



Remediation Management Services Company

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January 27, 2023

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 2022, 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 2022

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 27, 2023
Project OPLC – Tacoma Junction

us.anteagroup.com

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Semi-Annual Status Report

Second Half of 2022

OPLC Tacoma Junction

2660 Frank Albert Road East, Fife, Washington

Reporting Period	July 2022 – December 2022
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	Megan Richard, +1 206 854 0399

1.0 SITE HISTORY

- This site is an active OPLC (Olympic Pipeline Company) 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 indicated concentrations of petroleum hydrocarbons in excess of the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels. 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 Cleanup Levels 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*.

2.0 WORK PERFORMED DURING THE REPORTING PERIOD

- Quarterly groundwater monitoring and sampling events were conducted on July 20, 2022 and October 18, 2022. 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 Cleanup Levels in monitoring wells MW-1 and MW-3 through MW-5. MW-2 contained concentrations of benzene and TPH-D in excess of MTCA Method A Cleanup Levels in the third quarter sampling event. In the second quarter sampling event, MW-2 had a concentration of benzene, TPH-G, and TPH-D in excess of MTCA Method A Cleanup Levels.
- 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 on Figures 3 and 4, respectively. The Groundwater Analytical Data Map is presented on 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 January 2023.

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:



Samantha Hinze
Staff Professional

Date: January 27, 2023

Reviewed by:



Date: January 27, 2023

Megan Richard, LG
Senior Project Manager

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)
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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 E, Fife, WA

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-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	--
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	--

Table 1
Groundwater Gauging Data
OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

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	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-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-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	--

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OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

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-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-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	--

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

NG - Not Gauged

DL - Depth to water was < 0.5 feet below TOC

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	TPH-G ug/L	TPH-D ug/L	TPH-O ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	1000/800*	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-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	< 2200	< 6900
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	460	900	< 360

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	TPH-G ug/L	TPH-D ug/L	TPH-O ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	1000/800*	500	500
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-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-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

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	TPH-G ug/L	TPH-D ug/L	TPH-O ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	1000/800*	500	500
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-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	< 2100	< 6800
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	520	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

Table 2
Groundwater Analytical Data
OPLC Tacoma Junction
2660 Frank Albert Road E, Fife, WA

CONSTITUENT UNIT		B ug/L	T ug/L	E ug/L	X ug/L	TPH-G ug/L	TPH-D ug/L	TPH-O ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	1000/800*	500	500

Notes:

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

1,000/800¹ 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

Figure 1 - Site Location Map

Figure 2 - Site Map

Figure 3 - Groundwater Elevation Contour Map – July 20, 2022

Figure 4 - Groundwater Elevation Contour Map – October 18, 2022

Figure 5 - Groundwater Analytical Data Map – July 20, 2022 and October 18, 2022

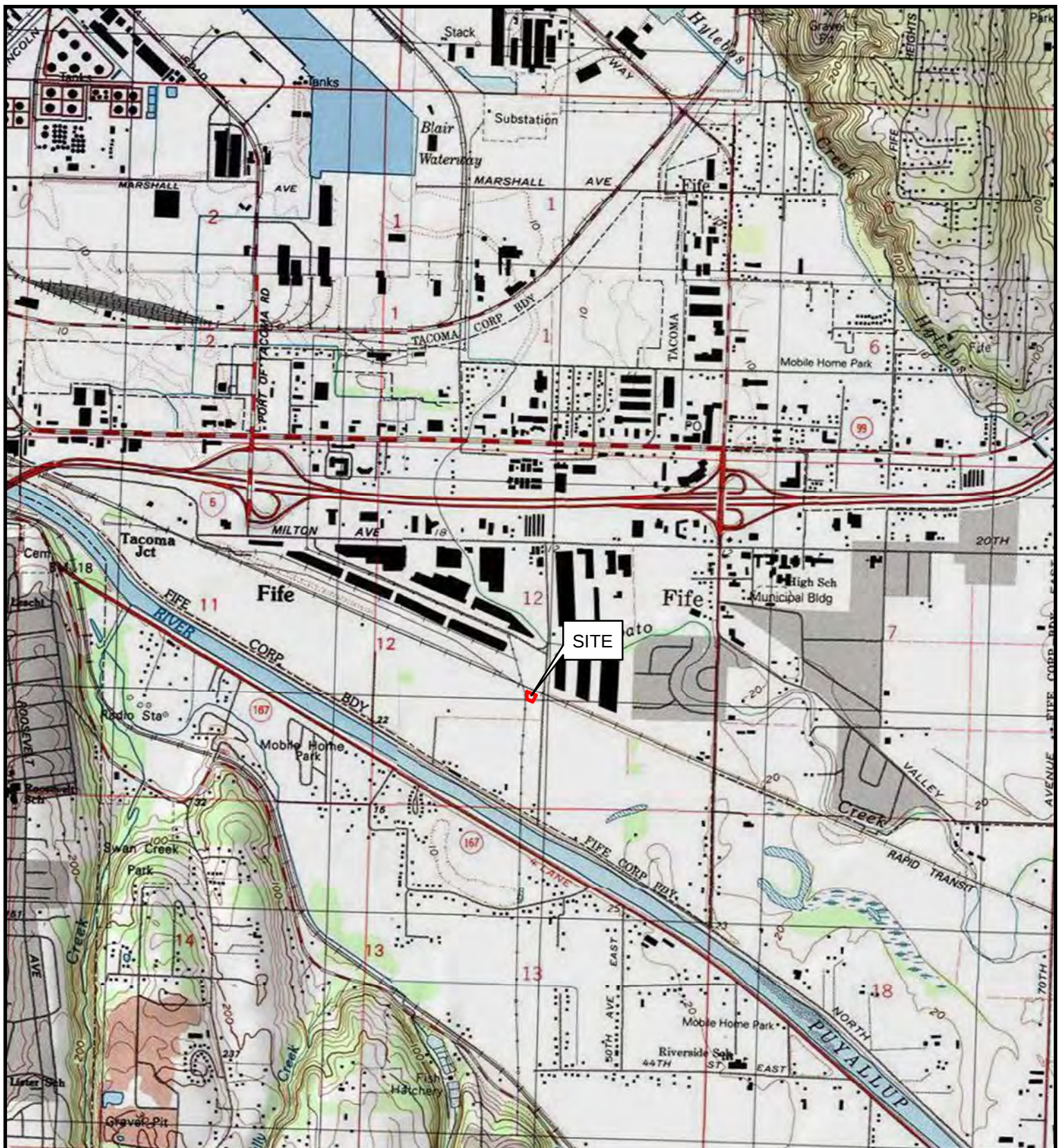
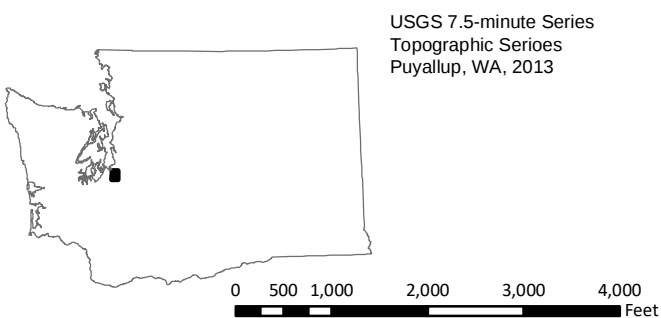
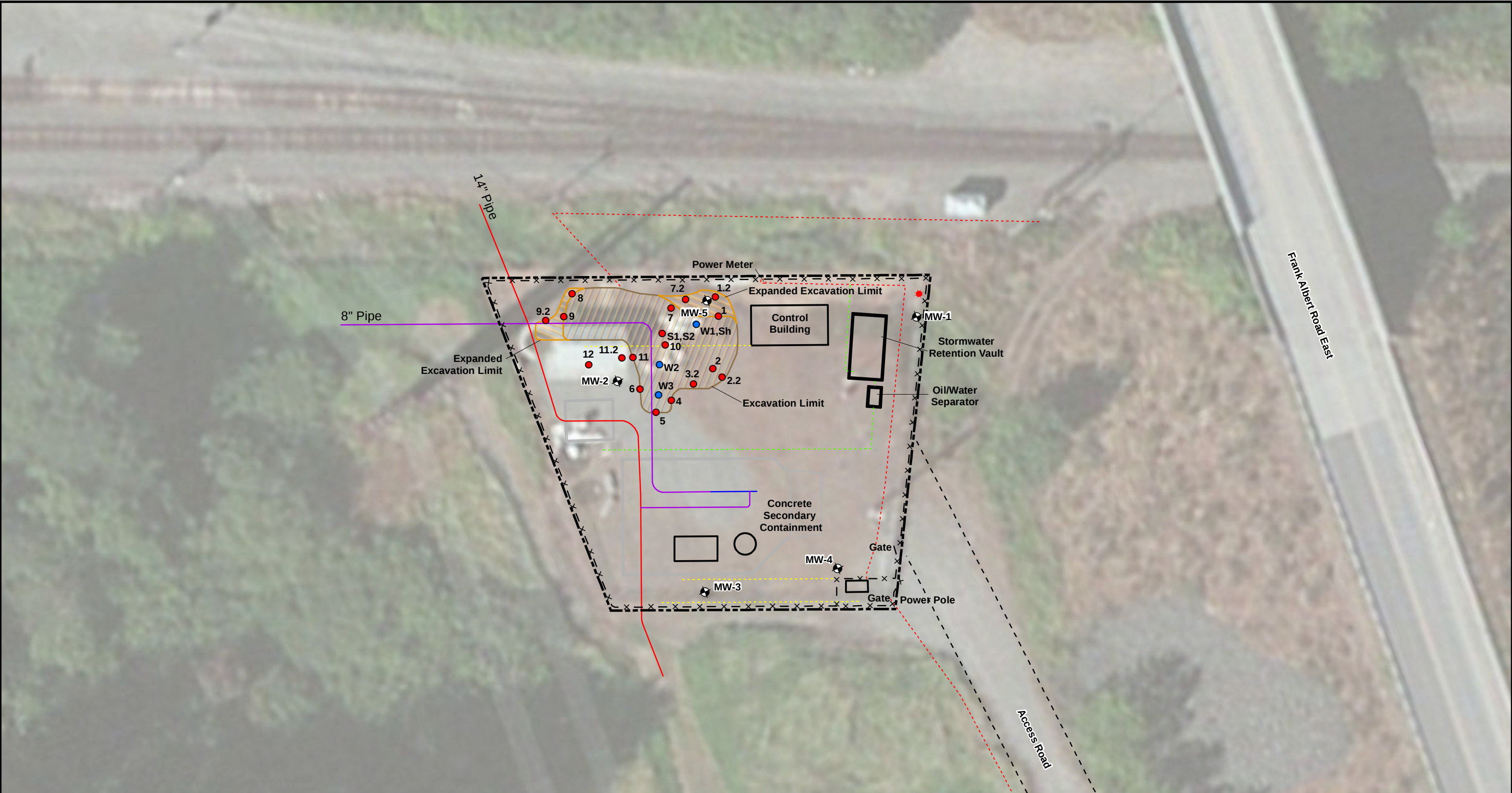


FIGURE 1
 SITE LOCATION MAP
 OLYMPIC PIPE LINE COMPANY - TACOMA JUNCTION
 2660 FRANK ALBERT ROAD EAST
 FIFE, WA



PROJECT NO. OPLC - Tacoma Junction 2022	PREPARED BY MB	REF SCALE 1:24,000	
DATE 7/30/2021	REVIEWED BY FS	MAP SCALE 1 INCH = 2,000 FEET	



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

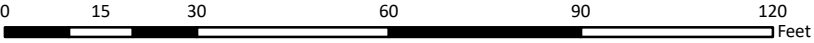
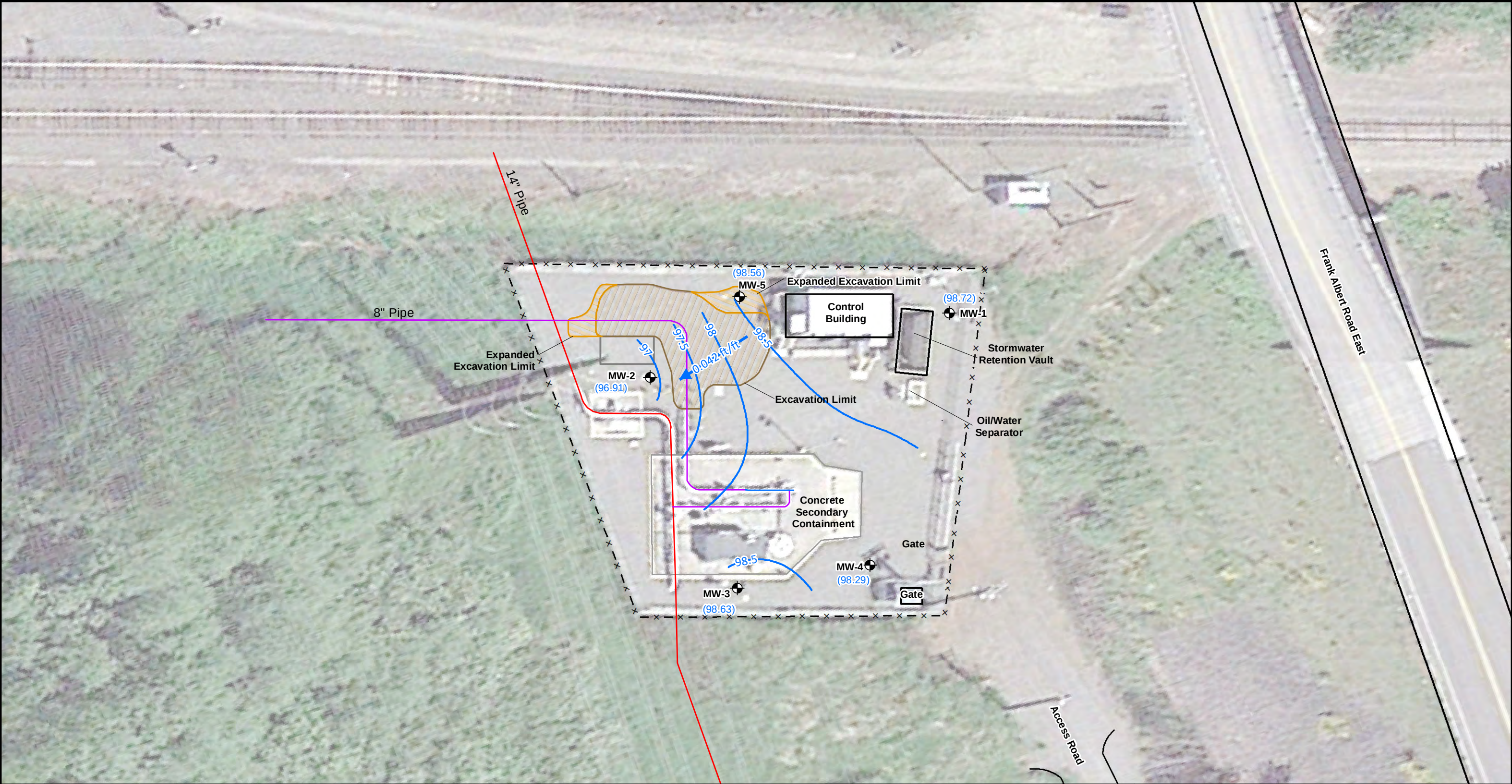


FIGURE 2

SITE MAP

OLYMPIC PIPE LINE COMPANY - TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WA

PROJECT NO. OPLC - Tacoma Junction 2022	PREPARED BY MB	REF SCALE 1:360	
DATE 7/31/2021	REVIEWED BY FS	MAP SCALE 1 INCH = 30 FEET	



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
- (98.63) Groundwater Elevation Contour (ft)

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

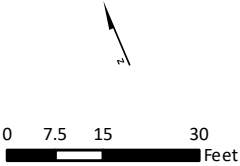


FIGURE 3

GROUNDWATER ELEVATION CONTOUR MAP

JULY 20, 2022

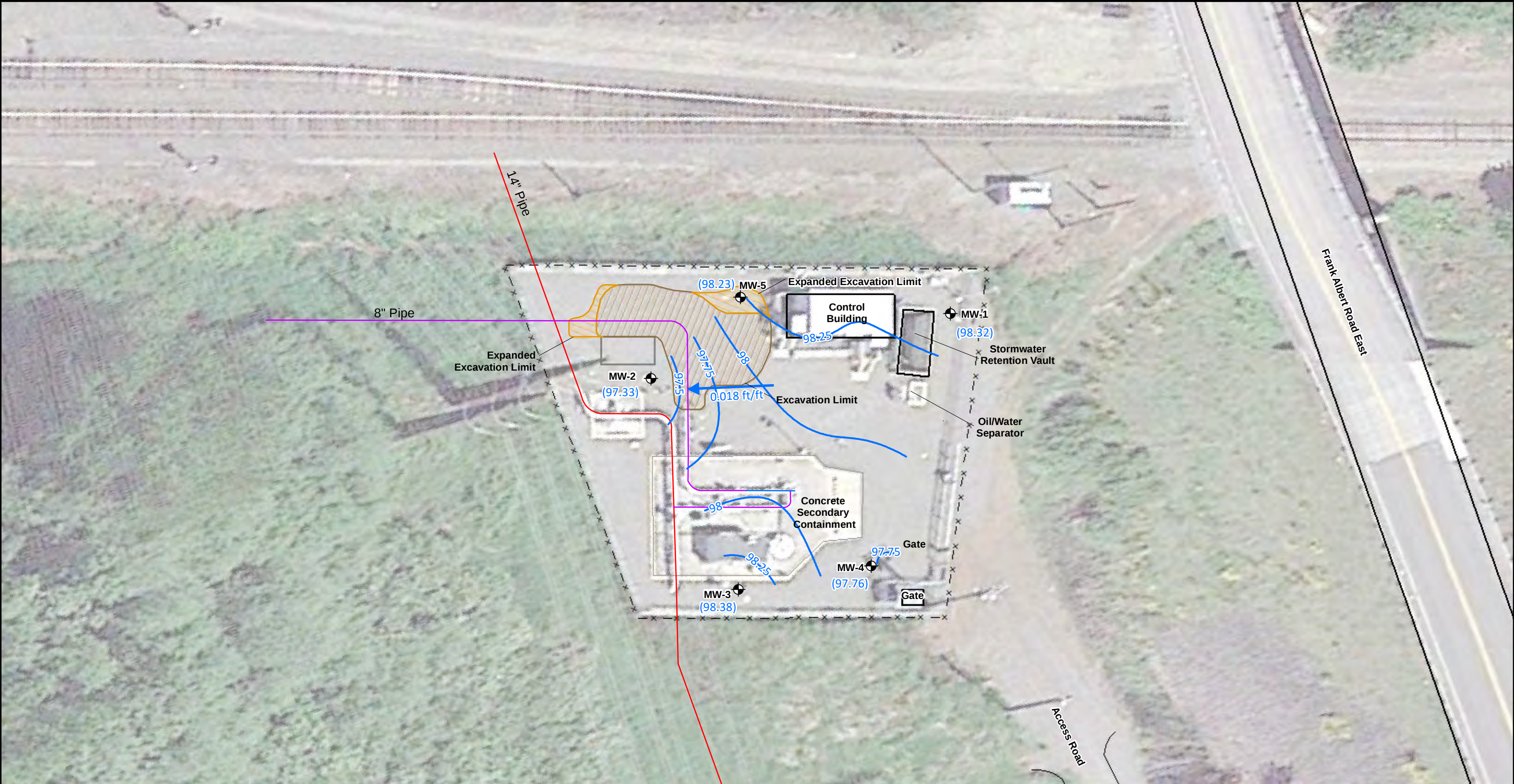
OLYMPIC PIPELINE COMPANY

TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. OPLC - Tacoma Junction 2022	PREPARED BY GP	REF SCALE 1:360	
DATE 10/11/2022	REVIEWED BY KY	MAP SCALE 1 INCH = 30 FEET	



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

(97.33) Groundwater Elevation Contour (ft)

0.018 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

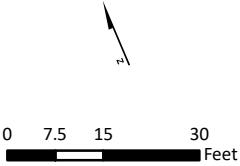


FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP

OCTOBER 18, 2022

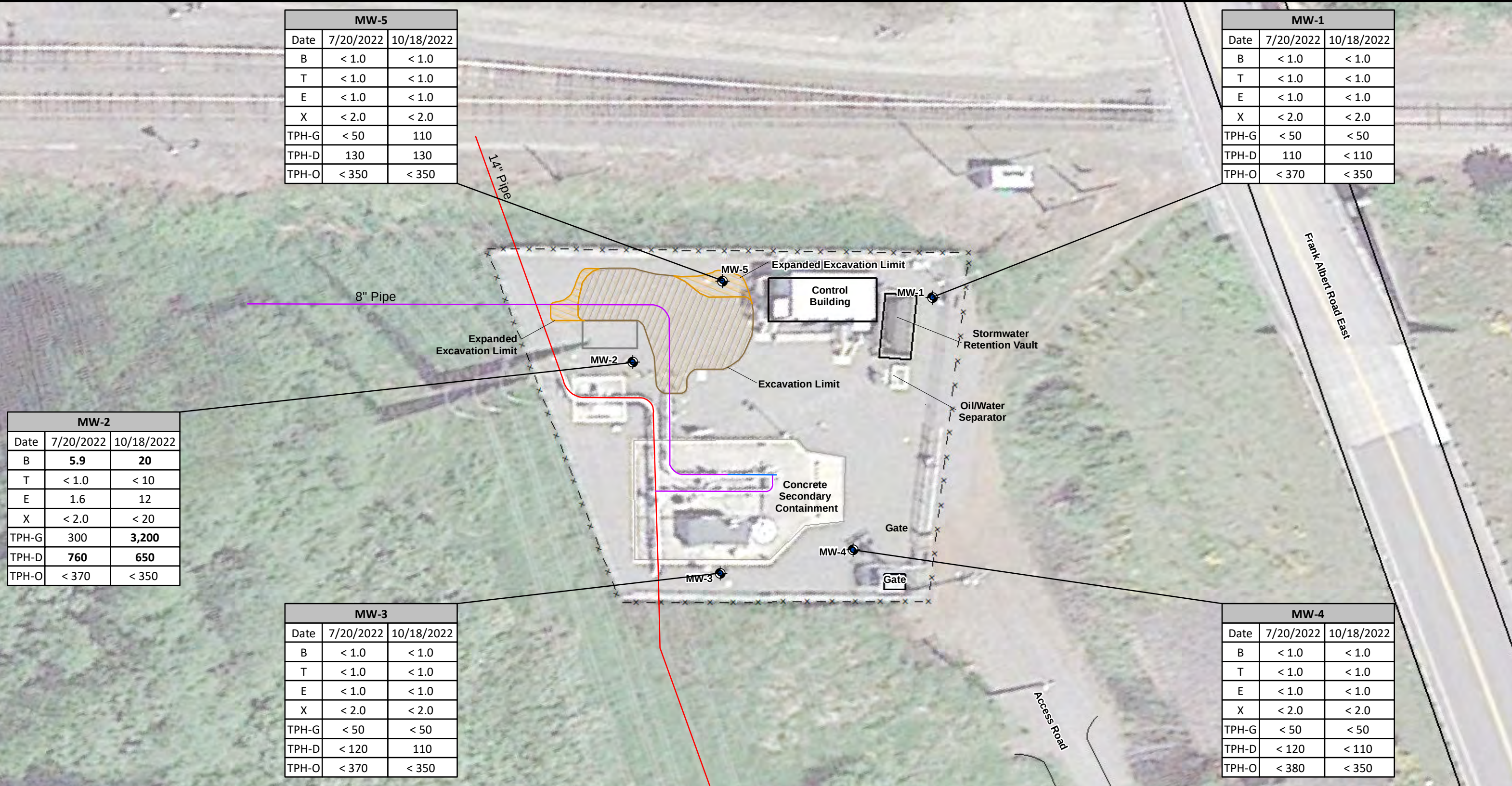
OLYMPIC PIPELINE COMPANY

TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. OPLC - Tacoma Junction 2022	PREPARED BY JDF	REF SCALE 1:360	
DATE 1/26/2023	REVIEWED BY SH	MAP SCALE 1 INCH = 30 FEET	



- Legend**
- Property Boundary
 - Fence
 - Monitoring Well Location

- 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

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

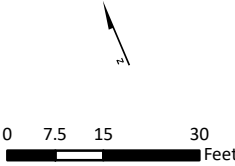


FIGURE 5

GROUNDWATER ANALYTICAL DATA MAP

JULY 20, 2022 AND OCTOBER 18, 2022

OLYMPIC PIPELINE COMPANY

TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. WATJUA211	PREPARED BY JDF	REF SCALE 1:360
DATE 1/13/2023	REVIEWED BY SH	MAP SCALE 1 INCH = 30 FEET

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

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

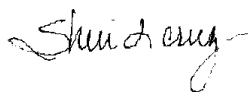
Laboratory Job ID: 580-116148-1

Client Project/Site: BP - OPLC - Tacoma Junction
Sampling Event: OPLC-Tacoma Junction

For:

Antea USA Inc.
4006 148th Ave NE
Redmond, Washington 98052

Attn: Megan Richard



Authorized for release by:

8/12/2022 12:20:15 PM

Sheri Cruz, Project Manager I
(253)922-2310

Sheri.Cruz@et.eurofinsus.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972

M.Elaine.Walker@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

Job ID: 580-116148-1

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/Site: BP - OPLC - Tacoma Junction

Job ID: 580-116148-1

Job ID: 580-116148-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-116148-1

Comments

No additional comments.

Receipt

The samples were received on 7/20/2022 3:10 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 was 9.2° C.

Receipt Exceptions

One of two containers for the following sample for NWTPH-Dx was received broken.: MW-3_20220720 (580-116148-3). One bottle remains intact.

GC/MS VOA

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

GC Semi VOA

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

Organic Prep

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

VOA Prep

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

Detection Summary

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

Job ID: 580-116148-1

Client Sample ID: MW-1_20220720

Lab Sample ID: 580-116148-1

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

Client Sample ID: MW-2_20220720

Lab Sample ID: 580-116148-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.9		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	1.6		1.0		ug/L	1		8260D	Total/NA
Gasoline	300		50		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	760		120		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20220720

Lab Sample ID: 580-116148-3

No Detections.

Client Sample ID: MW-4_20220720

Lab Sample ID: 580-116148-4

No Detections.

Client Sample ID: MW-5_20220720

Lab Sample ID: 580-116148-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
#2 Diesel (C10-C24)	130		110		ug/L	1		NWTPH-Dx	Total/NA

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: 580-116148-1

Client Sample ID: MW-1_20220720

Lab Sample ID: 580-116148-1

Date Collected: 07/20/22 14:20

Matrix: Water

Date Received: 07/20/22 15:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			08/02/22 23:12	1
Ethylbenzene	ND		1.0		ug/L			08/02/22 23:12	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/02/22 23:12	1
o-Xylene	ND		1.0		ug/L			08/02/22 23:12	1
Toluene	ND		1.0		ug/L			08/02/22 23:12	1
Xylenes, Total	ND		2.0		ug/L			08/02/22 23:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		08/02/22 23:12	1
4-Bromofluorobenzene (Surr)	86		80 - 120		08/02/22 23:12	1
Dibromofluoromethane (Surr)	92		80 - 120		08/02/22 23:12	1
Toluene-d8 (Surr)	108		80 - 120		08/02/22 23:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			08/02/22 23:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		77 - 123		08/02/22 23:12	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)	110		110		ug/L		08/03/22 08:49	08/03/22 23:04	1
Motor Oil (>C24-C36)	ND		370		ug/L		08/03/22 08:49	08/03/22 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	68		50 - 150	08/03/22 08:49	08/03/22 23:04	1

Client Sample ID: MW-2_20220720

Lab Sample ID: 580-116148-2

Date Collected: 07/20/22 12:00

Matrix: Water

Date Received: 07/20/22 15:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.9		1.0		ug/L			08/02/22 23:37	1
Ethylbenzene	1.6		1.0		ug/L			08/02/22 23:37	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/02/22 23:37	1
o-Xylene	ND		1.0		ug/L			08/02/22 23:37	1
Toluene	ND		1.0		ug/L			08/02/22 23:37	1
Xylenes, Total	ND		2.0		ug/L			08/02/22 23:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		08/02/22 23:37	1
4-Bromofluorobenzene (Surr)	89		80 - 120		08/02/22 23:37	1
Dibromofluoromethane (Surr)	92		80 - 120		08/02/22 23:37	1
Toluene-d8 (Surr)	109		80 - 120		08/02/22 23:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	300		50		ug/L			08/02/22 23:37	1

Eurofins Seattle

Client Sample Results

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

Job ID: 580-116148-1

Client Sample ID: MW-2_20220720

Lab Sample ID: 580-116148-2

Date Collected: 07/20/22 12:00

Matrix: Water

Date Received: 07/20/22 15:10

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		77 - 123					08/02/22 23:37	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)	760		120		ug/L		08/03/22 08:49	08/03/22 23:24	1
Motor Oil (>C24-C36)	ND		370		ug/L		08/03/22 08:49	08/03/22 23:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150				08/03/22 08:49	08/03/22 23:24	1

Client Sample ID: MW-3_20220720

Lab Sample ID: 580-116148-3

Date Collected: 07/20/22 11:20

Matrix: Water

Date Received: 07/20/22 15:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			08/03/22 00:01	1
Ethylbenzene	ND		1.0		ug/L			08/03/22 00:01	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/03/22 00:01	1
o-Xylene	ND		1.0		ug/L			08/03/22 00:01	1
Toluene	ND		1.0		ug/L			08/03/22 00:01	1
Xylenes, Total	ND		2.0		ug/L			08/03/22 00:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					08/03/22 00:01	1
4-Bromofluorobenzene (Surr)	86		80 - 120					08/03/22 00:01	1
Dibromofluoromethane (Surr)	94		80 - 120					08/03/22 00:01	1
Toluene-d8 (Surr)	105		80 - 120					08/03/22 00:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			08/03/22 00:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		77 - 123					08/03/22 00:01	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		120		ug/L		08/03/22 08:49	08/07/22 05:50	1
Motor Oil (>C24-C36)	ND		370		ug/L		08/03/22 08:49	08/07/22 05:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	51		50 - 150				08/03/22 08:49	08/07/22 05:50	1

Client Sample ID: MW-4_20220720

Lab Sample ID: 580-116148-4

Date Collected: 07/20/22 10:45

Matrix: Water

Date Received: 07/20/22 15:10

Method: 8260D - Volatile Organic Compounds by GC/MS									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			08/03/22 00:26	1
Ethylbenzene	ND		1.0		ug/L			08/03/22 00:26	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/03/22 00:26	1

Eurofins Seattle

Client Sample Results

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

Job ID: 580-116148-1

Client Sample ID: MW-4_20220720

Lab Sample ID: 580-116148-4

Date Collected: 07/20/22 10:45

Matrix: Water

Date Received: 07/20/22 15:10

Method: 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			08/03/22 00:26	1
Toluene	ND		1.0		ug/L			08/03/22 00:26	1
Xylenes, Total	ND		2.0		ug/L			08/03/22 00:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					08/03/22 00:26	1
4-Bromofluorobenzene (Surr)	87		80 - 120					08/03/22 00:26	1
Dibromofluoromethane (Surr)	94		80 - 120					08/03/22 00:26	1
Toluene-d8 (Surr)	106		80 - 120					08/03/22 00:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			08/03/22 00:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123					08/03/22 00:26	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		120		ug/L		08/03/22 08:49	08/04/22 00:24	1
Motor Oil (>C24-C36)	ND		380		ug/L		08/03/22 08:49	08/04/22 00:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150				08/03/22 08:49	08/04/22 00:24	1

Client Sample ID: MW-5_20220720

Lab Sample ID: 580-116148-5

Date Collected: 07/20/22 13:45

Matrix: Water

Date Received: 07/20/22 15:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			08/03/22 00:50	1
Ethylbenzene	ND		1.0		ug/L			08/03/22 00:50	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/03/22 00:50	1
o-Xylene	ND		1.0		ug/L			08/03/22 00:50	1
Toluene	ND		1.0		ug/L			08/03/22 00:50	1
Xylenes, Total	ND		2.0		ug/L			08/03/22 00:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					08/03/22 00:50	1
4-Bromofluorobenzene (Surr)	87		80 - 120					08/03/22 00:50	1
Dibromofluoromethane (Surr)	91		80 - 120					08/03/22 00:50	1
Toluene-d8 (Surr)	109		80 - 120					08/03/22 00:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			08/03/22 00:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123					08/03/22 00:50	1

Eurofins Seattle

Client Sample Results

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

Job ID: 580-116148-1

Client Sample ID: MW-5_20220720

Lab Sample ID: 580-116148-5

Date Collected: 07/20/22 13:45

Matrix: Water

Date Received: 07/20/22 15:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	130		110		ug/L		08/03/22 08:49	08/04/22 00:44	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/03/22 08:49	08/04/22 00:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150				08/03/22 08:49	08/04/22 00:44	1

Surrogate Summary

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

Job ID: 580-116148-1

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)
580-116148-1	MW-1_20220720	97	86	92	108
580-116148-2	MW-2_20220720	94	89	92	109
580-116148-3	MW-3_20220720	99	86	94	105
580-116148-4	MW-4_20220720	99	87	94	106
580-116148-5	MW-5_20220720	97	87	91	109
LCS 580-399160/6	Lab Control Sample	101	88	95	106
LCSD 580-399160/7	Lab Control Sample Dup	101	90	97	106
MB 580-399160/5	Method Blank	97	85	93	107

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)	
580-116148-1	MW-1_20220720	86	
580-116148-2	MW-2_20220720	89	
580-116148-3	MW-3_20220720	86	
580-116148-4	MW-4_20220720	87	
580-116148-5	MW-5_20220720	87	
LCS 580-399157/8	Lab Control Sample	89	
LCSD 580-399157/9	Lab Control Sample Dup	89	
MB 580-399157/5	Method Blank	85	

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)	
580-116148-1	MW-1_20220720	68	
580-116148-2	MW-2_20220720	72	
580-116148-3	MW-3_20220720	51	
580-116148-4	MW-4_20220720	70	
580-116148-5	MW-5_20220720	71	
LCS 580-399220/2-A	Lab Control Sample	87	
LCSD 580-399220/3-A	Lab Control Sample Dup	97	
MB 580-399220/1-A	Method Blank	67	

Surrogate Legend

OTPH = o-Terphenyl

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QC Sample Results

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

Job ID: 580-116148-1

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

Lab Sample ID: MB 580-399160/5

Matrix: Water

Analysis Batch: 399160

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			08/02/22 21:10	1
Ethylbenzene	ND		1.0		ug/L			08/02/22 21:10	1
m-Xylene & p-Xylene	ND		2.0		ug/L			08/02/22 21:10	1
o-Xylene	ND		1.0		ug/L			08/02/22 21:10	1
Toluene	ND		1.0		ug/L			08/02/22 21:10	1
Xylenes, Total	ND		2.0		ug/L			08/02/22 21:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		08/02/22 21:10	1
4-Bromofluorobenzene (Surr)	85		80 - 120		08/02/22 21:10	1
Dibromofluoromethane (Surr)	93		80 - 120		08/02/22 21:10	1
Toluene-d8 (Surr)	107		80 - 120		08/02/22 21:10	1

Lab Sample ID: LCS 580-399160/6

Matrix: Water

Analysis Batch: 399160

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	11.3		ug/L		113	80 - 122
Ethylbenzene	10.0	10.9		ug/L		109	80 - 120
m-Xylene & p-Xylene	10.0	11.0		ug/L		110	80 - 120
o-Xylene	10.0	10.6		ug/L		106	80 - 120
Toluene	10.0	11.3		ug/L		113	80 - 120
Xylenes, Total	20.0	21.6		ug/L		108	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	88		80 - 120
Dibromofluoromethane (Surr)	95		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: LCSD 580-399160/7

Matrix: Water

Analysis Batch: 399160

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	11.3		ug/L		113	80 - 122	0	14
Ethylbenzene	10.0	10.7		ug/L		107	80 - 120	3	14
m-Xylene & p-Xylene	10.0	10.7		ug/L		107	80 - 120	3	14
o-Xylene	10.0	10.5		ug/L		105	80 - 120	1	16
Toluene	10.0	11.3		ug/L		113	80 - 120	0	13
Xylenes, Total	20.0	21.2		ug/L		106	80 - 120	2	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	90		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120

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QC Sample Results

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

Job ID: 580-116148-1

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

Lab Sample ID: LCSD 580-399160/7

Matrix: Water

Analysis Batch: 399160

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	106		80 - 120

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

Lab Sample ID: MB 580-399157/5

Matrix: Water

Analysis Batch: 399157

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			08/02/22 21:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123					08/02/22 21:10	1

Lab Sample ID: LCS 580-399157/8

Matrix: Water

Analysis Batch: 399157

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1000	760		ug/L		76	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	89		77 - 123				

Lab Sample ID: LCSD 580-399157/9

Matrix: Water

Analysis Batch: 399157

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	760		ug/L		76	55 - 148	0	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	89		77 - 123						

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

Lab Sample ID: MB 580-399220/1-A

Matrix: Water

Analysis Batch: 399327

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 399220

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		55		ug/L		08/03/22 08:49	08/03/22 20:22	1
Motor Oil (>C24-C36)	ND		180		ug/L		08/03/22 08:49	08/03/22 20:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	67		50 - 150				08/03/22 08:49	08/03/22 20:22	1

Eurofins Seattle

QC Sample Results

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

Job ID: 580-116148-1

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

Lab Sample ID: LCS 580-399220/2-A

Matrix: Water

Analysis Batch: 399327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 399220

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4000	3370		ug/L		84	50 - 120
Motor Oil (>C24-C36)	4000	3950		ug/L		99	64 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
o-Terphenyl	87		50 - 150				

Lab Sample ID: LCSD 580-399220/3-A

Matrix: Water

Analysis Batch: 399327

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 399220

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4000	3710		ug/L		93	50 - 120	10	26
Motor Oil (>C24-C36)	4000	4260		ug/L		107	64 - 120	8	24
LCSD LCSD									
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	97		50 - 150						

QC Association Summary

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

Job ID: 580-116148-1

GC/MS VOA

Analysis Batch: 399157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-116148-1	MW-1_20220720	Total/NA	Water	NWTPH-Gx	
580-116148-2	MW-2_20220720	Total/NA	Water	NWTPH-Gx	
580-116148-3	MW-3_20220720	Total/NA	Water	NWTPH-Gx	
580-116148-4	MW-4_20220720	Total/NA	Water	NWTPH-Gx	
580-116148-5	MW-5_20220720	Total/NA	Water	NWTPH-Gx	
MB 580-399157/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-399157/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-399157/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 399160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-116148-1	MW-1_20220720	Total/NA	Water	8260D	
580-116148-2	MW-2_20220720	Total/NA	Water	8260D	
580-116148-3	MW-3_20220720	Total/NA	Water	8260D	
580-116148-4	MW-4_20220720	Total/NA	Water	8260D	
580-116148-5	MW-5_20220720	Total/NA	Water	8260D	
MB 580-399160/5	Method Blank	Total/NA	Water	8260D	
LCS 580-399160/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-399160/7	Lab Control Sample Dup	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 399220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-116148-1	MW-1_20220720	Total/NA	Water	3510C	
580-116148-2	MW-2_20220720	Total/NA	Water	3510C	
580-116148-3	MW-3_20220720	Total/NA	Water	3510C	
580-116148-4	MW-4_20220720	Total/NA	Water	3510C	
580-116148-5	MW-5_20220720	Total/NA	Water	3510C	
MB 580-399220/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-399220/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-399220/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 399327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-116148-1	MW-1_20220720	Total/NA	Water	NWTPH-Dx	399220
580-116148-2	MW-2_20220720	Total/NA	Water	NWTPH-Dx	399220
580-116148-4	MW-4_20220720	Total/NA	Water	NWTPH-Dx	399220
580-116148-5	MW-5_20220720	Total/NA	Water	NWTPH-Dx	399220
MB 580-399220/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	399220
LCS 580-399220/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	399220
LCSD 580-399220/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	399220

Analysis Batch: 399696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-116148-3	MW-3_20220720	Total/NA	Water	NWTPH-Dx	399220

Lab Chronicle

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

Job ID: 580-116148-1

Client Sample ID: MW-1_20220720

Lab Sample ID: 580-116148-1

Date Collected: 07/20/22 14:20

Matrix: Water

Date Received: 07/20/22 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399160	RJL	EET SEA	08/02/22 23:12
Total/NA	Analysis	NWTPH-Gx		1	399157	RJL	EET SEA	08/02/22 23:12
Total/NA	Prep	3510C			399220	KLW	EET SEA	08/03/22 08:49
Total/NA	Analysis	NWTPH-Dx		1	399327	DH	EET SEA	08/03/22 23:04

Client Sample ID: MW-2_20220720

Lab Sample ID: 580-116148-2

Date Collected: 07/20/22 12:00

Matrix: Water

Date Received: 07/20/22 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399160	RJL	EET SEA	08/02/22 23:37
Total/NA	Analysis	NWTPH-Gx		1	399157	RJL	EET SEA	08/02/22 23:37
Total/NA	Prep	3510C			399220	KLW	EET SEA	08/03/22 08:49
Total/NA	Analysis	NWTPH-Dx		1	399327	DH	EET SEA	08/03/22 23:24

Client Sample ID: MW-3_20220720

Lab Sample ID: 580-116148-3

Date Collected: 07/20/22 11:20

Matrix: Water

Date Received: 07/20/22 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399160	RJL	EET SEA	08/03/22 00:01
Total/NA	Analysis	NWTPH-Gx		1	399157	RJL	EET SEA	08/03/22 00:01
Total/NA	Prep	3510C			399220	KLW	EET SEA	08/03/22 08:49
Total/NA	Analysis	NWTPH-Dx		1	399696	Y1F	EET SEA	08/07/22 05:50

Client Sample ID: MW-4_20220720

Lab Sample ID: 580-116148-4

Date Collected: 07/20/22 10:45

Matrix: Water

Date Received: 07/20/22 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399160	RJL	EET SEA	08/03/22 00:26
Total/NA	Analysis	NWTPH-Gx		1	399157	RJL	EET SEA	08/03/22 00:26
Total/NA	Prep	3510C			399220	KLW	EET SEA	08/03/22 08:49
Total/NA	Analysis	NWTPH-Dx		1	399327	DH	EET SEA	08/04/22 00:24

Client Sample ID: MW-5_20220720

Lab Sample ID: 580-116148-5

Date Collected: 07/20/22 13:45

Matrix: Water

Date Received: 07/20/22 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399160	RJL	EET SEA	08/03/22 00:50
Total/NA	Analysis	NWTPH-Gx		1	399157	RJL	EET SEA	08/03/22 00:50
Total/NA	Prep	3510C			399220	KLW	EET SEA	08/03/22 08:49
Total/NA	Analysis	NWTPH-Dx		1	399327	DH	EET SEA	08/04/22 00:44

Eurofins Seattle

Lab Chronicle

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

Job ID: 580-116148-1

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

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Accreditation/Certification Summary

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

Job ID: 580-116148-1

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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Method Summary

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

Job ID: 580-116148-1

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: 580-116148-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-116148-1	MW-1_20220720	Water	07/20/22 14:20	07/20/22 15:10
580-116148-2	MW-2_20220720	Water	07/20/22 12:00	07/20/22 15:10
580-116148-3	MW-3_20220720	Water	07/20/22 11:20	07/20/22 15:10
580-116148-4	MW-4_20220720	Water	07/20/22 10:45	07/20/22 15:10
580-116148-5	MW-5_20220720	Water	07/20/22 13:45	07/20/22 15:10

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



580-116148 Chain of Custody

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
Lab PM: Elaine Walker	Lead Regulatory Agency: Washington Department of Ecology	Address: 4006 148th Ave NE, Redmond, WA 98052
Lab Phone: 253.248.4972	California Global ID No.: NA	Consultant/Contractor PM: Megan Richard
Lab Shipping Acct: NA	Enfos Proposal No: 00BPT-0011/WR1043075	Phone: 425-498-7711 Email: Megan.Richard@anteagroup.us
Lab Bottle Order No: NA	Accounting Mode: Provision ☒ 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 ☒

BP/RM PM: Wade Melton				Sample Details		Requested Analyses												Report Type & QC Level			
PM Phone: 360-594-7978																		Limited (Standard) Package ☐			
PM Email: wade.melton@bp.com																		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	Analysis	4260BTEX	NWTPH-Gx	NWTPH-DX	Comments							
	MW-1_20220720	7/20/22	1420	W				G			X	X	X								
	MW-2_20220720	7/20/22	1200	W				G			X	X	X								
	MW-3_20220720	7/20/22	1120	W				G			X	X	X								
	MW-4_20220720	7/20/22	1045	W				G			X	X	X								
	MW-5_20220720	7/20/22	1345	W				G			X	X	X								
	Trip Blank			W				G			X	X									

Therm. ID: A3 Cor: 9.2 ° Inc: 9.1 °
Cooler Desc: LB
Packing: Bub
Cust. Seal: Yes No
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Cour:
Other: CD

Sampler's Name: Sam Hinz + Jesse Schewe	Relinquished By / Affiliation: Sam Hinz / Antea Group	Date: 7/20/22	Time: 1510	Accepted By / Affiliation: [Signature]	Date: 7/20/22	Time: 1510
Sampler's Company: Antea Group						
Ship Method: Courier	Ship Date: 7/20/22					
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 Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP LaMP Soil/H2O COC July 2018

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-116148-1

Login Number: 116148

List Number: 1

Creator: Presley, Kim A

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	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.	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.	False	Refer to Job Narrative for details.
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.: 580-116148-1

SDG No.: _____

Batch Number: 399160 Batch Start Date: 08/02/22 19:56 Batch Analyst: Laplace, Richard JBatch Method: 8260D Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	VOAMasterMix 00088	VOASTDGASweek 00116
MB 580-399160/5		8260D		5 mL	5 mL		1 uL		
LCS 580-399160/6		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
LCSD 580-399160/7		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
580-116148-F-1	MW-1_20220720	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-D-2	MW-2_20220720	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-B-3	MW-3_20220720	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-D-4	MW-4_20220720	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-B-5	MW-5_20220720	8260D	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes

pH Indicator ID	6007004
Vial Lot Number	0128701G

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

Page 1 of 1

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-116148-1

SDG No.: _____

Batch Number: 399157 Batch Start Date: 08/02/22 19:56 Batch Analyst: Laplace, Richard JBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	gro_icv2 00008	
MB 580-399157/5		NWTPH-Gx		5 mL	5 mL		1 uL		
LCS 580-399157/8		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-399157/9		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-116148-F-1	MW-1_20220720	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-D-2	MW-2_20220720	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-B-3	MW-3_20220720	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-D-4	MW-4_20220720	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-116148-B-5	MW-5_20220720	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes	
pH Indicator ID	6007004
Vial Lot Number	0128701G

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

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins SeattleJob No.: 580-116148-1

SDG No.: _____

Batch Number: 399220Batch Start Date: 08/03/22 08:48Batch Analyst: Whelan, Katja LBatch Method: 3510CBatch End Date: 08/03/22 15:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-399220/1		3510C, NWTPH-Dx				250 mL	1 mL	7 SU	2 SU
LCS 580-399220/2		3510C, NWTPH-Dx				250 mL	1 mL	7 SU	2 SU
LCS 580-399220/3		3510C, NWTPH-Dx				250 mL	1 mL	7 SU	2 SU
580-116148-G-1	MW-1_20220720	3510C, NWTPH-Dx	T	00408.39 g	00168.71 g	239.7 mL	2 mL	2 SU	n/a SU
580-116148-G-2	MW-2_20220720	3510C, NWTPH-Dx	T	00404.88 g	00168.36 g	236.5 mL	2 mL	2 SU	n/a SU
580-116148-G-3	MW-3_20220720	3510C, NWTPH-Dx	T	00406.31 g	00167.79 g	238.5 mL	2 mL	2 SU	n/a SU
580-116148-G-4	MW-4_20220720	3510C, NWTPH-Dx	T	00397.15 g	00168.29 g	228.9 mL	2 mL	2 SU	n/a SU
580-116148-H-5	MW-5_20220720	3510C, NWTPH-Dx	T	00415.67 g	00168.45 g	247.2 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	SecondAdjustpH	TPH_Water_Spk 00034	TPH_WaterSurr 00087			
MB 580-399220/1		3510C, NWTPH-Dx		n/a SU		100 uL			
LCS 580-399220/2		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
LCS 580-399220/3		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
580-116148-G-1	MW-1_20220720	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-116148-G-2	MW-2_20220720	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-116148-G-3	MW-3_20220720	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-116148-G-4	MW-4_20220720	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-116148-H-5	MW-5_20220720	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.

NWTPH-Dx

Page 1 of 2

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-116148-1

SDG No.: _____

Batch Number: 399220 Batch Start Date: 08/03/22 08:48 Batch Analyst: Whelan, Katja LBatch Method: 3510C Batch End Date: 08/03/22 15:15

Batch Notes	
Method/Fraction	3510C_LVI/NWTPH_Dx/AK102_103
Balance ID	SEA225
pH Indicator ID	6007004
Pipette/Syringe/Dispenser ID	MP5
Analyst ID - Extraction	JY/KW
Reagent Water ID	DI
Analyst ID - Spike Analyst	JY
Analyst ID - Spike Witness Analyst	KW
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	3213801
Prep Solvent ID	22E1362009
Prep Solvent Volume Used	100 mL
Filter ID	3022575
Na2SO4 ID	3172858
Analyst ID - Concentration	JY
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70-75 Degrees C
Concentration 1 Corrected Temperature	69.6-74.6 Degrees C
Equipment ID - Concentration 2	Turbovap 6
Thermometer ID - Concentration 2	DIGITALREADOUT
Concentration 2 Uncorrected Temperature	35 Degrees C
Concentration 2 Corrected Temperature	34.8 Degrees C
Vial Lot Number	21126032/70403126135
Batch Comment	Vialed by: JY

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

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Environment Testing

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-118939-1

Client Project/Site: BP - OPLC - Tacoma Junction-20221018
Sampling Event: OPLC-Tacoma Junction

For:

Antea USA Inc.
4006 148th Ave NE
Redmond, Washington 98052

Attn: Jesse Schewe

Authorized for release by:
11/1/2022 11:11:17 AM

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

LINKS

Review your project
results through



Have a Question?



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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Antea USA Inc.

Job ID: 580-118939-1

Project/Site: BP - OPLC - Tacoma Junction-20221018

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/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Job ID: 580-118939-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative 580-118939-1

Comments

No additional comments.

Receipt

The samples were received on 10/18/2022 2:00 PM. Unless otherwise noted below, the samples arrived in good condition. The temperature of the cooler at receipt was 7.9° C.

GC/MS VOA

Method 8260D: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2_20221018 (580-118939-2). Elevated reporting limits (RLs) are provided.

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

GC Semi VOA

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

Organic Prep

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

VOA Prep

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

Detection Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: MW-1_20221018

Lab Sample ID: 580-118939-1

No Detections.

Client Sample ID: MW-2_20221018

Lab Sample ID: 580-118939-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	20		10		ug/L	10		8260D	Total/NA
Ethylbenzene	12		10		ug/L	10		8260D	Total/NA
Gasoline	3200		500		ug/L	10		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	650		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20221018

Lab Sample ID: 580-118939-3

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

Client Sample ID: MW-4_20221018

Lab Sample ID: 580-118939-4

No Detections.

Client Sample ID: MW-5_20221018

Lab Sample ID: 580-118939-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline	110		50		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	130		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: Trip Blank-20221018

Lab Sample ID: 580-118939-6

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-20221018

Job ID: 580-118939-1

Client Sample ID: MW-1_20221018

Lab Sample ID: 580-118939-1

Date Collected: 10/18/22 13:10

Matrix: Water

Date Received: 10/18/22 14:00

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			10/28/22 20:54	1
Ethylbenzene	ND		1.0		ug/L			10/28/22 20:54	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/28/22 20:54	1
o-Xylene	ND		1.0		ug/L			10/28/22 20:54	1
Toluene	ND		1.0		ug/L			10/28/22 20:54	1
Xylenes, Total	ND		2.0		ug/L			10/28/22 20:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		10/28/22 20:54	1
4-Bromofluorobenzene (Surr)	102		80 - 120		10/28/22 20:54	1
Dibromofluoromethane (Surr)	101		80 - 120		10/28/22 20:54	1
Toluene-d8 (Surr)	99		80 - 120		10/28/22 20:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/28/22 20:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123		10/28/22 20:54	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		110		ug/L		10/25/22 14:42	10/26/22 02:47	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/26/22 02:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	60		50 - 150	10/25/22 14:42	10/26/22 02:47	1

Client Sample ID: MW-2_20221018

Lab Sample ID: 580-118939-2

Date Collected: 10/18/22 11:45

Matrix: Water

Date Received: 10/18/22 14:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20		10		ug/L			10/28/22 22:07	10
Ethylbenzene	12		10		ug/L			10/28/22 22:07	10
m-Xylene & p-Xylene	ND		20		ug/L			10/28/22 22:07	10
o-Xylene	ND		10		ug/L			10/28/22 22:07	10
Toluene	ND		10		ug/L			10/28/22 22:07	10
Xylenes, Total	ND		20		ug/L			10/28/22 22:07	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		10/28/22 22:07	10
4-Bromofluorobenzene (Surr)	102		80 - 120		10/28/22 22:07	10
Dibromofluoromethane (Surr)	101		80 - 120		10/28/22 22:07	10
Toluene-d8 (Surr)	99		80 - 120		10/28/22 22:07	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	3200		500		ug/L			10/28/22 22:07	10

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Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: MW-2_20221018

Lab Sample ID: 580-118939-2

Date Collected: 10/18/22 11:45

Matrix: Water

Date Received: 10/18/22 14:00

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123					10/28/22 22:07	10
Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	650		110		ug/L		10/25/22 14:42	10/26/22 03:05	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/26/22 03:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150				10/25/22 14:42	10/26/22 03:05	1

Client Sample ID: MW-3_20221018

Lab Sample ID: 580-118939-3

Date Collected: 10/18/22 10:15

Matrix: Water

Date Received: 10/18/22 14:00

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			10/29/22 04:35	1
Ethylbenzene	ND		1.0		ug/L			10/29/22 04:35	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/29/22 04:35	1
o-Xylene	ND		1.0		ug/L			10/29/22 04:35	1
Toluene	ND		1.0		ug/L			10/29/22 04:35	1
Xylenes, Total	ND		2.0		ug/L			10/29/22 04:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					10/29/22 04:35	1
4-Bromofluorobenzene (Surr)	103		80 - 120					10/29/22 04:35	1
Dibromofluoromethane (Surr)	102		80 - 120					10/29/22 04:35	1
Toluene-d8 (Surr)	99		80 - 120					10/29/22 04:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/29/22 04:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		77 - 123					10/29/22 04:35	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)	110		110		ug/L		10/25/22 14:42	10/26/22 03:42	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/26/22 03:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	60		50 - 150				10/25/22 14:42	10/26/22 03:42	1

Client Sample ID: MW-4_20221018

Lab Sample ID: 580-118939-4

Date Collected: 10/18/22 09:30

Matrix: Water

Date Received: 10/18/22 14:00

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			10/29/22 04:10	1
Ethylbenzene	ND		1.0		ug/L			10/29/22 04:10	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/29/22 04:10	1

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Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: MW-4_20221018

Lab Sample ID: 580-118939-4

Date Collected: 10/18/22 09:30

Matrix: Water

Date Received: 10/18/22 14:00

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			10/29/22 04:10	1
Toluene	ND		1.0		ug/L			10/29/22 04:10	1
Xylenes, Total	ND		2.0		ug/L			10/29/22 04:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120					10/29/22 04:10	1
4-Bromofluorobenzene (Surr)	99		80 - 120					10/29/22 04:10	1
Dibromofluoromethane (Surr)	101		80 - 120					10/29/22 04:10	1
Toluene-d8 (Surr)	101		80 - 120					10/29/22 04:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/29/22 04:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		77 - 123					10/29/22 04:10	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		110		ug/L		10/25/22 14:42	10/26/22 04:00	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/26/22 04:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	59		50 - 150				10/25/22 14:42	10/26/22 04:00	1

Client Sample ID: MW-5_20221018

Lab Sample ID: 580-118939-5

Date Collected: 10/18/22 12:25

Matrix: Water

Date Received: 10/18/22 14:00

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			10/29/22 03:46	1
Ethylbenzene	ND		1.0		ug/L			10/29/22 03:46	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/29/22 03:46	1
o-Xylene	ND		1.0		ug/L			10/29/22 03:46	1
Toluene	ND		1.0		ug/L			10/29/22 03:46	1
Xylenes, Total	ND		2.0		ug/L			10/29/22 03:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					10/29/22 03:46	1
4-Bromofluorobenzene (Surr)	101		80 - 120					10/29/22 03:46	1
Dibromofluoromethane (Surr)	102		80 - 120					10/29/22 03:46	1
Toluene-d8 (Surr)	100		80 - 120					10/29/22 03:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	110		50		ug/L			10/29/22 03:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123					10/29/22 03:46	1

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Client Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: MW-5_20221018

Lab Sample ID: 580-118939-5

Date Collected: 10/18/22 12:25

Matrix: Water

Date Received: 10/18/22 14:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	130		110		ug/L		10/25/22 14:42	10/26/22 04:19	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/26/22 04:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	51		50 - 150				10/25/22 14:42	10/26/22 04:19	1

Client Sample ID: Trip Blank-20221018

Lab Sample ID: 580-118939-6

Date Collected: 10/18/22 00:01

Matrix: Water

Date Received: 10/18/22 14:00

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			10/29/22 03:22	1
Ethylbenzene	ND		1.0		ug/L			10/29/22 03:22	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/29/22 03:22	1
o-Xylene	ND		1.0		ug/L			10/29/22 03:22	1
Toluene	ND		1.0		ug/L			10/29/22 03:22	1
Xylenes, Total	ND		2.0		ug/L			10/29/22 03:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					10/29/22 03:22	1
4-Bromofluorobenzene (Surr)	100		80 - 120					10/29/22 03:22	1
Dibromofluoromethane (Surr)	99		80 - 120					10/29/22 03:22	1
Toluene-d8 (Surr)	101		80 - 120					10/29/22 03:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/29/22 03:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		77 - 123					10/29/22 03:22	1

Surrogate Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA	BFB	DBFM	TOL
		(80-120)	(80-120)	(80-120)	(80-120)
580-118939-1	MW-1_20221018	99	102	101	99
580-118939-2	MW-2_20221018	102	102	101	99
580-118939-3	MW-3_20221018	101	103	102	99
580-118939-4	MW-4_20221018	102	99	101	101
580-118939-5	MW-5_20221018	103	101	102	100
580-118939-6	Trip Blank-20221018	101	100	99	101
LCS 580-408285/32	Lab Control Sample	107	99	104	98
LCS 580-408334/7	Lab Control Sample	106	100	102	97
LCSD 580-408285/33	Lab Control Sample Dup	107	101	104	98
LCSD 580-408334/8	Lab Control Sample Dup	103	103	102	96
MB 580-408285/5	Method Blank	104	97	102	101
MB 580-408334/6	Method Blank	100	105	100	99

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)

Lab Sample ID	Client Sample ID	BFB
		(77-123)
580-118939-1	MW-1_20221018	102
580-118939-2	MW-2_20221018	102
580-118939-3	MW-3_20221018	103
580-118939-4	MW-4_20221018	99
580-118939-5	MW-5_20221018	101
580-118939-6	Trip Blank-20221018	100
LCS 580-408279/6	Lab Control Sample	98
LCS 580-408328/9	Lab Control Sample	103
LCSD 580-408279/7	Lab Control Sample Dup	99
LCSD 580-408328/10	Lab Control Sample Dup	101
MB 580-408279/5	Method Blank	97
MB 580-408328/6	Method Blank	105

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)

Lab Sample ID	Client Sample ID	OTPH
		(50-150)
580-118939-1	MW-1_20221018	60
580-118939-2	MW-2_20221018	56
580-118939-3	MW-3_20221018	60
580-118939-4	MW-4_20221018	59

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Surrogate Summary

Client: Antea USA Inc.

Job ID: 580-118939-1

Project/Site: BP - OPLC - Tacoma Junction-20221018

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)
580-118939-5	MW-5_20221018	51
LCS 580-407857/2-A	Lab Control Sample	78
LCSD 580-407857/3-A	Lab Control Sample Dup	76
MB 580-407857/1-A	Method Blank	58

Surrogate Legend

OTPH = o-Terphenyl

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Lab Sample ID: MB 580-408285/5

Matrix: Water

Analysis Batch: 408285

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			10/28/22 16:03	1
Ethylbenzene	ND		1.0		ug/L			10/28/22 16:03	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/28/22 16:03	1
o-Xylene	ND		1.0		ug/L			10/28/22 16:03	1
Toluene	ND		1.0		ug/L			10/28/22 16:03	1
Xylenes, Total	ND		2.0		ug/L			10/28/22 16:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120		10/28/22 16:03	1
4-Bromofluorobenzene (Surr)	97		80 - 120		10/28/22 16:03	1
Dibromofluoromethane (Surr)	102		80 - 120		10/28/22 16:03	1
Toluene-d8 (Surr)	101		80 - 120		10/28/22 16:03	1

Lab Sample ID: LCS 580-408285/32

Matrix: Water

Analysis Batch: 408285

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	9.77		ug/L		98	80 - 122
Ethylbenzene	10.0	10.4		ug/L		104	80 - 120
m-Xylene & p-Xylene	10.0	10.2		ug/L		102	80 - 120
o-Xylene	10.0	10.4		ug/L		104	80 - 120
Toluene	10.0	9.89		ug/L		99	80 - 120
Xylenes, Total	20.0	20.6		ug/L		103	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		80 - 120
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120
Toluene-d8 (Surr)	98		80 - 120

Lab Sample ID: LCSD 580-408285/33

Matrix: Water

Analysis Batch: 408285

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	9.60		ug/L		96	80 - 122	2	14
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120	1	14
m-Xylene & p-Xylene	10.0	10.4		ug/L		104	80 - 120	1	14
o-Xylene	10.0	10.4		ug/L		104	80 - 120	0	16
Toluene	10.0	9.83		ug/L		98	80 - 120	1	13
Xylenes, Total	20.0	20.8		ug/L		104	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		80 - 120
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120

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QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Lab Sample ID: LCSD 580-408285/33

Matrix: Water

Analysis Batch: 408285

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	98		80 - 120

Lab Sample ID: MB 580-408334/6

Matrix: Water

Analysis Batch: 408334

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			10/29/22 01:20	1
Ethylbenzene	ND		1.0		ug/L			10/29/22 01:20	1
m-Xylene & p-Xylene	ND		2.0		ug/L			10/29/22 01:20	1
o-Xylene	ND		1.0		ug/L			10/29/22 01:20	1
Toluene	ND		1.0		ug/L			10/29/22 01:20	1
Xylenes, Total	ND		2.0		ug/L			10/29/22 01:20	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier					
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		10/29/22 01:20	1
4-Bromofluorobenzene (Surr)	105		80 - 120		10/29/22 01:20	1
Dibromofluoromethane (Surr)	100		80 - 120		10/29/22 01:20	1
Toluene-d8 (Surr)	99		80 - 120		10/29/22 01:20	1

Lab Sample ID: LCS 580-408334/7

Matrix: Water

Analysis Batch: 408334

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
Added	Result	Qualifier				Limits	
Benzene	10.0	9.30		ug/L		93	80 - 122
Ethylbenzene	10.0	9.84		ug/L		98	80 - 120
m-Xylene & p-Xylene	10.0	9.92		ug/L		99	80 - 120
o-Xylene	10.0	9.87		ug/L		99	80 - 120
Toluene	10.0	9.43		ug/L		94	80 - 120
Xylenes, Total	20.0	19.8		ug/L		99	80 - 120

Surrogate	LCS	LCS	Limits
%Recovery	Qualifier		
1,2-Dichloroethane-d4 (Surr)	106		80 - 120
4-Bromofluorobenzene (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	97		80 - 120

Lab Sample ID: LCSD 580-408334/8

Matrix: Water

Analysis Batch: 408334

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	10.0	9.22		ug/L		92	80 - 122	1	14
Ethylbenzene	10.0	9.71		ug/L		97	80 - 120	1	14
m-Xylene & p-Xylene	10.0	9.83		ug/L		98	80 - 120	1	14
o-Xylene	10.0	9.88		ug/L		99	80 - 120	0	16
Toluene	10.0	9.19		ug/L		92	80 - 120	3	13

Eurofins Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Lab Sample ID: LCSD 580-408334/8

Matrix: Water

Analysis Batch: 408334

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	20.0	19.7		ug/L		99	80 - 120	0	16
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	103		80 - 120						
4-Bromofluorobenzene (Surr)	103		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	96		80 - 120						

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

Lab Sample ID: MB 580-408279/5

Matrix: Water

Analysis Batch: 408279

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/28/22 16:03	1
Surrogate	MB %Recovery	MB Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		77 - 123						

Lab Sample ID: LCS 580-408279/6

Matrix: Water

Analysis Batch: 408279

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Gasoline			1000	1040		ug/L		104	55 - 148		
	LCS	LCS									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	98		77 - 123								

Lab Sample ID: LCSD 580-408279/7

Matrix: Water

Analysis Batch: 408279

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	1100		ug/L		110	55 - 148	6	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		77 - 123						

Lab Sample ID: MB 580-408328/6

Matrix: Water

Analysis Batch: 408328

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		50		ug/L			10/29/22 01:20	1

Eurofins Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Lab Sample ID: MB 580-408328/6

Matrix: Water

Analysis Batch: 408328

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		77 - 123		10/29/22 01:20	1

Lab Sample ID: LCS 580-408328/9

Matrix: Water

Analysis Batch: 408328

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1000	1090		ug/L		109	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	103		77 - 123				

Lab Sample ID: LCSD 580-408328/10

Matrix: Water

Analysis Batch: 408328

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	1100		ug/L		110	55 - 148	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		77 - 123						

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

Lab Sample ID: MB 580-407857/1-A

Matrix: Water

Analysis Batch: 407917

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 407857

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		10/25/22 14:42	10/25/22 20:54	1
Motor Oil (>C24-C36)	ND		350		ug/L		10/25/22 14:42	10/25/22 20:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-Terphenyl	58		50 - 150	10/25/22 14:42	10/25/22 20:54	1			

Lab Sample ID: LCS 580-407857/2-A

Matrix: Water

Analysis Batch: 407917

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 407857

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4000	2860		ug/L		72	50 - 120
Motor Oil (>C24-C36)	4000	3010		ug/L		75	64 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
o-Terphenyl	78		50 - 150				

Eurofins Seattle

QC Sample Results

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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

Lab Sample ID: LCSD 580-407857/3-A

Matrix: Water

Analysis Batch: 407917

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 407857

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4000	2790		ug/L		70	50 - 120	3	26
Motor Oil (>C24-C36)	4000	3110		ug/L		78	64 - 120	3	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	76		50 - 150

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

GC/MS VOA

Analysis Batch: 408279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-1	MW-1_20221018	Total/NA	Water	NWTPH-Gx	
580-118939-2	MW-2_20221018	Total/NA	Water	NWTPH-Gx	
MB 580-408279/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-408279/6	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-408279/7	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 408285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-1	MW-1_20221018	Total/NA	Water	8260D	
580-118939-2	MW-2_20221018	Total/NA	Water	8260D	
MB 580-408285/5	Method Blank	Total/NA	Water	8260D	
LCS 580-408285/32	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-408285/33	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 408328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-3	MW-3_20221018	Total/NA	Water	NWTPH-Gx	
580-118939-4	MW-4_20221018	Total/NA	Water	NWTPH-Gx	
580-118939-5	MW-5_20221018	Total/NA	Water	NWTPH-Gx	
580-118939-6	Trip Blank-20221018	Total/NA	Water	NWTPH-Gx	
MB 580-408328/6	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-408328/9	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-408328/10	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 408334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-3	MW-3_20221018	Total/NA	Water	8260D	
580-118939-4	MW-4_20221018	Total/NA	Water	8260D	
580-118939-5	MW-5_20221018	Total/NA	Water	8260D	
580-118939-6	Trip Blank-20221018	Total/NA	Water	8260D	
MB 580-408334/6	Method Blank	Total/NA	Water	8260D	
LCS 580-408334/7	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-408334/8	Lab Control Sample Dup	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 407857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-1	MW-1_20221018	Total/NA	Water	3510C	
580-118939-2	MW-2_20221018	Total/NA	Water	3510C	
580-118939-3	MW-3_20221018	Total/NA	Water	3510C	
580-118939-4	MW-4_20221018	Total/NA	Water	3510C	
580-118939-5	MW-5_20221018	Total/NA	Water	3510C	
MB 580-407857/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-407857/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-407857/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 407917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-1	MW-1_20221018	Total/NA	Water	NWTPH-Dx	407857
580-118939-2	MW-2_20221018	Total/NA	Water	NWTPH-Dx	407857

Eurofins Seattle

QC Association Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

GC Semi VOA (Continued)

Analysis Batch: 407917 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-118939-3	MW-3_20221018	Total/NA	Water	NWTPH-Dx	407857
580-118939-4	MW-4_20221018	Total/NA	Water	NWTPH-Dx	407857
580-118939-5	MW-5_20221018	Total/NA	Water	NWTPH-Dx	407857
MB 580-407857/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	407857
LCS 580-407857/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	407857
LCSD 580-407857/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	407857

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: MW-1_20221018

Lab Sample ID: 580-118939-1

Date Collected: 10/18/22 13:10

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	408285	BNM	EET SEA	10/28/22 20:54
Total/NA	Analysis	NWTPH-Gx		1	408279	BNM	EET SEA	10/28/22 20:54
Total/NA	Prep	3510C			407857	KLW	EET SEA	10/25/22 14:42
Total/NA	Analysis	NWTPH-Dx		1	407917	DH	EET SEA	10/26/22 02:47

Client Sample ID: MW-2_20221018

Lab Sample ID: 580-118939-2

Date Collected: 10/18/22 11:45

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	408285	BNM	EET SEA	10/28/22 22:07
Total/NA	Analysis	NWTPH-Gx		10	408279	BNM	EET SEA	10/28/22 22:07
Total/NA	Prep	3510C			407857	KLW	EET SEA	10/25/22 14:42
Total/NA	Analysis	NWTPH-Dx		1	407917	DH	EET SEA	10/26/22 03:05

Client Sample ID: MW-3_20221018

Lab Sample ID: 580-118939-3

Date Collected: 10/18/22 10:15

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	408334	BNM	EET SEA	10/29/22 04:35
Total/NA	Analysis	NWTPH-Gx		1	408328	BNM	EET SEA	10/29/22 04:35
Total/NA	Prep	3510C			407857	KLW	EET SEA	10/25/22 14:42
Total/NA	Analysis	NWTPH-Dx		1	407917	DH	EET SEA	10/26/22 03:42

Client Sample ID: MW-4_20221018

Lab Sample ID: 580-118939-4

Date Collected: 10/18/22 09:30

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	408334	BNM	EET SEA	10/29/22 04:10
Total/NA	Analysis	NWTPH-Gx		1	408328	BNM	EET SEA	10/29/22 04:10
Total/NA	Prep	3510C			407857	KLW	EET SEA	10/25/22 14:42
Total/NA	Analysis	NWTPH-Dx		1	407917	DH	EET SEA	10/26/22 04:00

Client Sample ID: MW-5_20221018

Lab Sample ID: 580-118939-5

Date Collected: 10/18/22 12:25

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	408334	BNM	EET SEA	10/29/22 03:46
Total/NA	Analysis	NWTPH-Gx		1	408328	BNM	EET SEA	10/29/22 03:46
Total/NA	Prep	3510C			407857	KLW	EET SEA	10/25/22 14:42
Total/NA	Analysis	NWTPH-Dx		1	407917	DH	EET SEA	10/26/22 04:19

Eurofins Seattle

Lab Chronicle

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

Client Sample ID: Trip Blank-20221018

Lab Sample ID: 580-118939-6

Date Collected: 10/18/22 00:01

Matrix: Water

Date Received: 10/18/22 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	408334	BNM	EET SEA	10/29/22 03:22
Total/NA	Analysis	NWTPH-Gx		1	408328	BNM	EET SEA	10/29/22 03:22

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-20221018

Job ID: 580-118939-1

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Method Summary

Client: Antea USA Inc.
Project/Site: BP - OPLC - Tacoma Junction-20221018

Job ID: 580-118939-1

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-20221018

Job ID: 580-118939-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118939-1	MW-1_20221018	Water	10/18/22 13:10	10/18/22 14:00
580-118939-2	MW-2_20221018	Water	10/18/22 11:45	10/18/22 14:00
580-118939-3	MW-3_20221018	Water	10/18/22 10:15	10/18/22 14:00
580-118939-4	MW-4_20221018	Water	10/18/22 09:30	10/18/22 14:00
580-118939-5	MW-5_20221018	Water	10/18/22 12:25	10/18/22 14:00
580-118939-6	Trip Blank-20221018	Water	10/18/22 00:01	10/18/22 14:00

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:

[illegible]

I: Yes / No

Soil/H2O CQC July 2018



Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-118939-1

Login Number: 118939

List Source: Eurofins Seattle

List Number: 1

Creator: Vallelunga, Diana L

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.	N/A	
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.: 580-118939-1

SDG No.: _____

Batch Number: 408285 Batch Start Date: 10/28/22 10:28 Batch Analyst: Mautz, Brady NBatch Method: 8260D Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	VOAMasterGas 00003	
MB 580-408285/5		8260D		5 mL	5 mL		1 uL		
LCS 580-408285/32		8260D		5 mL	5 mL		1 uL	10 uL	
LCSD 580-408285/33		8260D		5 mL	5 mL		1 uL	10 uL	
580-118939-E-1	MW-1_20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-E-2	MW-2_20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes	
pH Indicator ID	6007004
Vial Lot Number	0128701G

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

Page 1 of 1

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-118939-1

SDG No.: _____

Batch Number: 408334 Batch Start Date: 10/29/22 00:32 Batch Analyst: Mautz, Brady NBatch Method: 8260D Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	VOAMasterGas 00003	
MB 580-408334/6		8260D		5 mL	5 mL		1 uL		
LCS 580-408334/7		8260D		5 mL	5 mL		1 uL	10 uL	
LCSD 580-408334/8		8260D		5 mL	5 mL		1 uL	10 uL	
580-118939-D-6	Trip Blank-20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-5	MW-5_20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-4	MW-4_20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-3	MW-3_20221018	8260D	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes	
pH Indicator ID	6007004
Vial Lot Number	0128701G

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

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GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-118939-1

SDG No.: _____

Batch Number: 408279 Batch Start Date: 10/28/22 10:28 Batch Analyst: Mautz, Brady NBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	GRO_LCS 00076	
MB 580-408279/5		NWTPH-Gx		5 mL	5 mL		1 uL		
LCS 580-408279/6		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-408279/7		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-118939-E-1	MW-1_20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-E-2	MW-2_20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes	
pH Indicator ID	6007004
Vial Lot Number	0128701G

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

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GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-118939-1

SDG No.: _____

Batch Number: 408328 Batch Start Date: 10/28/22 23:44 Batch Analyst: Mautz, Brady NBatch Method: NWTPH-Gx Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00019	GRO_LCS 00076	
MB 580-408328/6		NWTPH-Gx		5 mL	5 mL		1 uL		
LCS 580-408328/9		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-408328/10		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-118939-D-6	Trip Blank-20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-5	MW-5_20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-4	MW-4_20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-118939-F-3	MW-3_20221018	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		

Batch Notes	
pH Indicator ID	6007004
Vial Lot Number	0128701G

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

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GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins SeattleJob No.: 580-118939-1

SDG No.: _____

Batch Number: 407857Batch Start Date: 10/25/22 14:42Batch Analyst: Whelan, Katja LBatch Method: 3510CBatch End Date: 10/25/22 17:54

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-407857/1		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
LCS 580-407857/2		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
LCS 580-407857/3		3510C, NWTPH-Dx				250 mL	2 mL	7 SU	2 SU
580-118939-G-1	MW-1_20221018	3510C, NWTPH-Dx	T	413.57 g	00166.81 g	246.8 mL	2 mL	2 SU	n/a SU
580-118939-G-2	MW-2_20221018	3510C, NWTPH-Dx	T	417.30 g	00169.03 g	248.3 mL	2 mL	2 SU	n/a SU
580-118939-G-3	MW-3_20221018	3510C, NWTPH-Dx	T	415.91 g	00168.16 g	247.8 mL	2 mL	2 SU	n/a SU
580-118939-G-4	MW-4_20221018	3510C, NWTPH-Dx	T	414.22 g	00167.58 g	246.6 mL	2 mL	2 SU	n/a SU
580-118939-G-5	MW-5_20221018	3510C, NWTPH-Dx	T	414.75 g	00168.07 g	246.7 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	SecondAdjustpH	TPH_Water_Spk 00035	TPH_WaterSurr 00090			
MB 580-407857/1		3510C, NWTPH-Dx		n/a SU		100 uL			
LCS 580-407857/2		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
LCS 580-407857/3		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
580-118939-G-1	MW-1_20221018	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-118939-G-2	MW-2_20221018	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-118939-G-3	MW-3_20221018	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-118939-G-4	MW-4_20221018	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-118939-G-5	MW-5_20221018	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.

NWTPH-Dx

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GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-118939-1

SDG No.: _____

Batch Number: 407857 Batch Start Date: 10/25/22 14:42 Batch Analyst: Whelan, Katja LBatch Method: 3510C Batch End Date: 10/25/22 17:54

Batch Notes	
Method/Fraction	3510C_LVI/8015D_DRO_DOD5/8015D_DRO/NWTPH_Dx
Balance ID	SEA225
pH Indicator ID	6107003/6007004/6105009
Pipette/Syringe/Dispenser ID	MP5
Analyst ID - Extraction	KW/CS/CC/TO/TA
Reagent Water ID	DI
Analyst ID - Spike Analyst	KW
Analyst ID - Spike Witness Analyst	TO
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	3213801
Prep Solvent ID	22F1662004
Prep Solvent Volume Used	100 mL
Filter ID	17393765
Glass Wool ID	+H1084303302\$
Na2SO4 ID	Baked Na2SO4_00447
Analyst ID - Concentration	TO
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70-75 Degrees C
Concentration 1 Corrected Temperature	69.6-74.6 Degrees C
Equipment ID - Concentration 2	Turbovap 5
Thermometer ID - Concentration 2	DIGITALREADOUT
Concentration 2 Uncorrected Temperature	30 Degrees C
Concentration 2 Corrected Temperature	31.7 Degrees C
Vial Lot Number	22042037/70403126135
Analyst ID - Clean Up	KW
Silica Gel ID	3304818
Batch Comment	Vialed by:CS

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

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GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-118939-1

SDG No.: _____

Batch Number: 407857 Batch Start Date: 10/25/22 14:42 Batch Analyst: Whelan, Katja LBatch Method: 3510C Batch End Date: 10/25/22 17:54

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

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