



Remediation Management Services Company

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January 22, 2025

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 - Second 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,

A handwritten signature in blue ink, appearing to read 'Wade Melton', on a light blue background.

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

cc: File, Antea Group



Semi-Annual Status Report Second 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
January 22, 2025
Project OPLC Tacoma Junction 2024
FSID 24529

us.anteagroup.com

Contents

1.0	Site History	1
2.0	Work Performed During the Reporting Period	2
3.0	Project Status	2
4.0	Data Review and Recommendations	2
5.0	Remarks	3
6.0	Contact Information.....	3

Tables

Table 1 - Groundwater Gauging Data
 Table 2 - Groundwater Analytical Data

Figures

Figure 1 - Site Location Map
 Figure 2 - Site Map
 Figure 3 - Groundwater Elevation Contour Map – July 23, 2024
 Figure 4 - Groundwater Elevation Contour Map – November 6, 2024
 Figure 5 - Groundwater Analytical Data Map – Second Half of 2024

Appendix

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

Semi-Annual Status Report

Second Half of 2024

OPLC Tacoma Junction

2660 Frank Albert Road East, Fife, Washington

Reporting Period	July through December 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 on-site 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 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 July 23, 2024, and November 6, 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.

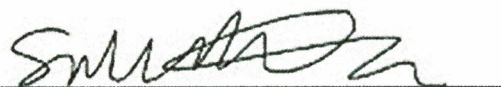
4.0 DATA REVIEW AND RECOMMENDATIONS

- Groundwater analytical data from the third and fourth quarter sampling events did not indicate concentrations of petroleum hydrocarbons in excess of MTCA Method A CULs in monitoring wells MW-1, MW-3, MW-4, and MW-5. Monitoring well MW-2 contained concentrations of benzene, TPH-G, and TPH-D in excess of MTCA Method A CULs in the third and fourth quarter sampling events. The concentrations of benzene, TPH-G, and TPH-D reported for the third and fourth quarter 2024 sampling events at MW-2 are similar to concentrations previously reported at this location.
- Groundwater gauging data and analytical data are presented in **Tables 1** and **2**, respectively. The third and fourth 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 First Quarter of 2025.

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:



Sneha Nachimuthu
Staff Professional

Date: January 22, 2025

Reviewed by:



Nolan Lewis
Senior Project Manager

Date: January 22, 2025



Bradford Jackson, LG
Senior Project Manager



Bradford D. Jackson

Expires 10/9/2025

Date: January 22, 2025

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

6.0 CONTACT INFORMATION

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Tables

Table 1 - Groundwater Gauging Data

Table 2 - Groundwater Analytical Data

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	--
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	DL
MW-1	5/9/2024	100.00	1.10	NP	--	98.90	--
MW-1	7/23/2024	100.00	1.63	NP	--	98.37	--
MW-1	11/6/2024	100.00	1.14	NP	--	98.86	--
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	--

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	8/1/2019	99.59	2.87	NP	--	96.72	--
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-2	7/23/2024	99.59	1.62	NP	--	97.97	--
MW-2	11/6/2024	99.59	1.48	NP	--	98.11	--
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	--

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		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
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	--
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-3	7/23/2024	99.91	1.51	NP	--	98.40	--
MW-3	11/6/2024	99.91	0.96	NP	--	98.95	--
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-4	7/23/2024	99.70	1.77	NP	--	97.93	--
MW-4	11/6/2024	99.70	1.18	NP	--	98.52	--

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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	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	--
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	DL
MW-5	5/9/2024	99.60	1.01	NP	--	98.59	--
MW-5	7/23/2024	99.60	1.30	NP	--	98.30	--
MW-5	11/6/2024	99.60	0.72	NP	--	98.88	--

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 UNIT		B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
Well ID	Date							
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 UNIT		B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
MW-1	7/23/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 190	< 330
MW-1	11/6/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 350
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-2	7/23/2024	27	3.5	13	11	1,600	910	< 330
MW-2	11/6/2024	46	4.3	17	13	2,300	850	< 350
MW-2 DUP	11/6/2024	46	4.6	22	14	2,800	870	< 360

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

CONSTITUENT UNIT		B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
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
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-3	7/23/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 190	< 330
MW-3	11/6/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 350

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

CONSTITUENT UNIT		B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
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
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-4	7/23/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 190	< 330
MW-4	11/6/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 360

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

CONSTITUENT UNIT		B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
MTCA METHOD A CLEANUP LEVELS		5	1,000	700	1,000	1,000/800*	500	500
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
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
MW-5	7/23/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 190	< 330
MW-5	11/6/2024	< 1.0	< 1.0	< 1.0	< 2.0	< 150	< 200	< 350

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

CONSTITUENT UNIT	B µg/L	T µg/L	E µg/L	X µg/L	TPH-G µg/L	TPH-D µg/L	TPH-O µg/L
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* µg/L if no detectable levels of Benzene in the sample - otherwise 800 µg/L

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

µg/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

Figure 1 - Site Location Map

Figure 2 - Site Map

Figure 3 - Groundwater Elevation Contour Map – July 23, 2024

Figure 4 - Groundwater Elevation Contour Map – November 6, 2024

Figure 5 - Groundwater Analytical Data Map – Second Half of 2024

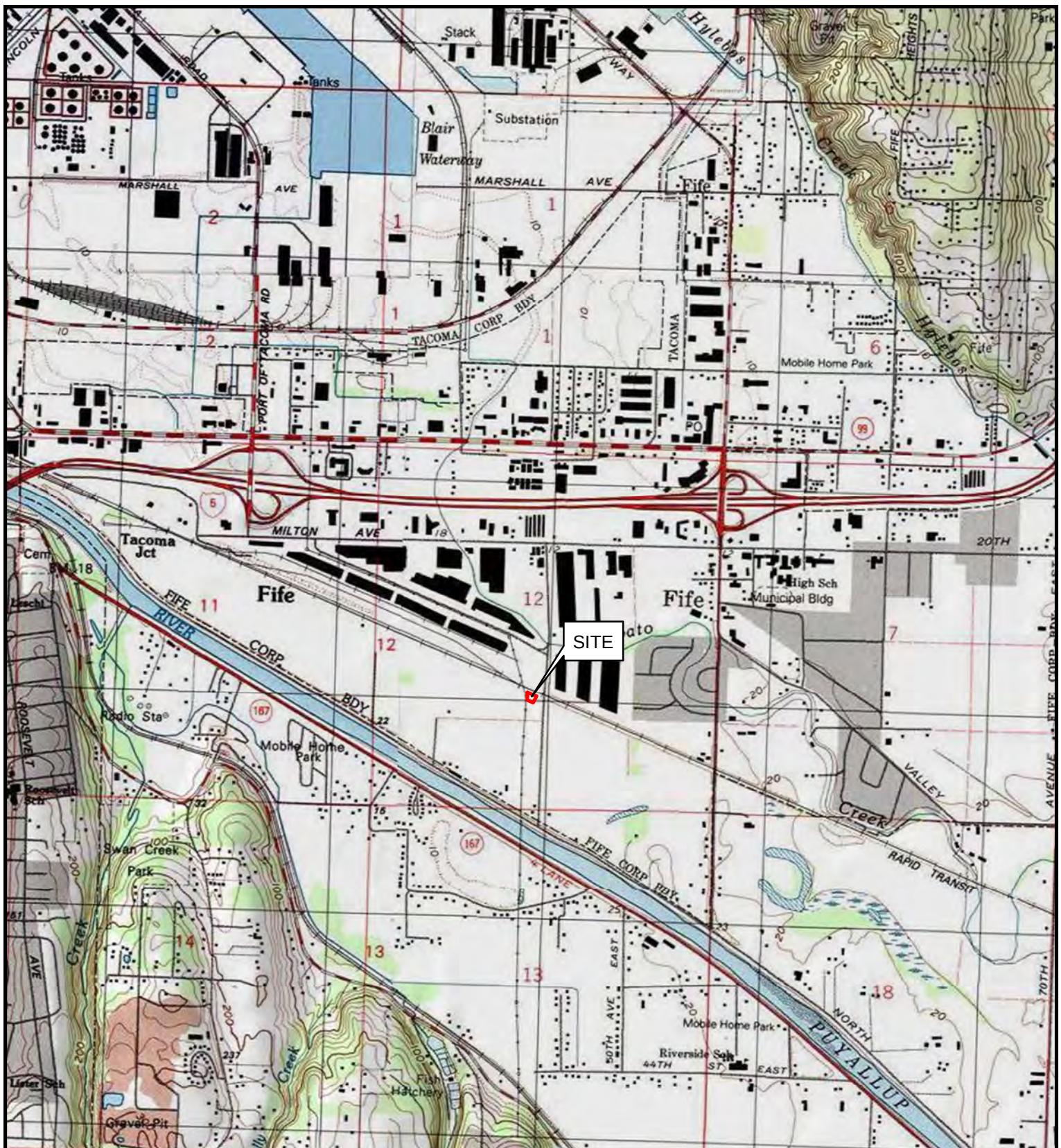
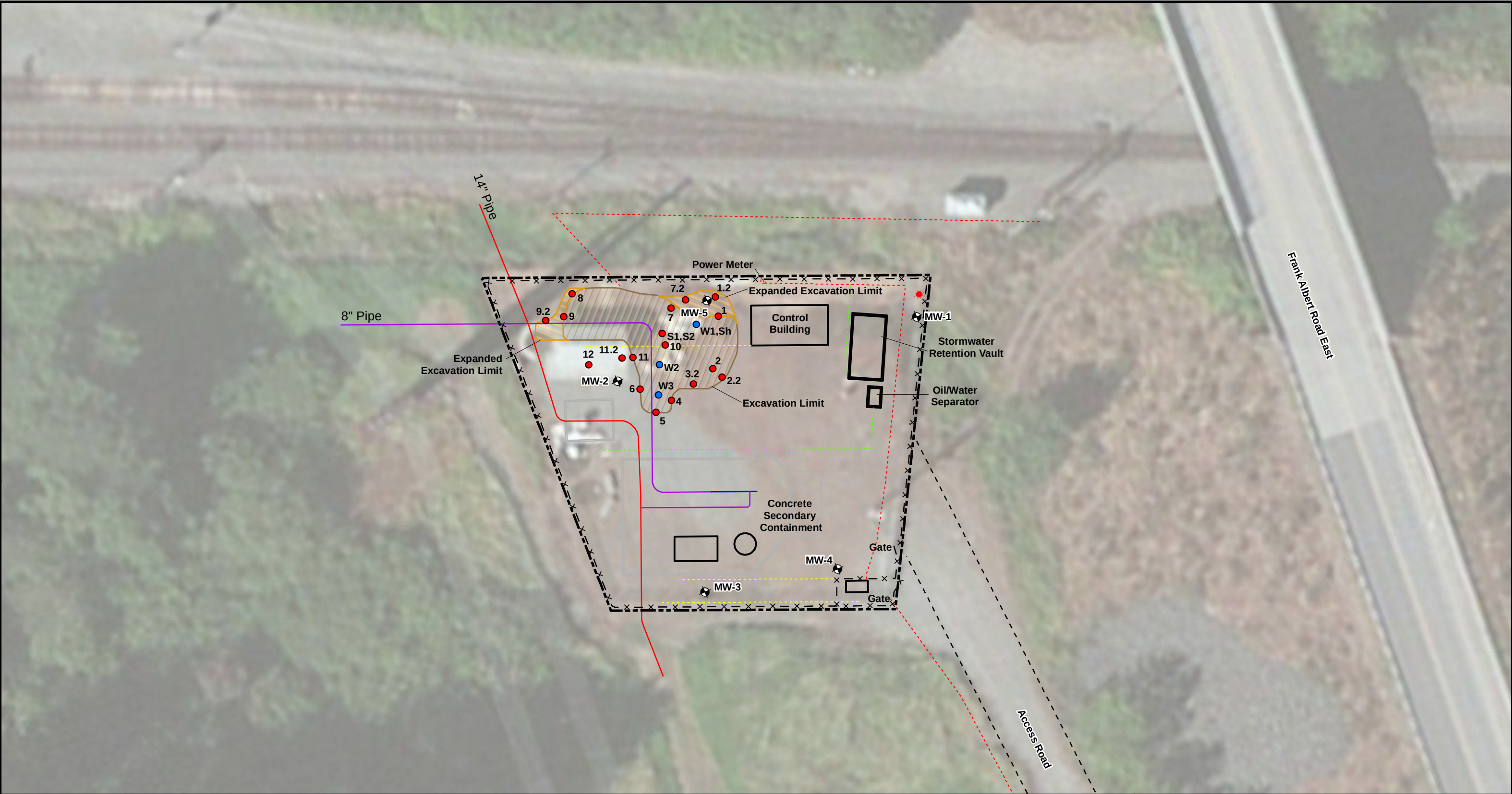


FIGURE 1

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

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





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

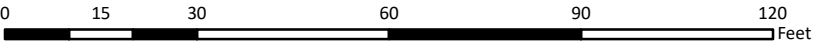
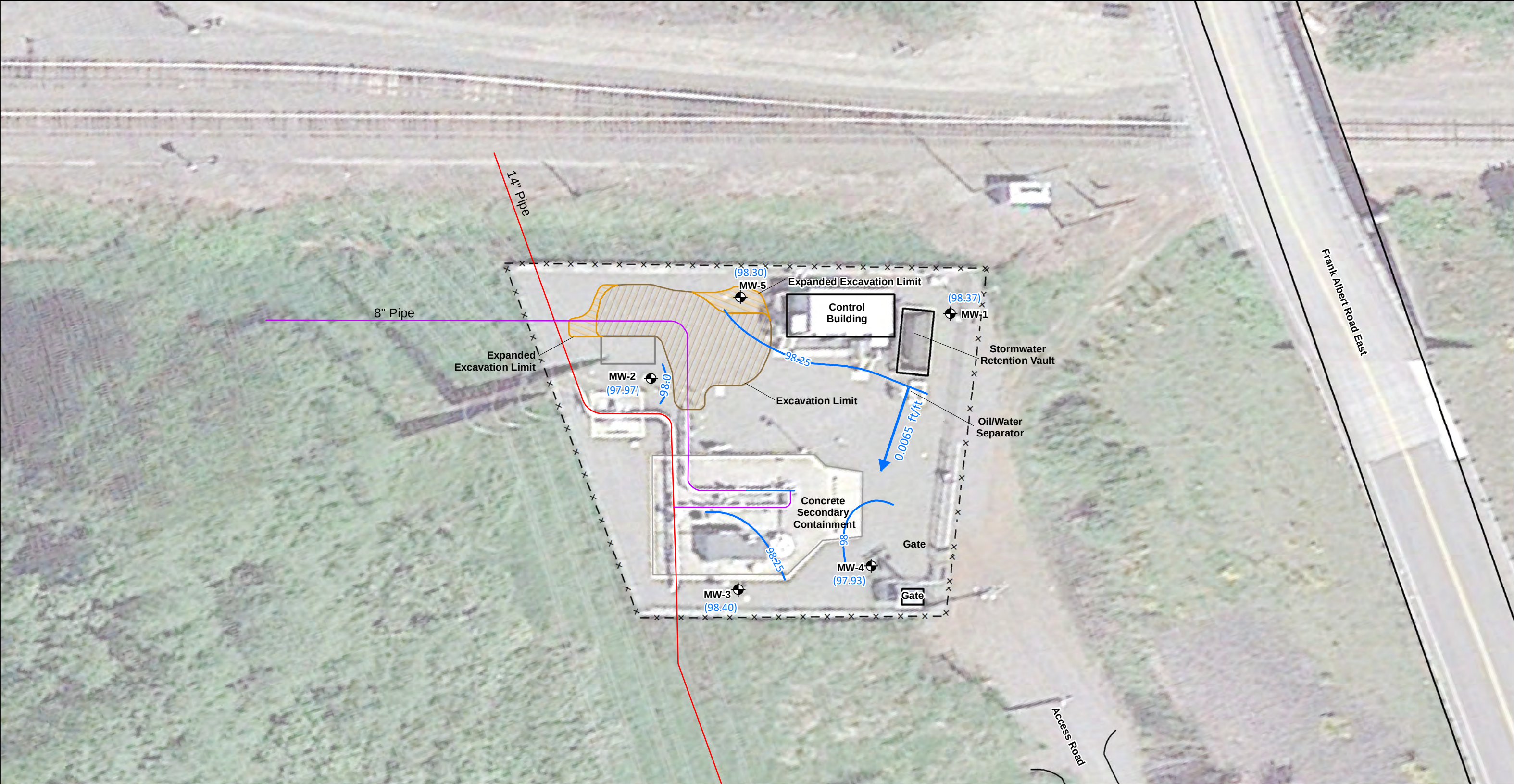


FIGURE 2
SITE MAP
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WA

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



Legend

- × — × Fence

Monitoring Well Location

14" Pipeline

10" Pipeline

8" Pipeline
- Original Excavation

Expanded Excavation

Groundwater Elevation Contour (ft)

Inferred Groundwater Flow Direction

(97.97) Groundwater Elevation Contour (ft)

0.0065 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

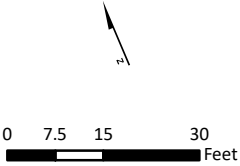


FIGURE 3

GROUNDWATER ELEVATION CONTOUR MAP

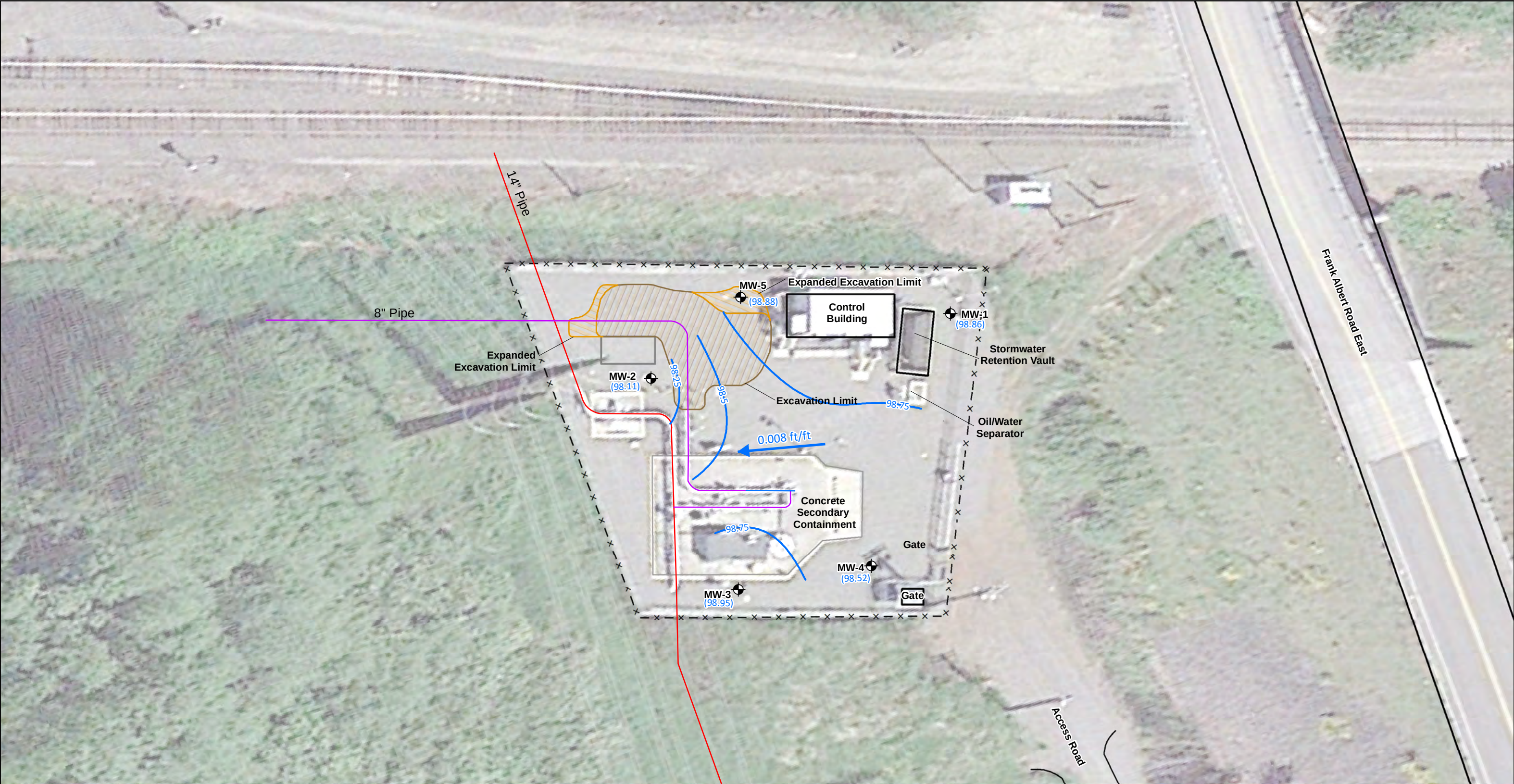
JULY 23, 2024

OPLC TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. OPLC - Tacoma Junction 2024	PREPARED BY CD	REF SCALE 1:360	
DATE 1/2/2025	REVIEWED BY MR	MAP SCALE 1 INCH = 30 FEET	



Legend

- × — ×

Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.86) Groundwater Elevation Contour (ft)
- 0.008 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

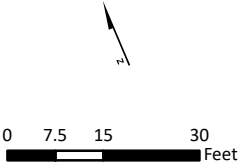
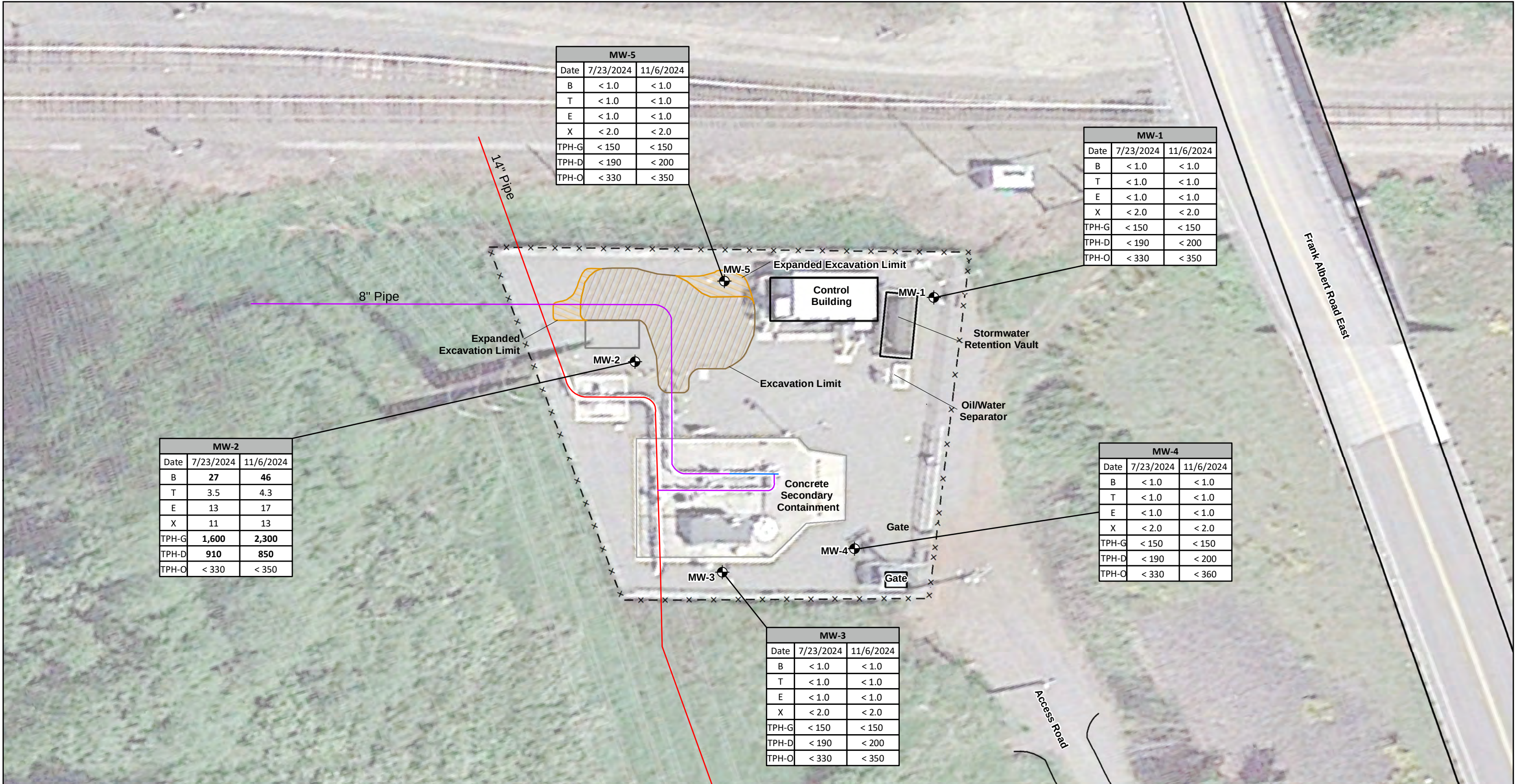


FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP
NOVEMBER 6, 2024
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO. OPLC - Tacoma Junction 2024	PREPARED BY MH	REF SCALE 1:360	
DATE 12/9/2024	REVIEWED BY SN	MAP SCALE 1 INCH = 30 FEET	



MW-2		
Date	7/23/2024	11/6/2024
B	27	46
T	3.5	4.3
E	13	17
X	11	13
TPH-G	1,600	2,300
TPH-D	910	850
TPH-O	< 330	< 350

MW-5		
Date	7/23/2024	11/6/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 150	< 150
TPH-D	< 190	< 200
TPH-O	< 330	< 350

MW-1		
Date	7/23/2024	11/6/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 150	< 150
TPH-D	< 190	< 200
TPH-O	< 330	< 350

MW-4		
Date	7/23/2024	11/6/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 150	< 150
TPH-D	< 190	< 200
TPH-O	< 330	< 360

MW-3		
Date	7/23/2024	11/6/2024
B	< 1.0	< 1.0
T	< 1.0	< 1.0
E	< 1.0	< 1.0
X	< 2.0	< 2.0
TPH-G	< 150	< 150
TPH-D	< 190	< 200
TPH-O	< 330	< 350

Legend

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

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
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

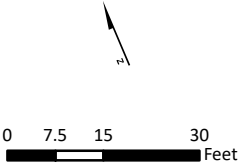


FIGURE 5
GROUNDWATER ANALYTICAL DATA MAP
SECOND HALF OF 2024
OPLC TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO. OPLC - Tacoma Junction 2024	PREPARED BY MH	REF SCALE 1:360	
DATE 1/3/2025	REVIEWED BY SN	MAP SCALE 1 INCH = 30 FEET	

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



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

580-142318-1

Eurofins Seattle

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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Authorized for release by
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Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Surrogate Summary	11
QC Sample Results	13
QC Association Summary	19
Lab Chronicle	21
Certification Summary	23
Method Summary	24
Sample Summary	25
Chain of Custody	26
Receipt Checklists	27
Prep Data	28



Definitions/Glossary

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

Job ID: 580-142318-1

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

Case Narrative

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

Job ID: 580-142318-1

Job ID: 580-142318-1

Eurofins Seattle

Job Narrative 580-142318-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 7/23/2024 12:20 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 21.3°C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-1_20240723 (580-142318-1), MW-2_20240723 (580-142318-2), MW-3_20240723 (580-142318-3), MW-4_20240723 (580-142318-4), MW-5_20240723 (580-142318-5) and Trip Blank_20240723 (580-142318-6). 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. MW-1_20240723 (580-142318-1), MW-2_20240723 (580-142318-2), MW-3_20240723 (580-142318-3), MW-4_20240723 (580-142318-4), MW-5_20240723 (580-142318-5) and Trip Blank_20240723 (580-142318-6)

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

Samples MW-1_20240723 (580-142318-1), MW-2_20240723 (580-142318-2), MW-3_20240723 (580-142318-3), MW-4_20240723 (580-142318-4), MW-5_20240723 (580-142318-5) and Trip Blank_20240723 (580-142318-6) were analyzed for Northwest - Volatile Petroleum Products (GC/MS). The samples were analyzed on 7/25/2024 and 7/26/2024.

The continuing calibration verification (CCV) associated with batch 580-466170 recovered above the upper control limit for Gasoline. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Trip Blank_20240723 (580-142318-6).

Method 8260D - Volatile Organic Compounds by GC/MS

Samples MW-1_20240723 (580-142318-1), MW-2_20240723 (580-142318-2), MW-3_20240723 (580-142318-3), MW-4_20240723 (580-142318-4), MW-5_20240723 (580-142318-5) and Trip Blank_20240723 (580-142318-6) were analyzed for Volatile Organic Compounds by GC/MS. The samples were analyzed on 7/25/2024, 7/26/2024 and 7/30/2024.

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

Samples MW-1_20240723 (580-142318-1), MW-2_20240723 (580-142318-2), MW-3_20240723 (580-142318-3), MW-4_20240723 (580-142318-4) and MW-5_20240723 (580-142318-5) were analyzed for Northwest - Semi-Volatile Petroleum Products (GC). The samples were prepared on 7/25/2024 and analyzed on 7/29/2024.

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Detection Summary

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

Job ID: 580-142318-1

Client Sample ID: MW-1_20240723

Lab Sample ID: 580-142318-1

No Detections.

Client Sample ID: MW-2_20240723

Lab Sample ID: 580-142318-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Benzene	27		1.0		ug/L		1		8260D	Total/NA
Ethylbenzene	13		1.0		ug/L		1		8260D	Total/NA
m-Xylene & p-Xylene	11		2.0		ug/L		1		8260D	Total/NA
Toluene	3.5		1.0		ug/L		1		8260D	Total/NA
Xylenes, Total	11		2.0		ug/L		1		8260D	Total/NA
Gasoline	1600		150		ug/L		1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	910		190		ug/L		1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20240723

Lab Sample ID: 580-142318-3

No Detections.

Client Sample ID: MW-4_20240723

Lab Sample ID: 580-142318-4

No Detections.

Client Sample ID: MW-5_20240723

Lab Sample ID: 580-142318-5

No Detections.

Client Sample ID: Trip Blank_20240723

Lab Sample ID: 580-142318-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Seattle

Client Sample Results

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

Job ID: 580-142318-1

Client Sample ID: MW-1_20240723

Lab Sample ID: 580-142318-1

Date Collected: 07/23/24 10:15

Matrix: Water

Date Received: 07/23/24 12:20

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			07/30/24 02:03	1
Ethylbenzene	ND		1.0		ug/L			07/30/24 02:03	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/30/24 02:03	1
o-Xylene	ND		1.0		ug/L			07/30/24 02:03	1
Toluene	ND		1.0		ug/L			07/30/24 02:03	1
Xylenes, Total	ND		2.0		ug/L			07/30/24 02:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		07/30/24 02:03	1
4-Bromofluorobenzene (Surr)	101		80 - 120		07/30/24 02:03	1
Dibromofluoromethane (Surr)	102		80 - 120		07/30/24 02:03	1
Toluene-d8 (Surr)	101		80 - 120		07/30/24 02:03	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			07/25/24 02:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		77 - 123		07/25/24 02:17	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		190		ug/L		07/25/24 08:32	07/29/24 14:14	1
Motor Oil (>C24-C36)	ND		330		ug/L		07/25/24 08:32	07/29/24 14:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	51		50 - 150	07/25/24 08:32	07/29/24 14:14	1

Client Sample ID: MW-2_20240723

Lab Sample ID: 580-142318-2

Date Collected: 07/23/24 11:30

Matrix: Water

Date Received: 07/23/24 12:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	27		1.0		ug/L			07/30/24 05:17	1
Ethylbenzene	13		1.0		ug/L			07/30/24 05:17	1
m-Xylene & p-Xylene	11		2.0		ug/L			07/30/24 05:17	1
o-Xylene	ND		1.0		ug/L			07/30/24 05:17	1
Toluene	3.5		1.0		ug/L			07/30/24 05:17	1
Xylenes, Total	11		2.0		ug/L			07/30/24 05:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		07/30/24 05:17	1
4-Bromofluorobenzene (Surr)	99		80 - 120		07/30/24 05:17	1
Dibromofluoromethane (Surr)	99		80 - 120		07/30/24 05:17	1
Toluene-d8 (Surr)	104		80 - 120		07/30/24 05:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	1600		150		ug/L			07/25/24 03:22	1

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Client Sample Results

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

Job ID: 580-142318-1

Client Sample ID: MW-2_20240723

Lab Sample ID: 580-142318-2

Date Collected: 07/23/24 11:30

Matrix: Water

Date Received: 07/23/24 12:20

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123					07/25/24 03:22	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)	910		190		ug/L		07/25/24 08:32	07/29/24 14:34	1
Motor Oil (>C24-C36)	ND		330		ug/L		07/25/24 08:32	07/29/24 14:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150				07/25/24 08:32	07/29/24 14:34	1

Client Sample ID: MW-3_20240723

Lab Sample ID: 580-142318-3

Date Collected: 07/23/24 09:40

Matrix: Water

Date Received: 07/23/24 12:20

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			07/30/24 02:25	1
Ethylbenzene	ND		1.0		ug/L			07/30/24 02:25	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/30/24 02:25	1
o-Xylene	ND		1.0		ug/L			07/30/24 02:25	1
Toluene	ND		1.0		ug/L			07/30/24 02:25	1
Xylenes, Total	ND		2.0		ug/L			07/30/24 02:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120					07/30/24 02:25	1
4-Bromofluorobenzene (Surr)	98		80 - 120					07/30/24 02:25	1
Dibromofluoromethane (Surr)	101		80 - 120					07/30/24 02:25	1
Toluene-d8 (Surr)	102		80 - 120					07/30/24 02:25	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			07/25/24 02:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		77 - 123					07/25/24 02:38	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		190		ug/L		07/25/24 08:32	07/29/24 14:55	1
Motor Oil (>C24-C36)	ND		330		ug/L		07/25/24 08:32	07/29/24 14:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150				07/25/24 08:32	07/29/24 14:55	1

Client Sample ID: MW-4_20240723

Lab Sample ID: 580-142318-4

Date Collected: 07/23/24 09:00

Matrix: Water

Date Received: 07/23/24 12:20

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			07/25/24 03:43	1
Ethylbenzene	ND		1.0		ug/L			07/25/24 03:43	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/25/24 03:43	1

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Client Sample Results

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

Job ID: 580-142318-1

Client Sample ID: MW-4_20240723

Lab Sample ID: 580-142318-4

Date Collected: 07/23/24 09:00

Matrix: Water

Date Received: 07/23/24 12:20

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			07/25/24 03:43	1
Toluene	ND		1.0		ug/L			07/25/24 03:43	1
Xylenes, Total	ND		2.0		ug/L			07/25/24 03:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		80 - 120					07/25/24 03:43	1
4-Bromofluorobenzene (Surr)	90		80 - 120					07/25/24 03:43	1
Dibromofluoromethane (Surr)	93		80 - 120					07/25/24 03:43	1
Toluene-d8 (Surr)	108		80 - 120					07/25/24 03:43	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			07/25/24 03:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123					07/25/24 03:43	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		190		ug/L		07/25/24 08:32	07/29/24 15:15	1
Motor Oil (>C24-C36)	ND		330		ug/L		07/25/24 08:32	07/29/24 15:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	54		50 - 150				07/25/24 08:32	07/29/24 15:15	1

Client Sample ID: MW-5_20240723

Lab Sample ID: 580-142318-5

Date Collected: 07/23/24 10:45

Matrix: Water

Date Received: 07/23/24 12:20

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			07/30/24 02:46	1
Ethylbenzene	ND		1.0		ug/L			07/30/24 02:46	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/30/24 02:46	1
o-Xylene	ND		1.0		ug/L			07/30/24 02:46	1
Toluene	ND		1.0		ug/L			07/30/24 02:46	1
Xylenes, Total	ND		2.0		ug/L			07/30/24 02:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					07/30/24 02:46	1
4-Bromofluorobenzene (Surr)	102		80 - 120					07/30/24 02:46	1
Dibromofluoromethane (Surr)	103		80 - 120					07/30/24 02:46	1
Toluene-d8 (Surr)	101		80 - 120					07/30/24 02:46	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			07/25/24 03:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		77 - 123					07/25/24 03:00	1

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Client Sample Results

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

Job ID: 580-142318-1

Client Sample ID: MW-5_20240723

Lab Sample ID: 580-142318-5

Date Collected: 07/23/24 10:45

Matrix: Water

Date Received: 07/23/24 12:20

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		190		ug/L		07/25/24 08:32	07/29/24 15:36	1
Motor Oil (>C24-C36)	ND		330		ug/L		07/25/24 08:32	07/29/24 15:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	57		50 - 150				07/25/24 08:32	07/29/24 15:36	1

Client Sample ID: Trip Blank_20240723

Lab Sample ID: 580-142318-6

Date Collected: 07/23/24 00:01

Matrix: Water

Date Received: 07/23/24 12:20

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			07/26/24 01:38	1
Ethylbenzene	ND		1.0		ug/L			07/26/24 01:38	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/26/24 01:38	1
o-Xylene	ND		1.0		ug/L			07/26/24 01:38	1
Toluene	ND		1.0		ug/L			07/26/24 01:38	1
Xylenes, Total	ND		2.0		ug/L			07/26/24 01:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					07/26/24 01:38	1
4-Bromofluorobenzene (Surr)	99		80 - 120					07/26/24 01:38	1
Dibromofluoromethane (Surr)	105		80 - 120					07/26/24 01:38	1
Toluene-d8 (Surr)	97		80 - 120					07/26/24 01:38	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			07/26/24 01:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		77 - 123					07/26/24 01:38	1

Surrogate Summary

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

Job ID: 580-142318-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
580-142318-1	MW-1_20240723	103	101	102	101
580-142318-2	MW-2_20240723	101	99	99	104
580-142318-3	MW-3_20240723	105	98	101	102
580-142318-4	MW-4_20240723	80	90	93	108
580-142318-5	MW-5_20240723	101	102	103	101
580-142318-6	Trip Blank_20240723	107	99	105	97
LCS 580-466025/6	Lab Control Sample	81	90	91	106
LCS 580-466175/6	Lab Control Sample	104	102	102	99
LCS 580-466455/4	Lab Control Sample	105	101	103	101
LCSD 580-466025/7	Lab Control Sample Dup	81	92	93	105
LCSD 580-466175/7	Lab Control Sample Dup	103	102	102	100
LCSD 580-466455/5	Lab Control Sample Dup	104	101	101	100
MB 580-466025/11	Method Blank	83	93	93	106
MB 580-466175/11	Method Blank	105	99	105	98
MB 580-466455/7	Method Blank	105	102	103	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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB (77-123)	
580-142318-1	MW-1_20240723	92	
580-142318-2	MW-2_20240723	90	
580-142318-3	MW-3_20240723	91	
580-142318-4	MW-4_20240723	90	
580-142318-5	MW-5_20240723	91	
580-142318-6	Trip Blank_20240723	99	
LCS 580-466020/8	Lab Control Sample	95	
LCS 580-466170/8	Lab Control Sample	100	
LCSD 580-466020/9	Lab Control Sample Dup	94	
LCSD 580-466170/9	Lab Control Sample Dup	100	
MB 580-466020/11	Method Blank	93	
MB 580-466170/11	Method Blank	99	
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		OTPH (50-150)	
580-142318-1	MW-1_20240723	51	

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Surrogate Summary

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

Job ID: 580-142318-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	OTPH (50-150)
580-142318-2	MW-2_20240723	54
580-142318-3	MW-3_20240723	56
580-142318-4	MW-4_20240723	54
580-142318-5	MW-5_20240723	57
LCS 580-466040/2-A	Lab Control Sample	78
LCSD 580-466040/3-A	Lab Control Sample Dup	80
MB 580-466040/1-A	Method Blank	59
Surrogate Legend		
OTPH = o-Terphenyl		

QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: MB 580-466025/11

Matrix: Water

Analysis Batch: 466025

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			07/25/24 00:08	1
Ethylbenzene	ND		1.0		ug/L			07/25/24 00:08	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/25/24 00:08	1
o-Xylene	ND		1.0		ug/L			07/25/24 00:08	1
Toluene	ND		1.0		ug/L			07/25/24 00:08	1
Xylenes, Total	ND		2.0		ug/L			07/25/24 00:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		80 - 120		07/25/24 00:08	1
4-Bromofluorobenzene (Surr)	93		80 - 120		07/25/24 00:08	1
Dibromofluoromethane (Surr)	93		80 - 120		07/25/24 00:08	1
Toluene-d8 (Surr)	106		80 - 120		07/25/24 00:08	1

Lab Sample ID: LCS 580-466025/6

Matrix: Water

Analysis Batch: 466025

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	9.70		ug/L		97	80 - 122
Ethylbenzene	10.0	9.77		ug/L		98	80 - 120
m-Xylene & p-Xylene	10.0	9.92		ug/L		99	80 - 120
o-Xylene	10.0	9.46		ug/L		95	80 - 120
Toluene	10.0	10.0		ug/L		100	80 - 120
Xylenes, Total	20.0	19.4		ug/L		97	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		80 - 120
4-Bromofluorobenzene (Surr)	90		80 - 120
Dibromofluoromethane (Surr)	91		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: LCSD 580-466025/7

Matrix: Water

Analysis Batch: 466025

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	10.0		ug/L		100	80 - 122	3	14
Ethylbenzene	10.0	9.98		ug/L		100	80 - 120	2	14
m-Xylene & p-Xylene	10.0	9.79		ug/L		98	80 - 120	1	14
o-Xylene	10.0	9.66		ug/L		97	80 - 120	2	16
Toluene	10.0	10.2		ug/L		102	80 - 120	1	13
Xylenes, Total	20.0	19.5		ug/L		97	80 - 120	0	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		80 - 120
4-Bromofluorobenzene (Surr)	92		80 - 120
Dibromofluoromethane (Surr)	93		80 - 120

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QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: LCSD 580-466025/7

Matrix: Water

Analysis Batch: 466025

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	105		80 - 120

Lab Sample ID: MB 580-466175/11

Matrix: Water

Analysis Batch: 466175

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Result	Qualifier								
Benzene	ND		1.0		ug/L			07/26/24 00:28	1
Ethylbenzene	ND		1.0		ug/L			07/26/24 00:28	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/26/24 00:28	1
o-Xylene	ND		1.0		ug/L			07/26/24 00:28	1
Toluene	ND		1.0		ug/L			07/26/24 00:28	1
Xylenes, Total	ND		2.0		ug/L			07/26/24 00:28	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier					
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		07/26/24 00:28	1
4-Bromofluorobenzene (Surr)	99		80 - 120		07/26/24 00:28	1
Dibromofluoromethane (Surr)	105		80 - 120		07/26/24 00:28	1
Toluene-d8 (Surr)	98		80 - 120		07/26/24 00:28	1

Lab Sample ID: LCS 580-466175/6

Matrix: Water

Analysis Batch: 466175

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
Added	Result	Qualifier				Limits	
Benzene	5.00	5.08		ug/L		102	80 - 122
Ethylbenzene	5.00	4.74		ug/L		95	80 - 120
m-Xylene & p-Xylene	5.00	4.93		ug/L		99	80 - 120
o-Xylene	5.00	4.81		ug/L		96	80 - 120
Toluene	5.00	4.95		ug/L		99	80 - 120
Xylenes, Total	10.0	9.74		ug/L		97	80 - 120

Surrogate	LCS	LCS	Limits
%Recovery	Qualifier		
1,2-Dichloroethane-d4 (Surr)	104		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	99		80 - 120

Lab Sample ID: LCSD 580-466175/7

Matrix: Water

Analysis Batch: 466175

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
Added	Result	Qualifier				Limits		Limit	
Benzene	5.00	4.95		ug/L		99	80 - 122	3	14
Ethylbenzene	5.00	4.62		ug/L		92	80 - 120	3	14
m-Xylene & p-Xylene	5.00	4.75		ug/L		95	80 - 120	4	14
o-Xylene	5.00	4.65		ug/L		93	80 - 120	3	16
Toluene	5.00	4.82		ug/L		96	80 - 120	3	13

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QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: LCSD 580-466175/7

Matrix: Water

Analysis Batch: 466175

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
Xylenes, Total	10.0	9.40		ug/L		94	80 - 120	4	16
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		80 - 120						
4-Bromofluorobenzene (Surr)	102		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	100		80 - 120						

Lab Sample ID: MB 580-466455/7

Matrix: Water

Analysis Batch: 466455

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			07/29/24 23:11	1
Ethylbenzene	ND		1.0		ug/L			07/29/24 23:11	1
m-Xylene & p-Xylene	ND		2.0		ug/L			07/29/24 23:11	1
o-Xylene	ND		1.0		ug/L			07/29/24 23:11	1
Toluene	ND		1.0		ug/L			07/29/24 23:11	1
Xylenes, Total	ND		2.0		ug/L			07/29/24 23:11	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	105		80 - 120				07/29/24 23:11	1	
4-Bromofluorobenzene (Surr)	102		80 - 120				07/29/24 23:11	1	
Dibromofluoromethane (Surr)	103		80 - 120				07/29/24 23:11	1	
Toluene-d8 (Surr)	100		80 - 120				07/29/24 23:11	1	

Lab Sample ID: LCS 580-466455/4

Matrix: Water

Analysis Batch: 466455

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Data: 400-100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	10.0	8.85		ug/L		88	80 - 122
Ethylbenzene	10.0	9.00		ug/L		90	80 - 120
m-Xylene & p-Xylene	10.0	8.99		ug/L		90	80 - 120
o-Xylene	10.0	9.30		ug/L		93	80 - 120
Toluene	10.0	8.98		ug/L		90	80 - 120
Xylenes, Total	20.0	18.3		ug/L		91	80 - 120
	LCS	LCS					
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	105		80 - 120				
4-Bromofluorobenzene (Surr)	101		80 - 120				
Dibromofluoromethane (Surr)	103		80 - 120				
Toluene-d8 (Surr)	101		80 - 120				

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QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: LCSD 580-466455/5

Matrix: Water

Analysis Batch: 466455

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	8.90		ug/L		89	80 - 122	1	14
Ethylbenzene	10.0	8.98		ug/L		90	80 - 120	0	14
m-Xylene & p-Xylene	10.0	8.87		ug/L		89	80 - 120	1	14
o-Xylene	10.0	9.03		ug/L		90	80 - 120	3	16
Toluene	10.0	8.77		ug/L		88	80 - 120	2	13
Xylenes, Total	20.0	17.9		ug/L		90	80 - 120	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
Toluene-d8 (Surr)	100		80 - 120

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

Lab Sample ID: MB 580-466020/11

Matrix: Water

Analysis Batch: 466020

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			07/25/24 00:08	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123					07/25/24 00:08	1

Lab Sample ID: LCS 580-466020/8

Matrix: Water

Analysis Batch: 466020

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Data: 100010									
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline			500	433		ug/L	-	87	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	95		77 - 123						

Lab Sample ID: LCSD 580-466020/9

Matrix: Water

Analysis Batch: 466020

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	420		ug/L		84	55 - 148	3	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	94		77 - 123								

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QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: MB 580-466170/11

Matrix: Water

Analysis Batch: 466170

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			07/26/24 00:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		77 - 123					07/26/24 00:28	1

Lab Sample ID: LCS 580-466170/8

Matrix: Water

Analysis Batch: 466170

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	500	614		ug/L		123	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		77 - 123				

Lab Sample ID: LCSD 580-466170/9

Matrix: Water

Analysis Batch: 466170

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	614		ug/L		123	55 - 148	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		77 - 123						

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

Lab Sample ID: MB 580-466040/1-A

Matrix: Water

Analysis Batch: 466406

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 466040

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		200		ug/L		07/25/24 08:32	07/29/24 13:13	1
Motor Oil (>C24-C36)	ND		350		ug/L		07/25/24 08:32	07/29/24 13:13	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	59		50 - 150				07/25/24 08:32	07/29/24 13:13	1

Lab Sample ID: LCS 580-466040/2-A

Matrix: Water

Analysis Batch: 466406

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 466040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4000	3190		ug/L		80	50 - 120
Motor Oil (>C24-C36)	4000	3270		ug/L		82	64 - 120

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QC Sample Results

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

Job ID: 580-142318-1

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

Lab Sample ID: LCS 580-466040/2-A
Matrix: Water
Analysis Batch: 466406

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 466040

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	78		50 - 150

Lab Sample ID: LCSD 580-466040/3-A
Matrix: Water
Analysis Batch: 466406

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 466040

	Spike	LCSD	LCSD						%Rec	RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
#2 Diesel (C10-C24)	4000	3130		ug/L		78	50 - 120	2	26		
Motor Oil (>C24-C36)	4000	3290		ug/L		82	64 - 120	1	24		

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	80		50 - 150

QC Association Summary

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

Job ID: 580-142318-1

GC/MS VOA

Analysis Batch: 466020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-1	MW-1_20240723	Total/NA	Water	NWTPH-Gx	
580-142318-2	MW-2_20240723	Total/NA	Water	NWTPH-Gx	
580-142318-3	MW-3_20240723	Total/NA	Water	NWTPH-Gx	
580-142318-4	MW-4_20240723	Total/NA	Water	NWTPH-Gx	
580-142318-5	MW-5_20240723	Total/NA	Water	NWTPH-Gx	
MB 580-466020/11	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-466020/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-466020/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 466025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-4	MW-4_20240723	Total/NA	Water	8260D	
MB 580-466025/11	Method Blank	Total/NA	Water	8260D	
LCS 580-466025/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-466025/7	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 466170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-6	Trip Blank_20240723	Total/NA	Water	NWTPH-Gx	
MB 580-466170/11	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-466170/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-466170/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 466175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-6	Trip Blank_20240723	Total/NA	Water	8260D	
MB 580-466175/11	Method Blank	Total/NA	Water	8260D	
LCS 580-466175/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-466175/7	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 466455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-1	MW-1_20240723	Total/NA	Water	8260D	
580-142318-2	MW-2_20240723	Total/NA	Water	8260D	
580-142318-3	MW-3_20240723	Total/NA	Water	8260D	
580-142318-5	MW-5_20240723	Total/NA	Water	8260D	
MB 580-466455/7	Method Blank	Total/NA	Water	8260D	
LCS 580-466455/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-466455/5	Lab Control Sample Dup	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 466040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-1	MW-1_20240723	Total/NA	Water	3510C	
580-142318-2	MW-2_20240723	Total/NA	Water	3510C	
580-142318-3	MW-3_20240723	Total/NA	Water	3510C	
580-142318-4	MW-4_20240723	Total/NA	Water	3510C	
580-142318-5	MW-5_20240723	Total/NA	Water	3510C	
MB 580-466040/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-466040/2-A	Lab Control Sample	Total/NA	Water	3510C	

Eurofins Seattle

QC Association Summary

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

Job ID: 580-142318-1

GC Semi VOA (Continued)

Prep Batch: 466040 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 580-466040/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 466406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-142318-1	MW-1_20240723	Total/NA	Water	NWTPH-Dx	466040
580-142318-2	MW-2_20240723	Total/NA	Water	NWTPH-Dx	466040
580-142318-3	MW-3_20240723	Total/NA	Water	NWTPH-Dx	466040
580-142318-4	MW-4_20240723	Total/NA	Water	NWTPH-Dx	466040
580-142318-5	MW-5_20240723	Total/NA	Water	NWTPH-Dx	466040
MB 580-466040/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	466040
LCS 580-466040/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	466040
LCSD 580-466040/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	466040

Lab Chronicle

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

Job ID: 580-142318-1

Client Sample ID: MW-1_20240723

Lab Sample ID: 580-142318-1

Date Collected: 07/23/24 10:15

Matrix: Water

Date Received: 07/23/24 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466455	K1K	EET SEA	07/30/24 02:03
Total/NA	Analysis	NWTPH-Gx		1	466020	K1K	EET SEA	07/25/24 02:17
Total/NA	Prep	3510C			466040	TOA	EET SEA	07/25/24 08:32
Total/NA	Analysis	NWTPH-Dx		1	466406	SW	EET SEA	07/29/24 14:14

Client Sample ID: MW-2_20240723

Lab Sample ID: 580-142318-2

Date Collected: 07/23/24 11:30

Matrix: Water

Date Received: 07/23/24 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466455	K1K	EET SEA	07/30/24 05:17
Total/NA	Analysis	NWTPH-Gx		1	466020	K1K	EET SEA	07/25/24 03:22
Total/NA	Prep	3510C			466040	TOA	EET SEA	07/25/24 08:32
Total/NA	Analysis	NWTPH-Dx		1	466406	SW	EET SEA	07/29/24 14:34

Client Sample ID: MW-3_20240723

Lab Sample ID: 580-142318-3

Date Collected: 07/23/24 09:40

Matrix: Water

Date Received: 07/23/24 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466455	K1K	EET SEA	07/30/24 02:25
Total/NA	Analysis	NWTPH-Gx		1	466020	K1K	EET SEA	07/25/24 02:38
Total/NA	Prep	3510C			466040	TOA	EET SEA	07/25/24 08:32
Total/NA	Analysis	NWTPH-Dx		1	466406	SW	EET SEA	07/29/24 14:55

Client Sample ID: MW-4_20240723

Lab Sample ID: 580-142318-4

Date Collected: 07/23/24 09:00

Matrix: Water

Date Received: 07/23/24 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466025	K1K	EET SEA	07/25/24 03:43
Total/NA	Analysis	NWTPH-Gx		1	466020	K1K	EET SEA	07/25/24 03:43
Total/NA	Prep	3510C			466040	TOA	EET SEA	07/25/24 08:32
Total/NA	Analysis	NWTPH-Dx		1	466406	SW	EET SEA	07/29/24 15:15

Client Sample ID: MW-5_20240723

Lab Sample ID: 580-142318-5

Date Collected: 07/23/24 10:45

Matrix: Water

Date Received: 07/23/24 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466455	K1K	EET SEA	07/30/24 02:46
Total/NA	Analysis	NWTPH-Gx		1	466020	K1K	EET SEA	07/25/24 03:00
Total/NA	Prep	3510C			466040	TOA	EET SEA	07/25/24 08:32
Total/NA	Analysis	NWTPH-Dx		1	466406	SW	EET SEA	07/29/24 15:36

Eurofins Seattle

Lab Chronicle

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

Job ID: 580-142318-1

Client Sample ID: Trip Blank_20240723
Date Collected: 07/23/24 00:01
Date Received: 07/23/24 12:20

Lab Sample ID: 580-142318-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	466175	AA	EET SEA	07/26/24 01:38
Total/NA	Analysis	NWTPH-Gx		1	466170	AA	EET SEA	07/26/24 01:38

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

Accreditation/Certification Summary

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

Job ID: 580-142318-1

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 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 580-142318-1

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: 580-142318-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-142318-1	MW-1_20240723	Water	07/23/24 10:15	07/23/24 12:20
580-142318-2	MW-2_20240723	Water	07/23/24 11:30	07/23/24 12:20
580-142318-3	MW-3_20240723	Water	07/23/24 09:40	07/23/24 12:20
580-142318-4	MW-4_20240723	Water	07/23/24 09:00	07/23/24 12:20
580-142318-5	MW-5_20240723	Water	07/23/24 10:45	07/23/24 12:20
580-142318-6	Trip Blank_20240723	Water	07/23/24 00:01	07/23/24 12:20

- 1
- 2
- 3
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- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



BP Site Node Path: Olympic Pipeline Company
BP/RM Facility No: Tacoma Junction

Req Due Date (mm/dd/yy): Standard TAT Rush TAT Yes _____ No X

Lab Work Order Number: _____

[illegible]

IR 14 21-3/21-0 LB/wet/bub/CD BP LaMP Soil/H2O COC July 2018

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-142318-1

Login Number: 142318

List Number: 1

Creator: Prigge, Madison

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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 $<6\text{mm}$ (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.: 580-142318-1

SDG No.: _____

Batch Number: 466025 Batch Start Date: 07/24/24 20:54 Batch Analyst: Klongnganchui, Kanjana 1

Batch Method: 8260D Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00041	VOAMasterSEC 00094	VOASTDGASSEC 00001
LCS 580-466025/6		8260D			5 mL	5 mL		5 uL	10 uL	10 uL
LCSD 580-466025/7		8260D			5 mL	5 mL		5 uL	10 uL	10 uL
MB 580-466025/11		8260D			5 mL	5 mL		5 uL		
580-142318-H-4	MW-4_20240723	8260D	Water	T	5 mL	5 mL	<2 SU	5 uL		

Batch Notes	
pH Indicator ID	226322
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.

8260D

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.: _____

Batch Number: 466175 Batch Start Date: 07/25/24 20:59 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 00041	VOAMasterSEC 00094	VOASTDGASSEC 00001
LCS 580-466175/6		8260D			10 mL	10 mL		10 uL	5 uL	5 uL
LCSD 580-466175/7		8260D			10 mL	10 mL		10 uL	5 uL	5 uL
MB 580-466175/11		8260D			10 mL	10 mL		10 uL		
580-142318-E-6	Trip Blank 20240723	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.

8260D

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.:

Batch Number: 466455 Batch Start Date: 07/29/24 21:24 Batch Analyst: Klongnganchui, Kanjana 1

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00041	VOAMasterSEC 00094	VOASTDGASSEC 00001
LCS 580-466455/4		8260D			5 mL	5 mL		5 uL	10 uL	10 uL
LCSD 580-466455/5		8260D			5 mL	5 mL		5 uL	10 uL	10 uL
MB 580-466455/7		8260D			5 mL	5 mL		5 uL		
580-142318-D-1	MW-1_20240723	8260D	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-D-3	MW-3_20240723	8260D	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-G-5	MW-5_20240723	8260D	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-D-2	MW-2_20240723	8260D	Water	T	5 mL	5 mL	<2 SU	5 uL		

Batch Notes	
pH Indicator ID	226322
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.

8260D

GASOLINE RANGE ORGANICS BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.: _____

Batch Number: 466020 Batch Start Date: 07/24/24 20:54 Batch Analyst: Klongnganchui, Kanjana 1Batch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00041	GRO_LCSIntLt2 _00001	
LCS 580-466020/8		NWTPH-Gx			5 mL	5 mL		5 uL	12.5 uL	
LCSD 580-466020/9		NWTPH-Gx			5 mL	5 mL		5 uL	12.5 uL	
MB 580-466020/11		NWTPH-Gx			5 mL	5 mL		5 uL		
580-142318-C-1	MW-1_20240723	NWTPH-Gx	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-C-3	MW-3_20240723	NWTPH-Gx	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-H-5	MW-5_20240723	NWTPH-Gx	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-E-2	MW-2_20240723	NWTPH-Gx	Water	T	5 mL	5 mL	<2 SU	5 uL		
580-142318-H-4	MW-4_20240723	NWTPH-Gx	Water	T	5 mL	5 mL	<2 SU	5 uL		

Batch Notes

pH Indicator ID	226322
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.

NWTPH-Gx

Page 1 of 1

GASOLINE RANGE ORGANICS BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.: _____

Batch Number: 466170 Batch Start Date: 07/25/24 20:59 Batch Analyst: Abando, AriyanaBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00041	GRO_LCSIntLt2 _00001	
LCS 580-466170/8		NWTPH-Gx			10 mL	10 mL		10 uL	12.5 uL	
LCSD 580-466170/9		NWTPH-Gx			10 mL	10 mL		10 uL	12.5 uL	
MB 580-466170/11		NWTPH-Gx			10 mL	10 mL		10 uL		
580-142318-E-6	Trip Blank 20240723	NWTPH-Gx	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.

NWTPH-Gx

Page 1 of 1

HYDROCARBONS BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.: _____

Batch Number: 466040 Batch Start Date: 07/25/24 08:32 Batch Analyst: Anderson, Tess OBatch Method: 3510C Batch End Date: 07/25/24 15:42

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-466040/1		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
LCS 580-466040/2		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
LCSD 580-466040/3		3510C, NWTPH-Dx					250 mL	2 mL	7 SU	2 SU
580-142318-B-1	MW-1_20240723	3510C, NWTPH-Dx	Water	T	00446.39 g	00178.02 g	268.4 mL	2 mL	2 SU	n/a SU
580-142318-B-2	MW-2_20240723	3510C, NWTPH-Dx	Water	T	00440.50 g	00177.82 g	262.7 mL	2 mL	2 SU	n/a SU
580-142318-A-3	MW-3_20240723	3510C, NWTPH-Dx	Water	T	00442.51 g	00177.48 g	265 mL	2 mL	2 SU	n/a SU
580-142318-A-4	MW-4_20240723	3510C, NWTPH-Dx	Water	T	00442.52 g	00177.25 g	265.3 mL	2 mL	2 SU	n/a SU
580-142318-A-5	MW-5_20240723	3510C, NWTPH-Dx	Water	T	00442.91 g	00177.46 g	265.5 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Matrix	Basis	SecondAdjustpH	TPH_Water_Spk 00043	TPH_WaterSurr 00116			
MB 580-466040/1		3510C, NWTPH-Dx			n/a SU		100 uL			
LCS 580-466040/2		3510C, NWTPH-Dx			n/a SU	100 uL	100 uL			
LCSD 580-466040/3		3510C, NWTPH-Dx			n/a SU	100 uL	100 uL			
580-142318-B-1	MW-1_20240723	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-142318-B-2	MW-2_20240723	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-142318-A-3	MW-3_20240723	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-142318-A-4	MW-4_20240723	3510C, NWTPH-Dx	Water	T	n/a SU		100 uL			
580-142318-A-5	MW-5_20240723	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.

NWTPH-Dx

Page 1 of 3

HYDROCARBONS BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-142318-1

SDG No.: _____

Batch Number: 466040 Batch Start Date: 07/25/24 08:32 Batch Analyst: Anderson, Tess OBatch Method: 3510C Batch End Date: 07/25/24 15:42

Batch Notes	
Method/Fraction	3510C_LVI_14d/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	JW/EF
Reagent Water ID	DI
Analyst ID - Spike Analyst	JW
Analyst ID - Spike Witness Analyst	EF
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	3548691
Prep Solvent ID	MeCl_CT_00277
Prep Solvent Volume Used	100 mL
Filter ID	09-790-12F
Na2SO4 ID	baked Na2SO4_00488
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:JW

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.

NWTPH-Dx

Page 2 of 3

HYDROCARBONS BATCH WORKSHEET

Lab Name: Eurofins SeattleJob No.: 580-142318-1

SDG No.: _____

Batch Number: 466040Batch Start Date: 07/25/24 08:32Batch Analyst: Anderson, Tess OBatch Method: 3510CBatch End Date: 07/25/24 15:42

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.

NWTPH-Dx

Page 3 of 3