



2020 Groundwater and Surface Water Monitoring PACCAR Renton Site Renton, Washington

**Prepared for
PACCAR**

**July 2, 2021
1639-76**



A division of Haley & Aldrich

2020 Groundwater and Surface Water Monitoring

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**Prepared by
Hart Crowser, a division of Haley & Aldrich**

A handwritten signature in black ink that reads "Roy E. Jensen".

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

A handwritten signature in black ink that reads "Mike Ehlebracht".

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

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PACCAR Renton Site

Renton, Washington

This report provides the 2020 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 August and September 2020.

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 August and October 2020. 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 August 13 and 17, 2020, 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/or 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 August 2020 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 August 2020 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 2021 for arsenic in wells CW-1D, LW-6D, LW-9D, CW-1S, LW-9S, SC-1S, SC-2S and MW-3I. Groundwater elevations and field parameters will also be measured in these wells.
- Sample groundwater in 2021 for vinyl chloride in wells CW-1S and LW-9D.
- Groundwater elevations will be measured from wells in the PACCAR monitoring well network in 2021.

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 July-20.mdb

3. The message, “The database ‘PACCAR Jun-19’ 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 for 2020

		2020	
	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		X
	SC-2S		X
Quality Control Samples			
		X	X
Purge Water Samples			
		X	X

^a VOC is vinyl chloride.

Water elevations were measured in approximately 27 wells.

All wells with samples submitted for laboratory analysis had the following field 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, August 2020

Well	Depth to Water in Feet	Reference Elevation in Feet	Water Elevation in Feet
CW-1D	4.61	26.18	21.57
CW-1S	4.62	26.14	21.52
CW-3D	10.60	31.39	20.79
CW-3S	8.78	32.04	23.26
DM-2D	6.43	28.40	21.97
DM-5D	NM	40.13	NM
LW-14S	22.87	45.37	22.50
LW-1D	4.18	25.98	21.80
LW-1S	3.49	25.84	22.35
LW-2D	NM	28.78	NM
LW-2S	5.52	28.98	23.46
LW-4S	NM	39.87	NM
LW-6D	8.50	30.58	22.08
LW-6S	NM	29.70	NM
LW-7S	NL	33.74	NL
LW-9D	11.32	31.95	20.63
LW-9S	10.78	32.12	21.34
MW-1S(N)	4.82	26.56	21.74
MW-2D(R)	6.75	29.43	22.68
MW-2S(W)	DRY	28.85	DRY
MW-3I(N)	11.01	34.39	23.38
MW-3S(S)	DRY	34.39	DRY
OSP-10D	14.31	40.74	26.43
OSP-1D	12.70	41.51	28.81
OSP-1S	10.38	41.44	31.06
OW-4D	22.47	43.48	21.01
OW-4S	20.97	43.49	22.52
R-10D	9.28	35.15	25.87
R-10S	11.14	36.24	25.10
SC-1S	5.53	37.78	32.25
SC-2S	14.48	40.52	26.04
U-1D	11.69	30.29	18.60
U-1S	NL	29.86	NL

NL = Not located.

NM = Not measured.

Table 1-3 - Summary of Groundwater Analytical Data

Sheet 1 of 7

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	-
	4/17/18	5.16	-	-	-	-	-	-	-	-	-	13.6	6.0	0.09	477.1	0	220	-
	6/21/19	1.47	-	-	-	-	-	-	-	-	-	15.6	6.4	0.48	165.5	-25	42.4	-
	8/17/20	5.39	-	-	-	-	-	-	-	-	-	17.4	6.2	0.4	506	24	37	-

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Table 1-3 - Summary of Groundwater Analytical Data

Sheet 2 of 7

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-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 "	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	-
	4/17/18	9.2	-	-	-	-	-	-	-	-	-	13.7	6.21	0.14	682	0	378	-
	6/21/19	4.57	-	-	-	-	-	-	-	-	-	14.6	6.25	0.7	542	-62.6	32.2	-
	8/17/20	9.26	-	-	-	-	-	-	-	-	-	15.7	6.4	0.4	723	-6.3	3.9	-

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Table 1-3 - Summary of Groundwater Analytical Data

Sheet 3 of 7

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	°	-73	17.4	-
	4/17/18	9.16	-	-	-	0.35	-	-	-	-	-	12.5	6.3	0.14	639	0	-	-
	6/20/19	9.12	-	-	-	0.52	-	-	-	-	-	12.9	6.3	0.29	574	-71	116.6	-
	8/17/20	8.95	-	-	-	0.311	-	-	-	-	-	14.9	6.5	0.43	674	-0.1	11.9	-

Hart Crowser

Table 1-3 - Summary of Groundwater Analytical Data

Sheet 4 of 7

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	-
	4/17/18	0.884	-	-	-	0.0243 J	-	-	-	-	-	13.8	5.7	1.83	37.3	321	10	-
	6/21/19	1.67	-	-	-	0.2 U	-	-	-	-	-	18.2	6.5	6.24	59.7	82.6	29.4	-
	8/13/20	7.3	-	-	-	0.259	-	-	-	-	-	17	6.2	0.3	544	28	49	-

Hart Crowser

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	-
	4/17/18	7.31	-	-	-	-	-	-	-	-	-	11.3	6.49	0.16	523	0	57.2	-
	6/20/19	6.1	-	-	-	-	-	-	-	-	-	12.4	6.73	0.62	428.7	-81.2	36.5	-
	8/17/20	6.98	-	-	-	-	-	-	-	-	-	14.7	6.5	0.47	595	-53.4	4.5	-

Table 1-3 - Summary of Groundwater Analytical Data

Sheet 6 of 7

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	°	-67	8.1	-
	4/17/18	13.9	-	-	-	-	-	-	-	-	-	12.2	6.4	0.14	501	0	30	-
	6/20/19	13.7	-	-	-	-	-	-	-	-	-	13.1	6.5	0.26	504	-68.5	23.8	-
	8/13/20	16.3	-	-	-	-	-	-	-	-	-	13.9	6.5	0.4	490	32.2	8.7	-

Hart Crowser

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
Stabilized Cell Wells																		
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
	6/20/19	-	-	-	-	0.2 U	-	-	-	-	-	16.2	7.9	9.64	131.6	166.3	3	-
	8/13/20	5.15	-	-	-	-	-	-	-	-	-	16.2	7.86	9.64	131.6	166.3	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
	6/21/19	-	-	-	-	0.2 U	-	-	-	-	-	13.5	6.2	0.67	476.7	-103	9.4	-
	8/13/20	3.65	-	-	-	-	-	-	-	-	-	13.5	6.15	0.67	476.7	-103	9.4	-

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

* PCP = Pentachlorophenol

- = 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 2021

		2021	
	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		
Quality Control Samples		X	X
Purge Water Samples		X	X

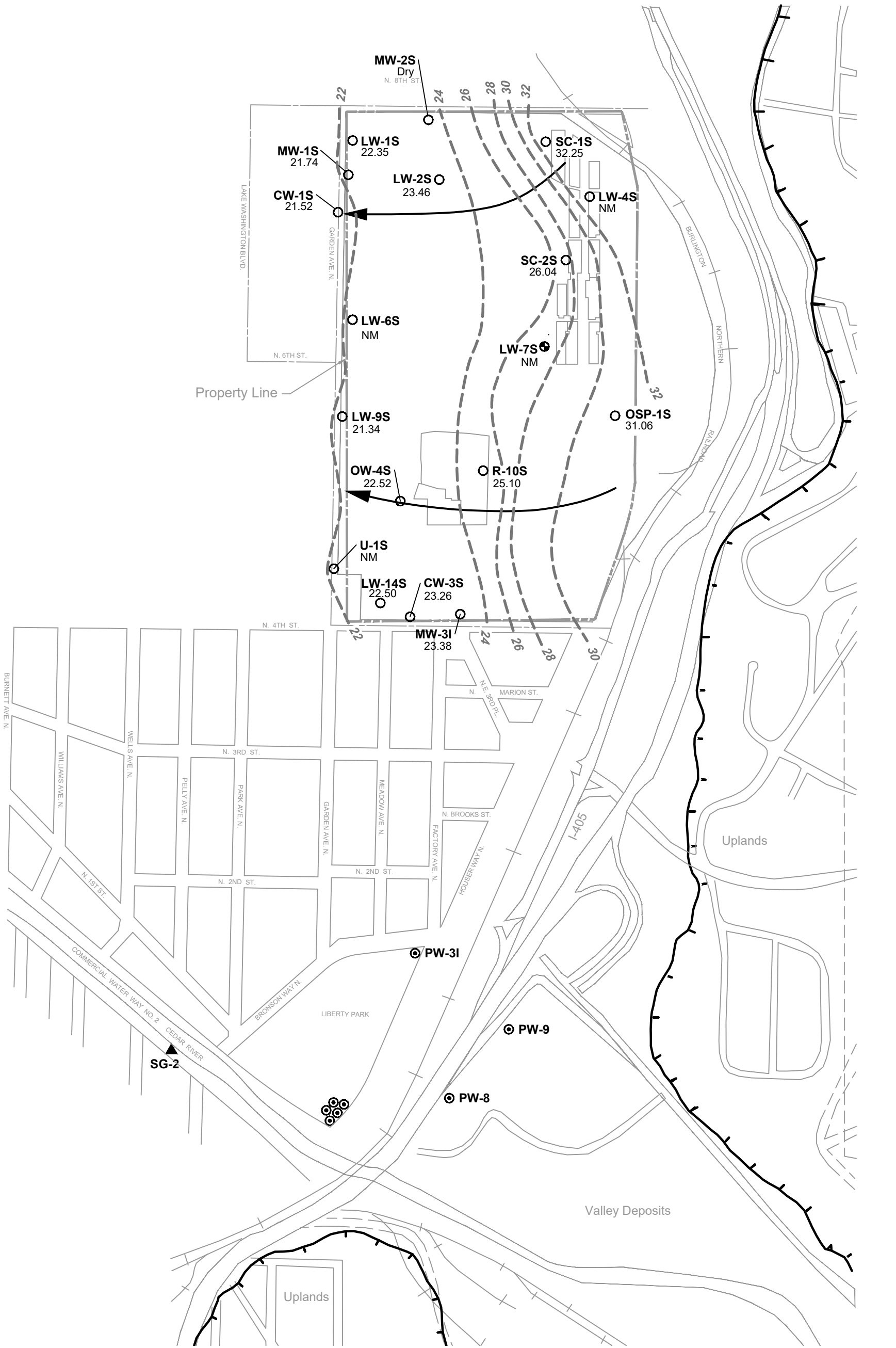
^a VOC is vinyl chloride.

Water elevations will be measured in up to 33 wells.

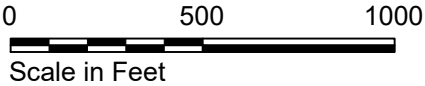
All wells with samples submitted for laboratory analysis will have the following parameters measured: temperature, pH, conductivity, turbidity, dissolved oxygen, and redox potential.

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

Hart Crowser



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



Legend

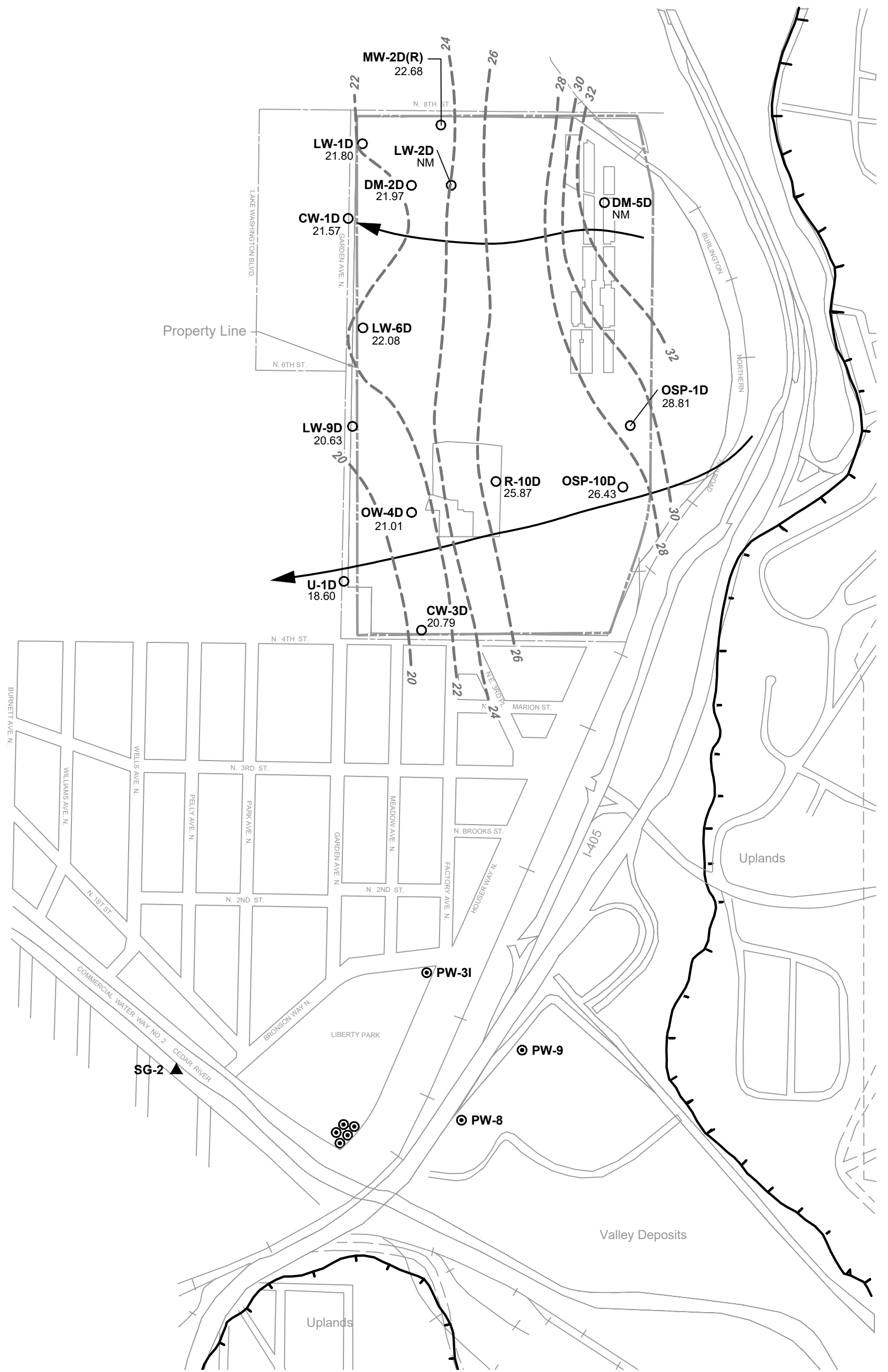
- LW-7S Monitoring Well
- OW-4S Piezometer
- PW-8 City of Renton Production Well
- SG-2 River Staff Gage

*Groundwater elevation for MW-2S and OW-4s were not used in developing contours. See report for details.

- 34 Groundwater Elevation Contour in Feet
- 22.43 Groundwater Elevation in Feet
- NM Not Measured
- NC Not Calculated
- Groundwater Flow Direction
- Upland Boundary



PACCAR Renton, Washington	
Groundwater Elevation Contour Map Shallow Wells - August 2020	
1639-76	08/20
	Figure 1-1



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



- Legend**
- LW-7S Monitoring Well
 - OW-4S Piezometer
 - PW-8 City of Renton Production Well
 - SG-2 River Staff Gage

- 34 Groundwater Elevation Contour in Feet
- 22.39 Groundwater Elevation in Feet
- NM Not Measured
- NC Not Calculated
- Groundwater Flow Direction
- Upland Boundary



PACCAR Renton, Washington	
Groundwater Elevation Contour Map Lower Sand Unit - August 2020	
1639-76	08/20
	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 September 24, 2020. 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 (ARI# 20I0358) are provided in Appendices B and C, respectively.

The Periodic Review specifies annual surface water monitoring. Surface water monitoring was conducted on September 24, 2020 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 (0.00374 mg/L), lead (0.00013 mg/L) and zinc (0.043 mg/L) concentrations in the sample collected from SW-5 did not exceed the CULs. Hexavalent chromium was not detected in SW-5.

Table 2-1 – Analytical Results for Surface Water Samples, August 2020

Sample ID		SW-3	SW-5	SW-6	SW-DP	SW-MD	SW-MH
Sample Date	CUL ^a	9/24/2020	9/24/2020	9/24/2020	9/24/2020	9/24/2020	9/24/2020
Total Metals in mg/L							
Copper	0.007	0.0126	0.00374	0.00525	0.0123	0.047	0.0369
Hexavalent chromium	0.011	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
Lead	0.001	0.000614	0.00013	0.000284	0.000581	0.00393	0.00338
Zinc	0.047	0.131	0.043	0.00868	0.14	0.126	0.118

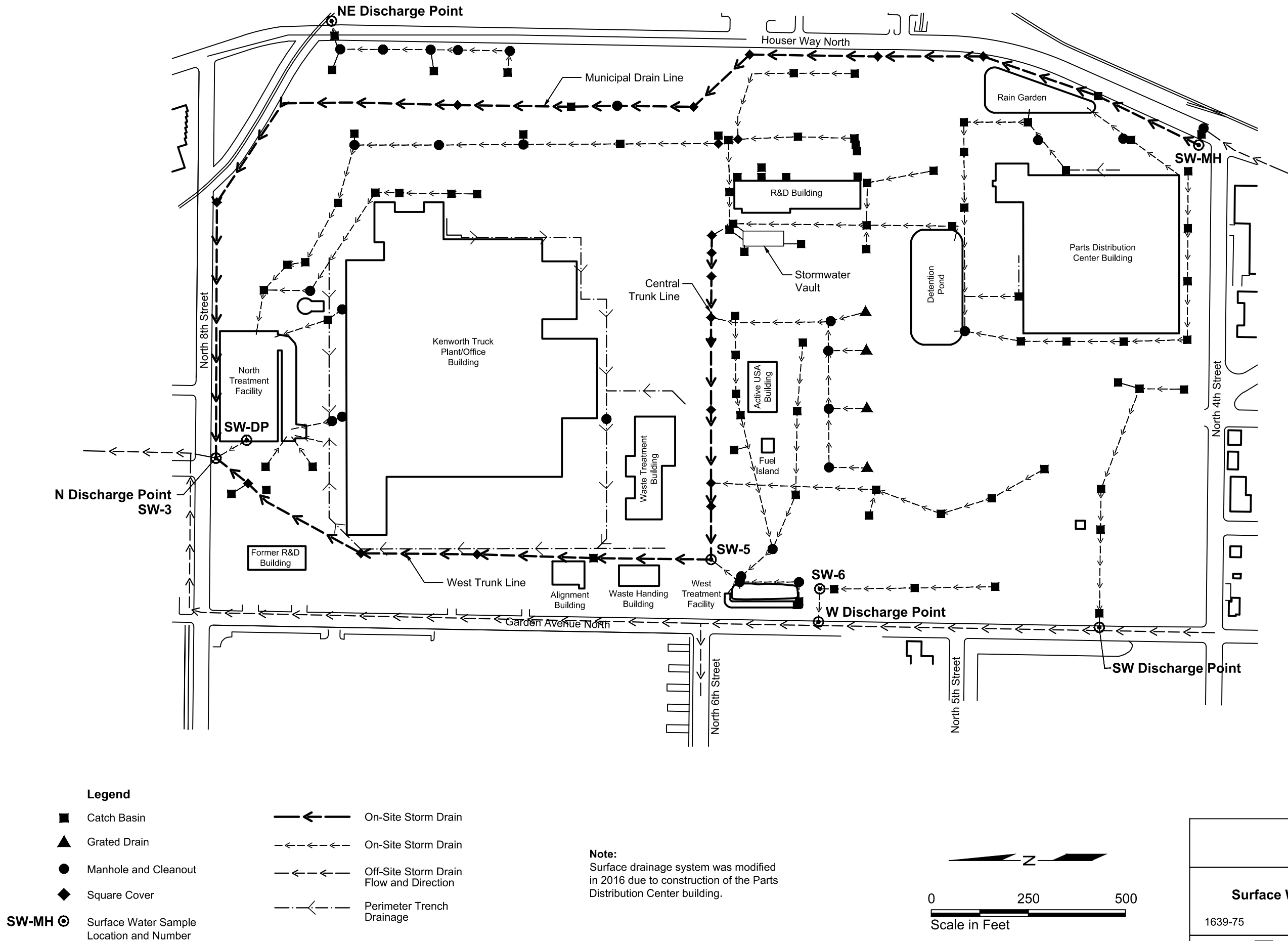
^a Cleanup levels from CMIP (DOF 1997).

Notes:

See page B-3 for definition of data qualifiers.

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

File: L:\Notebooks\163975_PACCAR_2019_GW_SW_Monitoring\CAD\163975-003 (SPlan).dwg Layout:SurfWatSamp Date: 10-17-2019 Author: melissaschweitzer



PACCAR Renton, Washington	
Surface Water Sampling Location Plan	
1639-75	10/19
	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: September 24, 2020
Weather Conditions: Cloudy
Inspection Personnel: Blake Lytle
Senior Staff Hydrogeologist

Construction was completed and a new building and soil stockpiles are present. Areas around the building appear to be in good condition, with no obvious signs of settlement or cracking in asphalt cover. The new stockpile area has a planted cover with good development of grass and shows no signs of settlement or erosion.

Recommended Actions and Follow-Up

Areas Needing Repair

Review site conditions in 2021.

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 eight 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 2020 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. 20H0144 and 20H0167 (See Appendix C). The samples were analyzed for one or more of the following:

- Diesel- and heavy oil-range hydrocarbons 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.

Major Problems Encountered

No major problems were encountered.

Minor Problems Encountered

No minor 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 Sampling Date	Cleanup Level	CW-1D 8/17/2020	CW-1S 8/13/2020	LW-6D 8/17/2020	LW-9D 8/17/2020	LW-9S 8/17/2020	MW-3I 8/13/2020	SC-1S 8/13/2020	SC-2S 8/13/2020
Metals in mg/L									
Arsenic	0.005 ^a	0.00539	0.0073	0.00926	0.00895	0.00698	0.0163	0.00515	0.00365
Volatiles in µg/L									
Vinyl chloride	0.4 ^b		0.259		0.311				

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 Sampling Date	KW Tank 8/13/2020
Metals in µg/L	
Arsenic	2.24
Chromium	0.176 J
Lead	0.194
TPH in mg/L	
Diesel Range Organics	0.11
Lube Oil	0.2 U
Volatiles in µg/L	
1,1,1,2-Tetrachloroethane	0.2 U
1,1,1-Trichloroethane	0.2 U
1,1,2,2-Tetrachloroethane	0.2 U
1,1,2-Trichloroethane	0.2 U
1,1-Dichloroethane	0.2 U
1,1-Dichloroethene	0.2 U
1,1-Dichloropropene	0.2 U
1,2,3-Trichlorobenzene	0.5 U
1,2,3-Trichloropropane	0.5 U
1,2,4-Trichlorobenzene	0.5 U
1,2,4-Trimethylbenzene	0.2 U
1,2-Dibromo-3-Chloropropane	0.5 U
1,2-Dichlorobenzene	0.2 U
1,2-Dichloroethane	0.2 U
1,2-Dichloropropane	0.2 U
1,3,5-Trimethylbenzene	0.2 U
1,3-Dichlorobenzene	0.2 U
1,3-Dichloropropane	0.2 U
1,4-Dichlorobenzene	0.2 U
2,2-Dichloropropane	0.2 U
2-Chloroethyl vinyl ether	1 U
2-Chlorotoluene	0.2 U
2-Hexanone	5 U
2-Pentanone	5 U
4-Chlorotoluene	0.2 U
4-Isopropyl Toluene	0.2 U
Acetone	4.25 J
Acrolein	5 U
Acrylonitrile	1 U
Benzene	0.04 J
Bromobenzene	0.2 U
Bromochloromethane	0.2 U
Bromoform	0.2 U
Bromomethane	1 U
Carbon Disulfide	0.2 U
Carbon Tetrachloride	0.2 U

Sample ID Sampling Date	KW Tank 8/13/2020
Volatiles in µg/L	
CFC-11	0.2 U
CFC-113	0.2 U
Chlorobenzene	0.2 U
Chlorodibromomethane	0.2 U
Chloroethane	0.2 U
Chloroform	0.2 U
Chloromethane	0.5 U
Cis-1,2-Dichloroethene	0.2 U
Cis-1,3-Dichloropropene	0.2 U
Dibromomethane	0.2 U
Dichlorobromomethane	0.2 U
Dichlorodifluoromethane	0.2 U
Ethylbenzene	0.2 U
Ethylene Dibromide	0.2 U
Hexachlorobutadiene	0.5 U
Iodomethane	1 U
Isopropyl Benzene	0.2 U
m, p-Xylene	0.4 U
methyl ethyl ketone	5 U
Methyl isobutyl ketone	5 U
Methyl t-butyl ether	0.5 U
Methylene Chloride	1 U
Naphthalene	0.5 U
n-Butylbenzene	0.2 U
n-Propylbenzene	0.2 U
o-Xylene	0.2 U
Sec-Butylbenzene	0.2 U
Styrene	0.2 U
tert-butylbenzene	0.2 U
Tetrachloroethene	0.2 U
Toluene	0.07 J
Total Xylenes	0.6 U
Trans-1,2-Dichloroethene	0.2 U
Trans-1,3-Dichloropropene	0.2 U
Trans-1,4-Dichloro-2-butene	1 U
Trichloroethene	0.2 U
Vinyl Acetate	0.2 U
Vinyl Chloride	0.2 U

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 2020 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. 20I0358 (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.

Major Problems Encountered

No major problems were encountered.

Minor Problems Encountered

No minor 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:

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- 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

28 August 2020

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)
20H0144

Associated SDG ID(s)
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 requirements 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 its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20H0144		Turn-around Requested: STANDARD		Page: 1 of 1		 Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax) www.arilabs.com						
ARI Client Company: HART CROWSER INC		Phone:		Date: 8/13/2020				Ice Present? Yes				
Client Contact: R. JENSEN ROY.JENSEN@HARTCROWSER.COM				No. of Coolers: 1				Cooler Temps: 2.3°C				
Client Project Name: PACAR												
Client Project #: 163976		Samplers: B. LYTLE		Analysis Requested						Notes/Comments		
Sample ID	Date	Time	Matrix	No. Containers	NUTR - DX	VOCs	TOTAL METALS	VOCs	TOTAL METALS			
CW-1S	8/13/20	1543	WATER	4			X	X				
PT	8/13/20	1330	WATER	6	X	X			X			
SC-1S	8/13/20	1252	WATER	1			X					
SC-2S	8/13/20	1137	WATER	1			X					
MW-3.I	8/13/20	0953	WATER	1			X					
Comments/Special Instructions * TOTAL As, Pb, Cr ** TOTAL AS ONLY *** VINYL CHLORIDE ONLY		Relinquished by: (Signature) <i>Blake Lytle</i> Printed Name: BLAKE LYTLE Company: HART CROWSER Date & Time: 8/13/2020 16:40		Received by: (Signature) <i>Jacob Walte</i> Printed Name: Jacob Walte Company: ARI Date & Time: 08/13/2020 1640		Relinquished by: (Signature) Printed Name: Company: Date & Time:		Received by: (Signature) Printed Name: Company: Date & Time:				

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CW-1S	20H0144-01	Water	13-Aug-2020 15:43	13-Aug-2020 16:40
PT	20H0144-02	Water	13-Aug-2020 13:30	13-Aug-2020 16:40
SC-1S	20H0144-03	Water	13-Aug-2020 12:52	13-Aug-2020 16:40
SC-2S	20H0144-04	Water	13-Aug-2020 11:37	13-Aug-2020 16:40
MW-3I	20H0144-05	Water	13-Aug-2020 09:53	13-Aug-2020 16:40



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed 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 low in the CCAL and Vinyl Chloride and Dichlorodifluoromethane is out of control high. 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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed 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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within 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 blank spike (BS/LCS) percent recoveries were within control limits.



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

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.

The blank spike (BS/LCS) percent recoveries were within control limits.



WORK ORDER

20H0144

Client: Hart Crowser

Project Manager: Kelly Bottem

Project: Paccar

Project Number: [none]

Preservation Confirmation

Container ID	Container Type	pH
20H0144-01 A	HDPE NM, 500 mL, 1:1 HNO ₃	<2 Pass
20H0144-01 B	VOA Vial, Clear, 40 mL, HCL	Bubble
20H0144-01 C	VOA Vial, Clear, 40 mL, HCL	Bubble
20H0144-01 D	VOA Vial, Clear, 40 mL, HCL	Bubble
20H0144-02 A	HDPE NM, 500 mL, 1:1 HNO ₃	<2 Pass
20H0144-02 B	Glass NM, Amber, 500 mL	
20H0144-02 C	Glass NM, Amber, 500 mL	
20H0144-02 D	VOA Vial, Clear, 40 mL, HCL	
20H0144-02 E	VOA Vial, Clear, 40 mL, HCL	
20H0144-02 F	VOA Vial, Clear, 40 mL, HCL	
20H0144-03 A	HDPE NM, 500 mL, 1:1 HNO ₃	<2 Pass
20H0144-04 A	HDPE NM, 500 mL, 1:1 HNO ₃	<2 Pass
20H0144-05 A	HDPE NM, 500 mL, 1:1 HNO ₃	<2 Pass

KD

Preservation Confirmed By

8/14/2020

Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hart Crouse
COC No(s): _____ (NA)
Assigned ARI Job No: 20H0144

Project Name: Parca
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES YES
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) YES NO

Time 1640 2.3
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JS Date: 08/13/2020 Time: 1640

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
How were bottles sealed in plastic bags? Individually Grouped Not
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
Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: KD Date: 8/14/20 Time: 0824 Labels checked by: KD

**** 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:
vials w/air bubbles marked on preservation sheet.
Lab to determine sizes.
Client specified Hex Chrome samples will come in w/next rain event. SC-1S and MW-3I have smeared labels.
By: JS Date: 08/13/2020



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

CW-1S
20H0144-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/13/2020 15:43
Instrument: NT16 Analyst: PB	Analyzed: 08/26/2020 14:17
Sample Preparation:	Extract ID: 20H0144-01 B
Preparation Method: EPA 5030C (Purge and Trap)	
Preparation Batch: BIH0546	Sample Size: 10 mL
Prepared: 08/26/2020	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	259	ng/L	
Surrogate: 1,2-Dichloroethane-d4				80-129 %	88.5	%	
Surrogate: Toluene-d8				80-120 %	97.9	%	
Surrogate: 4-Bromofluorobenzene				75-125 %	97.4	%	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

CW-1S
20H0144-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/13/2020 15:43

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 17:31

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0144-01 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	7.30	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D
Instrument: NT3 Analyst: PKC

Sampled: 08/13/2020 13:30

Analyzed: 08/21/2020 19:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BIH0427 Sample Size: 10 mL
Prepared: 08/21/2020 Final Volume: 10 mL

Extract ID: 20H0144-02 E

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.09	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	4.25	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.05	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	0.04	ug/L	J
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
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	0.07	ug/L	J
trans-1,3-Dichloropropene	10061-02-6	1	0.08	0.20	ND	ug/L	U



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 08/13/2020 13:30

Instrument: NT3 Analyst: PKC

Analyzed: 08/21/2020 19:56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
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	0.07	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	0.03	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	0.02	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
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



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 08/13/2020 13:30

Instrument: NT3 Analyst: PKC

Analyzed: 08/21/2020 19:56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	5.00	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				80-129 %	99.6	%	
Surrogate: Toluene-d8				80-120 %	104	%	
Surrogate: 4-Bromofluorobenzene				80-120 %	96.1	%	
Surrogate: 1,2-Dichlorobenzene-d4				80-120 %	96.2	%	



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Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Sampled: 08/13/2020 13:30

Instrument: FID4 Analyst: CTO

Analyzed: 08/22/2020 07:13

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20H0144-02 B 01

Preparation Batch: BIH0339

Sample Size: 500 mL

Prepared: 08/18/2020

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.110	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	80.1	%	



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Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 08/13/2020 13:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 15:39

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0144-02 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	0.176	ug/L	J
Lead	7439-92-1	1	0.0680	0.100	0.194	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

PT
20H0144-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/13/2020 13:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 15:39

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20H0144-02 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.24	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

SC-1S
20H0144-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/13/2020 12:52

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 15:47

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20H0144-03 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.15	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

SC-2S
20H0144-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/13/2020 11:37

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 15:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0144-04 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.65	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

MW-3I
20H0144-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/13/2020 09:53

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 16:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0144-05 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	16.3	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0427-BLK1)						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 14:05					
Chloromethane	ND	0.09	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
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	ND	0.04	0.20	ug/L							U
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
trans-1,3-Dichloropropene	ND	0.08	0.20	ug/L							U



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0427-BLK1)						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 14:05					
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	0.07	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	0.03	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	0.04	0.04	0.20	ug/L							J
n-Butylbenzene	ND	0.02	0.20	ug/L							U
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	ND	0.11	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.07	0.50	ug/L							U
Naphthalene	ND	0.12	0.50	ug/L							U



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0427-BLK1)											
						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 14:05					
1,2,3-Trichlorobenzene	ND	0.11	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.05	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.07	0.50	ug/L							U
2-Pentanone	ND	5.00	5.00	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.79			ug/L	5.00		95.7	80-129			
Surrogate: Toluene-d8	5.06			ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.85			ug/L	5.00		97.1	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07			ug/L	5.00		101	80-120			
LCS (BIH0427-BS1)											
						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:07					
Chloromethane	9.20	0.09	0.50	ug/L	10.0		92.0	60-138			
Vinyl Chloride	12.8	0.06	0.20	ug/L	10.0		128	66-133			Q
Bromomethane	11.5	0.25	1.00	ug/L	10.0		115	72-131			
Chloroethane	10.8	0.09	0.20	ug/L	10.0		108	60-155			
Trichlorofluoromethane	11.1	0.04	0.20	ug/L	10.0		111	80-129			
Acrolein	51.6	2.48	5.00	ug/L	50.0		103	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	11.9	0.04	0.20	ug/L	10.0		119	76-129			
Acetone	49.6	2.06	5.00	ug/L	50.0		99.2	58-142			
1,1-Dichloroethene	11.3	0.05	0.20	ug/L	10.0		113	69-135			
Iodomethane	11.1	0.23	1.00	ug/L	10.0		111	56-147			
Methylene Chloride	11.1	0.49	1.00	ug/L	10.0		111	65-135			
Acrylonitrile	10.0	0.60	1.00	ug/L	10.0		100	64-134			
Carbon Disulfide	11.9	0.04	0.20	ug/L	10.0		119	78-125			
trans-1,2-Dichloroethene	11.0	0.05	0.20	ug/L	10.0		110	78-128			
Vinyl Acetate	10.4	0.07	0.20	ug/L	10.0		104	55-138			
1,1-Dichloroethane	10.9	0.05	0.20	ug/L	10.0		109	76-124			
2-Butanone	50.6	0.81	5.00	ug/L	50.0		101	61-140			
2,2-Dichloropropane	10.3	0.05	0.20	ug/L	10.0		103	78-125			
cis-1,2-Dichloroethene	10.8	0.04	0.20	ug/L	10.0		108	80-121			
Chloroform	10.6	0.03	0.20	ug/L	10.0		106	80-122			
Bromochloromethane	10.2	0.06	0.20	ug/L	10.0		102	80-121			
1,1,1-Trichloroethane	10.5	0.04	0.20	ug/L	10.0		105	79-123			
1,1-Dichloropropene	10.6	0.03	0.20	ug/L	10.0		106	80-120			
Carbon tetrachloride	9.78	0.04	0.20	ug/L	10.0		97.8	53-137			
1,2-Dichloroethane	10.2	0.07	0.20	ug/L	10.0		102	75-123			



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIH0427-BS1)						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:07					
Benzene	11.0	0.03	0.20	ug/L	10.0		110	80-120			
Trichloroethene	10.4	0.05	0.20	ug/L	10.0		104	80-120			
1,2-Dichloropropane	10.5	0.04	0.20	ug/L	10.0		105	80-120			
Bromodichloromethane	10.0	0.05	0.20	ug/L	10.0		100	80-121			
Dibromomethane	10.4	0.15	0.20	ug/L	10.0		104	80-120			
2-Chloroethyl vinyl ether	8.52	0.25	1.00	ug/L	10.0		85.2	74-127			
4-Methyl-2-Pentanone	49.4	0.97	5.00	ug/L	50.0		98.9	67-133			
cis-1,3-Dichloropropene	10.5	0.06	0.20	ug/L	10.0		105	80-124			
Toluene	10.9	0.04	0.20	ug/L	10.0		109	80-120			
trans-1,3-Dichloropropene	10.2	0.08	0.20	ug/L	10.0		102	71-127			
2-Hexanone	47.6	0.90	5.00	ug/L	50.0		95.2	69-133			
1,1,2-Trichloroethane	10.7	0.13	0.20	ug/L	10.0		107	80-121			
1,3-Dichloropropane	10.2	0.06	0.20	ug/L	10.0		102	80-120			
Tetrachloroethene	9.97	0.05	0.20	ug/L	10.0		99.7	80-120			
Dibromochloromethane	8.79	0.05	0.20	ug/L	10.0		87.9	65-135			
1,2-Dibromoethane	9.96	0.07	0.20	ug/L	10.0		99.6	80-121			
Chlorobenzene	10.1	0.02	0.20	ug/L	10.0		101	80-120			
Ethylbenzene	10.5	0.04	0.20	ug/L	10.0		105	80-120			
1,1,1,2-Tetrachloroethane	9.40	0.04	0.20	ug/L	10.0		94.0	80-120			
m,p-Xylene	20.7	0.05	0.40	ug/L	20.0		104	80-121			
o-Xylene	10.2	0.03	0.20	ug/L	10.0		102	80-121			
Xylenes, total	30.9	0.09	0.60	ug/L	30.0		103	76-127			
Styrene	10.1	0.05	0.20	ug/L	10.0		101	80-124			
Bromoform	8.65	0.06	0.20	ug/L	10.0		86.5	51-134			
1,1,2,2-Tetrachloroethane	9.29	0.06	0.20	ug/L	10.0		92.9	77-123			
1,2,3-Trichloropropane	8.92	0.13	0.50	ug/L	10.0		89.2	76-125			
trans-1,4-Dichloro 2-Butene	9.43	0.32	1.00	ug/L	10.0		94.3	55-129			
n-Propylbenzene	10.7	0.02	0.20	ug/L	10.0		107	78-130			
Bromobenzene	10.6	0.06	0.20	ug/L	10.0		106	80-120			
Isopropyl Benzene	10.5	0.02	0.20	ug/L	10.0		105	80-128			
2-Chlorotoluene	10.3	0.02	0.20	ug/L	10.0		103	78-122			
4-Chlorotoluene	10.1	0.02	0.20	ug/L	10.0		101	80-121			
t-Butylbenzene	10.4	0.03	0.20	ug/L	10.0		104	78-125			
1,3,5-Trimethylbenzene	10.9	0.02	0.20	ug/L	10.0		109	80-129			
1,2,4-Trimethylbenzene	10.6	0.02	0.20	ug/L	10.0		106	80-127			



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIH0427-BS1)											
						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:07					
s-Butylbenzene	10.5	0.02	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.6	0.03	0.20	ug/L	10.0		106	79-130			
1,3-Dichlorobenzene	10.1	0.04	0.20	ug/L	10.0		101	80-120			
1,4-Dichlorobenzene	9.60	0.04	0.20	ug/L	10.0		96.0	80-120			
n-Butylbenzene	10.3	0.02	0.20	ug/L	10.0		103	74-129			
1,2-Dichlorobenzene	9.60	0.04	0.20	ug/L	10.0		96.0	80-120			
1,2-Dibromo-3-chloropropane	7.49	0.37	0.50	ug/L	10.0		74.9	62-123			Q
1,2,4-Trichlorobenzene	8.93	0.11	0.50	ug/L	10.0		89.3	64-124			
Hexachloro-1,3-Butadiene	10.4	0.07	0.50	ug/L	10.0		104	58-123			
Naphthalene	6.17	0.12	0.50	ug/L	10.0		61.7	50-134			Q
1,2,3-Trichlorobenzene	7.48	0.11	0.50	ug/L	10.0		74.8	49-133			Q
Dichlorodifluoromethane	12.7	0.05	0.20	ug/L	10.0		127	48-147			Q
Methyl tert-butyl Ether	9.84	0.07	0.50	ug/L	10.0		98.4	71-132			
2-Pentanone	48.7	5.00	5.00	ug/L	50.0		97.5	69-134			
Surrogate: 1,2-Dichloroethane-d4	4.77			ug/L	5.00		95.3	80-129			
Surrogate: Toluene-d8	5.10			ug/L	5.00		102	80-120			
Surrogate: 4-Bromofluorobenzene	4.71			ug/L	5.00		94.2	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.97			ug/L	5.00		99.5	80-120			
LCS Dup (BIH0427-BSD1)											
						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:33					
Chloromethane	8.51	0.09	0.50	ug/L	10.0		85.1	60-138	7.72	30	
Vinyl Chloride	11.3	0.06	0.20	ug/L	10.0		113	66-133	12.20	30	Q
Bromomethane	9.91	0.25	1.00	ug/L	10.0		99.1	72-131	15.20	30	
Chloroethane	9.91	0.09	0.20	ug/L	10.0		99.1	60-155	9.02	30	
Trichlorofluoromethane	9.60	0.04	0.20	ug/L	10.0		96.0	80-129	14.90	30	
Acrolein	50.8	2.48	5.00	ug/L	50.0		102	52-144	1.54	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.3	0.04	0.20	ug/L	10.0		103	76-129	14.00	30	
Acetone	47.2	2.06	5.00	ug/L	50.0		94.5	58-142	4.85	30	
1,1-Dichloroethene	10.4	0.05	0.20	ug/L	10.0		104	69-135	8.14	30	
Iodomethane	10.1	0.23	1.00	ug/L	10.0		101	56-147	9.33	30	
Methylene Chloride	9.90	0.49	1.00	ug/L	10.0		99.0	65-135	11.50	30	
Acrylonitrile	9.98	0.60	1.00	ug/L	10.0		99.8	64-134	0.60	30	
Carbon Disulfide	10.6	0.04	0.20	ug/L	10.0		106	78-125	11.20	30	
trans-1,2-Dichloroethene	9.77	0.05	0.20	ug/L	10.0		97.7	78-128	12.10	30	
Vinyl Acetate	10.3	0.07	0.20	ug/L	10.0		103	55-138	0.97	30	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
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Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIH0427-BSD1)						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:33					
1,1-Dichloroethane	9.96	0.05	0.20	ug/L	10.0		99.6	76-124	8.98	30	
2-Butanone	47.5	0.81	5.00	ug/L	50.0		94.9	61-140	6.37	30	
2,2-Dichloropropane	9.25	0.05	0.20	ug/L	10.0		92.5	78-125	10.30	30	
cis-1,2-Dichloroethene	9.55	0.04	0.20	ug/L	10.0		95.5	80-121	12.30	30	
Chloroform	9.39	0.03	0.20	ug/L	10.0		93.9	80-122	11.90	30	
Bromochloromethane	9.23	0.06	0.20	ug/L	10.0		92.3	80-121	10.20	30	
1,1,1-Trichloroethane	9.41	0.04	0.20	ug/L	10.0		94.1	79-123	10.90	30	
1,1-Dichloropropene	9.71	0.03	0.20	ug/L	10.0		97.1	80-120	8.40	30	
Carbon tetrachloride	9.33	0.04	0.20	ug/L	10.0		93.3	53-137	4.65	30	
1,2-Dichloroethane	9.21	0.07	0.20	ug/L	10.0		92.1	75-123	10.20	30	
Benzene	9.84	0.03	0.20	ug/L	10.0		98.4	80-120	11.30	30	
Trichloroethene	9.34	0.05	0.20	ug/L	10.0		93.4	80-120	10.40	30	
1,2-Dichloropropane	9.57	0.04	0.20	ug/L	10.0		95.7	80-120	9.35	30	
Bromodichloromethane	9.18	0.05	0.20	ug/L	10.0		91.8	80-121	8.48	30	
Dibromomethane	9.30	0.15	0.20	ug/L	10.0		93.0	80-120	10.90	30	
2-Chloroethyl vinyl ether	8.46	0.25	1.00	ug/L	10.0		84.6	74-127	0.74	30	
4-Methyl-2-Pentanone	47.2	0.97	5.00	ug/L	50.0		94.5	67-133	4.58	30	
cis-1,3-Dichloropropene	9.75	0.06	0.20	ug/L	10.0		97.5	80-124	7.41	30	
Toluene	9.63	0.04	0.20	ug/L	10.0		96.3	80-120	12.10	30	
trans-1,3-Dichloropropene	9.64	0.08	0.20	ug/L	10.0		96.4	71-127	6.13	30	
2-Hexanone	47.8	0.90	5.00	ug/L	50.0		95.7	69-133	0.43	30	
1,1,2-Trichloroethane	9.90	0.13	0.20	ug/L	10.0		99.0	80-121	7.42	30	
1,3-Dichloropropane	9.61	0.06	0.20	ug/L	10.0		96.1	80-120	5.75	30	
Tetrachloroethene	9.02	0.05	0.20	ug/L	10.0		90.2	80-120	10.10	30	
Dibromochloromethane	8.67	0.05	0.20	ug/L	10.0		86.7	65-135	1.31	30	
1,2-Dibromoethane	9.54	0.07	0.20	ug/L	10.0		95.4	80-121	4.31	30	
Chlorobenzene	9.42	0.02	0.20	ug/L	10.0		94.2	80-120	6.82	30	
Ethylbenzene	9.49	0.04	0.20	ug/L	10.0		94.9	80-120	9.85	30	
1,1,1,2-Tetrachloroethane	8.79	0.04	0.20	ug/L	10.0		87.9	80-120	6.75	30	
m,p-Xylene	19.5	0.05	0.40	ug/L	20.0		97.5	80-121	6.17	30	
o-Xylene	9.18	0.03	0.20	ug/L	10.0		91.8	80-121	10.20	30	
Xylenes, total	28.7	0.09	0.60	ug/L	30.0		95.6	76-127	7.47	30	
Styrene	9.38	0.05	0.20	ug/L	10.0		93.8	80-124	7.78	30	
Bromoform	8.22	0.06	0.20	ug/L	10.0		82.2	51-134	5.02	30	
1,1,2,2-Tetrachloroethane	8.87	0.06	0.20	ug/L	10.0		88.7	77-123	4.59	30	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
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Volatile Organic Compounds - Quality Control

Batch BIH0427 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIH0427-BSD1)						Prepared: 21-Aug-2020 Analyzed: 21-Aug-2020 11:33					
1,2,3-Trichloropropane	9.03	0.13	0.50	ug/L	10.0		90.3	76-125	1.26	30	
trans-1,4-Dichloro 2-Butene	8.28	0.32	1.00	ug/L	10.0		82.8	55-129	13.00	30	
n-Propylbenzene	9.42	0.02	0.20	ug/L	10.0		94.2	78-130	12.80	30	
Bromobenzene	9.19	0.06	0.20	ug/L	10.0		91.9	80-120	14.00	30	
Isopropyl Benzene	9.42	0.02	0.20	ug/L	10.0		94.2	80-128	11.10	30	
2-Chlorotoluene	9.11	0.02	0.20	ug/L	10.0		91.1	78-122	12.30	30	
4-Chlorotoluene	9.09	0.02	0.20	ug/L	10.0		90.9	80-121	11.00	30	
t-Butylbenzene	9.34	0.03	0.20	ug/L	10.0		93.4	78-125	10.50	30	
1,3,5-Trimethylbenzene	9.63	0.02	0.20	ug/L	10.0		96.3	80-129	12.10	30	
1,2,4-Trimethylbenzene	9.55	0.02	0.20	ug/L	10.0		95.5	80-127	10.50	30	
s-Butylbenzene	9.28	0.02	0.20	ug/L	10.0		92.8	78-129	12.20	30	
4-Isopropyl Toluene	9.49	0.03	0.20	ug/L	10.0		94.9	79-130	11.20	30	
1,3-Dichlorobenzene	9.04	0.04	0.20	ug/L	10.0		90.4	80-120	11.10	30	
1,4-Dichlorobenzene	8.63	0.04	0.20	ug/L	10.0		86.3	80-120	10.60	30	
n-Butylbenzene	9.37	0.02	0.20	ug/L	10.0		93.7	74-129	9.36	30	
1,2-Dichlorobenzene	8.63	0.04	0.20	ug/L	10.0		86.3	80-120	10.70	30	
1,2-Dibromo-3-chloropropane	7.97	0.37	0.50	ug/L	10.0		79.7	62-123	6.21	30	Q
1,2,4-Trichlorobenzene	8.79	0.11	0.50	ug/L	10.0		87.9	64-124	1.65	30	
Hexachloro-1,3-Butadiene	9.04	0.07	0.50	ug/L	10.0		90.4	58-123	14.10	30	
Naphthalene	5.77	0.12	0.50	ug/L	10.0		57.7	50-134	6.62	30	Q
1,2,3-Trichlorobenzene	7.41	0.11	0.50	ug/L	10.0		74.1	49-133	0.89	30	Q
Dichlorodifluoromethane	10.6	0.05	0.20	ug/L	10.0		106	48-147	18.00	30	Q
Methyl tert-butyl Ether	9.00	0.07	0.50	ug/L	10.0		90.0	71-132	8.83	30	
2-Pentanone	47.0	5.00	5.00	ug/L	50.0		94.0	69-134	3.60	30	
Surrogate: 1,2-Dichloroethane-d4	4.76			ug/L	5.00		95.3	80-129			
Surrogate: Toluene-d8	4.92			ug/L	5.00		98.4	80-120			
Surrogate: 4-Bromofluorobenzene	4.74			ug/L	5.00		94.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.10			ug/L	5.00		102	80-120			



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
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Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Volatile Organic Compounds - SIM - Quality Control

Batch BIH0546 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0546-BLK1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 10:43						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4820			ng/L	5000		96.4	80-129			
Surrogate: Toluene-d8	4880			ng/L	5000		97.6	80-120			
Surrogate: 4-Bromofluorobenzene	4910			ng/L	5000		98.2	75-125			
LCS (BIH0546-BS1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 09:44						
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	76-120			
Surrogate: 1,2-Dichloroethane-d4	4750			ng/L	5000		94.9	80-129			
Surrogate: Toluene-d8	5000			ng/L	5000		100	80-120			
Surrogate: 4-Bromofluorobenzene	5250			ng/L	5000		105	75-125			
LCS Dup (BIH0546-BSD1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 10:23						
Vinyl chloride	1950	5.01	20.0	ng/L	2000		97.6	76-120	16.40	30	
Surrogate: 1,2-Dichloroethane-d4	4690			ng/L	5000		93.8	80-129			
Surrogate: Toluene-d8	5000			ng/L	5000		100	80-120			
Surrogate: 4-Bromofluorobenzene	5210			ng/L	5000		104	75-125			



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
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Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Petroleum Hydrocarbons - Quality Control

Batch BIH0339 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0339-BLK1) Prepared: 18-Aug-2020 Analyzed: 22-Aug-2020 06:15									
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	0.191		mg/L	0.225	84.8	50-150			
LCS (BIH0339-BS1) Prepared: 18-Aug-2020 Analyzed: 22-Aug-2020 06:34									
Diesel Range Organics (C12-C24)	2.93	0.100	mg/L	3.00	97.7	56-120			
Surrogate: o-Terphenyl	0.210		mg/L	0.225	93.4	50-150			
LCS Dup (BIH0339-BSD1) Prepared: 18-Aug-2020 Analyzed: 22-Aug-2020 06:53									
Diesel Range Organics (C12-C24)	2.90	0.100	mg/L	3.00	96.7	56-120	1.05	30	
Surrogate: o-Terphenyl	0.208		mg/L	0.225	92.4	50-150			



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

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Project Number: [none]
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Reported:
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Metals and Metallic Compounds - Quality Control

Batch BIH0331 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0331-BLK1)						Prepared: 18-Aug-2020 Analyzed: 18-Aug-2020 12:58						
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	0.0930	0.0700	0.500	ug/L							J
Lead	208	ND	0.0680	0.100	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
LCS (BIH0331-BS1)						Prepared: 18-Aug-2020 Analyzed: 18-Aug-2020 13:02						
Chromium	52	25.9	0.130	0.500	ug/L	25.0		104	80-120			
Chromium	53	25.3	0.0700	0.500	ug/L	25.0		101	80-120			
Lead	208	26.9	0.0680	0.100	ug/L	25.0		108	80-120			
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0		98.1	80-120			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Chromium-52	NELAP,WA-DW,DoD-ELAP
Chromium-52	WADOE,WA-DW,DoD-ELAP
Chromium-52	NELAP,WADOE,DoD-ELAP
Chromium-52	NELAP,WADOE,WA-DW,DoD-ELAP
Chromium-53	NELAP,WADOE,DoD-ELAP
Chromium-53	NELAP,WA-DW,DoD-ELAP
Chromium-53	WADOE,WA-DW,DoD-ELAP
Chromium-53	NELAP,WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WA-DW,DoD-ELAP
Lead-208	WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
Arsenic-75a	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP



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Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Iodomethane	DoD-ELAP,NELAP,CALAP
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP



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trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE



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Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE



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Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE



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1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE



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Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE



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1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,CALAP,WADOE
n-Hexane	WADOE



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

n-Hexane	WADOE
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	

EPA 8260D-SIM in Water

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



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

1,1,2,2-Tetrachloroethane	CALAP,WADOE
1,2-Dichloroethane	NELAP,CALAP
1,2-Dichloroethane	NELAP,CALAP,WADOE
1,2-Dichloroethane	CALAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,CALAP,WADOE
Benzene	NELAP,CALAP
Benzene	NELAP,WADOE
Benzene	CALAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C12-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE



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Project: Paccar

Project Number: [none]

Project Manager: Roy Jensen

Reported:

28-Aug-2020 14:17

Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE



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Project: Paccar

Project Number: [none]

Project Manager: Roy Jensen

Reported:

28-Aug-2020 14:17

Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP
Jet-A Range Organics (C10-C18)	DoD-ELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP
Bunker C Range Organics (C10-C38)	DoD-ELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021



Hart Crowser
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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:17

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting 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)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

28 August 2020

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)
20H0167

Associated SDG ID(s)
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 requirements 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 its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20H0167		Turn-around Requested: STANDARD		Page: 1 of 1		 Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax) www.arilabs.com			
ARI Client Company: HART CROWSON INC		Phone:		Date: 8/17/2020				Ice Present? Yes	
Client Contact: R. JENSEN ROY.JENSEN@HARTCROWSON.COM				No. of Coolers: 1				Cooler Temps: 4.2°C	
Client Project Name: PACAR									
Client Project #: 163976		Samplers: B. LYNE		Analysis Requested				Notes/Comments	
Sample ID	Date	Time	Matrix	No. Containers	VOCs	Total Metals			
CW-1D	8/17/20	1243	WATER	1		X			
LW-6D	8/17/20	1120	WATER	1		X			
LW-9D	8/17/20	0948	WATER	4	X	X			
LW-9S	8/17/20	0841	WATER	1		X			
Comments/Special Instructions * VINYL CHLORIDE ONLY * ARSENIC (TOTAL) ONLY		Relinquished by: (Signature) Blake Lyne		Received by: (Signature) Jacob Walter		Relinquished by: (Signature)		Received by: (Signature)	
		Printed Name: BLAKE LYNE		Printed Name: Jacob Walter		Printed Name:		Printed Name:	
		Company: HART CROWSON		Company: ARI		Company:		Company:	
		Date & Time: 8/17/2020 1457		Date & Time: 08/17/2020 1457		Date & Time:		Date & Time:	

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CW-1D	20H0167-01	Water	17-Aug-2020 12:43	17-Aug-2020 14:57
LW-6D	20H0167-02	Water	17-Aug-2020 11:20	17-Aug-2020 14:57
LW-9D	20H0167-03	Water	17-Aug-2020 09:48	17-Aug-2020 14:57
LW-9S	20H0167-04	Water	17-Aug-2020 08:41	17-Aug-2020 14:57



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

Work Order Case Narrative

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed 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 blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within 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 blank spike (BS/LCS) percent recoveries were within control limits.



WORK ORDER

20H0167

Client: Hart Crowser

Project Manager: Kelly Bottem

Project: Paccar

Project Number: [none]

Report To:

Hart Crowser
Roy Jensen
3131 Elliott Ave Suite 600
Seattle, WA 98121
Phone: (206) 324-9530
Fax: -

Invoice To:

Hart Crowser
Accounts Payable
3131 Elliott Ave Suite 600
Seattle, WA 98121
Phone: (206) 324-9530
Fax: -

Date Due: 31-Aug-2020 18:00 (10 day TAT)

Received By: Jacob Walter

Date Received: 17-Aug-2020 14:57

Logged In By: Jacob Walter

Date Logged In: 17-Aug-2020 15:13

Samples Received at: 4.2°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....	No	Custody papers included with the cooler.....	Yes
Custody papers properly filled out (in, signed, analyses requested, etc).....	Yes	Was a temperature blank included in the cooler.....	No
Was sufficient ice used (if appropriate).....	Yes	All bottles sealed in individual plastic bags.....	Yes
All bottles arrived in good condition (unbroken).....	Yes	All bottle labels complete and legible.....	Yes
Number of containers listed on COC match number received.....	Yes	Bottle labels and tags agree with COC.....	Yes
Correct bottles used for the requested analyses.....	Yes	All VOC vials free of air bubbles.....	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....	Yes	Sufficient amount of sample sent in each bottle.....	Yes
Sample split at ARI.....	No		

20H0167-01 CW-1D [Water] Sampled 17-Aug-2020 12:43

Met 200.8 - As UCT	08/31/2020	10	02/13/2021
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20H0167-02 LW-6D [Water] Sampled 17-Aug-2020 11:20

Met 200.8 - As UCT	08/31/2020	10	02/13/2021
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20H0167-03 LW-9D [Water] Sampled 17-Aug-2020 09:48

8260D-SIM VOC	08/31/2020	10	08/31/2020
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Met 200.8 - As UCT	08/31/2020	10	02/13/2021
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20H0167-04 LW-9S [Water] Sampled 17-Aug-2020 08:41

Met 200.8 - As UCT	08/31/2020	10	02/13/2021
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Preservation Confirmation

Container ID	Container Type	pH	
20H0167-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20H0167-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20H0167-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20H0167-03 B	VOA Vial, Clear, 40 mL, HCL	Bubble	
20H0167-03 C	VOA Vial, Clear, 40 mL, HCL		
20H0167-03 D	VOA Vial, Clear, 40 mL, HCL		
20H0167-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass

SB
Preservation Confirmed By

08/17/2020
Date



Cooler Receipt Form

ARI Client: Hart Crouse
COC No(s): _____ (NA)
Assigned ARI Job No: 20H0167

Project Name: Pacca
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the 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)

Time 1457 4.2°C
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JSW Date: 08/17/2020 Time: 1457

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
How were bottles sealed in plastic bags? Individually Grouped Not
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)
Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSW Date: 08/17/2020 Time: 1507 Labels checked by: JSW

**** 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:

VOC vials w/air bubbles marked on preservation sheet, lab to determine sizes.

By: JSW Date: 08/17/2020



Hart Crowser
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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

CW-1D
20H0167-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/17/2020 12:43

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 17:37

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20H0167-01 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.39	ug/L	



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

LW-6D
20H0167-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/17/2020 11:20

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 18:20

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0167-02 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	9.26	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

LW-9D
20H0167-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/17/2020 09:48
Instrument: NT16 Analyst: PB	Analyzed: 08/26/2020 14:37
Sample Preparation:	Extract ID: 20H0167-03 D
Preparation Method: EPA 5030C (Purge and Trap)	
Preparation Batch: BIH0546	Sample Size: 10 mL
Prepared: 08/26/2020	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	311	ng/L	
Surrogate: 1,2-Dichloroethane-d4				80-129 %	94.6	%	
Surrogate: Toluene-d8				80-120 %	96.9	%	
Surrogate: 4-Bromofluorobenzene				75-125 %	97.3	%	



Hart Crowser
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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

LW-9D
20H0167-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED	Sampled: 08/17/2020 09:48
Instrument: ICPMS1 Analyst: MCB	Analyzed: 08/18/2020 18:27
Sample Preparation:	Extract ID: 20H0167-03 A 01
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BIH0331	Sample Size: 25 mL
Prepared: 08/18/2020	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	8.95	ug/L	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

LW-9S
20H0167-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 08/17/2020 08:41

Instrument: ICPMS1 Analyst: MCB

Analyzed: 08/18/2020 18:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20H0167-04 A 01

Preparation Batch: BIH0331

Sample Size: 25 mL

Prepared: 08/18/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	6.98	ug/L	



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

Volatile Organic Compounds - SIM - Quality Control

Batch BIH0546 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0546-BLK1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 10:43						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4820			ng/L	5000		96.4	80-129			
Surrogate: Toluene-d8	4880			ng/L	5000		97.6	80-120			
Surrogate: 4-Bromofluorobenzene	4910			ng/L	5000		98.2	75-125			
LCS (BIH0546-BS1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 09:44						
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	76-120			
Surrogate: 1,2-Dichloroethane-d4	4750			ng/L	5000		94.9	80-129			
Surrogate: Toluene-d8	5000			ng/L	5000		100	80-120			
Surrogate: 4-Bromofluorobenzene	5250			ng/L	5000		105	75-125			
LCS Dup (BIH0546-BS1)					Prepared: 26-Aug-2020 Analyzed: 26-Aug-2020 10:23						
Vinyl chloride	1950	5.01	20.0	ng/L	2000		97.6	76-120	16.40	30	
Surrogate: 1,2-Dichloroethane-d4	4690			ng/L	5000		93.8	80-129			
Surrogate: Toluene-d8	5000			ng/L	5000		100	80-120			
Surrogate: 4-Bromofluorobenzene	5210			ng/L	5000		104	75-125			



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

Metals and Metallic Compounds - Quality Control

Batch BIH0331 - REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIH0331-BLK1)						Prepared: 18-Aug-2020 Analyzed: 18-Aug-2020 12:58					
Arsenic	75a	ND	0.0220	0.200	ug/L						U
LCS (BIH0331-BS1)						Prepared: 18-Aug-2020 Analyzed: 18-Aug-2020 13:02					
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0		98.1	80-120		



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
EPA 8260D-SIM in Water	
Acrylonitrile	NELAP,CALAP,WADOE
Acrylonitrile	NELAP,CALAP
Acrylonitrile	CALAP,WADOE
Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,CALAP,WADOE
Vinyl chloride	NELAP,CALAP
Vinyl chloride	CALAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
1,1-Dichloroethene	NELAP,CALAP,WADOE
1,1-Dichloroethene	CALAP,WADOE
1,1-Dichloroethene	NELAP,CALAP
cis-1,2-Dichloroethene	NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	CALAP,WADOE
cis-1,2-Dichloroethene	NELAP,CALAP
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,CALAP
trans-1,2-Dichloroethene	NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	CALAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,CALAP,WADOE
Trichloroethene	NELAP,CALAP
Trichloroethene	CALAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,CALAP,WADOE
Tetrachloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,CALAP
Tetrachloroethene	CALAP,WADOE
1,1,2,2-Tetrachloroethane	CALAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,CALAP



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

1,1,2,2-Tetrachloroethane	NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,CALAP
1,2-Dichloroethane	NELAP,CALAP,WADOE
1,2-Dichloroethane	CALAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,CALAP,WADOE
Benzene	NELAP,WADOE
Benzene	CALAP,WADOE
Benzene	NELAP,CALAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
28-Aug-2020 14:51

Notes and Definitions

B	This analyte was detected in the method blank.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

15 October 2020

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)
20I0358

Associated SDG ID(s)
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 requirements 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 its entirety.



Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number: 2070358	Turn-around Requested: STANDARD	Page: 1 of 1
ARI Client Company: HART CROWSON	Phone:	Date: 9/24/2020
Client Contact: ROY.JENSEN@HARTCROWSON.COM		Ice Present? Yes
Client Project Name: PACAR		No. of Coolers: 1
Client Project #: 1639-76	Samplers: B LITTLE	Cooler Temps: 5.5

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments
					Cr 6	Total Metals							
SW-3	9/24/20	1155	WATER	2									
SW-DP	9/24/20	1050	WATER	2									
SW-5	9/24/20	0945	WATER	2									
SW-6	9/24/20	0854	WATER	2									
SW-MH	9/24/20	0745	WATER	2									
SW-MD	9/24/20	0745	WATER	2									

Comments/Special Instructions TOTAL METALS = TOTAL Pb, Cu, Zn ONLY	Relinquished by: (Signature) Belle	Received by: (Signature) [Signature]	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: BELLE LITTLE	Printed Name: Sawbuckle	Printed Name:	Printed Name:
	Company: HART CROWSON	Company: ARI	Company:	Company:
	Date & Time: 9/24/2020 12:47	Date & Time: 09/24/2020 1247	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW-3	20I0358-01	Water	24-Sep-2020 11:55	24-Sep-2020 12:47
SW-DP	20I0358-02	Water	24-Sep-2020 10:50	24-Sep-2020 12:47
SW-5	20I0358-03	Water	24-Sep-2020 09:45	24-Sep-2020 12:47
SW-6	20I0358-04	Water	24-Sep-2020 08:54	24-Sep-2020 12:47
SW-MH	20I0358-05	Water	24-Sep-2020 07:45	24-Sep-2020 12:47
SW-MD	20I0358-06	Water	24-Sep-2020 07:45	24-Sep-2020 12:47



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

Work Order Case Narrative

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 blank spike (BS/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 blank spike (BS/LCS) percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries are outside of the control limits. The post spike is in control.



WORK ORDER

20I0358

Client: Hart Crowser

Project Manager: Kelly Bottem

Project: Paccar

Project Number: [none]

Preservation Confirmation

Container ID	Container Type	pH	
20I0358-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-01 B	HDPE NM, 500 mL		
20I0358-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-02 B	HDPE NM, 500 mL		
20I0358-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-03 B	HDPE NM, 500 mL		
20I0358-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-04 B	HDPE NM, 500 mL		
20I0358-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-05 B	HDPE NM, 500 mL		
20I0358-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20I0358-06 B	HDPE NM, 500 mL		

Preservation Confirmed By

Date

Reviewed By

Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hart Crouse
COC No(s): 2070358 (NA)
Assigned ARI Job No: 2070358

Project Name: PACCAR
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: NA
Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the 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) YES NO

Time 1247
If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: DOO 5206

Cooler Accepted by: JS Date: 09/24/2018 Time: 1247

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: NA
Was sufficient ice used (if appropriate)? NA YES NO
How were bottles sealed in plastic bags? Individually Grouped Not
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
Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JS Date: 09/24/2018 Time: 1313 Labels checked by: JS

**** 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: _____



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-3
20I0358-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 09/24/2020 11:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-01 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.614	ug/L	



Hart Crowser
3131 Elliott Ave Suite 600
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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-3
20I0358-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 11:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:34

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-01 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	12.6	ug/L	
Zinc	7440-66-6	1	0.940	4.00	131	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-3
20I0358-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09

Sampled: 09/24/2020 11:55

Instrument: UV1800-1 Analyst: WMT

Analyzed: 09/24/2020 20:50

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 20I0358-01 B

Preparation Batch: BII0709

Sample Size: 40 mL

Prepared: 09/24/2020

Final Volume: 50 mL

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



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-DP
20I0358-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8	Sampled: 09/24/2020 10:50
Instrument: ICPMS1 Analyst: MCB	Analyzed: 10/08/2020 16:41
Sample Preparation:	Extract ID: 20I0358-02 A 01
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BIJ0192	Sample Size: 25 mL
Prepared: 10/06/2020	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.581	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-DP
20I0358-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 10:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-02 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	12.3	ug/L	
Zinc	7440-66-6	1	0.940	4.00	140	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-DP
20I0358-02 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09
Instrument: UV1800-1 Analyst: WMT

Sampled: 09/24/2020 10:50

Analyzed: 09/24/2020 21:04

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BII0709 Sample Size: 40 mL
Prepared: 09/24/2020 Final Volume: 50 mL

Extract ID: 20I0358-02 B

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



Hart Crowser
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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-5
20I0358-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 09/24/2020 09:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:45

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20I0358-03 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.130	ug/L	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-5
20I0358-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 09:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:45

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-03 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	3.74	ug/L	
Zinc	7440-66-6	1	0.940	4.00	43.0	ug/L	



Hart Crowser
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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-5
20I0358-03 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09
Instrument: UV1800-1 Analyst: WMT

Sampled: 09/24/2020 09:45

Analyzed: 09/24/2020 21:05

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BII0709 Sample Size: 40 mL
Prepared: 09/24/2020 Final Volume: 50 mL

Extract ID: 20I0358-03 B

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



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-6
20I0358-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8	Sampled: 09/24/2020 08:54
Instrument: ICPMS1 Analyst: MCB	Analyzed: 10/08/2020 16:50
Sample Preparation:	Extract ID: 20I0358-04 A 01
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BIJ0192	Sample Size: 25 mL
Prepared: 10/06/2020	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	0.284	ug/L	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-6
20I0358-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 08:54

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:50

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-04 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	5.25	ug/L	
Zinc	7440-66-6	1	0.820	4.00	8.68	ug/L	



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-6
20I0358-04 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09

Sampled: 09/24/2020 08:54

Instrument: UV1800-1 Analyst: WMT

Analyzed: 09/24/2020 21:05

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 20I0358-04 B

Preparation Batch: BII0709

Sample Size: 40 mL

Prepared: 09/24/2020

Final Volume: 50 mL

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



Hart Crowser
3131 Elliott Ave Suite 600
Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MH
20I0358-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 09/24/2020 07:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20I0358-05 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	3.38	ug/L	



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MH
20I0358-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 07:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-05 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	36.9	ug/L	
Zinc	7440-66-6	1	0.940	4.00	118	ug/L	



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MH
20I0358-05 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09
Instrument: UV1800-1 Analyst: WMT

Sampled: 09/24/2020 07:45

Analyzed: 09/24/2020 21:06

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BII0709 Sample Size: 40 mL
Prepared: 09/24/2020 Final Volume: 50 mL

Extract ID: 20I0358-05 B

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



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MD
20I0358-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8	Sampled: 09/24/2020 07:45
Instrument: ICPMS1 Analyst: MCB	Analyzed: 10/08/2020 16:58
Sample Preparation:	Extract ID: 20I0358-06 A 01
Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix	
Preparation Batch: BIJ0192	Sample Size: 25 mL
Prepared: 10/06/2020	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	3.93	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MD
20I0358-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 09/24/2020 07:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 10/08/2020 16:58

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20I0358-06 A 01

Preparation Batch: BIJ0192

Sample Size: 25 mL

Prepared: 10/06/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1	0.340	0.500	47.0	ug/L	
Zinc	7440-66-6	1	0.940	4.00	126	ug/L	



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Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

SW-MD
20I0358-06 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09
Instrument: UV1800-1 Analyst: WMT

Sampled: 09/24/2020 07:45

Analyzed: 09/24/2020 21:07

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BII0709 Sample Size: 40 mL
Prepared: 09/24/2020 Final Volume: 50 mL

Extract ID: 20I0358-06 B

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



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Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

Metals and Metallic Compounds - Quality Control

Batch BIJ0192 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIJ0192-BLK1)						Prepared: 06-Oct-2020 Analyzed: 08-Oct-2020 13:49						
Lead	208	ND	0.0680	0.100	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	1.06	0.820	4.00	ug/L							J
Zinc	67	1.09	0.940	4.00	ug/L							J
LCS (BIJ0192-BS1)						Prepared: 06-Oct-2020 Analyzed: 08-Oct-2020 13:54						
Lead	208	26.9	0.0680	0.100	ug/L	25.0		108	80-120			
Copper	63	26.5	0.340	0.500	ug/L	25.0		106	80-120			
Copper	65	25.9	0.350	0.500	ug/L	25.0		104	80-120			
Zinc	66	85.4	0.820	4.00	ug/L	80.0		107	80-120			
Zinc	67	79.9	0.940	4.00	ug/L	80.0		99.9	80-120			



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Seattle WA, 98121

Project: Paccar
Project Number: [none]
Project Manager: Roy Jensen

Reported:
15-Oct-2020 16:54

Wet Chemistry - Quality Control

Batch BII0709 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BII0709-BLK1) Prepared: 24-Sep-2020 Analyzed: 24-Sep-2020 20:49											
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BII0709-BS1) Prepared: 24-Sep-2020 Analyzed: 24-Sep-2020 20:50											
Hexavalent Chromium	0.628	0.013	0.013	mg/L	0.625		101	85-115			D
Duplicate (BII0709-DUP1) Source: 20I0358-01 Prepared: 24-Sep-2020 Analyzed: 24-Sep-2020 20:51											
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BII0709-MS1) Source: 20I0358-01 Prepared: 24-Sep-2020 Analyzed: 24-Sep-2020 21:03											
Hexavalent Chromium	0.035	0.013	0.013	mg/L	0.0625	ND	56.3	85-115			*, K, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BII0709-PS1) Source: 20I0358-01 Prepared: 24-Sep-2020 Analyzed: 24-Sep-2020 21:22											
Hexavalent Chromium	0.301	0.013	0.010	mg/L	0.298	ND	101	85-115			



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Project: Paccar
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Reported:
15-Oct-2020 16:54

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WA-DW,DoD-ELAP
Lead-208	WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Copper-63	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-63	WADOE,WA-DW,DoD-ELAP
Copper-63	NELAP,WA-DW,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	WADOE,WA-DW,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WA-DW,DoD-ELAP
SM 3500-Cr B-09 in Water	
Hexavalent Chromium	WADOE,NELAP
Hexavalent Chromium	WADOE,NELAP
Hexavalent Chromium	NELAP
Hexavalent Chromium	WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021



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Project: Paccar
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Reported:
15-Oct-2020 16:54

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
K	Hexavalent Chromium post spike performed on a pH adjusted sample to verify matrix interference.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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

[illegible]

Notes:

 = 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		2018		2019		2020																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Analytical Constituents	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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

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		2018		2019		2020
Analytical Constituents	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	Spring	Fall	Spring	Fall			
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Lead				+							+																																	—	
Chromium				+							+																																		
Benzene	+	+	+	+	+		+		+		+																																		
VC	+	+	+	+	+		+		+		+																																		
Total cPAHs											+																																		
Diesel	+	+	+	+	+		+		+		+																																		
Heavy Oil	+	+	+	+	+		+		+		+																																		

Notes:

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LW-9D	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Analytical 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Fall	Spring	F

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

[illegible]

Notes:

-  = Analytical constituent concentration is above the HSAL.
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VC = Vinyl chloride
HSAL = Hot spot action level
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[illegible]

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 VC = Vinyl chloride
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[illegible]

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