Remediation Management Services Company

4 Centerpointe Drive, Suite 200
La Palma, CA 90623
Room LPR 4-222
Office: (360) 594-7978
wade.melton@bp.com

July 25, 2024

Washington Department of Ecology
Southwest Regional Office
Attn: Mr. Tim Mullin
300 Desmond Drive SE
Lacey, WA 98503

Dear Mr. Mullin:

Please find the enclosed Semi-Annual Status Report - First Half of 2024, that documents the results at Olympic Pipe Line Company LLC, Tacoma Junction located at 2660 Frank Albert Road East, Fife, Washington.

Sincerely yours,

Wade Melton
Operations Project Manager
Remediation Management Services Company
An affiliate of Atlantic Richfield Company

cc: File, Antea Group

Semi-Annual Status Report First Half of 2024

OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Antea® Group

Understanding today.
Improving tomorrow.

PREPARED FOR

Remediation Management Services Company
An affiliate of Atlantic Richfield Company
4 Centerpointe Drive, Suite 200
La Palma, CA 90623
and
BP Pipelines and Logistics
Olympic District
600 SW 39th Street, Suite 275
Renton, WA 98057

PREPARED BY

Antea Group - Seattle, WA
July 25, 2024
Project OPLC Tacoma Junction 2024

us.anteagroup.com

Contents

Tables

Figures

Appendix

Semi-Annual Status Report

First Half of 2024
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Reporting Period	January - June 2024
Agency Contact	Tim Mullin, Toxics Cleanup Program +1 360 407 6265
Ecology Facility Site ID No.	24529
RM Contact	Wade Melton, +1 360 594 7978
Olympic Contact	Paula Skryja, +1 425 469 4043
Antea®Group Contact	Nolan Lewis, +1 503 550 3703

1.0 SITE HISTORY

- Tacoma Junction (Site) is an active Olympic Pipeline Company (OPLC) facility that has been operating since 1965. A Site Location Map and Site Map are presented as **Figures 1** and **2**, respectively.
- In August 2015, OPLC personnel directed an excavation associated with a facility upgrade project. While excavating, OPLC personnel noted petroleum odors and soil staining. Soil and water samples submitted for laboratory analysis contained concentrations of petroleum hydrocarbons in excess of the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs). Upon completing the planned excavation, over-excavating was performed to remove contaminated soil to the maximum extent without comprising onsite structures. A total of 302.49 tons of petroleum impacted soil was removed from the Site for disposal. A total of 1,200 gallons of water was removed from the excavation and transported off-site for disposal. Additional information regarding soil excavation and sampling activities can be found in Antea Group's October 12, 2015, *Site Discovery and Independent Remedial Action Report*.
- The Site was listed on *Ecology's Confirmed and Suspected Contaminated Sites List* on October 15, 2015.
- In June 2016, monitoring wells MW-1 through MW-5 were installed at the Site. Due to the presence of quarry spalls down to groundwater, only one soil sample was collected during well installation. Groundwater analytical results indicated the presence of total petroleum hydrocarbons as gasoline (TPH-G), total petroleum hydrocarbons as diesel (TPH-D), and benzene in MW-2 in excess of Ecology's MTCA Method A CULs at concentrations of 2,300 µg/L, 810 µg/L, and 100 µg/L, respectively. Additional information can be found in Antea Group's November 17, 2016, *Subsurface Investigation Report.*
- Quarterly sampling of MW-1 through MW-5 has been implemented since that time except for calendar year 2018, when three sampling events were conducted.
- Site characterization and remedial activities are being conducted by OPLC in accordance with Ecology Model Toxics Control Act (MTCA) as an Independent Cleanup Action outside the Voluntary Cleanup Program (VCP).

2.0 WORK PERFORMED DURING THE REPORTING PERIOD

- Quarterly groundwater monitoring and sampling events were conducted on January 17, 2024, and May 9, 2024. Groundwater samples were collected from monitoring wells MW-1 through MW-5.
- This semi-annual groundwater monitoring report was prepared.

3.0 PROJECT STATUS

- Quarterly groundwater sample collection from MW-1 through MW-5.
- Semi-annual reporting.

4.0 DATA REVIEW AND RECOMMENDATIONS

- Groundwater analytical data from the first and second quarter sampling events did not indicate concentrations of petroleum hydrocarbons in excess of MTCA Method A CULs in monitoring wells MW-1, MW-3, and MW-4. Monitoring well MW-2 contained concentrations of benzene, TPH-G, and TPH-D in excess of MTCA Method A CULs in the first and second quarter sampling events. MW-5 contained concentrations of benzene in excess of MTCA Method A Cleanup Levels in the first quarter sampling event.
- Groundwater gauging data and analytical data are presented in **Tables 1** and **2**, respectively. The first and second quarter Groundwater Elevation Contour Maps are presented in **Figures 3** and **4**, respectively. The Groundwater Analytical Data Map is presented in **Figure 5**. The groundwater laboratory analytical reports are included as **Appendix A**.
- Antea Group is scheduled to conduct the next quarterly groundwater sampling and monitoring event in July 2024.

5.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

Prepared by:

Colin Dechenne

Date: July 25, 2024

Colin Dechenne
Staff Professional

Nolan Lewis

Date: July 25, 2024

Nolan Lewis
Senior Project Manager

Kevin McCarthy, LG

Date: July 25, 2024

Kevin McCarthy, LG
Senior Consultant

State of Washington
2949
Licensed Geologist
KEVIN EUGENE MCCARTHY
EXPIRES 9/29/24

cc: Mr. Tim Mullin, Department of Ecology Southwest Regional Office (Hardcopy, Electronic Copy)
Ms. Paula Skryja, OPLC, Renton, WA (Electronic Copy)
Mr. Wade Melton, Remediation Management Services Company (Electronic Copy - RMO Upload)
File, Antea Group File, Antea Group

6.0 CONTACT INFORMATION

18378-B Redmond Way
Redmond, WA 98052 USA

Toll Free +1 800 477 7411
International +1 651 639 9449

Tables

Table 1
Groundwater Gauging Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-1	6/29/2016	100.00	1.82	NP	--	98.18	--
MW-1	9/8/2016	100.00	1.95	NP	--	98.05	--
MW-1	12/1/2016	100.00	0.76	NP	--	99.24	--
MW-1	2/22/2017	100.00	0.90	NP	--	99.10	--
MW-1	5/10/2017	100.00	1.52	NP	--	98.48	--
MW-1	8/16/2017	100.00	2.04	NP	--	97.96	--
MW-1	10/31/2017	100.00	1.22	NP	--	98.78	--
MW-1	2/13/2018	100.00	1.05	NP	--	98.95	--
MW-1	5/2/2018	100.00	1.36	NP	--	98.64	--
MW-1	8/8/2018	100.00	2.15	NP	--	97.85	--
MW-1	10/23/2018	100.00	1.87	NP	--	98.13	--
MW-1	1/30/2019	100.00	0.96	NP	--	99.04	--
MW-1	4/24/2019	100.00	1.50	NP	--	98.50	--
MW-1	8/1/2019	100.00	1.90	NP	--	98.10	--
MW-1	10/30/2019	100.00	1.09	NP	--	98.91	--
MW-1	2/6/2020	100.00	0.70	NP	--	99.30	--
MW-1	6/24/2020	100.00	1.41	NP	--	98.59	--
MW-1	9/23/2020	100.00	1.69	NP	--	98.31	--
MW-1	11/11/2020	100.00	1.12	NP	--	98.88	--
MW-1	2/10/2021	100.00	1.10	NP	--	98.90	--
MW-1	5/6/2021	100.00	1.50	NP	--	98.50	--
MW-1	8/4/2021	100.00	1.79	NP	--	98.21	--
MW-1	11/17/2021	--	--	--	--	--	DL
MW-1	1/26/2022	100.00	0.75	NP	--	99.25	--
MW-1	4/27/2022	100.00	0.96	NP	--	99.04	--
MW-1	7/20/2022	100.00	1.28	NP	--	98.72	--
MW-1	10/18/2022	100.00	1.68	NP	--	98.32	--
MW-1	1/24/2023	100.00	0.50	NP	--	99.50	DL
MW-1	4/12/2023	100.00	0.69	NP	--	99.31	--
MW-1	8/2/2023	100.00	1.81	NP	--	98.19	--
MW-1	11/1/2023	100.00	1.35	NP	--	98.65	--
MW-1	1/17/2024	100.00	0.40	NP	--	99.60	--
MW-1	5/9/2024	100.00	1.10	NP	--	98.90	--
MW-2	6/29/2016	99.59	2.49	NP	--	97.10	--
MW-2	9/8/2016	99.59	3.44	3.42	0.02	96.17	--
MW-2	12/1/2016	99.59	1.73	NP	--	97.86	--
MW-2	2/22/2017	99.59	1.13	NP	--	98.46	--
MW-2	5/10/2017	99.59	1.39	NP	--	98.20	--
MW-2	8/16/2017	99.59	2.85	2.82	0.03	96.76	--
MW-2	10/31/2017	99.59	1.79	1.70	0.09	97.87	--
MW-2	2/13/2018	99.59	1.63	NP	--	97.96	--
MW-2	5/2/2018	99.59	1.83	NP	--	97.76	--
MW-2	8/8/2018	99.59	3.35	NP	--	96.24	--
MW-2	10/23/2018	99.59	2.96	2.95	0.01	96.64	--
MW-2	1/30/2019	99.59	2.20	NP	--	97.39	--
MW-2	4/24/2019	99.59	1.53	1.52	0.01	98.07	--
MW-2	8/1/2019	99.59	2.87	NP	--	96.72	--

Table 1
Groundwater Gauging Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-2	10/30/2019	99.59	1.90	NP	--	97.69	--
MW-2	2/6/2020	99.59	0.87	NP	--	98.72	--
MW-2	6/24/2020	99.59	1.55	NP	--	98.04	--
MW-2	9/23/2020	99.59	2.23	NP	--	97.36	--
MW-2	11/11/2020	99.59	1.49	NP	--	98.10	--
MW-2	2/10/2021	99.59	1.08	NP	--	98.51	--
MW-2	5/6/2021	99.59	1.58	NP	--	98.01	--
MW-2	8/4/2021	99.59	2.45	NP	--	97.14	--
MW-2	11/17/2021	99.59	0.90	NP	--	98.69	--
MW-2	1/26/2022	99.59	1.74	NP	--	97.85	--
MW-2	4/27/2022	99.59	2.46	NP	--	97.13	--
MW-2	7/20/2022	99.59	2.68	NP	--	96.91	--
MW-2	10/18/2022	99.59	2.26	NP	--	97.33	--
MW-2	1/24/2023	99.59	0.83	NP	--	98.76	--
MW-2	4/12/2023	99.59	0.74	NP	--	98.85	--
MW-2	8/2/2023	99.59	2.26	NP	--	97.33	--
MW-2	11/1/2023	99.59	2.42	NP	--	97.17	--
MW-2	1/17/2024	99.59	0.80	NP	--	98.79	--
MW-2	5/9/2024	99.59	1.16	NP	--	98.43	--
MW-3	6/29/2016	99.91	1.98	NP	--	97.93	--
MW-3	9/8/2016	99.91	2.61	NP	--	97.30	--
MW-3	12/1/2016	99.91	1.02	NP	--	98.89	--
MW-3	2/22/2017	99.91	1.11	NP	--	98.80	--
MW-3	5/10/2017	99.91	1.32	NP	--	98.59	--
MW-3	8/16/2017	99.91	2.26	NP	--	97.65	--
MW-3	10/31/2017	99.91	1.51	NP	--	98.40	--
MW-3	2/13/2018	99.91	1.00	NP	--	98.91	--
MW-3	5/2/2018	99.91	1.28	NP	--	98.63	--
MW-3	8/8/2018	99.91	2.46	NP	--	97.45	--
MW-3	10/23/2018	99.91	2.11	NP	--	97.80	--
MW-3	1/30/2019	99.91	1.09	NP	--	98.82	--
MW-3	4/24/2019	99.91	1.33	NP	--	98.58	--
MW-3	8/1/2019	99.91	1.84	NP	--	98.07	--
MW-3	10/30/2019	99.91	1.21	NP	--	98.70	--
MW-3	2/6/2020	99.91	0.85	NP	--	99.06	--
MW-3	6/24/2020	99.91	1.29	NP	--	98.62	--
MW-3	9/23/2020	99.91	1.73	NP	--	98.18	--
MW-3	11/11/2020	99.91	1.00	NP	--	98.91	--
MW-3	2/10/2021	99.91	1.17	NP	--	98.74	--
MW-3	5/6/2021	99.91	1.34	NP	--	98.57	--
MW-3	8/4/2021	99.91	1.80	NP	--	98.11	--
MW-3	11/17/2021	99.91	0.91	NP	--	99.00	--
MW-3	1/26/2022	99.91	0.95	NP	--	98.96	--
MW-3	4/27/2022	99.91	1.18	NP	--	98.73	--
MW-3	7/20/2022	99.91	1.28	NP	--	98.63	--
MW-3	10/18/2022	99.91	1.53	NP	--	98.38	--
MW-3	1/24/2023	99.91	0.75	NP	--	99.16	--

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2660 Frank Albert Road East, Fife, Washington

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-3	4/12/2023	99.91	0.85	NP	--	99.06	--
MW-3	8/2/2023	99.91	1.52	NP	--	98.39	--
MW-3	11/1/2023	99.91	1.23	NP	--	98.68	--
MW-3	1/17/2024	99.91	0.79	NP	--	99.12	--
MW-3	5/9/2024	99.91	1.05	NP	--	98.86	--
MW-4	6/29/2016	99.70	2.20	NP	--	97.50	--
MW-4	9/8/2016	99.70	2.75	NP	--	96.95	--
MW-4	12/1/2016	99.70	1.00	NP	--	98.70	--
MW-4	2/22/2017	99.70	1.05	NP	--	98.65	--
MW-4	5/10/2017	99.70	1.34	NP	--	98.36	--
MW-4	8/16/2017	99.70	2.44	NP	--	97.26	--
MW-4	10/31/2017	99.70	1.35	NP	--	98.35	--
MW-4	2/13/2018	99.70	1.02	NP	--	98.68	--
MW-4	5/2/2018	99.70	1.29	NP	--	98.41	--
MW-4	8/8/2018	99.70	3.63	NP	--	96.07	--
MW-4	10/23/2018	99.70	2.20	NP	--	97.50	--
MW-4	1/30/2019	99.70	1.05	NP	--	98.65	--
MW-4	4/24/2019	99.70	1.35	NP	--	98.35	--
MW-4	8/1/2019	99.70	2.16	NP	--	97.54	--
MW-4	10/30/2019	99.70	1.20	NP	--	98.50	--
MW-4	2/6/2020	99.70	0.80	NP	--	98.90	--
MW-4	6/24/2020	99.70	1.40	NP	--	98.30	--
MW-4	9/23/2020	99.70	2.00	NP	--	97.70	--
MW-4	11/11/2020	99.70	1.11	NP	--	98.59	--
MW-4	2/10/2021	99.70	1.07	NP	--	98.63	--
MW-4	5/6/2021	99.70	1.47	NP	--	98.23	--
MW-4	8/4/2021	99.70	2.05	NP	--	97.65	--
MW-4	11/17/2021	99.70	0.84	NP	--	98.86	--
MW-4	1/26/2022	99.70	0.88	NP	--	98.82	--
MW-4	4/27/2022	99.70	1.02	NP	--	98.68	--
MW-4	7/20/2022	99.70	1.41	NP	--	98.29	--
MW-4	10/18/2022	99.70	1.94	NP	--	97.76	--
MW-4	1/24/2023	99.70	0.75	NP	--	98.95	--
MW-4	4/12/2023	99.70	0.82	NP	--	98.88	--
MW-4	8/2/2023	99.70	1.96	NP	--	97.74	--
MW-4	11/1/2023	99.70	1.49	NP	--	98.21	--
MW-4	1/17/2024	99.70	0.70	NP	--	99.00	--
MW-4	5/9/2024	99.70	1.06	NP	--	98.64	--
MW-5	6/29/2016	99.60	1.49	NP	--	98.11	--
MW-5	9/8/2016	99.60	1.57	NP	--	98.03	--
MW-5	12/1/2016	99.60	0.61	NP	--	98.99	--
MW-5	2/22/2017	99.60	0.77	NP	--	98.83	--
MW-5	5/10/2017	99.60	1.27	NP	--	98.33	--
MW-5	8/16/2017	99.60	1.70	NP	--	97.90	--
MW-5	10/31/2017	99.60	1.02	NP	--	98.58	--
MW-5	2/13/2018	99.60	0.82	NP	--	98.78	--

Table 1
Groundwater Gauging Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-5	5/2/2018	99.60	1.12	NP	--	98.48	--
MW-5	8/8/2018	99.60	1.80	NP	--	97.80	--
MW-5	10/23/2018	99.60	1.52	NP	--	98.08	--
MW-5	1/30/2019	99.60	0.73	NP	--	98.87	--
MW-5	4/24/2019	99.60	1.20	NP	--	98.40	--
MW-5	8/1/2019	99.60	1.55	NP	--	98.05	--
MW-5	10/30/2019	99.60	0.89	NP	--	98.71	--
MW-5	2/6/2020	99.60	0.50	NP	--	99.10	--
MW-5	6/24/2020	99.60	1.13	NP	--	98.47	--
MW-5	9/23/2020	99.60	1.42	NP	--	98.18	--
MW-5	11/11/2020	99.60	0.87	NP	--	98.73	--
MW-5	2/10/2021	99.60	0.82	NP	--	98.78	--
MW-5	5/6/2021	99.60	1.22	NP	--	98.38	--
MW-5	8/4/2021	99.60	1.48	NP	--	98.12	--
MW-5	11/17/2021	--	--	--	--	--	DL
MW-5	1/26/2022	99.60	0.55	NP	--	99.05	--
MW-5	4/27/2022	99.60	0.71	NP	--	98.89	--
MW-5	7/20/2022	99.60	1.04	NP	--	98.56	--
MW-5	10/18/2022	99.60	1.37	NP	--	98.23	--
MW-5	1/24/2023	99.60	0.25	NP	--	99.35	DL
MW-5	4/12/2023	99.60	0.44	NP	--	99.16	DL
MW-5	8/2/2023	99.60	1.40	NP	--	98.20	--
MW-5	11/1/2023	99.60	0.99	NP	--	98.61	--
MW-5	1/17/2024	99.60	0.40	NP	--	99.20	--
MW-5	5/9/2024	99.60	1.01	NP	--	98.59	--

Notes:
TOC - Top of Casing
ft - feet
NP - No Product
LNAPL - Light Non-Aqueous Phase Liquid
* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)
-- No Information Available
DL - Depth to water was < 0.5 feet below TOC

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	**Date**							
MTCA METHOD A CLEANUP LEVELS		**5**	**1,000**	**700**	**1,000**	**1,000/800***	**500**	**500**
MW-1	6/29/2016	< 20	< 20	< 30	< 30	< 50	160	< 250
MW-1	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	150	< 250
MW-1	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	120	< 250
MW-1	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-1	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	< 100	< 260
MW-1	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	140	330
MW-1	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 100	< 260
MW-1	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	< 100	< 100
MW-1	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	180	< 350
MW-1	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	2/6/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	130	< 370
MW-1	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	140	< 350
MW-1	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	140	< 330
MW-1	2/10/2021	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 360
MW-1	5/6/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	270	< 340
MW-1	8/4/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	310	< 380
MW-1	11/17/2021	< 1.0	< 1.0 *1	< 1.0	< 2.0	< 250	< 110	< 350
MW-1	1/26/2022	< 1.0 *1	< 1.0	< 1.0 *1	< 2.0 *1	< 250	< 140	< 440
MW-1	4/27/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	110	< 360
MW-1	7/20/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	110	< 370
MW-1	10/18/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 110	< 350
MW-1	1/24/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	120	< 360
MW-1	4/12/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	150	< 360
MW-1	8/2/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	180	**550**
MW-1	9/7/2023	--	--	--	--	--	110	< 350
MW-1	11/1/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 100	170	< 360
MW-1	1/17/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 100	150	< 350
MW-1	5/9/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	220	< 360

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	**Date**							
MTCA METHOD A CLEANUP LEVELS		**5**	**1,000**	**700**	**1,000**	**1,000/800***	**500**	**500**
MW-2	6/29/2016	**100**	6.9	56	92	**2,300**	**810**	< 250
MW-2	12/1/2016	**170**	8.7	280	250	**7,000**	**1,700**	< 260
MW-2	2/22/2017	**90**	< 20	120	110	**6,500**	**1,300**	< 250
MW-2	5/10/2017	**85**	6.4	220	150	**6,000**	**990**	< 250
MW-2	2/13/2018	**180**	8.3	130	150	**5,000**	**2,100**	< 350
MW-2	5/2/2018	**170 ***	6.3 *	130	110	**4,200**	**1,100**	< 360
MW-2	1/30/2019	**130**	7.2	74	94	**4,500**	**1,800**	< 350
MW-2	8/1/2019	**110**	6.2	25	43	**1,600**	**1,000**	< 350
MW-2	10/30/2019	**140**	6.1	62	51	**3,400**	**2,000**	< 350
MW-2	2/6/2020	**120**	5.4	44	35	**2,300**	**930**	< 360
MW-2	6/24/2020	**13**	< 2.0	9.5	3.0	750	**590**	< 350
MW-2	9/23/2020	**15**	< 2.0	19	10	**1,100**	**590**	< 350
MW-2	11/11/2020	**99**	6.2	31	44	**1,500**	**970**	< 340
MW-2	2/10/2021	**47**	3.5	33	17	**1,700**	**670**	< 350
MW-2	5/6/2021	**35**	3.0	17	12	**1,700**	**670**	< 360
MW-2	8/4/2021	**39**	< 10	30	< 20	**1,800**	**830**	410
MW-2	11/17/2021	**330**	< 50 *1	< 50	< 100	**1,700**	< 2,200	< 6,900
MW-2	1/26/2022	**85 *1**	< 5.0	25 *1	14 *1	**1,500**	**730**	< 440
MW-2	4/27/2022	4.3	< 1.0	2.6	< 2.0	510	**900**	< 360
MW-2	7/20/2022	**5.9**	< 1.0	1.6	< 2.0	300	**760**	< 370
MW-2	10/18/2022	**20**	< 10	12	< 20	**3,200**	**650**	< 350
MW-2	1/24/2023	**93**	< 10	16	22	**1,400**	**950**	390
MW-2	4/12/2023	**51**	< 10	14	< 20	**1,600**	**840**	< 350
MW-2	8/2/2023	**55**	4.3	6.3	24	**1,400**	**910**	< 360
MW-2	11/1/2023	**59**	4.3	12	18	**1,400**	**770**	< 350
MW-2	1/17/2024	**71**	5.3	17	17	**1,400**	**920**	< 360
MW-2	5/9/2024	**6.0**	< 1.0	3.6	3.1	**1,200**	**560**	< 360
MW-3	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	12/1/2016	< 2.0	88	< 3.0	< 3.0	100	180	< 260
MW-3	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 260
MW-3	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	< 100	< 250

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
MW-3	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-3	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 100	< 260
MW-3	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 350
MW-3	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	< 100	< 100
MW-3	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-3	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	2/6/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 120	< 380
MW-3	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-3	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	2/10/2021	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	5/6/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	< 110	< 360
MW-3	8/4/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	270	< 360
MW-3	11/17/2021	< 1.0	< 1.0 *1	< 1.0	< 2.0	< 250	< 110	< 340
MW-3	1/26/2022	< 1.0 *1	< 1.0	< 1.0 *1	< 2.0 *1	< 250	< 130	< 430
MW-3	4/27/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 110	< 370
MW-3	7/20/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 120	< 370
MW-3	10/18/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	110	< 350
MW-3	1/24/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	120	< 370
MW-3	4/12/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	150	< 360
MW-3	8/2/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	110	< 350
MW-3	11/1/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 100	< 110	< 360
MW-3	1/17/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 100	150	< 350
MW-3	5/9/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 360
MW-4	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	110	< 250
MW-4	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	140	< 260
MW-4	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	120	< 250

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
MW-4	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-4	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	100	< 250
MW-4	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	130	< 350
MW-4	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350
MW-4	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-4	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	< 100	< 100
MW-4	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	160	< 350
MW-4	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	2/6/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 120	< 380
MW-4	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	140	< 350
MW-4	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 350
MW-4	2/10/2021	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	5/6/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	< 110	< 350
MW-4	8/4/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	310	< 370
MW-4	11/17/2021	< 1.0	< 1.0 *1	< 1.0	< 2.0	< 250	< 110	< 340
MW-4	1/26/2022	< 1.0 *1	< 1.0	< 1.0 *1	< 2.0 *1	< 250	< 130	< 420
MW-4	4/27/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 110	< 360
MW-4	7/20/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 120	< 380
MW-4	10/18/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 110	< 350
MW-4	1/24/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	140	< 370
MW-4	4/12/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	120	< 360
MW-4	8/2/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	140	< 360
MW-4	11/1/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 100	130	< 350
MW-4	1/17/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 100	140	< 350
MW-4	5/9/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 360
MW-5	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	300	230	< 250
MW-5	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	270	250	< 250
MW-5	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	89	180	< 250
MW-5	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	97	< 110	< 250
MW-5	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	220	< 250

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	**Date**							
MTCA METHOD A CLEANUP LEVELS		**5**	**1,000**	**700**	**1,000**	**1,000/800***	**500**	**500**
MW-5	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	240	150	< 250
MW-5	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	120	< 260
MW-5	2/13/2018	3.4	< 2.0	7.4	< 3.0	330	250	< 370
MW-5	5/2/2018	< 3.0 *	< 2.0 *	< 3.0	< 3.0	< 250	< 110	< 350
MW-5	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350
MW-5	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	150	< 350
MW-5	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	130	< 100
MW-5	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350
MW-5	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 350
MW-5	2/6/2020	< 3.0	< 2.0	4.2	< 3.0	380	190	< 350
MW-5	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	210	< 360
MW-5	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	160	< 360
MW-5	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 340
MW-5	2/10/2021	3.4	< 2.0	< 3.0	< 3.0	260	150	< 360
MW-5	5/6/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	150	< 340
MW-5	8/4/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	290	< 360
MW-5	11/17/2021	< 1.0	< 1.0 *1	< 1.0	< 2.0	< 250	< 2,100	< 6,800
MW-5	1/26/2022	3.5	< 1.0	3.9	< 2.0	270	170	< 440
MW-5	4/27/2022	2.4	< 1.0	1.9	< 2.0	600	310	< 360
MW-5	7/20/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	130	< 350
MW-5	10/18/2022	< 1.0	< 1.0	< 1.0	< 2.0	110	130	< 350
MW-5	1/24/2023	**5.5**	1.1	6.1	< 2.0	470	380	< 370
MW-5	4/12/2023	1.3	< 1.0	1.7	< 2.0	210	190	< 360
MW-5	8/2/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 50	190	< 360
MW-5	11/1/2023	< 1.0	< 1.0	< 1.0	< 2.0	< 100	130	< 360
MW-5	1/17/2024	**5.3**	1.1	5.1	< 2.0	540	370	< 360
MW-5	5/9/2024	1.2	< 1.0	2.6	< 2.0	460	210	< 360

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

CONSTITUENT		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	**Date**							
MTCA METHOD A CLEANUP LEVELS		**5**	**1,000**	**700**	**1,000**	**1,000/800***	**500**	**500**

Notes:

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes, Total

TPH-G = Total petroleum hydrocarbons as gasoline by Northwest Method NWTPH-Gx

TPH-D = Total petroleum hydrocarbons as diesel by Northwest Method NWTPH-Dx

TPH-O = Total petroleum hydrocarbons as oil by Northwest Method NWTPH-Dx

1,000/800[1] ug/L if no detectable levels of Benzene in the sample - otherwise 800 ug/L

<1.0 = Concentrations were not detected above the laboratory method reporting limit.

ug/L = Micrograms per liter (ppb)

-- = No value given/Not analyzed/Not applicable

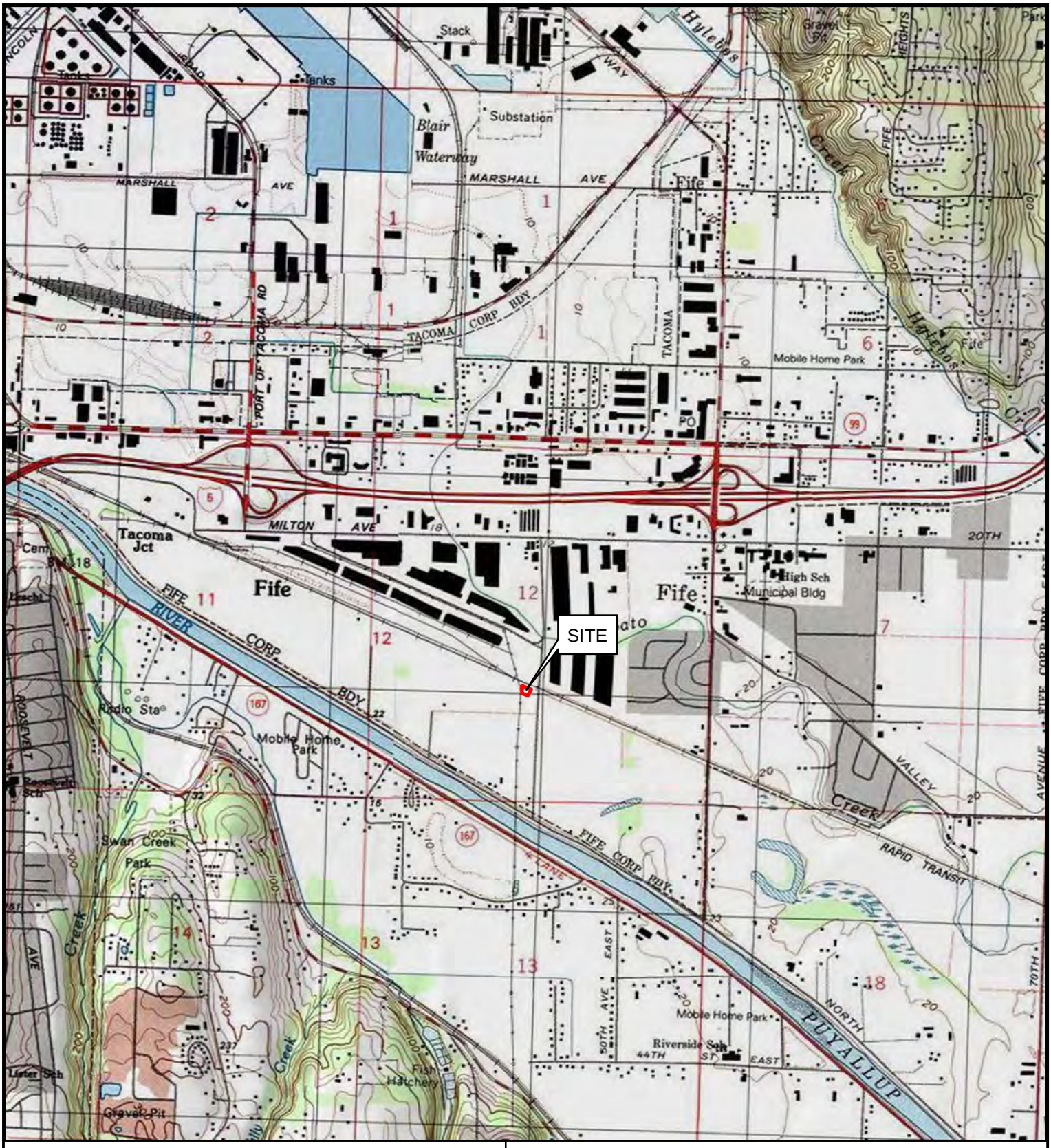
MTCA = Model Toxics Control Act

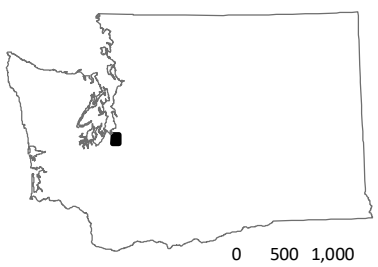
Results in **bold** indicate concentrations in excess of MTCA Method A Cleanup Levels

* = RPD of the LCS and LCSD exceeds the control limits. LCS or LCSD is outside acceptance limits.

*1 = LCS/LCSD RPD exceeds control limits.

Figures





USGS 7.5-minute Series
Topographic Serioes
Puyallup, WA, 2013

N

0 500 1,000 2,000 3,000 4,000 Feet

FIGURE 1

SITE LOCATION MAP
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WA

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2024	*MB*	*1:24,000*
DATE	**REVIEWED BY**	**MAP SCALE**
7/30/2021	*FS*	*1 INCH = 2,000 FEET*

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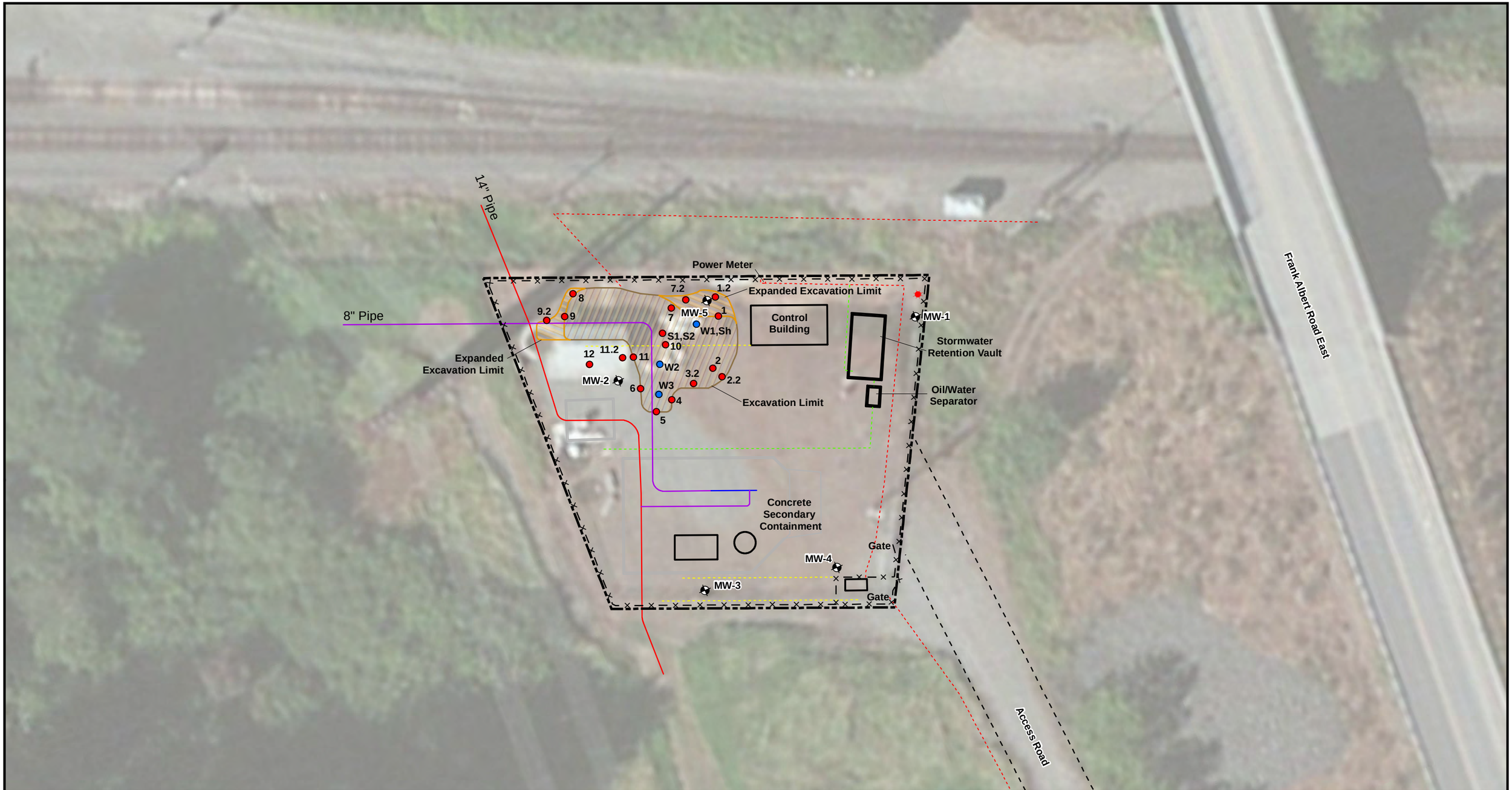

Legend

- Monitoring Well Location
- Light Pole
- Soil Sample Location
- Water Sample Location
- Original Excavation
- Expanded Excavation
- Property Boundary
- Fence
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Utility - Electric
- Utility - Storm Water
- Groundwire

Sources: 2013, Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 15 30 60 90 120 Feet

FIGURE 2

SITE MAP
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WA

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2024	*MB*	*1:360*
DATE	**REVIEWED BY**	**MAP SCALE**
7/25/2024	*FS*	*1 INCH = 30 FEET*

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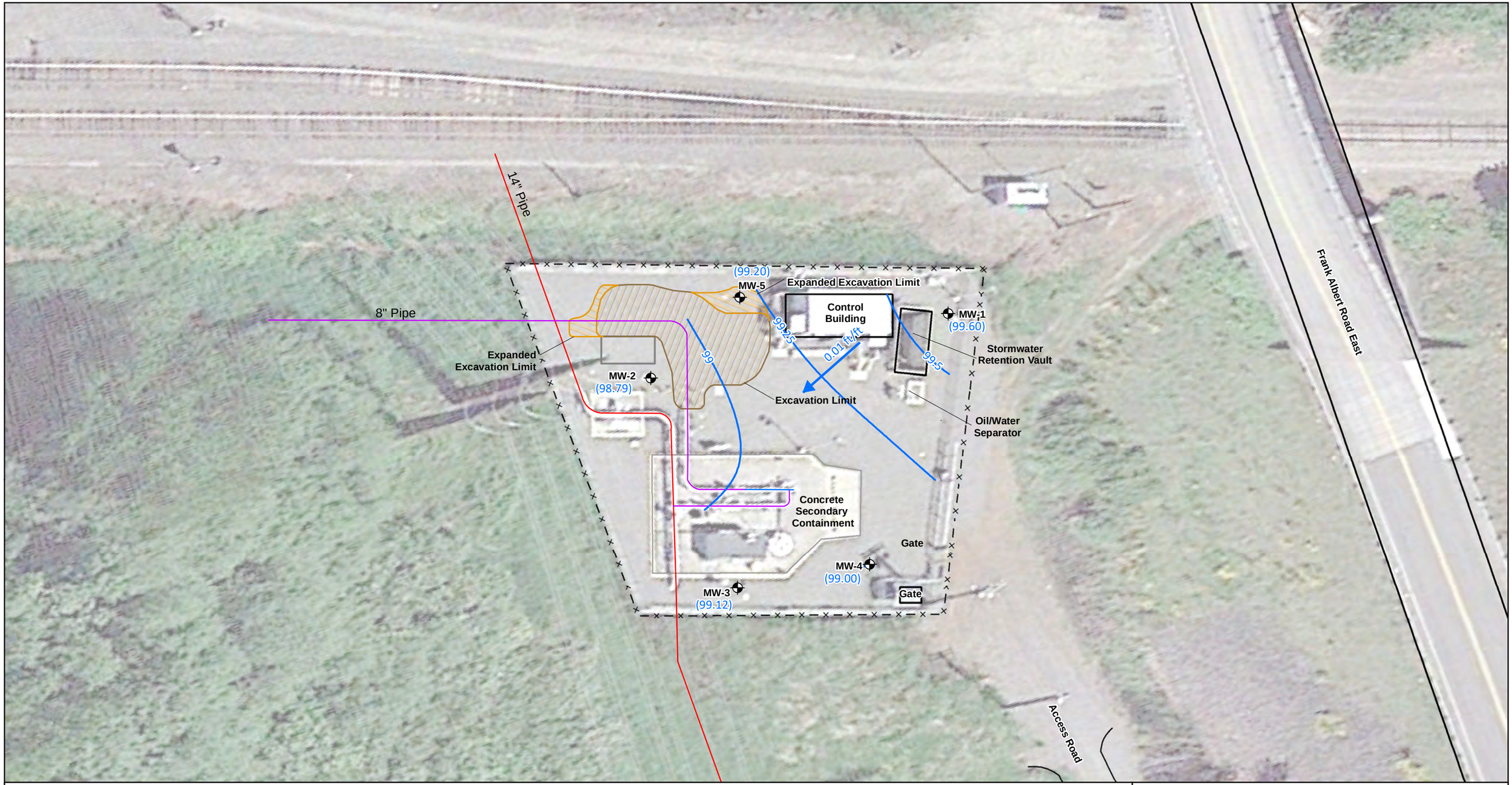

Legend

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.79) Groundwater Elevation Contour (ft)
- 0.01 ft/ft Inferred Groundwater Gradient

Sources: 2015, Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 7.5 15 30 Feet

FIGURE 3

GROUNDWATER ELEVATION CONTOUR MAP
JANUARY 17, 2024
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2024	MB	1:360
DATE	REVIEWED BY	MAP SCALE
7/25/2024	MR	1 INCH = 30 FEET

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14" Pipe

8" Pipe

(98.59)

MW-5

Expanded Excavation Limit

Control Building

MW-1
(98.90)

0.0047 ft/ft

Stormwater Retention Vault

Expanded Excavation Limit

MW-2
(98.43)

98.50

Excavation Limit

98.75

Oil/Water Separator

Concrete Secondary Containment

98.75

Gate

MW-4
(98.64)

MW-3
(98.86)

Gate

Frank Albert Road East

Access Road

Legend

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.64) Groundwater Elevation Contour (ft)
- 0.0047 ft/ft Inferred Groundwater Gradient

Sources: 2015, Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 7.5 15 30 Feet

FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP
MAY 9, 2024
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2024	*MDE*	*1:360*
DATE	**REVIEWED BY**	**MAP SCALE**
7/25/2024	*MR*	*1 INCH = 30 FEET*

antea group

Z:\!GIS Projects\OPLC\Tacoma\Project Number\Layout\TacJ-Fig4-GWE-2Q24.mxd

MW-2		
Date	1/17/2024	5/9/2024
B	**71**	**6.0**
T	5.3	< 1.0
E	17	3.6
X	17	3.1
TPH-G	**1,400**	**1,200**
TPH-D	**920**	**560**
TPH-O	< 360	< 360

MW-5		
Date	1/17/2024	5/9/2024
B	**5.3**	1.2
T	1.1	< 1.0
E	5.1	2.6
X	< 2.0	< 2.0
TPH-G	540	460
TPH-D	370	210
TPH-O	< 360	< 360

MW-1		
Date	1/17/2024	5/9/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 100	< 150
TPH-D	150	220
TPH-O	< 350	< 360

MW-3		
Date	1/17/2024	5/9/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 100	< 150
TPH-D	150	< 200
TPH-O	< 350	< 360

MW-4		
Date	1/17/2024	5/9/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 100	< 150
TPH-D	140	< 200
TPH-O	< 350	< 360

14" Pipe
8" Pipe
MW-1
MW-2
MW-3
MW-4
MW-5
Expanded Excavation Limit
Expanded Excavation Limit
Excavation Limit
Control Building
Stormwater Retention Vault
Oil/Water Separator
Concrete Secondary Containment
Gate
Gate
Frank Albert Road East
Access Road

Legend

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation

NA - Not Analyzed
B - Benzene
T - Toluene
E - Ethylbenzene
X - Total Xylenes
TPH-G - Total petroleum hydrocarbons as gasoline
TPH-D - Total petroleum hydrocarbons as diesel
TPH-O - Total petroleum hydrocarbons as oil
Bold - Concentration above MTCA Method A Cleanup Levels
< - Concentrations were not detected above the laboratory reporting limit
'*1 - LCS/LCSD RPD exceeds control limits
All values in micrograms per liter (µg/L)

Sources: 2015, Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

0 7.5 15 30 Feet

FIGURE 5

GROUNDWATER ANALYTICAL DATA MAP
FIRST HALF OF 2024
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2024	*MDE*	*1:360*
DATE	**REVIEWED BY**	**MAP SCALE**
6/11/2024	*NL*	*1 INCH = 30 FEET*

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Appendix A - Analytical Lab Reports and Chain-of-Custody Documentation

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ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Richard
Antea USA Inc.
18378-B Redmond Way
Redmond, Washington 98052

Generated 1/26/2024 3:25:37 PM

JOB DESCRIPTION

BP - OPLC - Tacoma Junction

JOB NUMBER

580-135886-1

Eurofins Seattle
5755 8th Street East
Tacoma WA 98424

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Compliance Statement

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the BPLAMP Technical Specifications, applicable federal, state, local regulations and certification requirements as well as the methodologies as described in laboratory SOPs reviewed by the BPLAMP. This Laboratory Report is confidential and is intended for the sole use of Eurofins Environment Testing (USA) and its client. This report shall not be reproduced, except in full, without written permission from Eurofins Environment Testing (USA). The signature on the cover page extends to the case narrative and all the data and forms in the package. The Chain of Custody is included and is an integral part of this report.

Authorization

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1/26/2024 3:25:37 PM

Authorized for release by
Katie Grant, Project Manager I
Katie.Grant@et.eurofinsus.com
(253)922-2310

Table of Contents

Definitions/Glossary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 580-135886-1 Eurofins Seattle

Job Narrative
580-135886-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 1/19/2024 11:53 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.3°C

GC/MS VOA
Method NWTPH_Gx_MS: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 580-449568 was outside control limits. Sample matrix interference or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Client Sample ID: MW-1_20240117 — Lab Sample ID: 580-135886-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
#2 Diesel (C10-C24)	150		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-2_20240117 — Lab Sample ID: 580-135886-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	71		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	17		1.0		ug/L	1		8260D	Total/NA
m-Xylene & p-Xylene	16		2.0		ug/L	1		8260D	Total/NA
o-Xylene	1.4		1.0		ug/L	1		8260D	Total/NA
Toluene	5.3		1.0		ug/L	1		8260D	Total/NA
Xylenes, Total	17		2.0		ug/L	1		8260D	Total/NA
Gasoline	1400		100		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	920		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20240117 — Lab Sample ID: 580-135886-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
#2 Diesel (C10-C24)	150		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-4_20240117 — Lab Sample ID: 580-135886-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
#2 Diesel (C10-C24)	140		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-5_20240117 — Lab Sample ID: 580-135886-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.3		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	5.1		1.0		ug/L	1		8260D	Total/NA
Toluene	1.1		1.0		ug/L	1		8260D	Total/NA
Gasoline	540		100		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	370		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: Trip Blank_20240117 — Lab Sample ID: 580-135886-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1_20240117

Lab Sample ID: 580-135886-1

Date Collected: 01/17/24 09:15

Matrix: Water

Date Received: 01/19/24 11:53

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/25/24 21:13	1
Ethylbenzene	ND		1.0		ug/L			01/25/24 21:13	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 21:13	1
o-Xylene	ND		1.0		ug/L			01/25/24 21:13	1
Toluene	ND		1.0		ug/L			01/25/24 21:13	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*01/25/24 21:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*01/25/24 21:13*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*01/25/24 21:13*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*01/25/24 21:13*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			01/25/24 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*77 - 123*		*01/25/24 21:13*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**150**		110		ug/L		01/24/24 08:42	01/25/24 00:54	1
Motor Oil (>C24-C36)	ND		350		ug/L		01/24/24 08:42	01/25/24 00:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*01/24/24 08:42*	*01/25/24 00:54*	*1*

Client Sample ID: MW-2_20240117

Lab Sample ID: 580-135886-2

Date Collected: 01/17/24 12:50

Matrix: Water

Date Received: 01/19/24 11:53

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**71**		1.0		ug/L			01/25/24 22:40	1
Ethylbenzene	**17**		1.0		ug/L			01/25/24 22:40	1
m-Xylene & p-Xylene	**16**		2.0		ug/L			01/25/24 22:40	1
o-Xylene	**1.4**		1.0		ug/L			01/25/24 22:40	1
Toluene	**5.3**		1.0		ug/L			01/25/24 22:40	1
Xylenes, Total	**17**		2.0		ug/L			01/25/24 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*01/25/24 22:40*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*01/25/24 22:40*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*01/25/24 22:40*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 22:40*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1400**		100		ug/L			01/25/24 22:40	1

Client Sample ID: MW-2_20240117

Date Collected: 01/17/24 12:50
Date Received: 01/19/24 11:53

Lab Sample ID: 580-135886-2
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*77 - 123*		*01/25/24 22:40*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**920**		110		ug/L		01/24/24 08:42	01/25/24 01:14	1
Motor Oil (>C24-C36)	ND		360		ug/L		01/24/24 08:42	01/25/24 01:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*50 - 150*	*01/24/24 08:42*	*01/25/24 01:14*	*1*

Client Sample ID: MW-3_20240117

Date Collected: 01/17/24 11:00
Date Received: 01/19/24 11:53

Lab Sample ID: 580-135886-3
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/25/24 21:35	1
Ethylbenzene	ND		1.0		ug/L			01/25/24 21:35	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 21:35	1
o-Xylene	ND		1.0		ug/L			01/25/24 21:35	1
Toluene	ND		1.0		ug/L			01/25/24 21:35	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*01/25/24 21:35*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*01/25/24 21:35*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*01/25/24 21:35*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 21:35*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			01/25/24 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*77 - 123*		*01/25/24 21:35*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**150**		110		ug/L		01/24/24 08:42	01/25/24 01:33	1
Motor Oil (>C24-C36)	ND		350		ug/L		01/24/24 08:42	01/25/24 01:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*01/24/24 08:42*	*01/25/24 01:33*	*1*

Client Sample ID: MW-4_20240117

Date Collected: 01/17/24 10:05
Date Received: 01/19/24 11:53

Lab Sample ID: 580-135886-4
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/25/24 21:57	1
Ethylbenzene	ND		1.0		ug/L			01/25/24 21:57	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 21:57	1

Client Sample ID: MW-4_20240117

Lab Sample ID: 580-135886-4

Date Collected: 01/17/24 10:05

Matrix: Water

Date Received: 01/19/24 11:53

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0		ug/L			01/25/24 21:57	1
Toluene	ND		1.0		ug/L			01/25/24 21:57	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*01/25/24 21:57*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*01/25/24 21:57*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*01/25/24 21:57*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*01/25/24 21:57*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			01/25/24 21:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*77 - 123*		*01/25/24 21:57*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**140**		110		ug/L		01/24/24 08:42	01/25/24 01:53	1
Motor Oil (>C24-C36)	ND		350		ug/L		01/24/24 08:42	01/25/24 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*01/24/24 08:42*	*01/25/24 01:53*	*1*

Client Sample ID: MW-5_20240117

Lab Sample ID: 580-135886-5

Date Collected: 01/17/24 11:55

Matrix: Water

Date Received: 01/19/24 11:53

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**5.3**		1.0		ug/L			01/25/24 22:18	1
Ethylbenzene	**5.1**		1.0		ug/L			01/25/24 22:18	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 22:18	1
o-Xylene	ND		1.0		ug/L			01/25/24 22:18	1
Toluene	**1.1**		1.0		ug/L			01/25/24 22:18	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*01/25/24 22:18*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*01/25/24 22:18*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*01/25/24 22:18*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*01/25/24 22:18*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**540**		100		ug/L			01/25/24 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*77 - 123*		*01/25/24 22:18*	*1*

Client Sample ID: MW-5_20240117

Lab Sample ID: 580-135886-5

Date Collected: 01/17/24 11:55
Matrix: Water
Date Received: 01/19/24 11:53

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**370**		110		ug/L		01/24/24 08:42	01/25/24 02:12	1
Motor Oil (>C24-C36)	ND		360		ug/L		01/24/24 08:42	01/25/24 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*01/24/24 08:42*	*01/25/24 02:12*	*1*

Client Sample ID: Trip Blank_20240117

Lab Sample ID: 580-135886-6

Date Collected: 01/17/24 00:00
Matrix: Water
Date Received: 01/19/24 11:53

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/25/24 18:18	1
Ethylbenzene	ND		1.0		ug/L			01/25/24 18:18	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 18:18	1
o-Xylene	ND		1.0		ug/L			01/25/24 18:18	1
Toluene	ND		1.0		ug/L			01/25/24 18:18	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*01/25/24 18:18*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*01/25/24 18:18*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*01/25/24 18:18*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*01/25/24 18:18*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			01/25/24 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*77 - 123*		*01/25/24 18:18*	*1*

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
580-135886-1	MW-1_20240117	101	97	96	100
580-135886-2	MW-2_20240117	101	99	96	101
580-135886-3	MW-3_20240117	100	102	97	101
580-135886-4	MW-4_20240117	100	99	96	101
580-135886-5	MW-5_20240117	101	99	98	104
580-135886-6	Trip Blank_20240117	102	99	98	100
LCS 580-449574/6	Lab Control Sample	101	99	101	101
LCSD 580-449574/7	Lab Control Sample Dup	100	98	100	100
MB 580-449574/11	Method Blank	100	101	97	100

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(77-123)
580-135846-B-6 MS	Matrix Spike	100
580-135846-C-6 MSD	Matrix Spike Duplicate	98
580-135886-1	MW-1_20240117	97
580-135886-2	MW-2_20240117	99
580-135886-3	MW-3_20240117	102
580-135886-4	MW-4_20240117	99
580-135886-5	MW-5_20240117	99
580-135886-6	Trip Blank_20240117	99
LCS 580-449568/8	Lab Control Sample	100
LCSD 580-449568/9	Lab Control Sample Dup	100
MB 580-449568/11	Method Blank	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(50-150)
580-135886-1	MW-1_20240117	97
580-135886-2	MW-2_20240117	90
580-135886-3	MW-3_20240117	94
580-135886-4	MW-4_20240117	82
580-135886-5	MW-5_20240117	86
LCS 580-449376/2-A	Lab Control Sample	92
LCSD 580-449376/3-A	Lab Control Sample Dup	89
MB 580-449376/1-A	Method Blank	101

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Surrogate Legend

OTPH = o-Terphenyl

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-449574/11
Matrix: Water
Analysis Batch: 449574

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			01/25/24 17:56	1
Ethylbenzene	ND		1.0		ug/L			01/25/24 17:56	1
m-Xylene & p-Xylene	ND		2.0		ug/L			01/25/24 17:56	1
o-Xylene	ND		1.0		ug/L			01/25/24 17:56	1
Toluene	ND		1.0		ug/L			01/25/24 17:56	1
Xylenes, Total	ND		2.0		ug/L			01/25/24 17:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*01/25/24 17:56*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*01/25/24 17:56*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*01/25/24 17:56*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*01/25/24 17:56*	*1*

Lab Sample ID: LCS 580-449574/6
Matrix: Water
Analysis Batch: 449574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			10.0	10.1		ug/L		101	80 - 122		
Ethylbenzene			10.0	10.3		ug/L		103	80 - 120		
m-Xylene & p-Xylene			10.0	10.0		ug/L		100	80 - 120		
o-Xylene			10.0	10.5		ug/L		105	80 - 120		
Toluene			10.0	10.3		ug/L		103	80 - 120		
Xylenes, Total			20.0	20.5		ug/L		103	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-449574/7
Matrix: Water
Analysis Batch: 449574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			10.0	9.88		ug/L		99	80 - 122	3	14
Ethylbenzene			10.0	10.1		ug/L		101	80 - 120	2	14
m-Xylene & p-Xylene			10.0	9.84		ug/L		98	80 - 120	2	14
o-Xylene			10.0	10.4		ug/L		104	80 - 120	1	16
Toluene			10.0	9.99		ug/L		100	80 - 120	3	13
Xylenes, Total			20.0	20.2		ug/L		101	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-449574/7
Matrix: Water
Analysis Batch: 449574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	100		80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Lab Sample ID: MB 580-449568/11
Matrix: Water
Analysis Batch: 449568

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			01/25/24 17:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		01/25/24 17:56	1

Lab Sample ID: LCS 580-449568/8
Matrix: Water
Analysis Batch: 449568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline			1000	1010		ug/L		101	55 - 148		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		77 - 123

Lab Sample ID: LCSD 580-449568/9
Matrix: Water
Analysis Batch: 449568

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline			1000	998		ug/L		100	55 - 148	1	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		77 - 123

Lab Sample ID: 580-135846-B-6 MS
Matrix: Water
Analysis Batch: 449568

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline	120	F2	1000	1010		ug/L		89	55 - 148		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		77 - 123

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: 580-135846-C-6 MSD
Matrix: Water
Analysis Batch: 449568

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline	120	F2	1000	1140	F2	ug/L		102	55 - 148	12	10

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*77 - 123*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-449376/1-A
Matrix: Water
Analysis Batch: 449397

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 449376

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		01/24/24 08:42	01/24/24 22:36	1
Motor Oil (>C24-C36)	ND		350		ug/L		01/24/24 08:42	01/24/24 22:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*50 - 150*	*01/24/24 08:42*	*01/24/24 22:36*	*1*

Lab Sample ID: LCS 580-449376/2-A
Matrix: Water
Analysis Batch: 449397

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 449376

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)			4000	3010		ug/L		75	50 - 120		
Motor Oil (>C24-C36)			4000	3250		ug/L		81	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*92*		*50 - 150*

Lab Sample ID: LCSD 580-449376/3-A
Matrix: Water
Analysis Batch: 449397

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 449376

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			4000	2940		ug/L		74	50 - 120	2	26
Motor Oil (>C24-C36)			4000	3230		ug/L		81	64 - 120	1	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*89*		*50 - 150*

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

GC/MS VOA

Analysis Batch: 449568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-135886-1	MW-1_20240117	Total/NA	Water	NWTPH-Gx	
580-135886-2	MW-2_20240117	Total/NA	Water	NWTPH-Gx	
580-135886-3	MW-3_20240117	Total/NA	Water	NWTPH-Gx	
580-135886-4	MW-4_20240117	Total/NA	Water	NWTPH-Gx	
580-135886-5	MW-5_20240117	Total/NA	Water	NWTPH-Gx	
580-135886-6	Trip Blank_20240117	Total/NA	Water	NWTPH-Gx	
MB 580-449568/11	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-449568/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-449568/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
580-135846-B-6 MS	Matrix Spike	Total/NA	Water	NWTPH-Gx	
580-135846-C-6 MSD	Matrix Spike Duplicate	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 449574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-135886-1	MW-1_20240117	Total/NA	Water	8260D	
580-135886-2	MW-2_20240117	Total/NA	Water	8260D	
580-135886-3	MW-3_20240117	Total/NA	Water	8260D	
580-135886-4	MW-4_20240117	Total/NA	Water	8260D	
580-135886-5	MW-5_20240117	Total/NA	Water	8260D	
580-135886-6	Trip Blank_20240117	Total/NA	Water	8260D	
MB 580-449574/11	Method Blank	Total/NA	Water	8260D	
LCS 580-449574/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-449574/7	Lab Control Sample Dup	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 449376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-135886-1	MW-1_20240117	Total/NA	Water	3510C	
580-135886-2	MW-2_20240117	Total/NA	Water	3510C	
580-135886-3	MW-3_20240117	Total/NA	Water	3510C	
580-135886-4	MW-4_20240117	Total/NA	Water	3510C	
580-135886-5	MW-5_20240117	Total/NA	Water	3510C	
MB 580-449376/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-449376/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-449376/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 449397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-135886-1	MW-1_20240117	Total/NA	Water	NWTPH-Dx	449376
580-135886-2	MW-2_20240117	Total/NA	Water	NWTPH-Dx	449376
580-135886-3	MW-3_20240117	Total/NA	Water	NWTPH-Dx	449376
580-135886-4	MW-4_20240117	Total/NA	Water	NWTPH-Dx	449376
580-135886-5	MW-5_20240117	Total/NA	Water	NWTPH-Dx	449376
MB 580-449376/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	449376
LCS 580-449376/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	449376
LCSD 580-449376/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	449376

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Client Sample ID: MW-1_20240117
Lab Sample ID: 580-135886-1
Date Collected: 01/17/24 09:15
Matrix: Water
Date Received: 01/19/24 11:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 21:13
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 21:13
Total/NA	Prep	3510C			449376	SL	EET SEA	01/24/24 08:42
Total/NA	Analysis	NWTPH-Dx		1	449397	KLW	EET SEA	01/25/24 00:54

Client Sample ID: MW-2_20240117
Lab Sample ID: 580-135886-2
Date Collected: 01/17/24 12:50
Matrix: Water
Date Received: 01/19/24 11:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 22:40
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 22:40
Total/NA	Prep	3510C			449376	SL	EET SEA	01/24/24 08:42
Total/NA	Analysis	NWTPH-Dx		1	449397	KLW	EET SEA	01/25/24 01:14

Client Sample ID: MW-3_20240117
Lab Sample ID: 580-135886-3
Date Collected: 01/17/24 11:00
Matrix: Water
Date Received: 01/19/24 11:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 21:35
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 21:35
Total/NA	Prep	3510C			449376	SL	EET SEA	01/24/24 08:42
Total/NA	Analysis	NWTPH-Dx		1	449397	KLW	EET SEA	01/25/24 01:33

Client Sample ID: MW-4_20240117
Lab Sample ID: 580-135886-4
Date Collected: 01/17/24 10:05
Matrix: Water
Date Received: 01/19/24 11:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 21:57
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 21:57
Total/NA	Prep	3510C			449376	SL	EET SEA	01/24/24 08:42
Total/NA	Analysis	NWTPH-Dx		1	449397	KLW	EET SEA	01/25/24 01:53

Client Sample ID: MW-5_20240117
Lab Sample ID: 580-135886-5
Date Collected: 01/17/24 11:55
Matrix: Water
Date Received: 01/19/24 11:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 22:18
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 22:18
Total/NA	Prep	3510C			449376	SL	EET SEA	01/24/24 08:42
Total/NA	Analysis	NWTPH-Dx		1	449397	KLW	EET SEA	01/25/24 02:12

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Client Sample ID: Trip Blank_20240117

Date Collected: 01/17/24 00:00
Date Received: 01/19/24 11:53

Lab Sample ID: 580-135886-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	449574	K1K	EET SEA	01/25/24 18:18
Total/NA	Analysis	NWTPH-Gx		1	449568	K1K	EET SEA	01/25/24 18:18

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-135886-1
Project/Site: BP - OPLC - Tacoma Junction

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-24

Method Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC/MS)	NWTPH	EET SEA
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	EET SEA
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030B	Purge and Trap	SW846	EET SEA

Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-135886-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-135886-1	MW-1_20240117	Water	01/17/24 09:15	01/19/24 11:53
580-135886-2	MW-2_20240117	Water	01/17/24 12:50	01/19/24 11:53
580-135886-3	MW-3_20240117	Water	01/17/24 11:00	01/19/24 11:53
580-135886-4	MW-4_20240117	Water	01/17/24 10:05	01/19/24 11:53
580-135886-5	MW-5_20240117	Water	01/17/24 11:55	01/19/24 11:53
580-135886-6	Trip Blank_20240117	Water	01/17/24 00:00	01/19/24 11:53

Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

BP Site Node Path: Olympic Pipeline Company | **Req Due Date (mm/dd/yy):** Standard TAT | Rush TAT Yes _____ No X

BP/RM Facility No: Tacoma Junction | **Lab Work Order Number:**

Lab Name:	Eurofins	BP/ARC Facility Address:	2660 Frank Albert Road East	Consultant/Contractor:	Antea Group
Lab Address:	Tacoma, WA	City, State, ZIP Code:	Fife, Washington 98424	Consultant/Contractor Project No:	OPLC Tacoma Junction
Lab PM:	Katie Grant	Lead Regulatory Agency:	Washington Department of Ecology	Address:	18378-B Redmond Way, Redmond, WA 98052
Lab Phone:	253-922-2310	California Global ID No.:	NA	Consultant/Contractor PM:	Megan Richard
Lab Shipping Accnt:	NA	Enfos Proposal No:	PENDING	Phone: 425-498-7711 Email:	Megan.Richard@anteagroup.us
Lab Bottle Order No:	NA	Accounting Mode: Provision __X__ OOC-BU _____ OOC-RM _____		Send/Submit EDD to:	Megan.Richard@anteagroup.us
Other Info:	katie.grant@et.eurofinsus.com	Stage 1_Appraise (10)	Activity Interim Measures (123)	Invoice To:	BP-RM _____ BP/ARC ___X___
BP/RM PM:	Wade Melton				
PM Phone:	360-594-7978				
PM Email:	wade.melton@bp.com				

Report Type & QC Level: Limited (Standard) Package X; Limited Plus Package ____; Full Package ____

Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Filt	Pres	Analysis	8260BTEX	NWTPH-Gx	NWTPH-DX	Comments
	MW-1_ 20240117	1/17/24	0915	W				G	8				X	X	X	
	MW-2_ 20240117	"	1250	W				G	8				X	X	X	
	MW-3_ 20240117	"	1100	W				G	8				X	X	X	
	MW-4_ 20240117	"	1005	W				G	8				X	X	X	
	MW-5_ 20240117	"	1155	W				G	8				X	X	X	
	Trip Blank_ 20240117	↓	0000	W				G	2				X	X		

Therm. ID: IR12 Cor: 0.3 ° Unc: 0.2 °
Cooler Dsc: BB
Packing: Bub
Cust. Seal: Yes ___ No ✓
Blue Ice, (Wet) Dry, None
FedEx: ____
UPS: ____
Lab Cour: ✓
Other: ____

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Mariah Holloway						
Sampler's Company: Antea Group	M Holloway / Antea	1/19/24	1153	Sydney Landon	1/19/24	1153
Ship Method: Courier Ship Date: 1/19/24						
Shipment Tracking No:						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip F ... Sample Submitted: Yes / No

uly 2018

580-135886 Chain of Custody

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-135886-1

Login Number: 135886
List Number: 1
Creator: Groves, Elizabeth

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-135886-1

SDG No.:

Batch Number: 449574 Batch Start Date: 01/25/24 14:39 Batch Analyst: Klongnganchui, Kanjana 1

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00038	VOAMasterMix 00114	VOASTDGASweek 00155
LCS 580-449574/6		8260D		5 mL	5 mL		5 uL	10 uL	10 uL
LCSD 580-449574/7		8260D		5 mL	5 mL		5 uL	10 uL	10 uL
MB 580-449574/11		8260D		5 mL	5 mL		5 uL		
580-135886-A-6	Trip Blank 20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-1	MW-1_20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-3	MW-3_20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-4	MW-4_20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-5	MW-5_20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-2	MW-2_20240117	8260D	T	5 mL	5 mL	<2 SU	5 uL		

Batch Notes	
pH Indicator ID	206722
Vial Lot Number	0112201I

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-135886-1

SDG No.:

Batch Number: 449568 Batch Start Date: 01/25/24 14:39 Batch Analyst: Klongnganchui, Kanjana 1

Batch Method: NWTPH-Gx Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00038	GRO_LCS 00093	
LCS 580-449568/8		NWTPH-Gx		5 mL	5 mL		5 uL	25 uL	
LCSD 580-449568/9		NWTPH-Gx		5 mL	5 mL		5 uL	25 uL	
MB 580-449568/11		NWTPH-Gx		5 mL	5 mL		5 uL		
580-135886-A-6	Trip Blank 20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-1	MW-1_20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-3	MW-3_20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-4	MW-4_20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-5	MW-5_20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135886-A-2	MW-2_20240117	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135846-C-6	FF3-24-01-356	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL		
580-135846-B-6 MS	FF3-24-01-356	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL	21.5 uL	
580-135846-C-6 MSD	FF3-24-01-356	NWTPH-Gx	T	5 mL	5 mL	<2 SU	5 uL	21.5 uL	

Batch Notes	
pH Indicator ID	206722
Vial Lot Number	0112201I

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-135886-1

SDG No.:

Batch Number: 449376 Batch Start Date: 01/24/24 08:42 Batch Analyst: Ledesma, Santiago

Batch Method: 3510C Batch End Date: 01/24/24 15:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-449376/1		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
LCS 580-449376/2		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
LCSD 580-449376/3		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
580-135886-H-1	MW-1_20240117	3510C, NWTPH-Dx	T	00414.19 g	00166.83 g	247.4 mL	2 mL	2 SU	n/a SU
580-135886-G-2	MW-2_20240117	3510C, NWTPH-Dx	T	00412.48 g	00167.46 g	245 mL	2 mL	2 SU	n/a SU
580-135886-G-3	MW-3_20240117	3510C, NWTPH-Dx	T	00415.59 g	00168.39 g	247.2 mL	2 mL	2 SU	n/a SU
580-135886-G-4	MW-4_20240117	3510C, NWTPH-Dx	T	00413.44 g	00166.76 g	246.7 mL	2 mL	2 SU	n/a SU
580-135886-H-5	MW-5_20240117	3510C, NWTPH-Dx	T	00413.72 g	00167.75 g	246 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	SecondAdjustpH	TPH_Water_Spk 00041	TPH_WaterSurr 00107	TPH_WaterSurr 00108		
MB 580-449376/1		3510C, NWTPH-Dx		n/a SU			100 uL		
LCS 580-449376/2		3510C, NWTPH-Dx		n/a SU	100 uL		100 uL		
LCSD 580-449376/3		3510C, NWTPH-Dx		n/a SU	100 uL		100 uL		
580-135886-H-1	MW-1_20240117	3510C, NWTPH-Dx	T	n/a SU			100 uL		
580-135886-G-2	MW-2_20240117	3510C, NWTPH-Dx	T	n/a SU			100 uL		
580-135886-G-3	MW-3_20240117	3510C, NWTPH-Dx	T	n/a SU			100 uL		
580-135886-G-4	MW-4_20240117	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-135886-H-5	MW-5_20240117	3510C, NWTPH-Dx	T	n/a SU		100 uL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-135886-1

SDG No.:

Batch Number: 449376 Batch Start Date: 01/24/24 08:42 Batch Analyst: Ledesma, Santiago

Batch Method: 3510C Batch End Date: 01/24/24 15:15

Batch Notes	
Method/Fraction	3510C_LVI/NWTPH_Dx
Balance ID	SEA225
Balance is Level? (Y/N)	yes
pH Indicator ID	10BDH3421/6105009/6204001
Pipette/Syringe/Dispenser ID	E4
Analyst ID - Extraction	CC/JW/SL
Reagent Water ID	DI
Analyst ID - Spike Analyst	SL
Analyst ID - Spike Witness Analyst	JW
Acid Used for pH Adjustment ID	3548691
Prep Solvent ID	MeCl_CT_00271
Prep Solvent Volume Used	100 mL
Filter ID	09-790-12F
Na2SO4 ID	baked Na2SO4_00482
Analyst ID - Concentration	JW
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70.0-75.0 Degrees C
Concentration 1 Corrected Temperature	69.4-74.4 Degrees C
Equipment ID - Concentration 2	Turbovap 5
Thermometer ID - Concentration 2	DIGITAL READOUT
Concentration 2 Uncorrected Temperature	42 Degrees C
Concentration 2 Corrected Temperature	40 Degrees C
Vial Lot Number	13-09-1335
Pipette Tip Lot ID	14672-200
Batch Comment	vialed by:SL

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Richard
Antea USA Inc.
18378-B Redmond Way
Redmond, Washington 98052

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JOB DESCRIPTION

BP - OPLC - Tacoma Junction

JOB NUMBER

580-139880-1

Eurofins Seattle
5755 8th Street East
Tacoma WA 98424

See page two for job notes and contact information.

Job Notes

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Compliance Statement

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the BPLAMP Technical Specifications, applicable federal, state, local regulations and certification requirements as well as the methodologies as described in laboratory SOPs reviewed by the BPLAMP. This Laboratory Report is confidential and is intended for the sole use of Eurofins Environment Testing (USA) and its client. This report shall not be reproduced, except in full, without written permission from Eurofins Environment Testing (USA). The signature on the cover page extends to the case narrative and all the data and forms in the package. The Chain of Custody is included and is an integral part of this report.

Authorization

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Authorized for release by
Marie Walker, Senior Project Manager
M.Elaine.Walker@et.eurofinsus.com
(253)248-4972

Table of Contents

Definitions/Glossary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 580-139880-1 Eurofins Seattle

Job Narrative
580-139880-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/9/2024 12:39 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 13.3°C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: MW-1_20240509 (580-139880-1), MW-2_20240509 (580-139880-2), MW-3_20240509 (580-139880-3), MW-4_20240509 (580-139880-4), MW-5_20240509 (580-139880-5) and Trip Blank_20240509 (580-139880-6). The samples are considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

One container labelon an amber 250 HCL container for the following sample does not match the information listed on the Chain-of-Custody (COC): MW-2_20240509 (580-139880-2). The container labels list MW-5, while the other amber 250 HCL with the same sollection time and the COC lists MW-2. The sample containers were labeled using the information found on the COC.

Method 8260D - Volatile Organic Compounds by GC/MS
Samples MW-1_20240509 (580-139880-1), MW-2_20240509 (580-139880-2), MW-3_20240509 (580-139880-3), MW-4_20240509 (580-139880-4), MW-5_20240509 (580-139880-5) and Trip Blank_20240509 (580-139880-6) were analyzed for Volatile Organic Compounds by GC/MS. The samples were analyzed on 5/10/2024.

Method NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)
Samples MW-1_20240509 (580-139880-1), MW-2_20240509 (580-139880-2), MW-3_20240509 (580-139880-3), MW-4_20240509 (580-139880-4), MW-5_20240509 (580-139880-5) and Trip Blank_20240509 (580-139880-6) were analyzed for Northwest - Volatile Petroleum Products (GC/MS). The samples were analyzed on 5/10/2024.

Method NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)
Samples MW-1_20240509 (580-139880-1), MW-2_20240509 (580-139880-2), MW-3_20240509 (580-139880-3), MW-4_20240509 (580-139880-4) and MW-5_20240509 (580-139880-5) were analyzed for Northwest - Semi-Volatile Petroleum Products (GC). The samples were prepared and analyzed on 5/13/2024.

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Client Sample ID: MW-1_20240509 — Lab Sample ID: 580-139880-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
#2 Diesel (C10-C24)	220		200		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-2_20240509 — Lab Sample ID: 580-139880-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6.0		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	3.6		1.0		ug/L	1		8260D	Total/NA
m-Xylene & p-Xylene	3.1		2.0		ug/L	1		8260D	Total/NA
Xylenes, Total	3.1		2.0		ug/L	1		8260D	Total/NA
Gasoline	1200		150		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	560		210		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20240509 — Lab Sample ID: 580-139880-3

No Detections.

Client Sample ID: MW-4_20240509 — Lab Sample ID: 580-139880-4

No Detections.

Client Sample ID: MW-5_20240509 — Lab Sample ID: 580-139880-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.2		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	2.6		1.0		ug/L	1		8260D	Total/NA
Gasoline	460		150		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	210		210		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: Trip Blank_20240509 — Lab Sample ID: 580-139880-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1_20240509

Lab Sample ID: 580-139880-1

Date Collected: 05/09/24 09:50

Matrix: Water

Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/24 19:50	1
Ethylbenzene	ND		1.0		ug/L			05/10/24 19:50	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 19:50	1
o-Xylene	ND		1.0		ug/L			05/10/24 19:50	1
Toluene	ND		1.0		ug/L			05/10/24 19:50	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*80 - 120*		*05/10/24 19:50*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*05/10/24 19:50*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/10/24 19:50*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/10/24 19:50*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		150		ug/L			05/10/24 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*77 - 123*		*05/10/24 19:50*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**220**		200		ug/L		05/13/24 08:44	05/13/24 18:46	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/13/24 08:44	05/13/24 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*64*		*50 - 150*	*05/13/24 08:44*	*05/13/24 18:46*	*1*

Client Sample ID: MW-2_20240509

Lab Sample ID: 580-139880-2

Date Collected: 05/09/24 10:45

Matrix: Water

Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.0**		1.0		ug/L			05/10/24 19:27	1
Ethylbenzene	**3.6**		1.0		ug/L			05/10/24 19:27	1
m-Xylene & p-Xylene	**3.1**		2.0		ug/L			05/10/24 19:27	1
o-Xylene	ND		1.0		ug/L			05/10/24 19:27	1
Toluene	ND		1.0		ug/L			05/10/24 19:27	1
Xylenes, Total	**3.1**		2.0		ug/L			05/10/24 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*05/10/24 19:27*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/10/24 19:27*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*05/10/24 19:27*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/10/24 19:27*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1200**		150		ug/L			05/10/24 19:27	1

Client Sample ID: MW-2_20240509

Lab Sample ID: 580-139880-2
Date Collected: 05/09/24 10:45
Matrix: Water
Date Received: 05/09/24 12:39

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*99*		*77 - 123*		*05/10/24 19:27*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**560**		210		ug/L		05/13/24 08:44	05/13/24 19:06	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/13/24 08:44	05/13/24 19:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	*67*		*50 - 150*	*05/13/24 08:44*	*05/13/24 19:06*	*1*

Client Sample ID: MW-3_20240509

Lab Sample ID: 580-139880-3
Date Collected: 05/09/24 11:55
Matrix: Water
Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/24 20:14	1
Ethylbenzene	ND		1.0		ug/L			05/10/24 20:14	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 20:14	1
o-Xylene	ND		1.0		ug/L			05/10/24 20:14	1
Toluene	ND		1.0		ug/L			05/10/24 20:14	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 20:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*110*		*80 - 120*		*05/10/24 20:14*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*05/10/24 20:14*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*05/10/24 20:14*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/10/24 20:14*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		150		ug/L			05/10/24 20:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*95*		*77 - 123*		*05/10/24 20:14*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		200		ug/L		05/13/24 08:44	05/13/24 19:26	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/13/24 08:44	05/13/24 19:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	*65*		*50 - 150*	*05/13/24 08:44*	*05/13/24 19:26*	*1*

Client Sample ID: MW-4_20240509

Lab Sample ID: 580-139880-4
Date Collected: 05/09/24 11:25
Matrix: Water
Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/24 20:37	1
Ethylbenzene	ND		1.0		ug/L			05/10/24 20:37	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 20:37	1

Client Sample ID: MW-4_20240509

Lab Sample ID: 580-139880-4

Date Collected: 05/09/24 11:25

Matrix: Water

Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0		ug/L			05/10/24 20:37	1
Toluene	ND		1.0		ug/L			05/10/24 20:37	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*80 - 120*		*05/10/24 20:37*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*05/10/24 20:37*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/10/24 20:37*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/10/24 20:37*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		150		ug/L			05/10/24 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*77 - 123*		*05/10/24 20:37*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		200		ug/L		05/13/24 08:44	05/13/24 19:46	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/13/24 08:44	05/13/24 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*69*		*50 - 150*	*05/13/24 08:44*	*05/13/24 19:46*	*1*

Client Sample ID: MW-5_20240509

Lab Sample ID: 580-139880-5

Date Collected: 05/09/24 10:15

Matrix: Water

Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.2**		1.0		ug/L			05/10/24 21:00	1
Ethylbenzene	**2.6**		1.0		ug/L			05/10/24 21:00	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 21:00	1
o-Xylene	ND		1.0		ug/L			05/10/24 21:00	1
Toluene	ND		1.0		ug/L			05/10/24 21:00	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 21:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*05/10/24 21:00*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*05/10/24 21:00*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/10/24 21:00*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/10/24 21:00*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**460**		150		ug/L			05/10/24 21:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*77 - 123*		*05/10/24 21:00*	*1*

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Client Sample ID: MW-5_20240509

Lab Sample ID: 580-139880-5

Date Collected: 05/09/24 10:15
Matrix: Water
Date Received: 05/09/24 12:39

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**210**		210		ug/L		05/13/24 08:44	05/13/24 20:06	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/13/24 08:44	05/13/24 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*64*		*50 - 150*	*05/13/24 08:44*	*05/13/24 20:06*	*1*

Client Sample ID: Trip Blank_20240509

Lab Sample ID: 580-139880-6

Date Collected: 05/09/24 00:00
Matrix: Water
Date Received: 05/09/24 12:39

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/24 16:21	1
Ethylbenzene	ND		1.0		ug/L			05/10/24 16:21	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 16:21	1
o-Xylene	ND		1.0		ug/L			05/10/24 16:21	1
Toluene	ND		1.0		ug/L			05/10/24 16:21	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 16:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 120*		*05/10/24 16:21*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*05/10/24 16:21*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/10/24 16:21*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/10/24 16:21*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		150		ug/L			05/10/24 16:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*77 - 123*		*05/10/24 16:21*	*1*

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
580-139880-1	MW-1_20240509	110	97	101	100
580-139880-2	MW-2_20240509	103	99	102	99
580-139880-3	MW-3_20240509	110	95	100	102
580-139880-4	MW-4_20240509	112	96	101	100
580-139880-5	MW-5_20240509	105	98	101	101
580-139880-6	Trip Blank_20240509	113	95	101	100
LCS 580-459068/6	Lab Control Sample	111	98	102	104
LCSD 580-459068/7	Lab Control Sample Dup	111	97	103	104
MB 580-459068/11	Method Blank	114	94	101	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(77-123)
580-139880-1	MW-1_20240509	97
580-139880-2	MW-2_20240509	99
580-139880-3	MW-3_20240509	95
580-139880-4	MW-4_20240509	96
580-139880-5	MW-5_20240509	98
580-139880-6	Trip Blank_20240509	95
LCS 580-459069/8	Lab Control Sample	95
LCSD 580-459069/9	Lab Control Sample Dup	97
MB 580-459069/11	Method Blank	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(50-150)
580-139880-1	MW-1_20240509	64
580-139880-2	MW-2_20240509	67
580-139880-3	MW-3_20240509	65
580-139880-4	MW-4_20240509	69
580-139880-5	MW-5_20240509	64
LCS 580-459167/2-A	Lab Control Sample	85
LCSD 580-459167/3-A	Lab Control Sample Dup	83
MB 580-459167/1-A	Method Blank	67

Surrogate Legend

OTPH = o-Terphenyl

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-459068/11
Matrix: Water
Analysis Batch: 459068

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/24 15:35	1
Ethylbenzene	ND		1.0		ug/L			05/10/24 15:35	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/24 15:35	1
o-Xylene	ND		1.0		ug/L			05/10/24 15:35	1
Toluene	ND		1.0		ug/L			05/10/24 15:35	1
Xylenes, Total	ND		2.0		ug/L			05/10/24 15:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*80 - 120*		*05/10/24 15:35*	*1*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*05/10/24 15:35*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*05/10/24 15:35*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/10/24 15:35*	*1*

Lab Sample ID: LCS 580-459068/6
Matrix: Water
Analysis Batch: 459068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	4.89		ug/L		98	80 - 122
Ethylbenzene	5.00	5.38		ug/L		108	80 - 120
m-Xylene & p-Xylene	5.00	5.17		ug/L		103	80 - 120
o-Xylene	5.00	5.28		ug/L		106	80 - 120
Toluene	5.00	5.09		ug/L		102	80 - 120
Xylenes, Total	10.0	10.5		ug/L		105	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: LCSD 580-459068/7
Matrix: Water
Analysis Batch: 459068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	5.00	5.00		ug/L		100	80 - 122	2	14
Ethylbenzene	5.00	5.42		ug/L		108	80 - 120	1	14
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	80 - 120	0	14
o-Xylene	5.00	5.36		ug/L		107	80 - 120	2	16
Toluene	5.00	5.12		ug/L		102	80 - 120	1	13
Xylenes, Total	10.0	10.6		ug/L		106	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-459068/7
Matrix: Water
Analysis Batch: 459068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	104		80 - 120

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Lab Sample ID: MB 580-459069/11
Matrix: Water
Analysis Batch: 459069

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		150		ug/L			05/10/24 15:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		77 - 123		05/10/24 15:35	1

Lab Sample ID: LCS 580-459069/8
Matrix: Water
Analysis Batch: 459069

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline			500	534		ug/L		107	55 - 148		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		77 - 123

Lab Sample ID: LCSD 580-459069/9
Matrix: Water
Analysis Batch: 459069

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline			500	534		ug/L		107	55 - 148	0	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		77 - 123

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-459167/1-A
Matrix: Water
Analysis Batch: 459185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 459167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		200		ug/L		05/13/24 08:44	05/13/24 16:06	1
Motor Oil (>C24-C36)	ND		350		ug/L		05/13/24 08:44	05/13/24 16:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150	05/13/24 08:44	05/13/24 16:06	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-459167/2-A
Matrix: Water
Analysis Batch: 459185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 459167

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)			4000	3610		ug/L		90	50 - 120		
Motor Oil (>C24-C36)			4000	3760		ug/L		94	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*85*		*50 - 150*

Lab Sample ID: LCSD 580-459167/3-A
Matrix: Water
Analysis Batch: 459185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 459167

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			4000	3400		ug/L		85	50 - 120	6	26
Motor Oil (>C24-C36)			4000	3410		ug/L		85	64 - 120	10	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

GC/MS VOA

Analysis Batch: 459068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-139880-1	MW-1_20240509	Total/NA	Water	8260D	
580-139880-2	MW-2_20240509	Total/NA	Water	8260D	
580-139880-3	MW-3_20240509	Total/NA	Water	8260D	
580-139880-4	MW-4_20240509	Total/NA	Water	8260D	
580-139880-5	MW-5_20240509	Total/NA	Water	8260D	
580-139880-6	Trip Blank_20240509	Total/NA	Water	8260D	
MB 580-459068/11	Method Blank	Total/NA	Water	8260D	
LCS 580-459068/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-459068/7	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 459069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-139880-1	MW-1_20240509	Total/NA	Water	NWTPH-Gx	
580-139880-2	MW-2_20240509	Total/NA	Water	NWTPH-Gx	
580-139880-3	MW-3_20240509	Total/NA	Water	NWTPH-Gx	
580-139880-4	MW-4_20240509	Total/NA	Water	NWTPH-Gx	
580-139880-5	MW-5_20240509	Total/NA	Water	NWTPH-Gx	
580-139880-6	Trip Blank_20240509	Total/NA	Water	NWTPH-Gx	
MB 580-459069/11	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-459069/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-459069/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Prep Batch: 459167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-139880-1	MW-1_20240509	Total/NA	Water	3510C	
580-139880-2	MW-2_20240509	Total/NA	Water	3510C	
580-139880-3	MW-3_20240509	Total/NA	Water	3510C	
580-139880-4	MW-4_20240509	Total/NA	Water	3510C	
580-139880-5	MW-5_20240509	Total/NA	Water	3510C	
MB 580-459167/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-459167/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-459167/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 459185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-139880-1	MW-1_20240509	Total/NA	Water	NWTPH-Dx	459167
580-139880-2	MW-2_20240509	Total/NA	Water	NWTPH-Dx	459167
580-139880-3	MW-3_20240509	Total/NA	Water	NWTPH-Dx	459167
580-139880-4	MW-4_20240509	Total/NA	Water	NWTPH-Dx	459167
580-139880-5	MW-5_20240509	Total/NA	Water	NWTPH-Dx	459167
MB 580-459167/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	459167
LCS 580-459167/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	459167
LCSD 580-459167/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	459167

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Client Sample ID: MW-1_20240509
Date Collected: 05/09/24 09:50
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 19:50
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 19:50
Total/NA	Prep	3510C			459167	TOA	EET SEA	05/13/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	459185	SW	EET SEA	05/13/24 18:46

Client Sample ID: MW-2_20240509
Date Collected: 05/09/24 10:45
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 19:27
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 19:27
Total/NA	Prep	3510C			459167	TOA	EET SEA	05/13/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	459185	SW	EET SEA	05/13/24 19:06

Client Sample ID: MW-3_20240509
Date Collected: 05/09/24 11:55
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 20:14
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 20:14
Total/NA	Prep	3510C			459167	TOA	EET SEA	05/13/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	459185	SW	EET SEA	05/13/24 19:26

Client Sample ID: MW-4_20240509
Date Collected: 05/09/24 11:25
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 20:37
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 20:37
Total/NA	Prep	3510C			459167	TOA	EET SEA	05/13/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	459185	SW	EET SEA	05/13/24 19:46

Client Sample ID: MW-5_20240509
Date Collected: 05/09/24 10:15
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 21:00
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 21:00
Total/NA	Prep	3510C			459167	TOA	EET SEA	05/13/24 08:44
Total/NA	Analysis	NWTPH-Dx		1	459185	SW	EET SEA	05/13/24 20:06

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Client Sample ID: Trip Blank_20240509

Date Collected: 05/09/24 00:00
Date Received: 05/09/24 12:39

Lab Sample ID: 580-139880-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	459068	AA	EET SEA	05/10/24 16:21
Total/NA	Analysis	NWTPH-Gx		1	459069	K1K	EET SEA	05/10/24 16:21

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-139880-1
Project/Site: BP - OPLC - Tacoma Junction

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-24

Method Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC/MS)	NWTPH	EET SEA
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	EET SEA
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET SEA
5030B	Purge and Trap	SW846	EET SEA

Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction

Job ID: 580-139880-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-139880-1	MW-1_20240509	Water	05/09/24 09:50	05/09/24 12:39
580-139880-2	MW-2_20240509	Water	05/09/24 10:45	05/09/24 12:39
580-139880-3	MW-3_20240509	Water	05/09/24 11:55	05/09/24 12:39
580-139880-4	MW-4_20240509	Water	05/09/24 11:25	05/09/24 12:39
580-139880-5	MW-5_20240509	Water	05/09/24 10:15	05/09/24 12:39
580-139880-6	Trip Blank_20240509	Water	05/09/24 00:00	05/09/24 12:39

Laboratory Management Program (LaMP) Chain of Custody Record
Soil, Sediment and Groundwater Samples

Page _1_ of _1_

BP Site Node Path: Olympic Pipeline Company | **Req Due Date (mm/dd/yy):** Standard TAT | Rush TAT Yes _____ No X

BP/RM Facility No: Tacoma Junction | **Lab Work Order Number:**

Lab Name:	Eurofins	BP/ARC Facility Address:	2660 Frank Albert Road East	Consultant/Contractor:	Antea Group
Lab Address:	Tacoma, WA	City, State, ZIP Code:	Fife, Washington 98424	Consultant/Contractor Project No:	OPLC Tacoma Junction 2024
Lab PM:	M. Elaine Walker	Lead Regulatory Agency:	Washington Department of Ecology	Address:	18378-B Redmond Way, Redmond, WA 98052
Lab Phone:	253-922-2310	California Global ID No.:	NA	Consultant/Contractor PM:	Megan Richard
Lab Shipping Accnt:	NA	Enfos Proposal No:	00BPT-0013/WR1105485	Phone: 425-498-7711	Email: Megan.Richard@anteagroup.us
Lab Bottle Order No:	NA	Accounting Mode:	Provision __X__ OOC-BU _____ OOC-RM _____	Send/Submit EDD to:	Megan.Richard@anteagroup.us
Other Info:	m.elaine.walker@et.eurofinsus.com	Stage	1_Appraise (10) Activity Interim Measures (123)	Invoice To:	BP-RM _____ BP/ARC ___X___
BP/RM PM:	Wade Melton				
PM Phone:	360-594-7978				
PM Email:	wade.melton@bp.com				

Report Type & QC Level: Limited (Standard) Package ____ | Limited Plus Package ____ | Full Package ____

Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Filt	Pres	Analysis: 8260BTEX	NWTPH-Gx	NWTPH-DX	Comments
	MW-1_20240509	5/9/24	9:50	W				G				X	X	X	
	MW-2_20240509	5/9/24	10:45	W				G				X	X	X	
	MW-3_20240509	5/9/24	11:55	W				G				X	X	X	
	MW-4_20240509	5/9/24	11:25	W				G				X	X	X	
	MW-5_20240509	5/9/24	10:15	W				G				X	X	X	
	Trip Blank_20240509	5/9/24	00:00	W				G				X	X		

Therm. ID: 11 Cor: 13.3 Unc: 12.8
Cooler Dsc: SP
Packing: BUB
Cust. Seal: Yes ___ No X
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Courr:
Other: C.D

Sampler's Name:	Dennis Lindelof	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	Antea Group	DL / Antea	5/9/24	12:39		5/9/24	1239 EST
Ship Method:	Drop off	Ship Date: 5/9/24					
Shipment Tracking No:							

Special Instructions: Please only report Total Xylenes (instead of m&p or o). Report all groundwater results in ug/L

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____°F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

OC July 2018

580-139880 Chain of Custody

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-139880-1

Login Number: 139880
List Number: 1
Creator: Groves, Elizabeth

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-139880-1

SDG No.:

Batch Number: 459068 Batch Start Date: 05/10/24 12:06 Batch Analyst: Abando, Ariyana

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00040	VOAMasterSEC 00092	
LCS 580-459068/6		8260D			10 mL	10 mL		10 uL	5 uL	
LCSD 580-459068/7		8260D			10 mL	10 mL		10 uL	5 uL	
MB 580-459068/11		8260D			10 mL	10 mL		10 uL		
580-139880-D-6	Trip Blank 20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-B-2	MW-2_20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-1	MW-1_20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-3	MW-3_20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-A-4	MW-4_20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-5	MW-5_20240509	8260D	Water	T	10 mL	10 mL	<2 SU	10 uL		

Batch Notes	
pH Indicator ID	226322
Vial Lot Number	0101601J

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-139880-1

SDG No.:

Batch Number: 459069 Batch Start Date: 05/10/24 12:06 Batch Analyst: Klongnganchui, Kanjana 1

Batch Method: NWTPH-Gx Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00040	GRO_LCSIntLt2 00001	
LCS 580-459069/8		NWTPH-Gx			10 mL	10 mL		10 uL	12.5 uL	
LCSD 580-459069/9		NWTPH-Gx			10 mL	10 mL		10 uL	12.5 uL	
MB 580-459069/11		NWTPH-Gx			10 mL	10 mL		10 uL		
580-139880-D-6	Trip Blank 20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-B-2	MW-2_20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-1	MW-1_20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-3	MW-3_20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-A-4	MW-4_20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		
580-139880-C-5	MW-5_20240509	NWTPH-Gx	Water	T	10 mL	10 mL	<2 SU	10 uL		

Batch Notes	
pH Indicator ID	226322
Batch Comment	0101601J

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-139880-1

SDG No.:

Batch Number: 459167 Batch Start Date: 05/13/24 08:44 Batch Analyst: Anderson, Tess O

Batch Method: 3510C Batch End Date: 05/13/24 14:41

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-459167/1		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
LCS 580-459167/2		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
LCSD 580-459167/3		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
580-139880-H-1	MW-1_20240509	3510C, NWTPH-Dx	Water	T	00412.38 g	00166.86 g	245.5 mL	2 mL	2 SU	n/a SU
580-139880-H-2	MW-2_20240509	3510C, NWTPH-Dx	Water	T	00410.48 g	00168.31 g	242.2 mL	2 mL	2 SU	n/a SU
580-139880-H-3	MW-3_20240509	3510C, NWTPH-Dx	Water	T	00414.08 g	00168.78 g	245.3 mL	2 mL	2 SU	n/a SU
580-139880-H-4	MW-4_20240509	3510C, NWTPH-Dx	Water	T	00410.98 g	00165.21 g	245.8 mL	2 mL	2 SU	n/a SU
580-139880-G-5	MW-5_20240509	3510C, NWTPH-Dx	Water	T	00409.88 g	00165.97 g	243.9 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	SecondAdjustpH	TPH_Water_Spk 00042	TPH_WaterSurr 00112			
MB 580-459167/1		3510C, NWTPH-Dx			n/a SU		100 uL			
LCS 580-459167/2		3510C, NWTPH-Dx			n/a SU	100 uL	100 uL			
LCSD 580-459167/3		3510C, NWTPH-Dx			n/a SU	100 uL	100 uL			
580-139880-H-1	MW-1_20240509	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-139880-H-2	MW-2_20240509	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-139880-H-3	MW-3_20240509	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-139880-H-4	MW-4_20240509	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-139880-G-5	MW-5_20240509	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-139880-1

SDG No.:

Batch Number: 459167 Batch Start Date: 05/13/24 08:44 Batch Analyst: Anderson, Tess O

Batch Method: 3510C Batch End Date: 05/13/24 14:41

Batch Notes	
Method/Fraction	3510C_LVI/NWTPH_Dx/8015D_DRO
Balance ID	SEA225
Balance is Level? (Y/N)	yes
pH Indicator ID	10BDH3421/6105009/6204001
Pipette/Syringe/Dispenser ID	E4
Analyst ID - Extraction	EF/SL
Reagent Water ID	DI
Analyst ID - Spike Analyst	EF
Analyst ID - Spike Witness Analyst	SL
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	3548691
Prep Solvent ID	MeCl_CT_00274
Prep Solvent Volume Used	100 mL
Filter ID	09-790-12F
Na2SO4 ID	baked Na2SO4_00487
Analyst ID - Concentration	EF
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70.0-75.0 Degrees C
Concentration 1 Corrected Temperature	69.4-74.4 Degrees C
Equipment ID - Concentration 2	Turbovap 5
Thermometer ID - Concentration 2	DIGITAL READOUT
Concentration 2 Uncorrected Temperature	42 Degrees C
Concentration 2 Corrected Temperature	40 Degrees C
Vial Lot Number	13-09-1335
Pipette Tip Lot ID	14672-200
Batch Comment	vialed by: EF Reviewed by:

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-139880-1

SDG No.:

Batch Number: 459167 Batch Start Date: 05/13/24 08:44 Batch Analyst: Anderson, Tess O

Batch Method: 3510C Batch End Date: 05/13/24 14:41

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.