Remediation Management Services Company

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

July 15, 2022

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

Dear Mr. Mullin:

Please find the enclosed Semi-Annual Status Report - First Half of 2022, that documents the results at Olympic Pipe Line Company LLC, Tacoma Junction located at 2660 Frank Albert Road East, Fife, Washington.

Sincerely yours,

Semi-Annual Status Report First 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
July 15, 2022
Project OPLC – Tacoma Junction

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Semi-Annual Status Report

First Half of 2022
OPLC Tacoma Junction
2660 Frank Albert Road East, Fife, Washington

Reporting Period	January 2022 – June 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 January 26, 2022 and April 27, 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 had concentrations of benzene, TPH-G, and TPH-D in excess of MTCA Method A Cleanup Levels in the first quarter sampling event. In the second quarter sampling event, MW-2 had a concentration of 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 first and second 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 July 2022.

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.

Samantha Hinze

Date: July 15, 2022

Samantha Hinze
Staff Professional

Reviewed by:

Date: July 15, 2022

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)
File, Antea Group File, Antea Group

6.0 CONTACT INFORMATION

4006 148th Avenue NE
Redmond, WA 98025 USA

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

Tables

Table 1
Groundwater Gauging Data
OPLC Tacoma Junction
2660 Frank Albert Road 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-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	--
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-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	--

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-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-4	6/29/2016	99.70	2.20	NP	--	97.50	--
MW-4	9/8/2016	99.70	2.75	NP	--	96.95	--
MW-4	12/1/2016	99.70	1.00	NP	--	98.70	--
MW-4	2/22/2017	99.70	1.05	NP	--	98.65	--
MW-4	5/10/2017	99.70	1.34	NP	--	98.36	--
MW-4	8/16/2017	99.70	2.44	NP	--	97.26	--
MW-4	10/31/2017	99.70	1.35	NP	--	98.35	--
MW-4	2/13/2018	99.70	1.02	NP	--	98.68	--
MW-4	5/2/2018	99.70	1.29	NP	--	98.41	--
MW-4	8/8/2018	99.70	3.63	NP	--	96.07	--
MW-4	10/23/2018	99.70	2.20	NP	--	97.50	--
MW-4	1/30/2019	99.70	1.05	NP	--	98.65	--
MW-4	4/24/2019	99.70	1.35	NP	--	98.35	--
MW-4	8/1/2019	99.70	2.16	NP	--	97.54	--
MW-4	10/30/2019	99.70	1.20	NP	--	98.50	--
MW-4	2/6/2020	99.70	0.80	NP	--	98.90	--
MW-4	6/24/2020	99.70	1.40	NP	--	98.30	--
MW-4	9/23/2020	99.70	2.00	NP	--	97.70	--
MW-4	11/11/2020	99.70	1.11	NP	--	98.59	--
MW-4	2/10/2021	99.70	1.07	NP	--	98.63	--
MW-4	5/6/2021	99.70	1.47	NP	--	98.23	--
MW-4	8/4/2021	99.70	2.05	NP	--	97.65	--
MW-4	11/17/2021	99.70	0.84	NP	--	98.86	--
MW-4	1/26/2022	99.70	0.88	NP	--	98.82	--
MW-4	4/27/2022	99.70	1.02	NP	--	98.68	--
MW-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	--

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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-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	--

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		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	**Date**							
MTCA METHOD A CLEANUP LEVELS		**5**	**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-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		B	T	E	X	TPH-G	TPH-D	TPH-O
UNIT		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Well ID	Date							
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	1000/800*	500	500
MW-3	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	12/1/2016	< 2.0	88	< 3.0	< 3.0	100	180	< 260
MW-3	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 260
MW-3	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	< 100	< 250
MW-3	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-3	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 100	< 260
MW-3	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 350
MW-3	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	< 100	< 100
MW-3	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-3	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	2/6/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 120	< 380
MW-3	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-3	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	2/10/2021	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	5/6/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	< 110	< 360
MW-3	8/4/2021	< 1.0	< 1.0	< 1.0	< 2.0	< 250	270	< 360
MW-3	11/17/2021	< 1.0	< 1.0 *1	< 1.0	< 2.0	< 250	< 110	< 340
MW-3	1/26/2022	< 1.0 *1	< 1.0	< 1.0 *1	< 2.0 *1	< 250	< 130	< 430
MW-3	4/27/2022	< 1.0	< 1.0	< 1.0	< 2.0	< 50	< 110	< 370
MW-4	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	110	< 250
MW-4	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	140	< 260
MW-4	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	120	< 250
MW-4	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-4	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	100	< 250
MW-4	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	130	< 350
MW-4	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350
MW-4	1/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	110	< 350
MW-4	4/24/2019	< 3.0	< 2.0	< 3.0	< 3.0 *	< 250	< 100	< 100
MW-4	8/1/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	160	< 350
MW-4	10/30/2019	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	2/6/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	6/24/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 120	< 380
MW-4	9/23/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	140	< 350
MW-4	11/11/2020	< 3.0	< 2.0	< 3.0	< 3.0	< 250	120	< 350

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

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

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

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

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

ug/L = Micrograms per liter (ppb)

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

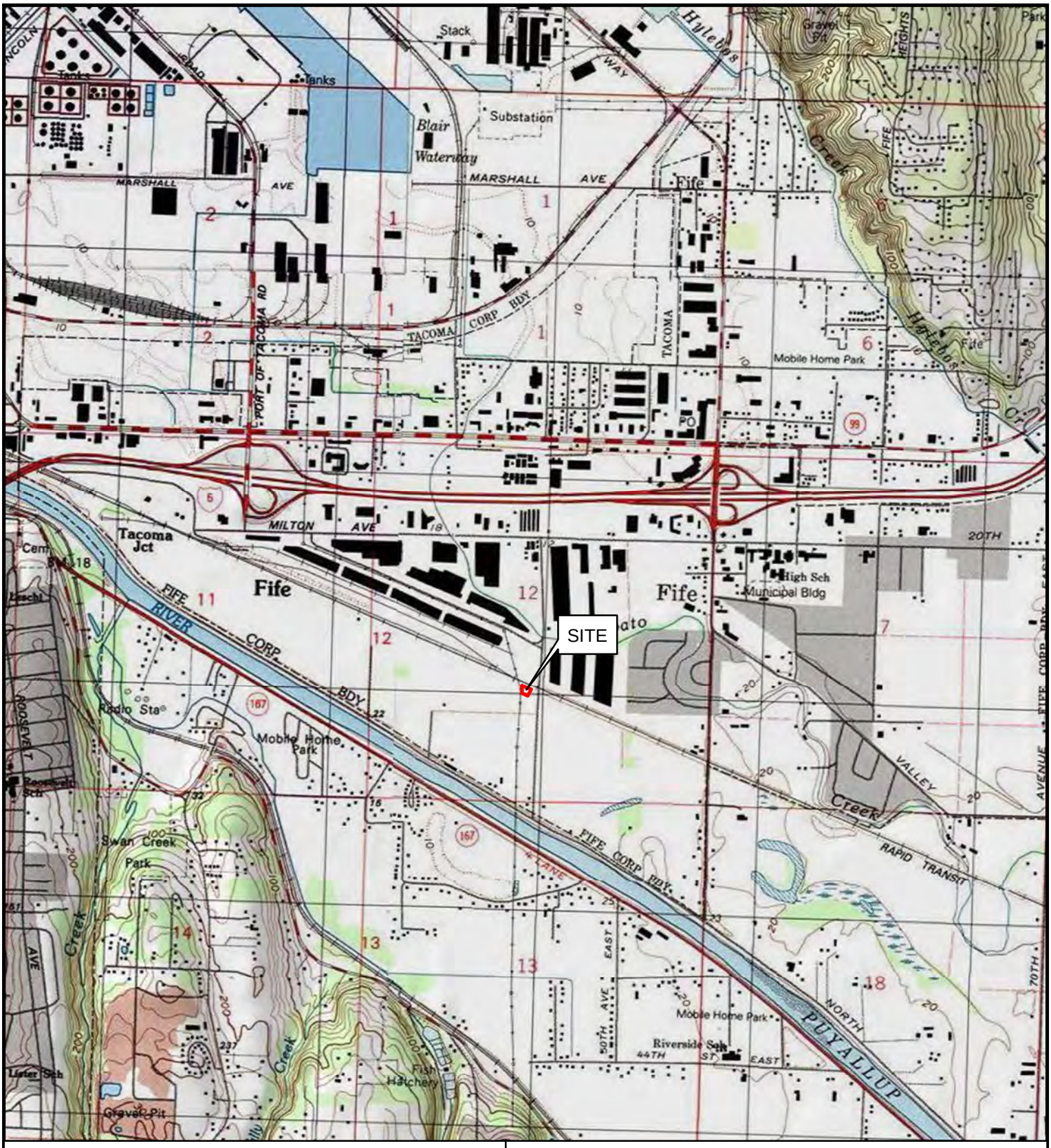
MTCA = Model Toxics Control Act

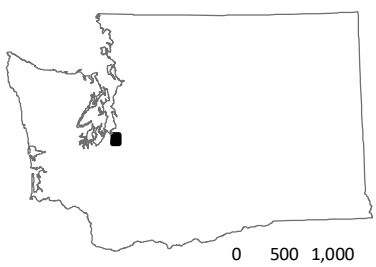
Results in **bold** indicate concentrations in excess of MTCA Method A Cleanup Levels

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

*1 = LCS/LCSD RPD exceeds control limits.

Figures





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

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

FIGURE 1

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

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

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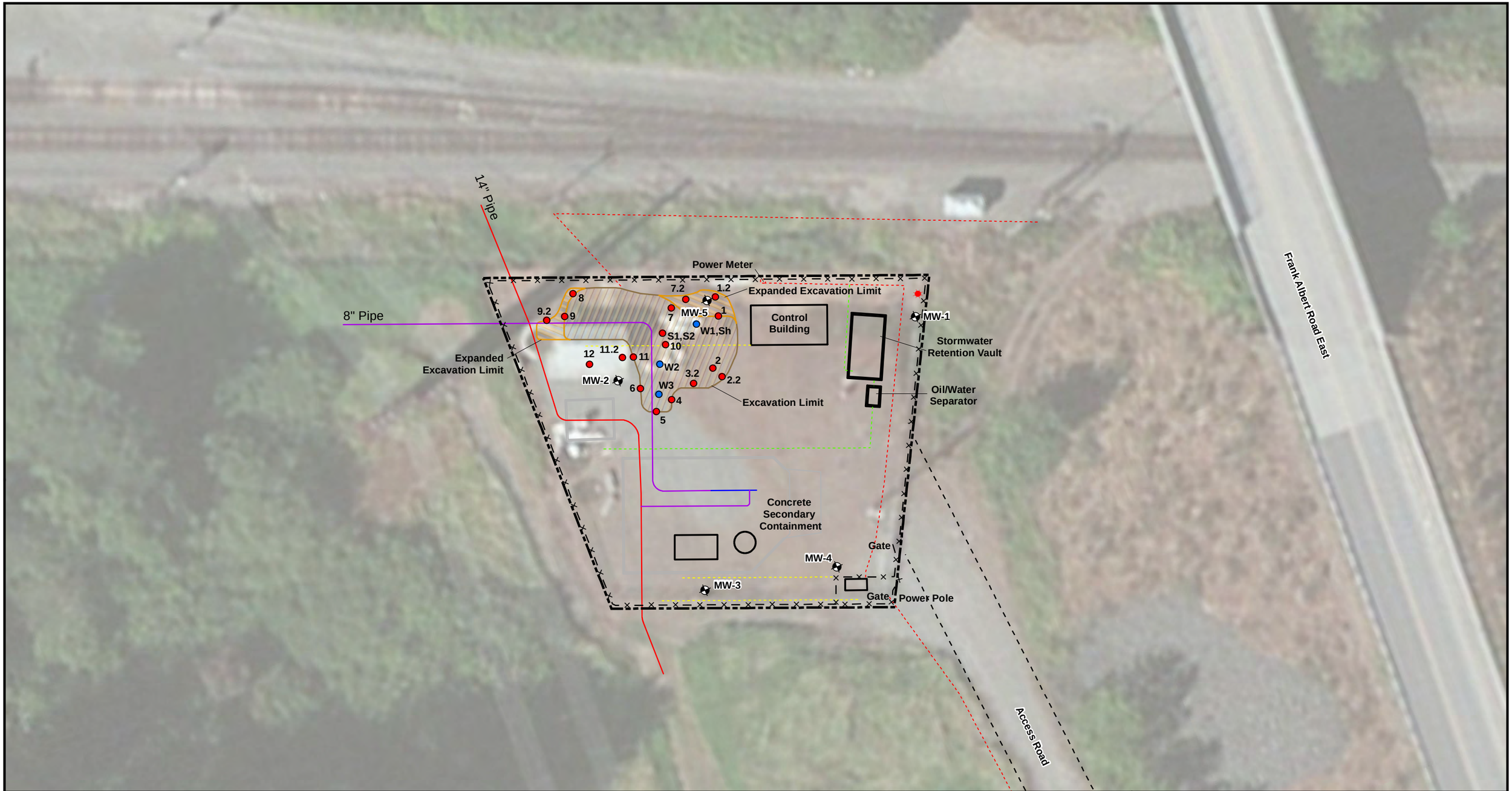

Legend

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

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

N

0 15 30 60 90 120 Feet

FIGURE 2

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

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

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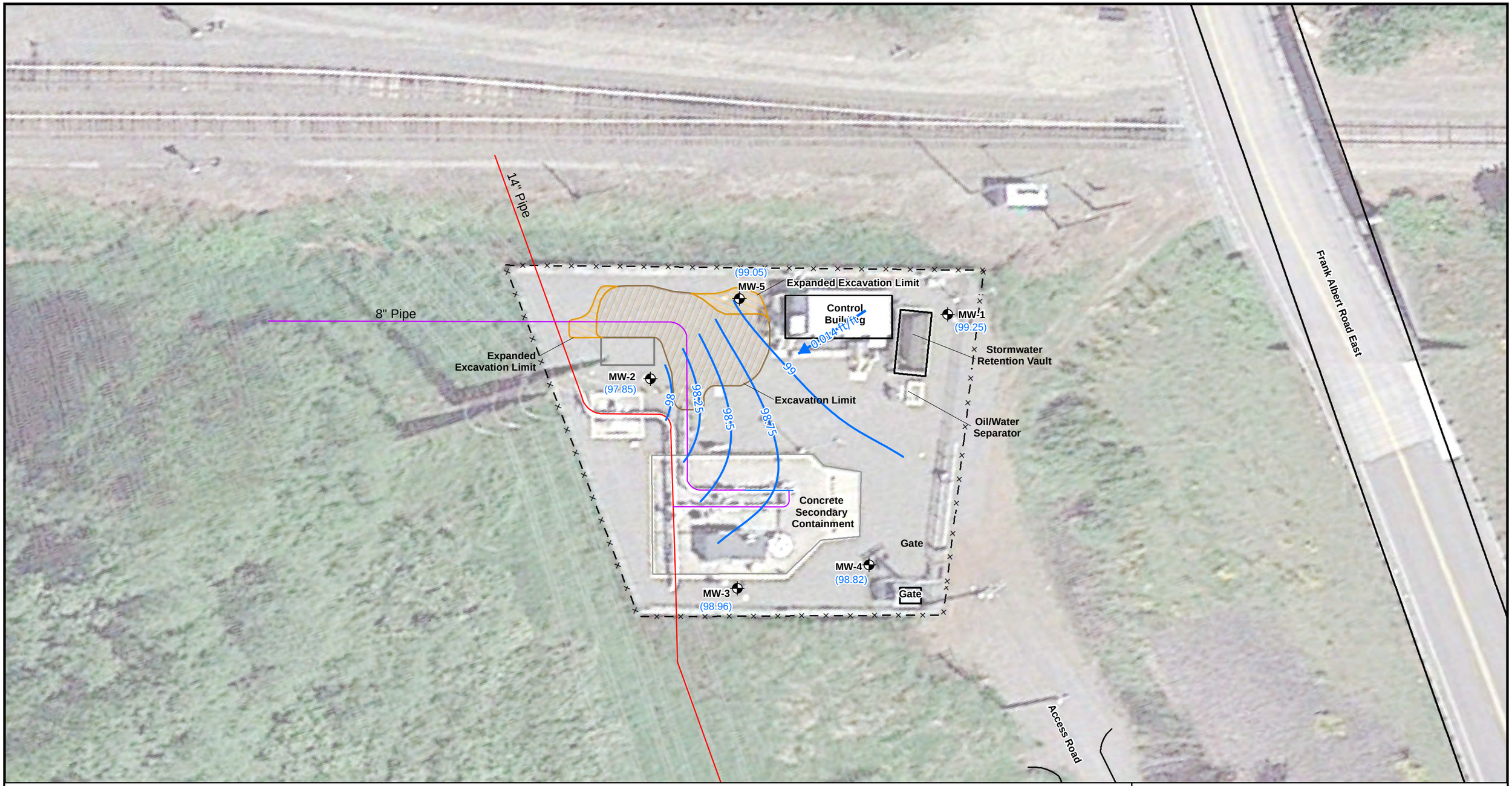

Legend

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.96) 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

N

0 7.5 15 30 Feet

FIGURE 3

GROUNDWATER ELEVATION CONTOUR MAP
JANUARY 26, 2022
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2022	*MB*	*1:360*
DATE	**REVIEWED BY**	**MAP SCALE**
4/26/2022	*KY*	*1 INCH = 30 FEET*

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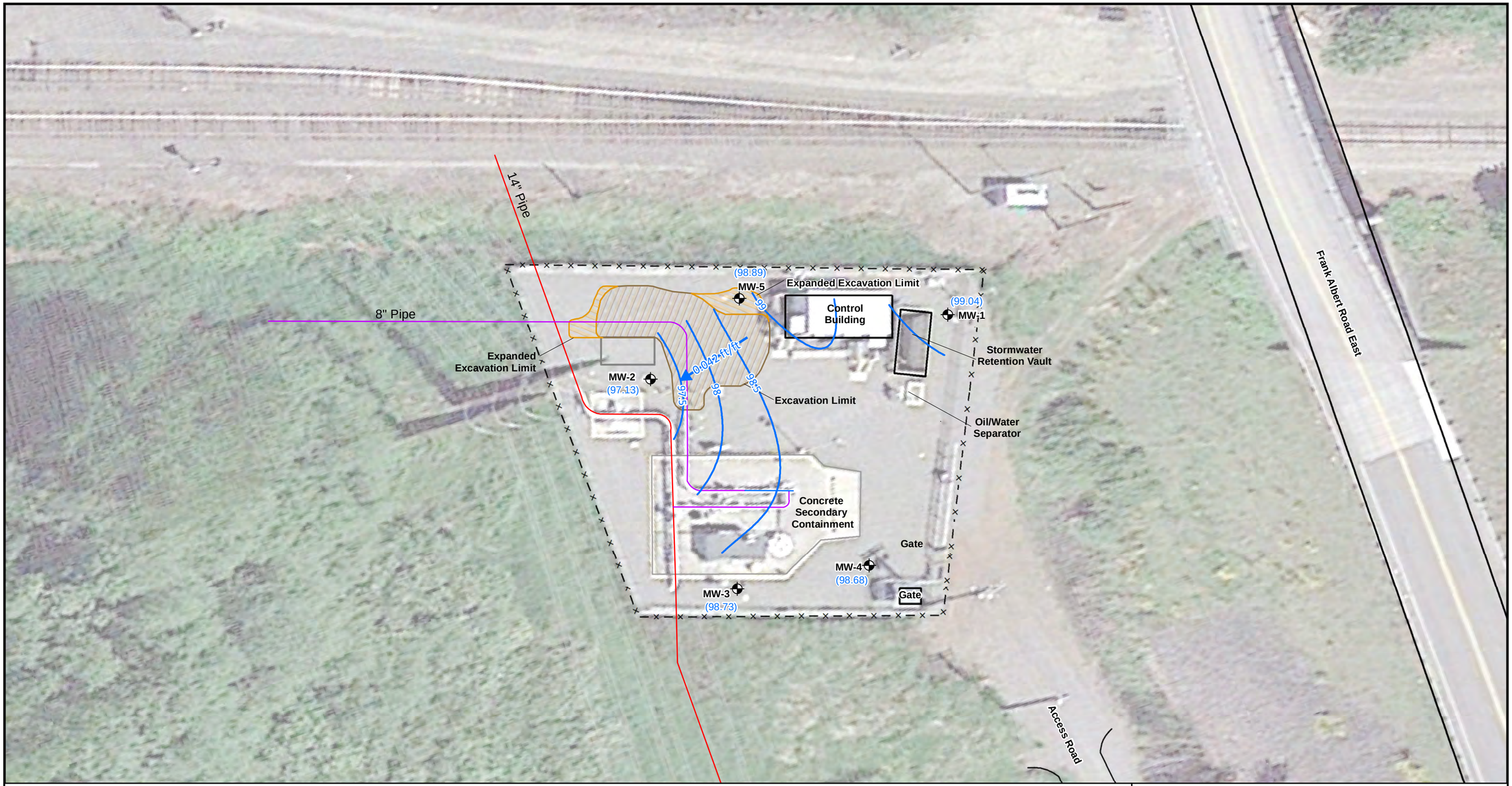

Legend

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.73) 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

0 7.5 15 30 Feet

FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP
APRIL 27, 2022
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
OPLC - Tacoma Junction 2022	*HMF*	*1:360*
DATE	**REVIEWED BY**	**MAP SCALE**
7/5/2022	*KY*	*1 INCH = 30 FEET*

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MW-5		
Date	1/26/2022	4/27/2022
B	3.5	2.4
T	< 1.0	< 1.0
E	3.9	1.9
X	< 2.0	< 2.0
TPH-G	270	520
TPH-D	170	310
TPH-O	< 440	< 360

MW-2		
Date	1/26/2022	4/27/2022
B	**85 *1**	4.3
T	< 5.0	< 1.0
E	25 *1	2.6
X	14 *1	< 2.0
TPH-G	**1,500**	460
TPH-D	**730**	**900**
TPH-O	< 440	< 360

MW-1		
Date	1/26/2022	4/27/2022
B	< 1.0 *1	< 1.0
T	< 1.0	< 1.0
E	< 1.0 *1	< 1.0
X	< 2.0 *1	< 2.0
TPH-G	< 250	< 50
TPH-D	< 140	110
TPH-O	< 440	< 360

MW-3		
Date	1/26/2022	4/27/2022
B	< 1.0 *1	< 1.0
T	< 1.0	< 1.0
E	< 1.0 *1	< 1.0
X	< 2.0 *1	< 2.0
TPH-G	< 250	< 50
TPH-D	< 130	< 110
TPH-O	< 430	< 370

MW-4		
Date	1/26/2022	4/27/2022
B	< 1.0 *1	< 1.0
T	< 1.0	< 1.0
E	< 1.0 *1	< 1.0
X	< 2.0 *1	< 2.0
TPH-G	< 250	< 50
TPH-D	< 130	< 110
TPH-O	< 420	< 360

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

Legend

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

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

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

0 7.5 15 30 Feet

FIGURE 5
GROUNDWATER ANALYTICAL DATA MAP
JANUARY 26, 2022 AND APRIL 27, 2022
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO.	PREPARED BY	REF SCALE
WATJUAA211	HMF	1:360
DATE	REVIEWED BY	MAP SCALE
7/7/2022	KY/MG	1 INCH = 30 FEET

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

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 580-109890-1
Client Project/Site: BP - OPLC - Tacoma Junction

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

Attn: Megan Richard

M. Elaine Walker

Authorized for release by:
2/12/2022 3:07:26 PM

Elaine Walker, Project Manager II
(253)248-4972
m.elaine.walker@eurofinset.com

Table of Contents

Definitions/Glossary

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

Job ID: 580-109890-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

Glossary

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

Job ID: 580-109890-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-109890-1

Receipt
Six samples were received on 2/2/2022 2:17 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 2.5º C.

GC/MS VOA
Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-380579 recovered outside control limits for the following analytes: m-Xylene & p-Xylene, o-Xylene, Xylenes, Total, Benzene, and Ethylbenzene. The LCS and LCSD recoveries were in control.

Method 8260D: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2_20220126 (580-109890-2). 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 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.

Detection Summary

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

Job ID: 580-109890-1

Client Sample ID: MW-1_20220126 — Lab Sample ID: 580-109890-1

No Detections.

Client Sample ID: MW-2_20220126 — Lab Sample ID: 580-109890-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	85	*1	5.0		ug/L	5		8260D	Total/NA
Ethylbenzene	25	*1	5.0		ug/L	5		8260D	Total/NA
m-Xylene & p-Xylene	14	*1	10		ug/L	5		8260D	Total/NA
Xylenes, Total	14	*1	10		ug/L	5		8260D	Total/NA
Gasoline	1500		250		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	730		140		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20220126 — Lab Sample ID: 580-109890-3

No Detections.

Client Sample ID: MW-4_20220126 — Lab Sample ID: 580-109890-4

No Detections.

Client Sample ID: MW-5_20220126 — Lab Sample ID: 580-109890-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.5		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	3.9		1.0		ug/L	1		8260D	Total/NA
Gasoline	270		250		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	170		140		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: Trip Blank_20220126 — Lab Sample ID: 580-109890-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Seattle

Client Sample ID: MW-1_20220126

Lab Sample ID: 580-109890-1

Date Collected: 01/26/22 13:10

Matrix: Water

Date Received: 02/02/22 14:17

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0		ug/L			02/08/22 18:15	1
Ethylbenzene	ND	*1	1.0		ug/L			02/08/22 18:15	1
m-Xylene & p-Xylene	ND	*1	2.0		ug/L			02/08/22 18:15	1
o-Xylene	ND	*1	1.0		ug/L			02/08/22 18:15	1
Toluene	ND		1.0		ug/L			02/08/22 18:15	1
Xylenes, Total	ND	*1	2.0		ug/L			02/08/22 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*02/08/22 18:15*	*1*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*02/08/22 18:15*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*02/08/22 18:15*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*02/08/22 18:15*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			02/03/22 20:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*50 - 150*		*02/03/22 20:11*	*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		140		ug/L		02/09/22 11:26	02/10/22 17:25	1
Motor Oil (>C24-C36)	ND		440		ug/L		02/09/22 11:26	02/10/22 17:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*02/09/22 11:26*	*02/10/22 17:25*	*1*

Client Sample ID: MW-2_20220126

Lab Sample ID: 580-109890-2

Date Collected: 01/26/22 11:50

Matrix: Water

Date Received: 02/02/22 14:17

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**85**	***1**	5.0		ug/L			02/08/22 18:41	5
Ethylbenzene	**25**	***1**	5.0		ug/L			02/08/22 18:41	5
m-Xylene & p-Xylene	**14**	***1**	10		ug/L			02/08/22 18:41	5
o-Xylene	ND	*1	5.0		ug/L			02/08/22 18:41	5
Toluene	ND		5.0		ug/L			02/08/22 18:41	5
Xylenes, Total	**14**	***1**	10		ug/L			02/08/22 18:41	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*02/08/22 18:41*	*5*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/08/22 18:41*	*5*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*02/08/22 18:41*	*5*
Toluene-d8 (Surr)	*106*		*80 - 120*		*02/08/22 18:41*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1500**		250		ug/L			02/03/22 20:35	1

Client Sample ID: MW-2_20220126

Date Collected: 01/26/22 11:50
Date Received: 02/02/22 14:17

Lab Sample ID: 580-109890-2

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*149*		*50 - 150*		*02/03/22 20:35*	*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)	**730**		140		ug/L		02/09/22 11:26	02/10/22 17:45	1
Motor Oil (>C24-C36)	ND		440		ug/L		02/09/22 11:26	02/10/22 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*02/09/22 11:26*	*02/10/22 17:45*	*1*

Client Sample ID: MW-3_20220126

Date Collected: 01/26/22 11:05
Date Received: 02/02/22 14:17

Lab Sample ID: 580-109890-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0		ug/L			02/08/22 23:42	1
Ethylbenzene	ND	*1	1.0		ug/L			02/08/22 23:42	1
m-Xylene & p-Xylene	ND	*1	2.0		ug/L			02/08/22 23:42	1
o-Xylene	ND	*1	1.0		ug/L			02/08/22 23:42	1
Toluene	ND		1.0		ug/L			02/08/22 23:42	1
Xylenes, Total	ND	*1	2.0		ug/L			02/08/22 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*		*02/08/22 23:42*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*02/08/22 23:42*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*02/08/22 23:42*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/08/22 23:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			02/03/22 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*50 - 150*		*02/03/22 21:48*	*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		130		ug/L		02/09/22 11:26	02/10/22 18:05	1
Motor Oil (>C24-C36)	ND		430		ug/L		02/09/22 11:26	02/10/22 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*02/09/22 11:26*	*02/10/22 18:05*	*1*

Client Sample ID: MW-4_20220126

Date Collected: 01/26/22 10:10
Date Received: 02/02/22 14:17

Lab Sample ID: 580-109890-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0		ug/L			02/08/22 17:26	1
Ethylbenzene	ND	*1	1.0		ug/L			02/08/22 17:26	1
m-Xylene & p-Xylene	ND	*1	2.0		ug/L			02/08/22 17:26	1

Client Sample ID: MW-4_20220126

Lab Sample ID: 580-109890-4

Date Collected: 01/26/22 10:10

Matrix: Water

Date Received: 02/02/22 14:17

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND	*1	1.0		ug/L			02/08/22 17:26	1
Toluene	ND		1.0		ug/L			02/08/22 17:26	1
Xylenes, Total	ND	*1	2.0		ug/L			02/08/22 17:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*02/08/22 17:26*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*02/08/22 17:26*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*02/08/22 17:26*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*02/08/22 17:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			02/03/22 22:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*50 - 150*		*02/03/22 22:13*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		130		ug/L		02/09/22 11:26	02/10/22 18:25	1
Motor Oil (>C24-C36)	ND		420		ug/L		02/09/22 11:26	02/10/22 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*02/09/22 11:26*	*02/10/22 18:25*	*1*

Client Sample ID: MW-5_20220126

Lab Sample ID: 580-109890-5

Date Collected: 01/26/22 12:25

Matrix: Water

Date Received: 02/02/22 14:17

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.5**		1.0		ug/L			02/09/22 04:40	1
Ethylbenzene	**3.9**		1.0		ug/L			02/09/22 04:40	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/09/22 04:40	1
o-Xylene	ND		1.0		ug/L			02/09/22 04:40	1
Toluene	ND		1.0		ug/L			02/09/22 04:40	1
Xylenes, Total	ND		2.0		ug/L			02/09/22 04:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*02/09/22 04:40*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*02/09/22 04:40*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 120*		*02/09/22 04:40*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/09/22 04:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**270**		250		ug/L			02/03/22 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*		*02/03/22 22:37*	*1*

Client Sample ID: MW-5_20220126

Lab Sample ID: 580-109890-5

Date Collected: 01/26/22 12:25
Matrix: Water
Date Received: 02/02/22 14:17

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**170**		140		ug/L		02/09/22 11:26	02/10/22 18:45	1
Motor Oil (>C24-C36)	ND		440		ug/L		02/09/22 11:26	02/10/22 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*66*		*50 - 150*	*02/09/22 11:26*	*02/10/22 18:45*	*1*

Client Sample ID: Trip Blank_20220126

Lab Sample ID: 580-109890-6

Date Collected: 01/26/22 00:00
Matrix: Water
Date Received: 02/02/22 14:17

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			02/09/22 04:14	1
Ethylbenzene	ND		1.0		ug/L			02/09/22 04:14	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/09/22 04:14	1
o-Xylene	ND		1.0		ug/L			02/09/22 04:14	1
Toluene	ND		1.0		ug/L			02/09/22 04:14	1
Xylenes, Total	ND		2.0		ug/L			02/09/22 04:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*02/09/22 04:14*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*02/09/22 04:14*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*02/09/22 04:14*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*02/09/22 04:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			02/03/22 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*50 - 150*		*02/03/22 17:44*	*1*

Surrogate Summary

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

Job ID: 580-109890-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
580-109890-1	MW-1_20220126	104	108	105	103
580-109890-2	MW-2_20220126	101	100	94	106
580-109890-3	MW-3_20220126	101	107	103	92
580-109890-4	MW-4_20220126	104	106	103	106
580-109890-5	MW-5_20220126	100	102	92	97
580-109890-6	Trip Blank_20220126	100	105	99	94
LCS 580-380579/18	Lab Control Sample	101	106	110	101
LCS 580-380623/6	Lab Control Sample	100	102	94	99
LCSD 580-380579/19	Lab Control Sample Dup	99	104	98	92
LCSD 580-380623/7	Lab Control Sample Dup	100	105	100	94
MB 580-380579/17	Method Blank	100	109	109	96
MB 580-380623/5	Method Blank	104	108	111	102

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)

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB2
Lab Sample ID	Client Sample ID	(50-150)
580-109890-1	MW-1_20220126	87
580-109890-2	MW-2_20220126	149
580-109890-3	MW-3_20220126	82
580-109890-4	MW-4_20220126	88
580-109890-5	MW-5_20220126	108
580-109890-6	Trip Blank_20220126	91
LCS 580-380271/4	Lab Control Sample	99
LCSD 580-380271/5	Lab Control Sample Dup	105
MB 580-380271/3	Method Blank	89

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(50-150)
580-109890-1	MW-1_20220126	72
580-109890-2	MW-2_20220126	80
580-109890-3	MW-3_20220126	76
580-109890-4	MW-4_20220126	87
580-109890-5	MW-5_20220126	66
LCS 580-380737/2-A	Lab Control Sample	75
LCSD 580-380737/3-A	Lab Control Sample Dup	73

Surrogate Summary

Client: Antea USA Inc. Job ID: 580-109890-1
Project/Site: BP - OPLC - Tacoma Junction

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)								
MB 580-380737/1-A	Method Blank	75								

Surrogate Legend

OTPH = o-Terphenyl

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

Lab Sample ID: MB 580-380579/17
Matrix: Water
Analysis Batch: 380579

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			02/08/22 13:41	1
Ethylbenzene	ND		1.0		ug/L			02/08/22 13:41	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/08/22 13:41	1
o-Xylene	ND		1.0		ug/L			02/08/22 13:41	1
Toluene	ND		1.0		ug/L			02/08/22 13:41	1
Xylenes, Total	ND		2.0		ug/L			02/08/22 13:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*02/08/22 13:41*	*1*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*02/08/22 13:41*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 120*		*02/08/22 13:41*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/08/22 13:41*	*1*

Lab Sample ID: LCS 580-380579/18
Matrix: Water
Analysis Batch: 380579

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			10.0	10.5		ug/L		105	80 - 122		
Ethylbenzene			10.0	11.2		ug/L		112	80 - 120		
m-Xylene & p-Xylene			10.0	11.3		ug/L		113	80 - 120		
o-Xylene			10.0	11.6		ug/L		116	80 - 120		
Toluene			10.0	10.3		ug/L		103	80 - 120		
Xylenes, Total			20.0	22.9		ug/L		115	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*
Dibromofluoromethane (Surr)	*110*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-380579/19
Matrix: Water
Analysis Batch: 380579

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			10.0	8.07	*1	ug/L		81	80 - 122	27	14
Ethylbenzene			10.0	9.50	*1	ug/L		95	80 - 120	17	14
m-Xylene & p-Xylene			10.0	9.69	*1	ug/L		97	80 - 120	15	14
o-Xylene			10.0	9.15	*1	ug/L		91	80 - 120	23	16
Toluene			10.0	9.11		ug/L		91	80 - 120	12	13
Xylenes, Total			20.0	18.8	*1	ug/L		94	80 - 120	19	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*

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

Lab Sample ID: LCSD 580-380579/19
Matrix: Water
Analysis Batch: 380579

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	*92*		*80 - 120*

Lab Sample ID: MB 580-380623/5
Matrix: Water
Analysis Batch: 380623

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			02/09/22 02:09	1
Ethylbenzene	ND		1.0		ug/L			02/09/22 02:09	1
m-Xylene & p-Xylene	ND		2.0		ug/L			02/09/22 02:09	1
o-Xylene	ND		1.0		ug/L			02/09/22 02:09	1
Toluene	ND		1.0		ug/L			02/09/22 02:09	1
Xylenes, Total	ND		2.0		ug/L			02/09/22 02:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*02/09/22 02:09*	*1*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*02/09/22 02:09*	*1*
Dibromofluoromethane (Surr)	*111*		*80 - 120*		*02/09/22 02:09*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/09/22 02:09*	*1*

Lab Sample ID: LCS 580-380623/6
Matrix: Water
Analysis Batch: 380623

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	9.59		ug/L		96	80 - 122
Ethylbenzene	10.0	9.59		ug/L		96	80 - 120
m-Xylene & p-Xylene	10.0	9.81		ug/L		98	80 - 120
o-Xylene	10.0	9.39		ug/L		94	80 - 120
Toluene	10.0	9.76		ug/L		98	80 - 120
Xylenes, Total	20.0	19.2		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 580-380623/7
Matrix: Water
Analysis Batch: 380623

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.58		ug/L		86	80 - 122	11	14
Ethylbenzene	10.0	9.43		ug/L		94	80 - 120	2	14
m-Xylene & p-Xylene	10.0	9.59		ug/L		96	80 - 120	2	14
o-Xylene	10.0	9.34		ug/L		93	80 - 120	0	16
Toluene	10.0	9.08		ug/L		91	80 - 120	7	13

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

Lab Sample ID: LCSD 580-380623/7
Matrix: Water
Analysis Batch: 380623

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	18.9		ug/L		95	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*94*		*80 - 120*

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

Lab Sample ID: MB 580-380271/3
Matrix: Water
Analysis Batch: 380271

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		250		ug/L			02/03/22 15:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*50 - 150*		*02/03/22 15:18*	*1*

Lab Sample ID: LCS 580-380271/4
Matrix: Water
Analysis Batch: 380271

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			1000	936		ug/L		94	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*

Lab Sample ID: LCSD 580-380271/5
Matrix: Water
Analysis Batch: 380271

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	1000		ug/L		100	79 - 120	7	10

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*50 - 150*

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

Lab Sample ID: MB 580-380737/1-A
Matrix: Water
Analysis Batch: 380817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380737

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		140		ug/L		02/09/22 11:26	02/10/22 10:17	1

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

Lab Sample ID: MB 580-380737/1-A
Matrix: Water
Analysis Batch: 380817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380737

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	ND		440		ug/L		02/09/22 11:26	02/10/22 10:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*02/09/22 11:26*	*02/10/22 10:17*	*1*

Lab Sample ID: LCS 580-380737/2-A
Matrix: Water
Analysis Batch: 380817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380737

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			4000	2670		ug/L		67	50 - 120		
Motor Oil (>C24-C36)			4000	3640		ug/L		91	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*75*		*50 - 150*

Lab Sample ID: LCSD 580-380737/3-A
Matrix: Water
Analysis Batch: 380817

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380737

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			4000	2570		ug/L		64	50 - 120	4	26
Motor Oil (>C24-C36)			4000	3460		ug/L		87	64 - 120	5	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*73*		*50 - 150*

QC Association Summary

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

Job ID: 580-109890-1

GC/MS VOA

Analysis Batch: 380579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-109890-1	MW-1_20220126	Total/NA	Water	8260D	
580-109890-2	MW-2_20220126	Total/NA	Water	8260D	
580-109890-3	MW-3_20220126	Total/NA	Water	8260D	
580-109890-4	MW-4_20220126	Total/NA	Water	8260D	
MB 580-380579/17	Method Blank	Total/NA	Water	8260D	
LCS 580-380579/18	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-380579/19	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 380623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-109890-5	MW-5_20220126	Total/NA	Water	8260D	
580-109890-6	Trip Blank_20220126	Total/NA	Water	8260D	
MB 580-380623/5	Method Blank	Total/NA	Water	8260D	
LCS 580-380623/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-380623/7	Lab Control Sample Dup	Total/NA	Water	8260D	

GC VOA

Analysis Batch: 380271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-109890-1	MW-1_20220126	Total/NA	Water	NWTPH-Gx	
580-109890-2	MW-2_20220126	Total/NA	Water	NWTPH-Gx	
580-109890-3	MW-3_20220126	Total/NA	Water	NWTPH-Gx	
580-109890-4	MW-4_20220126	Total/NA	Water	NWTPH-Gx	
580-109890-5	MW-5_20220126	Total/NA	Water	NWTPH-Gx	
580-109890-6	Trip Blank_20220126	Total/NA	Water	NWTPH-Gx	
MB 580-380271/3	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-380271/4	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-380271/5	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

GC Semi VOA

Prep Batch: 380737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-109890-1	MW-1_20220126	Total/NA	Water	3510C	
580-109890-2	MW-2_20220126	Total/NA	Water	3510C	
580-109890-3	MW-3_20220126	Total/NA	Water	3510C	
580-109890-4	MW-4_20220126	Total/NA	Water	3510C	
580-109890-5	MW-5_20220126	Total/NA	Water	3510C	
MB 580-380737/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-380737/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-380737/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 380817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-109890-1	MW-1_20220126	Total/NA	Water	NWTPH-Dx	380737
580-109890-2	MW-2_20220126	Total/NA	Water	NWTPH-Dx	380737
580-109890-3	MW-3_20220126	Total/NA	Water	NWTPH-Dx	380737
580-109890-4	MW-4_20220126	Total/NA	Water	NWTPH-Dx	380737
580-109890-5	MW-5_20220126	Total/NA	Water	NWTPH-Dx	380737
MB 580-380737/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	380737
LCS 580-380737/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	380737

GC Semi VOA (Continued)

Analysis Batch: 380817 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 580-380737/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	380737

Lab Chronicle

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

Job ID: 580-109890-1

Client Sample ID: MW-1_20220126
Lab Sample ID: 580-109890-1
Date Collected: 01/26/22 13:10
Matrix: Water
Date Received: 02/02/22 14:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	380579	02/08/22 18:15	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 20:11	W1T	FGS SEA
Total/NA	Prep	3510C			380737	02/09/22 11:26	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	380817	02/10/22 17:25	ADB	FGS SEA

Client Sample ID: MW-2_20220126
Lab Sample ID: 580-109890-2
Date Collected: 01/26/22 11:50
Matrix: Water
Date Received: 02/02/22 14:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	380579	02/08/22 18:41	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 20:35	W1T	FGS SEA
Total/NA	Prep	3510C			380737	02/09/22 11:26	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	380817	02/10/22 17:45	ADB	FGS SEA

Client Sample ID: MW-3_20220126
Lab Sample ID: 580-109890-3
Date Collected: 01/26/22 11:05
Matrix: Water
Date Received: 02/02/22 14:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	380579	02/08/22 23:42	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 21:48	W1T	FGS SEA
Total/NA	Prep	3510C			380737	02/09/22 11:26	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	380817	02/10/22 18:05	ADB	FGS SEA

Client Sample ID: MW-4_20220126
Lab Sample ID: 580-109890-4
Date Collected: 01/26/22 10:10
Matrix: Water
Date Received: 02/02/22 14:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	380579	02/08/22 17:26	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 22:13	W1T	FGS SEA
Total/NA	Prep	3510C			380737	02/09/22 11:26	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	380817	02/10/22 18:25	ADB	FGS SEA

Client Sample ID: MW-5_20220126
Lab Sample ID: 580-109890-5
Date Collected: 01/26/22 12:25
Matrix: Water
Date Received: 02/02/22 14:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	380623	02/09/22 04:40	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 22:37	W1T	FGS SEA
Total/NA	Prep	3510C			380737	02/09/22 11:26	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	380817	02/10/22 18:45	ADB	FGS SEA

Lab Chronicle

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

Job ID: 580-109890-1

Client Sample ID: Trip Blank_20220126

Date Collected: 01/26/22 00:00
Date Received: 02/02/22 14:17

Lab Sample ID: 580-109890-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	380623	02/09/22 04:14	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	380271	02/03/22 17:44	W1T	FGS SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-109890-1
Project/Site: BP - OPLC - Tacoma Junction

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Method Summary

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

Job ID: 580-109890-1

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

FGS 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: 580-109890-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109890-1	MW-1_20220126	Water	01/26/22 13:10	02/02/22 14:17
580-109890-2	MW-2_20220126	Water	01/26/22 11:50	02/02/22 14:17
580-109890-3	MW-3_20220126	Water	01/26/22 11:05	02/02/22 14:17
580-109890-4	MW-4_20220126	Water	01/26/22 10:10	02/02/22 14:17
580-109890-5	MW-5_20220126	Water	01/26/22 12:25	02/02/22 14:17
580-109890-6	Trip Blank_20220126	Water	01/26/22 00:00	02/02/22 14:17

580-109890 Chain of Custody

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

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

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

Lab Name:	Test America	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:	WATJUAA211.10123
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 Accnt:	NA	Enfos Proposal No:	WR849990/00BPT-0009	Phone: 425-498-7711 Email:	Megan.Richard@anteagroup.us
Lab Bottle Order No:	NA	Accounting Mode:	Provision __X___ OOC-BU _____ OOC-RM _____	Send/Submit EDD to:	Megan.Richard@anteagroup.us
Other Info:	m.elaine.walker@eurofinset.com	Stage	1_Appraise (10) Activity Interim Measures (123)	Invoice To:	BP-RM _____ BP/ARC ___X___
BP/RM PM:	Wade Melton				
PM Phone:	360-594-7978				
PM Email:	wade.melton@bp.com				

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

Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Filt	Pres	Analysis: 8260BTEX	NWTPH-Gx	NWTPH-DX	Comments
	MW-1_20220126	1/26/22	1310	W				G				X	X	X	
	MW-2_	"	1150	W				G				X	X	X	
	MW-3_	"	1105	W				G				X	X	X	
	MW-4_	"	1010	W				G				X	X	X	
	MW-5_	"	1225	W				G				X	X	X	
	Trip Blank	"		W				G				X	X		

Sampler's Name:	Nathan Han	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date / Time
Sampler's Company:	Antea Group	Samantha Hess / Antea Group	2/2/22	1417		2/2/22 1417
Ship Method:	Courier Ship Date: 2/2/22					
Shipment Tracking No:					1	

@lab 1635

Special Instructions: A3 2.5/2.5 GB WetIBlu utocs

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: 580-109890-1

Login Number: 109890
List Number: 1
Creator: Presley, Kim A

List Source: Eurofins Seattle

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

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-109890-1

SDG No.:

Batch Number: 380579 Batch Start Date: 02/08/22 12:27 Batch Analyst: Mautz, Brady 1

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00003	VOAMasterMix 00077	VOASTDGASweek 00087
MB 580-380579/17		8260D		5 mL	5 mL		1 uL		
LCS 580-380579/18		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
LCSD 580-380579/19		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
580-109890-A-4	MW-4_20220126	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-2	MW-2_20220126	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-1	MW-1_20220126	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-3	MW-3_20220126	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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-109890-1

SDG No.:

Batch Number: 380623 Batch Start Date: 02/09/22 00:55 Batch Analyst: Mautz, Brady 1

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00003	VOAMasterMix 00077	VOASTDGASweek 00087
MB 580-380623/5		8260D		5 mL	5 mL		1 uL		
LCS 580-380623/6		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
LCSD 580-380623/7		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
580-109890-A-5	MW-5_20220126	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-6	Trip Blank 20220126	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.

GC VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-109890-1

SDG No.:

Batch Number: 380271 Batch Start Date: 02/03/22 14:29 Batch Analyst: Thaneerat, Wijittra 1

Batch Method: NWTPH-Gx Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	BFBGRO ARCHON 00048	GRO_LCS 00073	
MB 580-380271/3		NWTPH-Gx		5 mL	5 mL		1 uL		
LCS 580-380271/4		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-380271/5		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-109890-B-6	Trip Blank 20220126	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-C-1	MW-1_20220126	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-C-2	MW-2_20220126	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-3	MW-3_20220126	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-B-4	MW-4_20220126	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-109890-A-5	MW-5_20220126	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.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-109890-1

SDG No.:

Batch Number: 380737 Batch Start Date: 02/09/22 11:25 Batch Analyst: Enrico, Michael 1

Batch Method: 3510C Batch End Date: 02/09/22 17:09

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-380737/1		3510C, NWTPH-Dx				250 mL	2.5 mL	7 SU	2 SU
LCS 580-380737/2		3510C, NWTPH-Dx				250 mL	2.5 mL	7 SU	2 SU
LCSD 580-380737/3		3510C, NWTPH-Dx				250 mL	2.5 mL	7 SU	2 SU
580-109890-G-1	MW-1_20220126	3510C, NWTPH-Dx	T	00431.20 g	00182.35 g	248.9 mL	2.5 mL	2 SU	2 SU
580-109890-G-2	MW-2_20220126	3510C, NWTPH-Dx	T	00412.06 g	00165.52 g	246.5 mL	2.5 mL	2 SU	2 SU
580-109890-H-3	MW-3_20220126	3510C, NWTPH-Dx	T	00438.33 g	00182.99 g	255.3 mL	2.5 mL	2 SU	2 SU
580-109890-G-4	MW-4_20220126	3510C, NWTPH-Dx	T	00433.50 g	00173.78 g	259.7 mL	2.5 mL	2 SU	2 SU
580-109890-G-5	MW-5_20220126	3510C, NWTPH-Dx	T	00413.60 g	00167.41 g	246.2 mL	2.5 mL	2 SU	2 SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	SecondAdjustpH	TPH_Water_Spk 00032	TPH_WaterSurr 00079			
MB 580-380737/1		3510C, NWTPH-Dx		n/a SU		100 uL			
LCS 580-380737/2		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
LCSD 580-380737/3		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
580-109890-G-1	MW-1_20220126	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-109890-G-2	MW-2_20220126	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-109890-H-3	MW-3_20220126	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-109890-G-4	MW-4_20220126	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-109890-G-5	MW-5_20220126	3510C, NWTPH-Dx	T	n/a SU		100 uL			

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

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-109890-1

SDG No.:

Batch Number: 380737 Batch Start Date: 02/09/22 11:25 Batch Analyst: Enrico, Michael 1

Batch Method: 3510C Batch End Date: 02/09/22 17:09

Batch Notes	
Method/Fraction	3510C_LVI / 8015D_DRO / NWTPH_Dx
Balance ID	SEA225
pH Indicator ID	6908005 / 6911002
Pipette/Syringe/Dispenser ID	MP5
Analyst ID - Extraction	MAE/JAE
Reagent Water ID	DI
Analyst ID - Spike Analyst	MAE
Analyst ID - Spike Witness Analyst	JAE
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	2930180
Prep Solvent ID	3037207
Prep Solvent Volume Used	100 mL
Filter ID	3022575
Na2SO4 ID	3019520
Analyst ID - Concentration	JAE
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70.0-75.0 Degrees C
Concentration 1 Corrected Temperature	69.4-74.4 Degrees C
Equipment ID - Concentration 2	Turbovap5
Thermometer ID - Concentration 2	DIGITALREADOUT
Concentration 2 Uncorrected Temperature	20 Degrees C
Concentration 2 Corrected Temperature	18 Degrees C
Vial Lot Number	24165097
Batch Comment	Vialed by: JAE

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.

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 580-113166-1
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

M. Elaine Walker

Authorized for release by:
5/13/2022 5:30:12 PM

Elaine Walker, Project Manager II
(253)248-4972
M.Elaine.Walker@et.eurofinsus.com

Table of Contents

Definitions/Glossary

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

Job ID: 580-113166-1

Glossary

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

Job ID: 580-113166-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-113166-1

Receipt
Six samples were received on 4/27/2022 2:03 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 9.2º C.

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.

Detection Summary

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

Job ID: 580-113166-1

Client Sample ID: MW-1_20220427 — Lab Sample ID: 580-113166-1

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_20220427 — Lab Sample ID: 580-113166-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.3		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	2.6		1.0		ug/L	1		8260D	Total/NA
Gasoline	460		50		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	900		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: MW-3_20220427 — Lab Sample ID: 580-113166-3

No Detections.

Client Sample ID: MW-4_20220427 — Lab Sample ID: 580-113166-4

No Detections.

Client Sample ID: MW-5_20220427 — Lab Sample ID: 580-113166-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.4		1.0		ug/L	1		8260D	Total/NA
Ethylbenzene	1.9		1.0		ug/L	1		8260D	Total/NA
Gasoline	520		50		ug/L	1		NWTPH-Gx	Total/NA
#2 Diesel (C10-C24)	310		110		ug/L	1		NWTPH-Dx	Total/NA

Client Sample ID: Trip Blank_20220427 — Lab Sample ID: 580-113166-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1_20220427

Lab Sample ID: 580-113166-1

Date Collected: 04/27/22 13:10

Matrix: Water

Date Received: 04/27/22 14:03

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			05/11/22 02:02	1
Ethylbenzene	ND		1.0		ug/L			05/11/22 02:02	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 02:02	1
o-Xylene	ND		1.0		ug/L			05/11/22 02:02	1
Toluene	ND		1.0		ug/L			05/11/22 02:02	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 120*		*05/11/22 02:02*	*1*
4-Bromofluorobenzene (Surr)	*87*		*80 - 120*		*05/11/22 02:02*	*1*
Dibromofluoromethane (Surr)	*90*		*80 - 120*		*05/11/22 02:02*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*05/11/22 02:02*	*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			05/11/22 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*77 - 123*		*05/11/22 02:02*	*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		05/04/22 09:54	05/06/22 14:16	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/04/22 09:54	05/06/22 14:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*69*		*50 - 150*	*05/04/22 09:54*	*05/06/22 14:16*	*1*

Client Sample ID: MW-2_20220427

Lab Sample ID: 580-113166-2

Date Collected: 04/27/22 11:30

Matrix: Water

Date Received: 04/27/22 14:03

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.3**		1.0		ug/L			05/11/22 02:26	1
Ethylbenzene	**2.6**		1.0		ug/L			05/11/22 02:26	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 02:26	1
o-Xylene	ND		1.0		ug/L			05/11/22 02:26	1
Toluene	ND		1.0		ug/L			05/11/22 02:26	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*80 - 120*		*05/11/22 02:26*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*		*05/11/22 02:26*	*1*
Dibromofluoromethane (Surr)	*84*		*80 - 120*		*05/11/22 02:26*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*05/11/22 02:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**460**		50		ug/L			05/11/22 02:26	1

Client Sample ID: MW-2_20220427

Lab Sample ID: 580-113166-2
Date Collected: 04/27/22 11:30
Matrix: Water
Date Received: 04/27/22 14:03

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*77 - 123*		*05/11/22 02:26*	*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)	**900**		110		ug/L		05/04/22 09:54	05/06/22 14:36	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/04/22 09:54	05/06/22 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*05/04/22 09:54*	*05/06/22 14:36*	*1*

Client Sample ID: MW-3_20220427

Lab Sample ID: 580-113166-3
Date Collected: 04/27/22 11:00
Matrix: Water
Date Received: 04/27/22 14:03

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			05/11/22 02:50	1
Ethylbenzene	ND		1.0		ug/L			05/11/22 02:50	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 02:50	1
o-Xylene	ND		1.0		ug/L			05/11/22 02:50	1
Toluene	ND		1.0		ug/L			05/11/22 02:50	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 02:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*		*05/11/22 02:50*	*1*
4-Bromofluorobenzene (Surr)	*88*		*80 - 120*		*05/11/22 02:50*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 120*		*05/11/22 02:50*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/11/22 02:50*	*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			05/11/22 02:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*77 - 123*		*05/11/22 02:50*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		05/04/22 09:54	05/06/22 15:15	1
Motor Oil (>C24-C36)	ND		370		ug/L		05/04/22 09:54	05/06/22 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*05/04/22 09:54*	*05/06/22 15:15*	*1*

Client Sample ID: MW-4_20220427

Lab Sample ID: 580-113166-4
Date Collected: 04/27/22 10:15
Matrix: Water
Date Received: 04/27/22 14:03

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			05/11/22 03:13	1
Ethylbenzene	ND		1.0		ug/L			05/11/22 03:13	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 03:13	1

Client Sample ID: MW-4_20220427

Date Collected: 04/27/22 10:15
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-4
Matrix: Water

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			05/11/22 03:13	1
Toluene	ND		1.0		ug/L			05/11/22 03:13	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 03:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*		*05/11/22 03:13*	*1*
4-Bromofluorobenzene (Surr)	*86*		*80 - 120*		*05/11/22 03:13*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 120*		*05/11/22 03:13*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/11/22 03:13*	*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			05/11/22 03:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*77 - 123*		*05/11/22 03:13*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		05/04/22 09:54	05/06/22 15:34	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/04/22 09:54	05/06/22 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*70*		*50 - 150*	*05/04/22 09:54*	*05/06/22 15:34*	*1*

Client Sample ID: MW-5_20220427

Date Collected: 04/27/22 12:35
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.4**		1.0		ug/L			05/11/22 04:01	1
Ethylbenzene	**1.9**		1.0		ug/L			05/11/22 04:01	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 04:01	1
o-Xylene	ND		1.0		ug/L			05/11/22 04:01	1
Toluene	ND		1.0		ug/L			05/11/22 04:01	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 04:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*80 - 120*		*05/11/22 04:01*	*1*
4-Bromofluorobenzene (Surr)	*87*		*80 - 120*		*05/11/22 04:01*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 120*		*05/11/22 04:01*	*1*
Toluene-d8 (Surr)	*109*		*80 - 120*		*05/11/22 04:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**520**		50		ug/L			05/11/22 04:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*77 - 123*		*05/11/22 04:01*	*1*

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

Job ID: 580-113166-1

Client Sample ID: MW-5_20220427

Lab Sample ID: 580-113166-5

Date Collected: 04/27/22 12:35
Date Received: 04/27/22 14:03

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**310**		110		ug/L		05/04/22 09:54	05/06/22 15:54	1
Motor Oil (>C24-C36)	ND		360		ug/L		05/04/22 09:54	05/06/22 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*05/04/22 09:54*	*05/06/22 15:54*	*1*

Client Sample ID: Trip Blank_20220427

Lab Sample ID: 580-113166-6

Date Collected: 04/27/22 00:01
Date Received: 04/27/22 14:03

Matrix: Water

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			05/11/22 04:25	1
Ethylbenzene	ND		1.0		ug/L			05/11/22 04:25	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/11/22 04:25	1
o-Xylene	ND		1.0		ug/L			05/11/22 04:25	1
Toluene	ND		1.0		ug/L			05/11/22 04:25	1
Xylenes, Total	ND		2.0		ug/L			05/11/22 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*80 - 120*		*05/11/22 04:25*	*1*
4-Bromofluorobenzene (Surr)	*90*		*80 - 120*		*05/11/22 04:25*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 120*		*05/11/22 04:25*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/11/22 04:25*	*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			05/11/22 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*77 - 123*		*05/11/22 04:25*	*1*

Surrogate Summary

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

Job ID: 580-113166-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
580-113166-1	MW-1_20220427	96	87	90	103
580-113166-2	MW-2_20220427	91	93	84	107
580-113166-3	MW-3_20220427	98	88	92	101
580-113166-4	MW-4_20220427	99	86	91	101
580-113166-5	MW-5_20220427	93	87	88	109
580-113166-6	Trip Blank_20220427	87	90	88	101
LCS 580-390109/6	Lab Control Sample	93	91	93	104
LCSD 580-390109/7	Lab Control Sample Dup	97	89	90	106
MB 580-390109/5	Method Blank	95	88	91	102

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(77-123)
580-113166-1	MW-1_20220427	87
580-113166-2	MW-2_20220427	93
580-113166-3	MW-3_20220427	88
580-113166-4	MW-4_20220427	86
580-113166-5	MW-5_20220427	87
580-113166-6	Trip Blank_20220427	90
LCS 580-390106/8	Lab Control Sample	92
LCSD 580-390106/9	Lab Control Sample Dup	91
MB 580-390106/5	Method Blank	88

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		OTPH
Lab Sample ID	Client Sample ID	(50-150)
580-113166-1	MW-1_20220427	69
580-113166-2	MW-2_20220427	76
580-113166-3	MW-3_20220427	74
580-113166-4	MW-4_20220427	70
580-113166-5	MW-5_20220427	74
LCS 580-389373/2-A	Lab Control Sample	88
LCSD 580-389373/3-A	Lab Control Sample Dup	87
MB 580-389373/1-A	Method Blank	77

Surrogate Legend

OTPH = o-Terphenyl

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

Lab Sample ID: MB 580-390109/5
Matrix: Water
Analysis Batch: 390109

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/10/22 23:40	1
Ethylbenzene	ND		1.0		ug/L			05/10/22 23:40	1
m-Xylene & p-Xylene	ND		2.0		ug/L			05/10/22 23:40	1
o-Xylene	ND		1.0		ug/L			05/10/22 23:40	1
Toluene	ND		1.0		ug/L			05/10/22 23:40	1
Xylenes, Total	ND		2.0		ug/L			05/10/22 23:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*80 - 120*		*05/10/22 23:40*	*1*
4-Bromofluorobenzene (Surr)	*88*		*80 - 120*		*05/10/22 23:40*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 120*		*05/10/22 23:40*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/10/22 23:40*	*1*

Lab Sample ID: LCS 580-390109/6
Matrix: Water
Analysis Batch: 390109

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	11.1		ug/L		111	80 - 122		
Ethylbenzene			10.0	12.0		ug/L		120	80 - 120		
m-Xylene & p-Xylene			10.0	11.2		ug/L		112	80 - 120		
o-Xylene			10.0	11.5		ug/L		115	80 - 120		
Toluene			10.0	11.7		ug/L		117	80 - 120		
Xylenes, Total			20.0	22.7		ug/L		114	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*
Dibromofluoromethane (Surr)	*93*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: LCSD 580-390109/7
Matrix: Water
Analysis Batch: 390109

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			10.0	10.7		ug/L		107	80 - 122	4	14
Ethylbenzene			10.0	12.0		ug/L		120	80 - 120	0	14
m-Xylene & p-Xylene			10.0	11.2		ug/L		112	80 - 120	0	14
o-Xylene			10.0	11.2		ug/L		112	80 - 120	2	16
Toluene			10.0	11.8		ug/L		118	80 - 120	0	13
Xylenes, Total			20.0	22.4		ug/L		112	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*89*		*80 - 120*
Dibromofluoromethane (Surr)	*90*		*80 - 120*

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

Lab Sample ID: LCSD 580-390109/7
Matrix: Water
Analysis Batch: 390109

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

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

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

Lab Sample ID: MB 580-390106/5
Matrix: Water
Analysis Batch: 390106

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			05/10/22 23:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		77 - 123		05/10/22 23:40	1

Lab Sample ID: LCS 580-390106/8
Matrix: Water
Analysis Batch: 390106

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline			1000	1100		ug/L		110	55 - 148		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		77 - 123

Lab Sample ID: LCSD 580-390106/9
Matrix: Water
Analysis Batch: 390106

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	1210		ug/L		121	55 - 148	9	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		77 - 123

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

Lab Sample ID: MB 580-389373/1-A
Matrix: Water
Analysis Batch: 389684

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 389373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		05/04/22 09:54	05/06/22 08:24	1
Motor Oil (>C24-C36)	ND		350		ug/L		05/04/22 09:54	05/06/22 08:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	05/04/22 09:54	05/06/22 08:24	1

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

Lab Sample ID: LCS 580-389373/2-A
Matrix: Water
Analysis Batch: 389684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 389373

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)			4000	3200		ug/L		80	50 - 120		
Motor Oil (>C24-C36)			4000	3600		ug/L		90	64 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*88*		*50 - 150*

Lab Sample ID: LCSD 580-389373/3-A
Matrix: Water
Analysis Batch: 389684

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 389373

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			4000	3300		ug/L		82	50 - 120	3	26
Motor Oil (>C24-C36)			4000	3690		ug/L		92	64 - 120	2	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*87*		*50 - 150*

QC Association Summary

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

Job ID: 580-113166-1

GC/MS VOA

Analysis Batch: 390106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-113166-1	MW-1_20220427	Total/NA	Water	NWTPH-Gx	
580-113166-2	MW-2_20220427	Total/NA	Water	NWTPH-Gx	
580-113166-3	MW-3_20220427	Total/NA	Water	NWTPH-Gx	
580-113166-4	MW-4_20220427	Total/NA	Water	NWTPH-Gx	
580-113166-5	MW-5_20220427	Total/NA	Water	NWTPH-Gx	
580-113166-6	Trip Blank_20220427	Total/NA	Water	NWTPH-Gx	
MB 580-390106/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 580-390106/8	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 580-390106/9	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

Analysis Batch: 390109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-113166-1	MW-1_20220427	Total/NA	Water	8260D	
580-113166-2	MW-2_20220427	Total/NA	Water	8260D	
580-113166-3	MW-3_20220427	Total/NA	Water	8260D	
580-113166-4	MW-4_20220427	Total/NA	Water	8260D	
580-113166-5	MW-5_20220427	Total/NA	Water	8260D	
580-113166-6	Trip Blank_20220427	Total/NA	Water	8260D	
MB 580-390109/5	Method Blank	Total/NA	Water	8260D	
LCS 580-390109/6	Lab Control Sample	Total/NA	Water	8260D	
LCSD 580-390109/7	Lab Control Sample Dup	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 389373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-113166-1	MW-1_20220427	Total/NA	Water	3510C	
580-113166-2	MW-2_20220427	Total/NA	Water	3510C	
580-113166-3	MW-3_20220427	Total/NA	Water	3510C	
580-113166-4	MW-4_20220427	Total/NA	Water	3510C	
580-113166-5	MW-5_20220427	Total/NA	Water	3510C	
MB 580-389373/1-A	Method Blank	Total/NA	Water	3510C	
LCS 580-389373/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-389373/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 389684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
580-113166-1	MW-1_20220427	Total/NA	Water	NWTPH-Dx	389373
580-113166-2	MW-2_20220427	Total/NA	Water	NWTPH-Dx	389373
580-113166-3	MW-3_20220427	Total/NA	Water	NWTPH-Dx	389373
580-113166-4	MW-4_20220427	Total/NA	Water	NWTPH-Dx	389373
580-113166-5	MW-5_20220427	Total/NA	Water	NWTPH-Dx	389373
MB 580-389373/1-A	Method Blank	Total/NA	Water	NWTPH-Dx	389373
LCS 580-389373/2-A	Lab Control Sample	Total/NA	Water	NWTPH-Dx	389373
LCSD 580-389373/3-A	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	389373

Lab Chronicle

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

Job ID: 580-113166-1

Client Sample ID: MW-1_20220427
Date Collected: 04/27/22 13:10
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 02:02	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 02:02	B1M	FGS SEA
Total/NA	Prep	3510C			389373	05/04/22 09:54	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	389684	05/06/22 14:16	ADB	FGS SEA

Client Sample ID: MW-2_20220427
Date Collected: 04/27/22 11:30
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 02:26	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 02:26	B1M	FGS SEA
Total/NA	Prep	3510C			389373	05/04/22 09:54	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	389684	05/06/22 14:36	ADB	FGS SEA

Client Sample ID: MW-3_20220427
Date Collected: 04/27/22 11:00
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 02:50	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 02:50	B1M	FGS SEA
Total/NA	Prep	3510C			389373	05/04/22 09:54	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	389684	05/06/22 15:15	ADB	FGS SEA

Client Sample ID: MW-4_20220427
Date Collected: 04/27/22 10:15
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 03:13	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 03:13	B1M	FGS SEA
Total/NA	Prep	3510C			389373	05/04/22 09:54	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	389684	05/06/22 15:34	ADB	FGS SEA

Client Sample ID: MW-5_20220427
Date Collected: 04/27/22 12:35
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 04:01	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 04:01	B1M	FGS SEA
Total/NA	Prep	3510C			389373	05/04/22 09:54	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	389684	05/06/22 15:54	ADB	FGS SEA

Lab Chronicle

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

Job ID: 580-113166-1

Client Sample ID: Trip Blank_20220427

Date Collected: 04/27/22 00:01
Date Received: 04/27/22 14:03

Lab Sample ID: 580-113166-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	390109	05/11/22 04:25	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	390106	05/11/22 04:25	B1M	FGS SEA

Laboratory References:

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

Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-113166-1
Project/Site: BP - OPLC - Tacoma Junction

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Method Summary

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

Job ID: 580-113166-1

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

FGS 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: 580-113166-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113166-1	MW-1_20220427	Water	04/27/22 13:10	04/27/22 14:03
580-113166-2	MW-2_20220427	Water	04/27/22 11:30	04/27/22 14:03
580-113166-3	MW-3_20220427	Water	04/27/22 11:00	04/27/22 14:03
580-113166-4	MW-4_20220427	Water	04/27/22 10:15	04/27/22 14:03
580-113166-5	MW-5_20220427	Water	04/27/22 12:35	04/27/22 14:03
580-113166-6	Trip Blank_20220427	Water	04/27/22 00:01	04/27/22 14:03

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

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

BP/RM Facility No: Tacoma Junction | **Lab Work Order Number:** 113166

Lab Name: Test America	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 Accnt: NA	Enfos Proposal No: 00BPT-0011/WR1043075	Phone: 425-498-7711 Email: Megan.Richard@anteagroup.us	
Lab Bottle Order No: NA	Accounting Mode: Provision __X__ OOC-BU _____ OOC-RM _____	Send/Submit EDD to: Megan.Richard@anteagroup.us	
Other Info: m.elaine.walker@eurofinset.com	Stage 1_Appraise (10) Activity Interim Measures (123)	Invoice To: BP-RM _____ BP/ARC ___X___	
BP/RM PM: Wade Melton			
PM Phone: 360-594-7978			
PM Email: wade.melton@bp.com			

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

Lab No.	Sample Description	Date	Time	Field Matrix	Start Depth	End Depth	Depth Unit	Grab (G) or Composite (C)	Total Number of Containers	Filt	Pres	Analysis: B260BTEX	NWTPH-Gx	NWTPH-DX	Comments
	MW-1_20220427	4/27/22	1310	W				G	3			X	X	X	
	MW-2_20220427	4/27/22	1130	W				G	3			X	X	X	
	MW-3_20220427	4/27/22	1100	W				G	3			X	X	X	
	MW-4_20220427	4/27/22	1015	W				G	3			X	X	X	
	MW-5_20220427	4/27/22	1235	W				G	3			X	X	X	
	Trip Blank_20220427	4/27/22	0000	W				G	4			X	X		

Sampler's Name: Samantha Hinze
Sampler's Company: Antea Group
Ship Method: Courier | Ship Date: 4/27/22
Shipment Tracking No:

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Samantha Hinze/Antea Group	4/27/22	1403	Tom Hunt	4/27/22	1403

Special Instructions: cl dro LgBlu/wet/lab A2 9.2/9.3 w/cs

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

580-113166 Chain of Custody

Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-113166-1

Login Number: 113166
List Number: 1
Creator: Blankinship, Tom X

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	present
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.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-113166-1

SDG No.:

Batch Number: 390109 Batch Start Date: 05/10/22 22:28 Batch Analyst: Mautz, Brady 1

Batch Method: 8260D Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00016	VOAMasterMix 00081	VOASTDGASweek 00097
MB 580-390109/5		8260D		5 mL	5 mL		1 uL		
LCS 580-390109/6		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
LCSD 580-390109/7		8260D		5 mL	5 mL		1 uL	10 uL	10 uL
580-113166-A-1	MW-1_20220427	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-2	MW-2_20220427	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-3	MW-3_20220427	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-4	MW-4_20220427	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-5	MW-5_20220427	8260D	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-6	Trip Blank_20220427	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.

GC/MS VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-113166-1

SDG No.:

Batch Number: 390106 Batch Start Date: 05/10/22 22:28 Batch Analyst: Mautz, Brady 1

Batch Method: NWTPH-Gx Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	5X SUR/IS 00016	gro_icv2 00002	
MB 580-390106/5		NWTPH-Gx		5 mL	5 mL		1 uL		
LCS 580-390106/8		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
LCSD 580-390106/9		NWTPH-Gx		5 mL	5 mL		1 uL	25 uL	
580-113166-A-1	MW-1_20220427	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-2	MW-2_20220427	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-3	MW-3_20220427	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-4	MW-4_20220427	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-5	MW-5_20220427	NWTPH-Gx	T	5 mL	5 mL	<2 SU	1 uL		
580-113166-A-6	Trip Blank_20220427	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.

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-113166-1

SDG No.:

Batch Number: 389373 Batch Start Date: 05/04/22 09:54 Batch Analyst: Whelan, Katja L

Batch Method: 3510C Batch End Date: 05/04/22 15:31

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH
MB 580-389373/1		3510C, NWTPH-Dx				250 mL	2 mL	2 SU	n/a SU
LCS 580-389373/2		3510C, NWTPH-Dx				250 mL	2 mL	2 SU	n/a SU
LCSD 580-389373/3		3510C, NWTPH-Dx				250 mL	2 mL	2 SU	n/a SU
580-113166-H-1	MW-1_20220427	3510C, NWTPH-Dx	T	00410.14 g	00167.35 g	242.8 mL	2 mL	2 SU	n/a SU
580-113166-G-2	MW-2_20220427	3510C, NWTPH-Dx	T	00410.62 g	00170.20 g	240.4 mL	2 mL	2 SU	n/a SU
580-113166-H-3	MW-3_20220427	3510C, NWTPH-Dx	T	00409.28 g	00170.04 g	239.2 mL	2 mL	2 SU	n/a SU
580-113166-G-4	MW-4_20220427	3510C, NWTPH-Dx	T	00409.86 g	00169.49 g	240.4 mL	2 mL	2 SU	n/a SU
580-113166-G-5	MW-5_20220427	3510C, NWTPH-Dx	T	00414.70 g	00170.00 g	244.7 mL	2 mL	2 SU	n/a SU

Lab Sample ID	Client Sample ID	Method Chain	Basis	SecondAdjustpH	TPH_Water_Spk 00033	TPH_WaterSurr 00082			
MB 580-389373/1		3510C, NWTPH-Dx		n/a SU		100 uL			
LCS 580-389373/2		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
LCSD 580-389373/3		3510C, NWTPH-Dx		n/a SU	100 uL	100 uL			
580-113166-H-1	MW-1_20220427	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-113166-G-2	MW-2_20220427	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-113166-H-3	MW-3_20220427	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-113166-G-4	MW-4_20220427	3510C, NWTPH-Dx	T	n/a SU		100 uL			
580-113166-G-5	MW-5_20220427	3510C, NWTPH-Dx	T	n/a SU		100 uL			

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

GC SEMI VOA BATCH WORKSHEET

Lab Name: Eurofins Seattle Job No.: 580-113166-1

SDG No.:

Batch Number: 389373 Batch Start Date: 05/04/22 09:54 Batch Analyst: Whelan, Katja L

Batch Method: 3510C Batch End Date: 05/04/22 15:31

Batch Notes	
Method/Fraction	3510C_LVI _14d/ NWTPH_Dx
Balance ID	SEA225
pH Indicator ID	15BDH3711/6107003
Pipette/Syringe/Dispenser ID	MP5
Analyst ID - Extraction	KW/JY
Reagent Water ID	DI
Analyst ID - Spike Analyst	KW
Analyst ID - Spike Witness Analyst	JY
Sufficient Volume for Batch QC	no
Acid Used for pH Adjustment ID	3090801
Prep Solvent ID	3146831
Prep Solvent Volume Used	100 mL
Filter ID	3022575
Na2SO4 ID	3119118
Analyst ID - Concentration	AL
Equipment ID - Concentration 1	Steambath 1
Thermometer ID - Concentration 1	61013-040-1
Concentration 1 Uncorrected Temperature	70.0-75.0 Degrees C
Concentration 1 Corrected Temperature	69.4-74.4 Degrees C
Equipment ID - Concentration 2	Turbovap 5
Thermometer ID - Concentration 2	DIGITALREADOUT
Concentration 2 Uncorrected Temperature	30.0 Degrees C
Concentration 2 Corrected Temperature	28.1 Degrees C
Vial Lot Number	24160364
Batch Comment	Vialed by: KW

Basis	Basis Description
T	Total/NA

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