrachloroethane | 630-20-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.05 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.09 | 0.60 | ND | ug/L | U |
| Styrene | 100-42-5 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Bromoform | 75-25-2 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| 1,2,3-Trichloropropane | 96-18-4 | 1 | 0.13 | 0.50 | ND | ug/L | U |
| trans-1,4-Dichloro 2-Butene | 110-57-6 | 1 | 0.32 | 1.00 | ND | ug/L | U |
| n-Propylbenzene | 103-65-1 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| Bromobenzene | 108-86-1 | 1 | 0.06 | 0.20 | ND | ug/L | U |
| Isopropyl Benzene | 98-82-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 2-Chlorotoluene | 95-49-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 4-Chlorotoluene | 106-43-4 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| t-Butylbenzene | 98-06-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,3,5-Trimethylbenzene | 108-67-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 1,2,4-Trimethylbenzene | 95-63-6 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| s-Butylbenzene | 135-98-8 | 1 | 0.02 | 0.20 | ND | ug/L | U |
| 4-Isopropyl Toluene | 99-87-6 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,3-Dichlorobenzene | 541-73-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,4-Dichlorobenzene | 106-46-7 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| n-Butylbenzene | 104-51-8 | 1 | 0.03 | 0.20 | ND | ug/L | U |
| 1,2-Dichlorobenzene | 95-50-1 | 1 | 0.04 | 0.20 | ND | ug/L | U |
| 1,2-Dibromo-3-chloropropane | 96-12-8 | 1 | 0.37 | 0.50 | ND | ug/L | U |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1 | 0.11 | 0.50 | ND | ug/L | U |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Trip Blanks

**17D0177-15 (Water)**

### Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/11/2017 09:12

Instrument: NT2 — Analyzed: 13-Apr-2017 11:05

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Hexachloro-1,3-Butadiene | 87-68-3 | 1 | 0.07 | 0.50 | ND | ug/L | U |
| Naphthalene | 91-20-3 | 1 | 0.12 | 0.50 | ND | ug/L | U |
| 1,2,3-Trichlorobenzene | 87-61-6 | 1 | 0.11 | 0.50 | ND | ug/L | U |
| Dichlorodifluoromethane | 75-71-8 | 1 | 0.05 | 0.20 | ND | ug/L | U |
| Methyl tert-butyl Ether | 1634-04-4 | 1 | 0.07 | 0.50 | ND | ug/L | U |
| 2-Pentanone | 107-87-9 | 1 | 1.00 | 1.00 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *102* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *95.8* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *80-120 %* | *96.5* | *%* | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | | | | *80-120 %* | *103* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Trip Blanks

**17D0177-15 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260C-SIM — Sampled: 04/11/2017 09:12
Instrument: NT15 — Analyzed: 21-Apr-2017 18:14

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BFD0558 — Sample Size: 10 mL
Prepared: 21-Apr-2017 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Detection Limit | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 5.01 | 20.0 | ND | ng/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | | *80-129 %* | *96.4* | *%* | |
| *Surrogate: Toluene-d8* | | | | *80-120 %* | *98.6* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | | *75-125 %* | *96.6* | *%* | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0304-BLK2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:47 | | | | | | | |
| Chloromethane | ND | 0.10 | 0.50 | ug/L | | | | | | | U |
| Vinyl Chloride | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| Bromomethane | ND | 0.25 | 1.00 | ug/L | | | | | | | U |
| Chloroethane | ND | 0.09 | 0.20 | ug/L | | | | | | | U |
| Trichlorofluoromethane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Acrolein | ND | 2.48 | 5.00 | ug/L | | | | | | | U |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Acetone | ND | 2.06 | 5.00 | ug/L | | | | | | | U |
| 1,1-Dichloroethene | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Bromoethane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Iodomethane | ND | 0.23 | 1.00 | ug/L | | | | | | | U |
| Methylene Chloride | ND | 0.49 | 1.00 | ug/L | | | | | | | U |
| Acrylonitrile | ND | 0.60 | 1.00 | ug/L | | | | | | | U |
| Carbon Disulfide | 0.07 | 0.04 | 0.20 | ug/L | | | | | | | J |
| trans-1,2-Dichloroethene | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Vinyl Acetate | ND | 0.07 | 0.20 | ug/L | | | | | | | U |
| 1,1-Dichloroethane | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| 2-Butanone | ND | 0.81 | 5.00 | ug/L | | | | | | | U |
| 2,2-Dichloropropane | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| cis-1,2-Dichloroethene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Chloroform | ND | 0.03 | 0.20 | ug/L | | | | | | | U |
| Bromochloromethane | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| 1,1,1-Trichloroethane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| 1,1-Dichloropropene | ND | 0.03 | 0.20 | ug/L | | | | | | | U |
| Carbon tetrachloride | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| 1,2-Dichloroethane | ND | 0.07 | 0.20 | ug/L | | | | | | | U |
| Benzene | ND | 0.03 | 0.20 | ug/L | | | | | | | U |
| Trichloroethene | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| 1,2-Dichloropropane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Bromodichloromethane | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Dibromomethane | ND | 0.15 | 0.20 | ug/L | | | | | | | U |
| 2-Chloroethyl vinyl ether | ND | 0.25 | 1.00 | ug/L | | | | | | | U |
| 4-Methyl-2-Pentanone | ND | 0.97 | 5.00 | ug/L | | | | | | | U |
| cis-1,3-Dichloropropene | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| Toluene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0304-BLK2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:47 | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.08 | 0.20 | ug/L | | | | | | | U |
| 2-Hexanone | ND | 0.90 | 5.00 | ug/L | | | | | | | U |
| 1,1,2-Trichloroethane | ND | 0.13 | 0.20 | ug/L | | | | | | | U |
| 1,3-Dichloropropane | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| Tetrachloroethene | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Dibromochloromethane | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| 1,2-Dibromoethane | ND | 0.08 | 0.20 | ug/L | | | | | | | U |
| Chlorobenzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| Ethylbenzene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| 1,1,1,2-Tetrachloroethane | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| m,p-Xylene | ND | 0.05 | 0.40 | ug/L | | | | | | | U |
| o-Xylene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| Xylenes, total | ND | 0.09 | 0.60 | ug/L | | | | | | | U |
| Styrene | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Bromoform | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| 1,1,2,2-Tetrachloroethane | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| 1,2,3-Trichloropropane | ND | 0.13 | 0.50 | ug/L | | | | | | | U |
| trans-1,4-Dichloro 2-Butene | ND | 0.32 | 1.00 | ug/L | | | | | | | U |
| n-Propylbenzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| Bromobenzene | ND | 0.06 | 0.20 | ug/L | | | | | | | U |
| Isopropyl Benzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| 2-Chlorotoluene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| 4-Chlorotoluene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| t-Butylbenzene | ND | 0.03 | 0.20 | ug/L | | | | | | | U |
| 1,3,5-Trimethylbenzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| 1,2,4-Trimethylbenzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| s-Butylbenzene | ND | 0.02 | 0.20 | ug/L | | | | | | | U |
| 4-Isopropyl Toluene | ND | 0.03 | 0.20 | ug/L | | | | | | | U |
| 1,3-Dichlorobenzene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| 1,4-Dichlorobenzene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| n-Butylbenzene | 0.04 | 0.03 | 0.20 | ug/L | | | | | | | J |
| 1,2-Dichlorobenzene | ND | 0.04 | 0.20 | ug/L | | | | | | | U |
| 1,2-Dibromo-3-chloropropane | ND | 0.37 | 0.50 | ug/L | | | | | | | U |
| 1,2,4-Trichlorobenzene | 0.11 | 0.11 | 0.50 | ug/L | | | | | | | J |
| Hexachloro-1,3-Butadiene | 0.24 | 0.07 | 0.50 | ug/L | | | | | | | J |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0304-BLK2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:47 | | | | | | | |
| Naphthalene | ND | 0.12 | 0.50 | ug/L | | | | | | | U |
| 1,2,3-Trichlorobenzene | 0.19 | 0.11 | 0.50 | ug/L | | | | | | | J |
| Dichlorodifluoromethane | ND | 0.05 | 0.20 | ug/L | | | | | | | U |
| Methyl tert-butyl Ether | ND | 0.07 | 0.50 | ug/L | | | | | | | U |
| 2-Pentanone | ND | 1.00 | 1.00 | ug/L | | | | | | | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | 4.68 | | ug/L | *5.00* | | *93.6* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 4.77 | | ug/L | *5.00* | | *95.4* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 4.84 | | ug/L | *5.00* | | *96.9* | *80-120* | | | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | | 5.13 | | ug/L | *5.00* | | *103* | *80-120* | | | |
| **LCS (BFD0304-BS2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:07 | | | | | | | |
| Chloromethane | 9.17 | | | ug/L | 10.0 | | 91.7 | 60-138 | | | |
| Vinyl Chloride | 9.43 | | | ug/L | 10.0 | | 94.3 | 66-133 | | | |
| Bromomethane | 9.63 | | | ug/L | 10.0 | | 96.3 | 72-131 | | | |
| Chloroethane | 9.82 | | | ug/L | 10.0 | | 98.2 | 60-155 | | | |
| Trichlorofluoromethane | 10.3 | | | ug/L | 10.0 | | 103 | 80-129 | | | |
| Acrolein | 50.1 | | | ug/L | 50.0 | | 100 | 52-144 | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 9.36 | | | ug/L | 10.0 | | 93.6 | 76-129 | | | |
| Acetone | 50.1 | | | ug/L | 50.0 | | 100 | 58-142 | | | |
| 1,1-Dichloroethene | 9.37 | | | ug/L | 10.0 | | 93.7 | 69-135 | | | |
| Bromoethane | 9.85 | | | ug/L | 10.0 | | 98.5 | 78-128 | | | |
| Iodomethane | 4.83 | | | ug/L | 10.0 | | 48.3 | 56-147 | | | *, Q |
| Methylene Chloride | 9.73 | | | ug/L | 10.0 | | 97.3 | 65-135 | | | |
| Acrylonitrile | 10.1 | | | ug/L | 10.0 | | 101 | 64-134 | | | |
| Carbon Disulfide | 8.98 | | | ug/L | 10.0 | | 89.8 | 78-125 | | | |
| trans-1,2-Dichloroethene | 9.28 | | | ug/L | 10.0 | | 92.8 | 78-128 | | | |
| Vinyl Acetate | 10.1 | | | ug/L | 10.0 | | 101 | 55-138 | | | |
| 1,1-Dichloroethane | 9.56 | | | ug/L | 10.0 | | 95.6 | 76-124 | | | |
| 2-Butanone | 52.1 | | | ug/L | 50.0 | | 104 | 61-140 | | | |
| 2,2-Dichloropropane | 9.70 | | | ug/L | 10.0 | | 97.0 | 78-125 | | | |
| cis-1,2-Dichloroethene | 9.57 | | | ug/L | 10.0 | | 95.7 | 80-121 | | | |
| Chloroform | 9.53 | | | ug/L | 10.0 | | 95.3 | 80-122 | | | |
| Bromochloromethane | 10.1 | | | ug/L | 10.0 | | 101 | 80-121 | | | |
| 1,1,1-Trichloroethane | 9.90 | | | ug/L | 10.0 | | 99.0 | 79-123 | | | |
| 1,1-Dichloropropene | 9.74 | | | ug/L | 10.0 | | 97.4 | 80-120 | | | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LCS (BFD0304-BS2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:07 | | | | | | | |
| Carbon tetrachloride | 8.93 | | | ug/L | 10.0 | | 89.3 | 53-137 | | | |
| 1,2-Dichloroethane | 9.43 | | | ug/L | 10.0 | | 94.3 | 75-123 | | | |
| Benzene | 9.80 | | | ug/L | 10.0 | | 98.0 | 80-120 | | | |
| Trichloroethene | 9.85 | | | ug/L | 10.0 | | 98.5 | 80-120 | | | |
| 1,2-Dichloropropane | 9.70 | | | ug/L | 10.0 | | 97.0 | 80-120 | | | |
| Bromodichloromethane | 10.3 | | | ug/L | 10.0 | | 103 | 80-121 | | | |
| Dibromomethane | 9.98 | | | ug/L | 10.0 | | 99.8 | 80-120 | | | |
| 2-Chloroethyl vinyl ether | 9.37 | | | ug/L | 10.0 | | 93.7 | 74-127 | | | |
| 4-Methyl-2-Pentanone | 53.1 | | | ug/L | 50.0 | | 106 | 67-133 | | | |
| cis-1,3-Dichloropropene | 10.2 | | | ug/L | 10.0 | | 102 | 80-124 | | | |
| Toluene | 9.93 | | | ug/L | 10.0 | | 99.3 | 80-120 | | | |
| trans-1,3-Dichloropropene | 10.2 | | | ug/L | 10.0 | | 102 | 71-127 | | | |
| 2-Hexanone | 52.6 | | | ug/L | 50.0 | | 105 | 69-133 | | | |
| 1,1,2-Trichloroethane | 9.83 | | | ug/L | 10.0 | | 98.3 | 80-121 | | | |
| 1,3-Dichloropropane | 10.1 | | | ug/L | 10.0 | | 101 | 80-120 | | | |
| Tetrachloroethene | 10.5 | | | ug/L | 10.0 | | 105 | 80-120 | | | |
| Dibromochloromethane | 11.7 | | | ug/L | 10.0 | | 117 | 65-135 | | | |
| 1,2-Dibromoethane | 10.1 | | | ug/L | 10.0 | | 101 | 80-121 | | | |
| Chlorobenzene | 10.3 | | | ug/L | 10.0 | | 103 | 80-120 | | | |
| Ethylbenzene | 10.2 | | | ug/L | 10.0 | | 102 | 80-120 | | | |
| 1,1,1,2-Tetrachloroethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-120 | | | |
| m,p-Xylene | 21.0 | | | ug/L | 20.0 | | 105 | 80-121 | | | |
| o-Xylene | 10.1 | | | ug/L | 10.0 | | 101 | 80-121 | | | |
| Xylenes, total | 31.2 | | | ug/L | 30.0 | | 104 | 76-127 | | | |
| Styrene | 10.4 | | | ug/L | 10.0 | | 104 | 80-124 | | | |
| Bromoform | 10.6 | | | ug/L | 10.0 | | 106 | 51-134 | | | |
| 1,1,2,2-Tetrachloroethane | 9.59 | | | ug/L | 10.0 | | 95.9 | 77-123 | | | |
| 1,2,3-Trichloropropane | 9.80 | | | ug/L | 10.0 | | 98.0 | 76-125 | | | |
| trans-1,4-Dichloro 2-Butene | 13.2 | | | ug/L | 10.0 | | 132 | 55-129 | | | *, Q |
| n-Propylbenzene | 9.82 | | | ug/L | 10.0 | | 98.2 | 78-130 | | | |
| Bromobenzene | 9.76 | | | ug/L | 10.0 | | 97.6 | 80-120 | | | |
| Isopropyl Benzene | 9.97 | | | ug/L | 10.0 | | 99.7 | 80-128 | | | |
| 2-Chlorotoluene | 9.53 | | | ug/L | 10.0 | | 95.3 | 78-122 | | | |
| 4-Chlorotoluene | 9.53 | | | ug/L | 10.0 | | 95.3 | 80-121 | | | |
| t-Butylbenzene | 9.90 | | | ug/L | 10.0 | | 99.0 | 78-125 | | | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LCS (BFD0304-BS2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:07 | | | | | | | |
| 1,3,5-Trimethylbenzene | 9.87 | | | ug/L | 10.0 | | 98.7 | 80-129 | | | |
| 1,2,4-Trimethylbenzene | 9.84 | | | ug/L | 10.0 | | 98.4 | 80-127 | | | |
| s-Butylbenzene | 9.76 | | | ug/L | 10.0 | | 97.6 | 78-129 | | | |
| 4-Isopropyl Toluene | 10.0 | | | ug/L | 10.0 | | 100 | 79-130 | | | |
| 1,3-Dichlorobenzene | 9.68 | | | ug/L | 10.0 | | 96.8 | 80-120 | | | |
| 1,4-Dichlorobenzene | 9.29 | | | ug/L | 10.0 | | 92.9 | 80-120 | | | |
| n-Butylbenzene | 9.62 | | | ug/L | 10.0 | | 96.2 | 74-129 | | | |
| 1,2-Dichlorobenzene | 9.30 | | | ug/L | 10.0 | | 93.0 | 80-120 | | | |
| 1,2-Dibromo-3-chloropropane | 10.2 | | | ug/L | 10.0 | | 102 | 62-123 | | | |
| 1,2,4-Trichlorobenzene | 9.78 | | | ug/L | 10.0 | | 97.8 | 64-124 | | | |
| Hexachloro-1,3-Butadiene | 8.62 | | | ug/L | 10.0 | | 86.2 | 58-123 | | | |
| Naphthalene | 9.02 | | | ug/L | 10.0 | | 90.2 | 50-134 | | | |
| 1,2,3-Trichlorobenzene | 9.42 | | | ug/L | 10.0 | | 94.2 | 49-133 | | | |
| Dichlorodifluoromethane | 9.35 | | | ug/L | 10.0 | | 93.5 | 48-147 | | | |
| Methyl tert-butyl Ether | 9.67 | | | ug/L | 10.0 | | 96.7 | 71-132 | | | |
| 2-Pentanone | 49.6 | | | ug/L | 50.0 | | 99.1 | 69-134 | | | |
| *Surrogate: Dibromofluoromethane* | | 4.77 | | ug/L | *5.00* | | *95.3* | *80-120* | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | | 4.76 | | ug/L | *5.00* | | *95.3* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 4.91 | | ug/L | *5.00* | | *98.2* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 5.03 | | ug/L | *5.00* | | *101* | *80-120* | | | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | | 5.07 | | ug/L | *5.00* | | *101* | *80-120* | | | |
| **LCS Dup (BFD0304-BSD2)** | | | | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:27 | | | | | | | |
| Chloromethane | 9.46 | | | ug/L | 10.0 | | 94.6 | 60-138 | 3.10 | 30 | |
| Vinyl Chloride | 9.63 | | | ug/L | 10.0 | | 96.3 | 66-133 | 2.07 | 30 | |
| Bromomethane | 10.2 | | | ug/L | 10.0 | | 102 | 72-131 | 6.12 | 30 | |
| Chloroethane | 10.5 | | | ug/L | 10.0 | | 105 | 60-155 | 6.52 | 30 | |
| Trichlorofluoromethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-129 | 1.41 | 30 | |
| Acrolein | 51.4 | | | ug/L | 50.0 | | 103 | 52-144 | 2.46 | 30 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | 9.66 | | | ug/L | 10.0 | | 96.6 | 76-129 | 3.15 | 30 | |
| Acetone | 51.5 | | | ug/L | 50.0 | | 103 | 58-142 | 2.75 | 30 | |
| 1,1-Dichloroethene | 9.73 | | | ug/L | 10.0 | | 97.3 | 69-135 | 3.75 | 30 | |
| Bromoethane | 9.87 | | | ug/L | 10.0 | | 98.7 | 78-128 | 0.24 | 30 | |
| Iodomethane | 5.90 | | | ug/L | 10.0 | | 59.0 | 56-147 | 20.00 | 30 | Q |
| Methylene Chloride | 9.83 | | | ug/L | 10.0 | | 98.3 | 65-135 | 1.09 | 30 | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LCS Dup (BFD0304-BSD2)** | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:27 | | | | | | | | | | |
| Acrylonitrile | 10.1 | | | ug/L | 10.0 | | 101 | 64-134 | 0.01 | 30 | |
| Carbon Disulfide | 9.27 | | | ug/L | 10.0 | | 92.7 | 78-125 | 3.20 | 30 | |
| trans-1,2-Dichloroethene | 9.64 | | | ug/L | 10.0 | | 96.4 | 78-128 | 3.88 | 30 | |
| Vinyl Acetate | 10.5 | | | ug/L | 10.0 | | 105 | 55-138 | 3.97 | 30 | |
| 1,1-Dichloroethane | 9.81 | | | ug/L | 10.0 | | 98.1 | 76-124 | 2.61 | 30 | |
| 2-Butanone | 53.8 | | | ug/L | 50.0 | | 108 | 61-140 | 3.27 | 30 | |
| 2,2-Dichloropropane | 9.87 | | | ug/L | 10.0 | | 98.7 | 78-125 | 1.79 | 30 | |
| cis-1,2-Dichloroethene | 9.95 | | | ug/L | 10.0 | | 99.5 | 80-121 | 3.87 | 30 | |
| Chloroform | 10.0 | | | ug/L | 10.0 | | 100 | 80-122 | 5.09 | 30 | |
| Bromochloromethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-121 | 3.93 | 30 | |
| 1,1,1-Trichloroethane | 10.3 | | | ug/L | 10.0 | | 103 | 79-123 | 3.86 | 30 | |
| 1,1-Dichloropropene | 9.97 | | | ug/L | 10.0 | | 99.7 | 80-120 | 2.34 | 30 | |
| Carbon tetrachloride | 9.52 | | | ug/L | 10.0 | | 95.2 | 53-137 | 6.47 | 30 | |
| 1,2-Dichloroethane | 10.1 | | | ug/L | 10.0 | | 101 | 75-123 | 6.53 | 30 | |
| Benzene | 10.3 | | | ug/L | 10.0 | | 103 | 80-120 | 5.14 | 30 | |
| Trichloroethene | 10.2 | | | ug/L | 10.0 | | 102 | 80-120 | 3.75 | 30 | |
| 1,2-Dichloropropane | 10.0 | | | ug/L | 10.0 | | 100 | 80-120 | 3.42 | 30 | |
| Bromodichloromethane | 10.9 | | | ug/L | 10.0 | | 109 | 80-121 | 5.69 | 30 | |
| Dibromomethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-120 | 5.29 | 30 | |
| 2-Chloroethyl vinyl ether | 9.87 | | | ug/L | 10.0 | | 98.7 | 74-127 | 5.15 | 30 | |
| 4-Methyl-2-Pentanone | 55.9 | | | ug/L | 50.0 | | 112 | 67-133 | 4.98 | 30 | |
| cis-1,3-Dichloropropene | 10.5 | | | ug/L | 10.0 | | 105 | 80-124 | 3.07 | 30 | |
| Toluene | 10.4 | | | ug/L | 10.0 | | 104 | 80-120 | 4.94 | 30 | |
| trans-1,3-Dichloropropene | 10.8 | | | ug/L | 10.0 | | 108 | 71-127 | 6.05 | 30 | |
| 2-Hexanone | 55.3 | | | ug/L | 50.0 | | 111 | 69-133 | 5.13 | 30 | |
| 1,1,2-Trichloroethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-121 | 6.69 | 30 | |
| 1,3-Dichloropropane | 10.3 | | | ug/L | 10.0 | | 103 | 80-120 | 1.76 | 30 | |
| Tetrachloroethene | 10.6 | | | ug/L | 10.0 | | 106 | 80-120 | 1.33 | 30 | |
| Dibromochloromethane | 12.6 | | | ug/L | 10.0 | | 126 | 65-135 | 7.09 | 30 | |
| 1,2-Dibromoethane | 10.5 | | | ug/L | 10.0 | | 105 | 80-121 | 4.50 | 30 | |
| Chlorobenzene | 10.7 | | | ug/L | 10.0 | | 107 | 80-120 | 3.56 | 30 | |
| Ethylbenzene | 10.6 | | | ug/L | 10.0 | | 106 | 80-120 | 4.02 | 30 | |
| 1,1,1,2-Tetrachloroethane | 11.0 | | | ug/L | 10.0 | | 110 | 80-120 | 5.07 | 30 | |
| m,p-Xylene | 21.7 | | | ug/L | 20.0 | | 109 | 80-121 | 3.31 | 30 | |
| o-Xylene | 10.8 | | | ug/L | 10.0 | | 108 | 80-121 | 6.83 | 30 | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - Quality Control

### Batch BFD0304 - EPA 5030 (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LCS Dup (BFD0304-BSD2)** | Prepared: 13-Apr-2017 Analyzed: 13-Apr-2017 08:27 | | | | | | | | | | |
| Xylenes, total | 32.6 | | | ug/L | 30.0 | | 109 | 76-127 | 4.47 | 30 | |
| Styrene | 10.8 | | | ug/L | 10.0 | | 108 | 80-124 | 3.97 | 30 | |
| Bromoform | 11.0 | | | ug/L | 10.0 | | 110 | 51-134 | 3.44 | 30 | |
| 1,1,2,2-Tetrachloroethane | 9.94 | | | ug/L | 10.0 | | 99.4 | 77-123 | 3.57 | 30 | |
| 1,2,3-Trichloropropane | 9.80 | | | ug/L | 10.0 | | 98.0 | 76-125 | 0.09 | 30 | |
| trans-1,4-Dichloro 2-Butene | 14.1 | | | ug/L | 10.0 | | 141 | 55-129 | 7.14 | 30 | *, Q |
| n-Propylbenzene | 10.1 | | | ug/L | 10.0 | | 101 | 78-130 | 2.87 | 30 | |
| Bromobenzene | 10.1 | | | ug/L | 10.0 | | 101 | 80-120 | 3.35 | 30 | |
| Isopropyl Benzene | 10.1 | | | ug/L | 10.0 | | 101 | 80-128 | 0.92 | 30 | |
| 2-Chlorotoluene | 9.85 | | | ug/L | 10.0 | | 98.5 | 78-122 | 3.35 | 30 | |
| 4-Chlorotoluene | 9.80 | | | ug/L | 10.0 | | 98.0 | 80-121 | 2.86 | 30 | |
| t-Butylbenzene | 10.1 | | | ug/L | 10.0 | | 101 | 78-125 | 2.09 | 30 | |
| 1,3,5-Trimethylbenzene | 10.3 | | | ug/L | 10.0 | | 103 | 80-129 | 4.53 | 30 | |
| 1,2,4-Trimethylbenzene | 10.0 | | | ug/L | 10.0 | | 100 | 80-127 | 2.07 | 30 | |
| s-Butylbenzene | 10.1 | | | ug/L | 10.0 | | 101 | 78-129 | 3.12 | 30 | |
| 4-Isopropyl Toluene | 10.3 | | | ug/L | 10.0 | | 103 | 79-130 | 2.27 | 30 | |
| 1,3-Dichlorobenzene | 9.90 | | | ug/L | 10.0 | | 99.0 | 80-120 | 2.20 | 30 | |
| 1,4-Dichlorobenzene | 9.54 | | | ug/L | 10.0 | | 95.4 | 80-120 | 2.61 | 30 | |
| n-Butylbenzene | 9.83 | | | ug/L | 10.0 | | 98.3 | 74-129 | 2.15 | 30 | |
| 1,2-Dichlorobenzene | 9.63 | | | ug/L | 10.0 | | 96.3 | 80-120 | 3.56 | 30 | |
| 1,2-Dibromo-3-chloropropane | 10.9 | | | ug/L | 10.0 | | 109 | 62-123 | 6.70 | 30 | |
| 1,2,4-Trichlorobenzene | 9.94 | | | ug/L | 10.0 | | 99.4 | 64-124 | 1.63 | 30 | |
| Hexachloro-1,3-Butadiene | 8.94 | | | ug/L | 10.0 | | 89.4 | 58-123 | 3.65 | 30 | |
| Naphthalene | 9.55 | | | ug/L | 10.0 | | 95.5 | 50-134 | 5.64 | 30 | |
| 1,2,3-Trichlorobenzene | 9.89 | | | ug/L | 10.0 | | 98.9 | 49-133 | 4.85 | 30 | |
| Dichlorodifluoromethane | 9.68 | | | ug/L | 10.0 | | 96.8 | 48-147 | 3.49 | 30 | |
| Methyl tert-butyl Ether | 9.90 | | | ug/L | 10.0 | | 99.0 | 71-132 | 2.42 | 30 | |
| 2-Pentanone | 51.9 | | | ug/L | 50.0 | | 104 | 69-134 | 4.56 | 30 | |
| *Surrogate: Dibromofluoromethane* | | 4.86 | | ug/L | *5.00* | | *97.2* | *80-120* | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | | 4.61 | | ug/L | *5.00* | | *92.2* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 4.95 | | ug/L | *5.00* | | *99.1* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 5.00 | | ug/L | *5.00* | | *99.9* | *80-120* | | | |
| *Surrogate: 1,2-Dichlorobenzene-d4* | | 4.95 | | ug/L | *5.00* | | *99.1* | *80-120* | | | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Volatile Organic Compounds - SIM - Quality Control

### Batch BFD0558 - EPA 5030 (Purge and Trap)

Instrument: NT15 Analyst: PB

| QC Sample/Analyte | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0558-BLK1)** | | | | Prepared: 21-Apr-2017 Analyzed: 21-Apr-2017 17:31 | | | | | | | |
| Vinyl chloride | ND | 5.01 | 20.0 | ng/L | | | | | | | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | 1040 | | ng/L | *1000* | | *104* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 1010 | | ng/L | *1000* | | *101* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 993 | | ng/L | *1000* | | *99.3* | *75-125* | | | |
| **LCS (BFD0558-BS1)** | | | | Prepared: 21-Apr-2017 Analyzed: 21-Apr-2017 16:46 | | | | | | | |
| Vinyl chloride | 821 | | | ng/L | 1000 | | 82.1 | 76-120 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | | 846 | | ng/L | *1000* | | *84.6* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 980 | | ng/L | *1000* | | *98.0* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 963 | | ng/L | *1000* | | *96.3* | *75-125* | | | |
| **LCS Dup (BFD0558-BSD1)** | | | | Prepared: 21-Apr-2017 Analyzed: 21-Apr-2017 17:08 | | | | | | | |
| Vinyl chloride | 967 | | | ng/L | 1000 | | 96.7 | 76-120 | 16.40 | 30 | |
| *Surrogate: 1,2-Dichloroethane-d4* | | 1030 | | ng/L | *1000* | | *103* | *80-129* | | | |
| *Surrogate: Toluene-d8* | | 1000 | | ng/L | *1000* | | *100* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | | 995 | | ng/L | *1000* | | *99.5* | *75-125* | | | |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Petroleum Hydrocarbons - Quality Control

### Batch BFD0278 - EPA 3510C SepF

Instrument: FID4 Analyst: ML

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0278-BLK1)** | | | | Prepared: 13-Apr-2017 Analyzed: 17-Apr-2017 16:17 | | | | | | |
| Diesel Range Organics (C12-C24) | ND | 0.100 | mg/L | | | | | | | U |
| Motor Oil Range Organics (C24-C38) | ND | 0.200 | mg/L | | | | | | | U |
| *Surrogate: o-Terphenyl* | 0.0926 | | mg/L | *0.0900* | | *103* | *50-150* | | | |
| **LCS (BFD0278-BS1)** | | | | Prepared: 13-Apr-2017 Analyzed: 17-Apr-2017 16:35 | | | | | | |
| Diesel Range Organics (C12-C24) | 2.77 | 0.100 | mg/L | 3.00 | | 92.3 | 56-120 | | | |
| *Surrogate: o-Terphenyl* | 0.0878 | | mg/L | *0.0900* | | *97.6* | *50-150* | | | |





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Metals and Metallic Compounds - Quality Control

### Batch BFD0339 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: TCH

| QC Sample/Analyte | Isotope | Result | Detection Limit | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0339-BLK1)** | | | | | Prepared: 14-Apr-2017 Analyzed: 19-Apr-2017 17:13 | | | | | | | |
| Lead | 208 | ND | 0.0680 | 0.100 | ug/L | | | | | | | U |
| Arsenic | 75a | ND | 0.0220 | 0.200 | ug/L | | | | | | | U |
| Copper | 63 | ND | 0.340 | 0.500 | ug/L | | | | | | | U |
| Copper | 65 | ND | 0.350 | 0.500 | ug/L | | | | | | | U |
| Zinc | 66 | ND | 0.820 | 4.00 | ug/L | | | | | | | U |
| Zinc | 67 | ND | 0.940 | 4.00 | ug/L | | | | | | | U |
| **LCS (BFD0339-BS1)** | | | | | Prepared: 14-Apr-2017 Analyzed: 19-Apr-2017 17:37 | | | | | | | |
| Lead | 208 | 29.5 | 0.0680 | 0.100 | ug/L | 25.0 | | 118 | 80-120 | | | |
| Arsenic | 75a | 26.9 | 0.0220 | 0.200 | ug/L | 25.0 | | 107 | 80-120 | | | |
| Copper | 63 | 27.8 | 0.340 | 0.500 | ug/L | 25.0 | | 111 | 80-120 | | | |
| Copper | 65 | 28.1 | 0.350 | 0.500 | ug/L | 25.0 | | 112 | 80-120 | | | |
| Zinc | 66 | 90.1 | 0.820 | 4.00 | ug/L | 80.0 | | 113 | 80-120 | | | |
| Zinc | 67 | 84.8 | 0.940 | 4.00 | ug/L | 80.0 | | 106 | 80-120 | | | |
| **Duplicate (BFD0339-DUP1)** | | | **Source: 17D0177-01** | | Prepared: 14-Apr-2017 Analyzed: 19-Apr-2017 17:22 | | | | | | | |
| Lead | 208 | 0.0940 | 0.0680 | 0.100 | ug/L | | 0.102 | | | 8.16 | 20 | J |
| Arsenic | 75a | 0.252 | 0.0220 | 0.200 | ug/L | | 0.261 | | | 3.51 | 20 | |
| Copper | 63 | 1.34 | 0.340 | 0.500 | ug/L | | 1.37 | | | 2.44 | 20 | |
| Zinc | 67 | 73.7 | 0.940 | 4.00 | ug/L | | 73.9 | | | 0.22 | 20 | |
| **Matrix Spike (BFD0339-MS1)** | | | **Source: 17D0177-01** | | Prepared: 14-Apr-2017 Analyzed: 19-Apr-2017 17:32 | | | | | | | |
| Lead | 208 | 28.9 | 0.0680 | 0.100 | ug/L | 25.0 | 0.102 | 115 | 75-125 | | | |
| Arsenic | 75a | 26.5 | 0.0220 | 0.200 | ug/L | 25.0 | 0.261 | 105 | 75-125 | | | |
| Copper | 63 | 28.7 | 0.340 | 0.500 | ug/L | 25.0 | 1.37 | 109 | 75-125 | | | |
| Zinc | 67 | 155 | 0.940 | 4.00 | ug/L | 80.0 | 73.9 | 101 | 75-125 | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.





4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Wet Chemistry - Quality Control

### Batch BFD0295 - No Prep Wet Chem

Instrument: LACHAT2 Analyst: KK

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BFD0295-BLK1)** | | | Prepared: 12-Apr-2017 Analyzed: 12-Apr-2017 18:09 | | | | | | | |
| Hexavalent Chromium | ND | 0.013 | mg/L | | | | | | | U |
| **LCS (BFD0295-BS1)** | | | Prepared: 12-Apr-2017 Analyzed: 12-Apr-2017 18:10 | | | | | | | |
| Hexavalent Chromium | 0.616 | 0.013 | mg/L | 0.626 | | 98.5 | 85-115 | | | D |
| **Duplicate (BFD0295-DUP1)** | **Source: 17D0177-01** | | Prepared: 12-Apr-2017 Analyzed: 12-Apr-2017 18:11 | | | | | | | |
| Hexavalent Chromium | ND | 0.013 | mg/L | | ND | | | | | U |
| **Matrix Spike (BFD0295-MS1)** | **Source: 17D0177-01** | | Prepared: 12-Apr-2017 Analyzed: 12-Apr-2017 18:11 | | | | | | | |
| Hexavalent Chromium | 0.058 | 0.013 | mg/L | 0.0626 | ND | 91.9 | 85-115 | | | D |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 200.8 in Water*** | |
| Lead-208 | NELAP,WADOE,WA-DW,DoD-ELAP |
| ***EPA 200.8 UCT-KED in Water*** | |
| Arsenic-75a | NELAP,WADOE,WA-DW,DoD-ELAP |
| Copper-63 | NELAP,WADOE,WA-DW,DoD-ELAP |
| Copper-65 | NELAP,WADOE,WA-DW,DoD-ELAP |
| Zinc-66 | NELAP,WADOE,WA-DW,DoD-ELAP |
| Zinc-67 | NELAP,WADOE,WA-DW,DoD-ELAP |
| ***EPA 8260C in Water*** | |
| Chloromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Vinyl Chloride | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Bromomethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Chloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Trichlorofluoromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Acrolein | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Acetone | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,1-Dichloroethene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Bromoethane | DoD-ELAP,NELAP,CALAP,WADOE |
| Iodomethane | DoD-ELAP,NELAP,CALAP,WADOE |
| Methylene Chloride | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Acrylonitrile | DoD-ELAP,NELAP,CALAP,WADOE |
| Carbon Disulfide | DoD-ELAP,NELAP,CALAP,WADOE |
| trans-1,2-Dichloroethene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Vinyl Acetate | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,1-Dichloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 2-Butanone | DoD-ELAP,NELAP,CALAP,WADOE |
| 2,2-Dichloropropane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| cis-1,2-Dichloroethene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Chloroform | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Bromochloromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,1,1-Trichloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,1-Dichloropropene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Carbon tetrachloride | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2-Dichloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Benzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

| | |
|---|---|
| Trichloroethene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2-Dichloropropane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Bromodichloromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Dibromomethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 2-Chloroethyl vinyl ether | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 4-Methyl-2-Pentanone | DoD-ELAP,NELAP,CALAP,WADOE |
| cis-1,3-Dichloropropene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Toluene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| trans-1,3-Dichloropropene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 2-Hexanone | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,1,2-Trichloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,3-Dichloropropane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Tetrachloroethene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Dibromochloromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2-Dibromoethane | DoD-ELAP,NELAP,CALAP,WADOE |
| Chlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Ethylbenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,1,1,2-Tetrachloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| m,p-Xylene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| o-Xylene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Styrene | DoD-ELAP,NELAP,CALAP,WADOE |
| Bromoform | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,1,2,2-Tetrachloroethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2,3-Trichloropropane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| trans-1,4-Dichloro 2-Butene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| n-Propylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| Bromobenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| Isopropyl Benzene | DoD-ELAP,NELAP,CALAP,WADOE |
| 2-Chlorotoluene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 4-Chlorotoluene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| t-Butylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,3,5-Trimethylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,2,4-Trimethylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| s-Butylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| 4-Isopropyl Toluene | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,3-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,4-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| n-Butylbenzene | DoD-ELAP,NELAP,CALAP,WADOE |
| 1,2-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2-Dibromo-3-chloropropane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

| | |
|---|---|
| 1,2,4-Trichlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Hexachloro-1,3-Butadiene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Naphthalene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| 1,2,3-Trichlorobenzene | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Dichlorodifluoromethane | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| Methyl tert-butyl Ether | DoD-ELAP,ADEC,NELAP,CALAP,WADOE |
| n-Hexane | WADOE |
| 2-Pentanone | WADOE |

***EPA 8260C-SIM in Water***

| | |
|---|---|
| Acrylonitrile | NELAP,CALAP,WADOE |
| Vinyl chloride | NELAP,CALAP,WADOE |
| 1,1-Dichloroethene | NELAP,CALAP,WADOE |
| cis-1,2-Dichloroethene | NELAP,CALAP,WADOE |
| trans-1,2-Dichloroethene | NELAP,CALAP,WADOE |
| Trichloroethene | NELAP,CALAP,WADOE |
| Tetrachloroethene | NELAP,CALAP,WADOE |
| 1,1,2,2-Tetrachloroethane | NELAP,CALAP,WADOE |
| 1,2-Dichloroethane | NELAP,CALAP,WADOE |
| Benzene | NELAP,CALAP,WADOE |

***NWTPH-Dx in Water***

| | |
|---|---|
| Diesel Range Organics (C12-C24) | DoD-ELAP,NELAP,WADOE |
| Diesel Range Organics (C10-C25) | DoD-ELAP,NELAP,WADOE |
| Diesel Range Organics (Tol-C18) | DoD-ELAP,NELAP,WADOE |
| Diesel Range Organics (C10-24) | DoD-ELAP,NELAP,WADOE |
| Diesel Range Organics (C10-C28) | DoD-ELAP,NELAP,WADOE |
| Motor Oil Range Organics (C24-C38) | DoD-ELAP,NELAP,WADOE |
| Motor Oil Range Organics (C25-C36) | DoD-ELAP,NELAP,WADOE |
| Motor Oil Range Organics (C24-C40) | DoD-ELAP,NELAP,WADOE |
| Mineral Spirits Range Organics (Tol-C12) | DoD-ELAP,NELAP,WADOE |
| Mineral Oil Range Organics (C16-C28) | DoD-ELAP,NELAP,WADOE |
| Kerosene Range Organics (Tol-C18) | DoD-ELAP,NELAP,WADOE |
| JP8 Range Organics (C8-C18) | DoD-ELAP,NELAP,WADOE |
| JP5 Range Organics (C10-C16) | DoD-ELAP,NELAP,WADOE |
| JP4 Range Organics (Tol-C14) | DoD-ELAP,NELAP,WADOE |
| Jet-A Range Organics (C10-C18) | DoD-ELAP,NELAP,WADOE |
| Creosote Range Organics (C12-C22) | DoD-ELAP,NELAP,WADOE |
| Bunker C Range Organics (C10-C38) | DoD-ELAP,NELAP,WADOE |
| Stoddard Range Organics (C8-C12) | DoD-ELAP,NELAP,WADOE |
| Transformer Oil Range Organics (C12-C28) | DoD-ELAP,NELAP,WADOE |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

***SM 3500-Cr B-09 in Water***

Hexavalent Chromium WADOE,NELAP

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | UST-033 | 05/06/2017 |
| CALAP | California Department of Public Health CAELAP | 2748 | 02/28/2018 |
| DoD-ELAP | DoD-Environmental Laboratory Accreditation Program | 66169 | 03/30/2017 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006 | 05/11/2017 |
| WADOE | WA Dept of Ecology | C558 | 06/30/2017 |
| WA-DW | Ecology - Drinking Water | C558 | 06/30/2017 |

| | | |
|---|---|---|
| Hart Crowser | Project: Paccar | |
| 3131 Elliott Ave Suite 600 | Project Number: [none] | **Reported:** |
| Seattle WA, 98121 | Project Manager: Roy Jensen | 26-Apr-2017 14:31 |

## Notes and Definitions

| | |
|---|---|
| U | This analyte is not detected above the applicable reporting or detection limit. |
| Q | Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF) |
| J | Estimated concentration value detected below the reporting limit. |
| D | The reported value is from a dilution |
| * | Flagged value is not within established control limits. |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

# APPENDIX D
# Groundwater Quality Summary Charts

| **CW-1D** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | + | + | + | \ | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | | | | | \ | | \ | | \ | | \ | | \ | | \ | | + | | \ | |
| Lead | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | + | + | + | + | + | | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | |
| VC | + | + | + | + | + | | + | | \ | | + | | + | | | | | | | | | | | | | | | | | + | + | | + | | | | + | | | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **CW-1S** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | \ | \ | + | \ | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | + | | \ | | + | | + | | + | | + | |
| Lead | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | + | + | + | + | + | | + | | + | | + | + | + | | + | | + | | + | | | | | | + | | | | | | + | | | | | | | | |
| VC | + | \ | \ | \ | \ | | \ | | X | | \ | \ | \ | | \ | | \ | | \ | | \ | | \ | | + | | \ | | + | | \ | | + | | \ | | + | | + | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | + | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

X = Analytical constituent concentration is above the HSAL.
\ = Analytical constituent concentration is above the CUL but below the HSAL.
\+ = Analytical constituent concentration is below the CUL.
= Not sampled
VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **LW-6D** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | \ | \ | + | \ | \ | | \ | | \ | | + | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | |
| Lead | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| VC | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | + | | | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **LW-9D** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | \ | \ | \ | + | \ | | \ | | \ | | + | | \ | | \ | | \ | | \ | | \ | | \ | \ | \ | | \ | | \ | | \ | | \ | | \ | | \ | |
| Lead | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Benzene | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | + | | | | | | | | | | | | | | | | | | | |
| VC | \ | \ | \ | + | + | \ | \ | \ | \ | \ | + | \ | \ | \ | \ | \ | \ | | \ | | \ | | \ | \ | \ | | \ | | \ | | \ | | \ | | \ | | + | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **LW-9S** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | \ | \ | \ | \ | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | |
| Lead | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Benzene | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VC | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | + | | | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **MW-3I** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | \ | \ | \ | \ | \ | | \ | | \ | | \ | | \ | \ | \ | \ | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | | \ | |
| Lead | | | | + | | | | | | | + | | | | | | | | + | | | | | | | | | | | | | | | | | | | |
| Chromium | | | | + | | | | | | | + | | | | | | | | + | | | | | | | | | | + | | | | | | | | | |
| Benzene | + | + | + | + | + | | + | | + | | + | | + | | | | | | + | | | | | | | | | | | | | | | | | | | |
| VC | + | + | + | + | + | | + | | \ | | + | | + | | | | | | + | | | | | | | | | + | + | | | | | | + | | | |
| Total cPAHs | | | | | | | | | | | + | | | | | | | | + | | | | | | | | | | | | | | | | | | | |
| Diesel | + | + | + | + | + | | + | | + | | + | | | | | | | | + | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | + | + | + | + | + | | + | | + | | + | | | | | | | | + | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| SC-1S | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | + | + | + | \ | + | | \ | | \ | | + | | \ | | \ | | + | | + | | | | | | | | | | | | + | | | | | | | |
| Lead | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzene | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total cPAHs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride
HSAL = Hot spot action level
CUL = cleanup levels

| **SC-2S** | 1998 | | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analytical Constitutents | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall | Spring | Fall |
| Arsenic | + | + | + | + | + | | + | | \ | | + | | + | | | | | | | | | | | | | | | | | + | | | | | | | | |
| Lead | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chromium | + | + | + | + | + | | + | | + | | + | | | | | | | | | | | | | | | | | | + | | | | | | | | | |
| Benzene | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total cPAHs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diesel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heavy Oil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

| | |
|---|---|
| X | = Analytical constituent concentration is above the HSAL. |
| \ | = Analytical constituent concentration is above the CUL but below the HSAL. |
| + | = Analytical constituent concentration is below the CUL. |
| | = Not sampled |

VC = Vinyl chloride

HSAL = Hot spot action level

CUL = cleanup levels