



Remediation Management Services Company

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January 29, 2019

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

Dear Mr. Mullin:

Please find the enclosed Semi-Annual Status Report - Second Half of 2018, that documents the results at OPLC Tacoma Junction located at 2660 Frank Albert Road East, Fife, Washington.

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Wade Melton', with a stylized flourish at the end.

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

cc: File, Antea Group



Semi-Annual Status Report

Second Half of 2018

OPLC Tacoma Junction

2660 Frank Albert Road East, File, Washington

Antea[®]Group

Understanding today.
Improving tomorrow.

PREPARED FOR

Remediation Management Services
Company

An affiliate of Atlantic Richfield Company
4 Centerpointe Drive, Suite 200
Room LPR-4-222
La Palma, CA 90623

and

BP Pipelines and Logistics
Olympic District
600 SW 39th Street, Suite 275
Renton, WA 98057

January 29, 2019
Antea Group Project No. WATJUAA181

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Reporting Period.:	July 2018 – December 2018
Agency Contact:	Tim Mullin, Toxics Cleanup Program (360) 407-6265
Ecology Site ID No.:	24529
RM Contact:	Wade Melton, (360) 594-7978
Olympic Contact:	Alexandria Crooks, (425) 981-2590
Antea Group Contact:	Megan Richard, (425) 498-7711

1.0 Site History

- This site is an active OPLC facility that has been operating since 1965.
- 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 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 August 8th, 2018 and October 23, 2018. Groundwater samples were collected from monitoring wells MW-1 through MW-5. Due to the presence of light non-aqueous phase liquids (LNAPL), a sample was not collected from MW-2 during the fourth quarter 2018 sampling event.
- 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 third quarter 2019 sampling event.
- During the fourth quarter 2018 sampling event, LNAPL was measured in MW-2 at a thickness of 0.01 feet and an absorbent sock was deployed.
- The Groundwater Gauging and Analytical Data tables are presented in Tables 1 and 2, respectively. The third and fourth quarter Groundwater Elevation Contour Maps are presented as Figures 3 and 4, respectively. The Groundwater Analytical Data Map is presented as Figure 5. Copies of the groundwater laboratory analytical reports are presented in Appendix A.
- Antea Group is scheduled to conduct the next quarterly groundwater sampling and monitoring events in January 2019.

5.0 Remarks

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

Prepared by



Forrest Shafer
Staff Professional

Date: January 29, 2019

Reviewed by:



Megan Richard, LG
Project Manager



MEGAN RICHARD

Date: January 29, 2019

cc: Mr. Tim Mullin, Department of Ecology Southwest Regional Office (Hardcopy, Electronic Copy)
Ms. Alexandria Crooks, OPLC, Renton, WA (Electronic Copy)
Mr. Wade Melton, Remediation Management Services Company (Electronic Copy - RMO Upload)
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Tables

Table 1	Groundwater Gauging Data
Table 2	Groundwater Analytical Data

TABLE 1
Groundwater Gauging Data
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-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-3	6/29/2016	99.91	1.98	NP	--	97.93	--
MW-3	9/8/2016	99.91	2.61	NP	--	97.30	--
MW-3	12/1/2016	99.91	1.02	NP	--	98.89	--
MW-3	2/22/2017	99.91	1.11	NP	--	98.80	--
MW-3	5/10/2017	99.91	1.32	NP	--	98.59	--
MW-3	8/16/2017	99.91	2.26	NP	--	97.65	--
MW-3	10/31/2017	99.91	1.51	NP	--	98.40	--
MW-3	2/13/2018	99.91	1.00	NP	--	98.91	--
MW-3	5/2/2018	99.91	1.28	NP	--	98.63	--
MW-3	8/8/2018	99.91	2.46	NP	--	97.45	--
MW-3	10/23/2018	99.91	2.11	NP	--	97.80	--

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

Well I.D.	Date	GROUNDWATER ELEVATION DATA					
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers
MW-4	6/29/2016	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-5	6/29/2016	99.60	1.49	NP	--	98.11	--
MW-5	9/8/2016	99.60	1.57	NP	--	98.03	--
MW-5	12/1/2016	99.60	0.61	NP	--	98.99	--
MW-5	2/22/2017	99.60	0.77	NP	--	98.83	--
MW-5	5/10/2017	99.60	1.27	NP	--	98.33	--
MW-5	8/16/2017	99.60	1.70	NP	--	97.90	--
MW-5	10/31/2017	99.60	1.02	NP	--	98.58	--
MW-5	2/13/2018	99.60	0.82	NP	--	98.78	--
MW-5	5/2/2018	99.60	1.12	NP	--	98.48	--
MW-5	8/8/2018	99.60	1.80	NP	--	97.80	--
MW-5	10/23/2018	99.60	1.52	NP	--	98.08	--

Notes:

NG - Not gauged

WI - Well inaccessible

WO - Well obstruction

TOC - Top of Casing

ft - feet

NL - No Level

NP - No Product

LNAPL - Light Non-Aqueous Phase Liquid

* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)

-- No Information Available

Dry - Well Dry

Table 2
Groundwater Analytical Data
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
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	800	500	500
Well ID	Date							
MW-1	6/29/2016	< 20	< 20	< 30	< 30	< 50	160	< 250
MW-1	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	150	< 250
MW-1	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	120	< 250
MW-1	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-1	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	< 100	< 260
MW-1	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	140	330
MW-1	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 100	< 260
MW-1	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-1	8/8/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	130	< 350
MW-1	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-2	6/29/2016	100	6.9	56	92	2300	810	< 250
MW-2	12/1/2016	170	8.7	280	250	7000	1700	< 260
MW-2	2/22/2017	90	< 20	120	110	6500	1300	< 250
MW-2	5/10/2017	85	6.4	220	150	6000	990	< 250
MW-2	2/13/2018	180	8.3	130	150	5000	2100	< 350
MW-2	5/2/2018	170 *	6.3 *	130	110	4200	1100	< 360
MW-2	8/8/2018	63	5.0	140	120	4400	4900	350
MW-3	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-3	12/1/2016	< 2.0	88	< 3.0	< 3.0	100	180	< 260
MW-3	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 260
MW-3	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	< 100	< 250
MW-3	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-3	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 100	< 260
MW-3	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-3	8/8/2018	< 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

Table 2
Groundwater Analytical Data
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
MTCA METHOD A CLEANUP LEVELS		5	1000	700	1000	800	500	500
MW-4	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	110	< 250
MW-4	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	< 50	140	< 260
MW-4	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 50	< 110	< 250
MW-4	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	120	< 250
MW-4	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	< 100	< 100	< 250
MW-4	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	100	< 250
MW-4	2/13/2018	< 2.0	< 2.0	< 3.0	< 3.0	< 250	130	< 350
MW-4	5/2/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	< 110	< 350
MW-4	8/8/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	130	< 350
MW-4	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350
MW-5	6/29/2016	< 2.0	< 2.0	< 3.0	< 3.0	300	230	< 250
MW-5	9/8/2016	< 2.0	< 2.0	< 3.0	< 3.0	270	250	< 250
MW-5	12/1/2016	< 2.0	< 2.0	< 3.0	< 3.0	89	180	< 250
MW-5	2/22/2017	< 2.0	< 2.0	< 3.0	< 3.0	97	< 110	< 250
MW-5	5/10/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 500	220	< 250
MW-5	8/16/2017	< 1.0	< 1.0	< 1.0	< 3.0	240	150	< 250
MW-5	10/31/2017	< 2.0	< 2.0	< 3.0	< 3.0	< 250	120	< 260
MW-5	2/13/2018	3.4	< 2.0	7.4	< 3.0	330	250	< 370
MW-5	5/2/2018	< 3.0*	< 2.0*	< 3.0	< 3.0	< 250	< 110	< 350
MW-5	8/8/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	210	< 350
MW-5	10/23/2018	< 3.0	< 2.0	< 3.0	< 3.0	< 250	200	< 350

Notes:

B = Benzene

T = Toluene

E = Ethylbenzene

X = Xylenes, Total

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

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

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

1,000/800¹ ug/L if no detectable levels of Benzene in the sample - otherwise 800 ug/L

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

ug/L = Micrograms per liter (ppb)

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

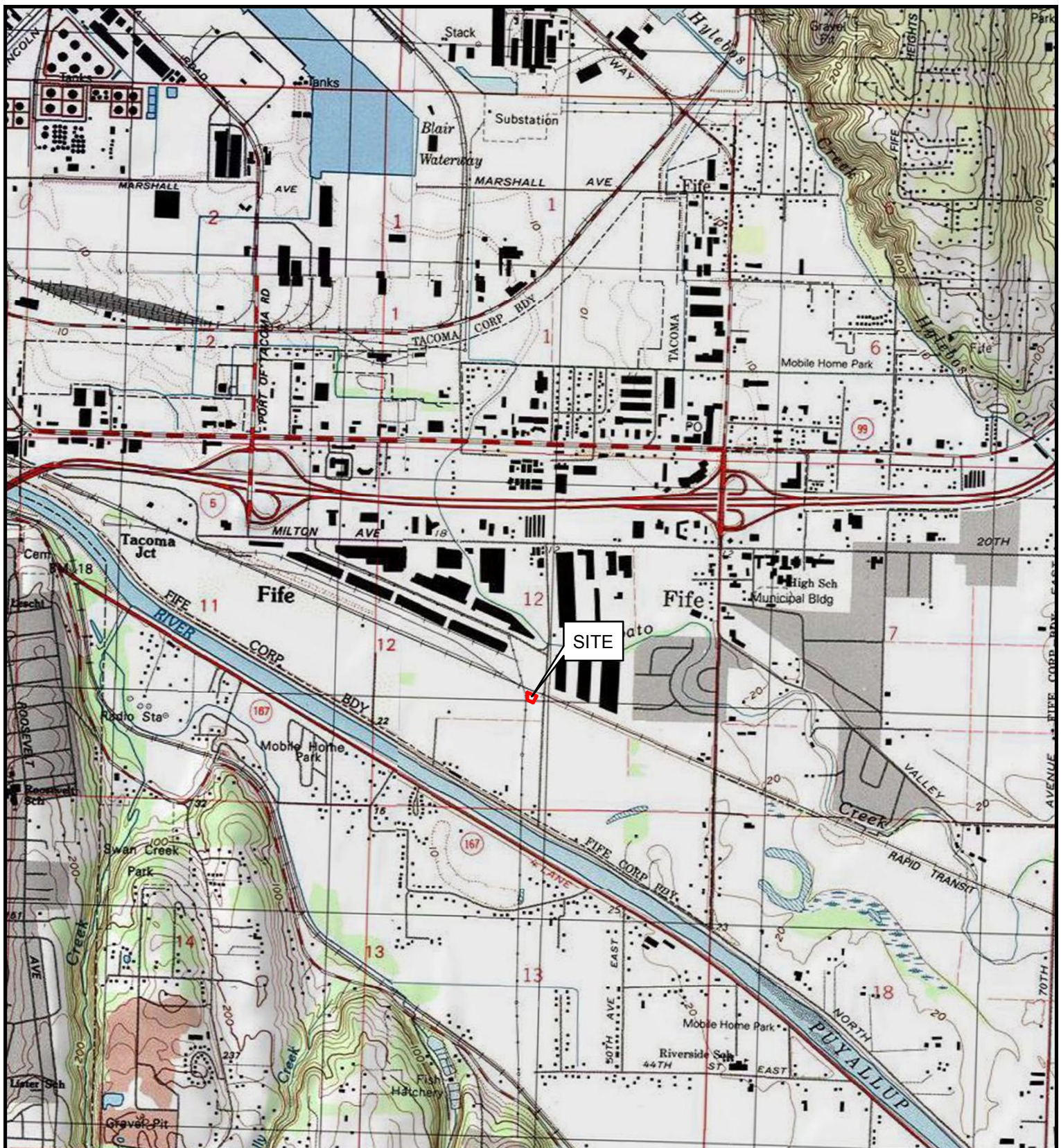
MTCA = Model Toxics Control Act

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

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

Figures

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Groundwater Elevation Contour Map - 08/08/2018
Figure 4	Groundwater Elevation Contour Map - 10/23/2018
Figure 5	Groundwater Analytical Data Map - 08/08/2018 & 10/23/2018




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

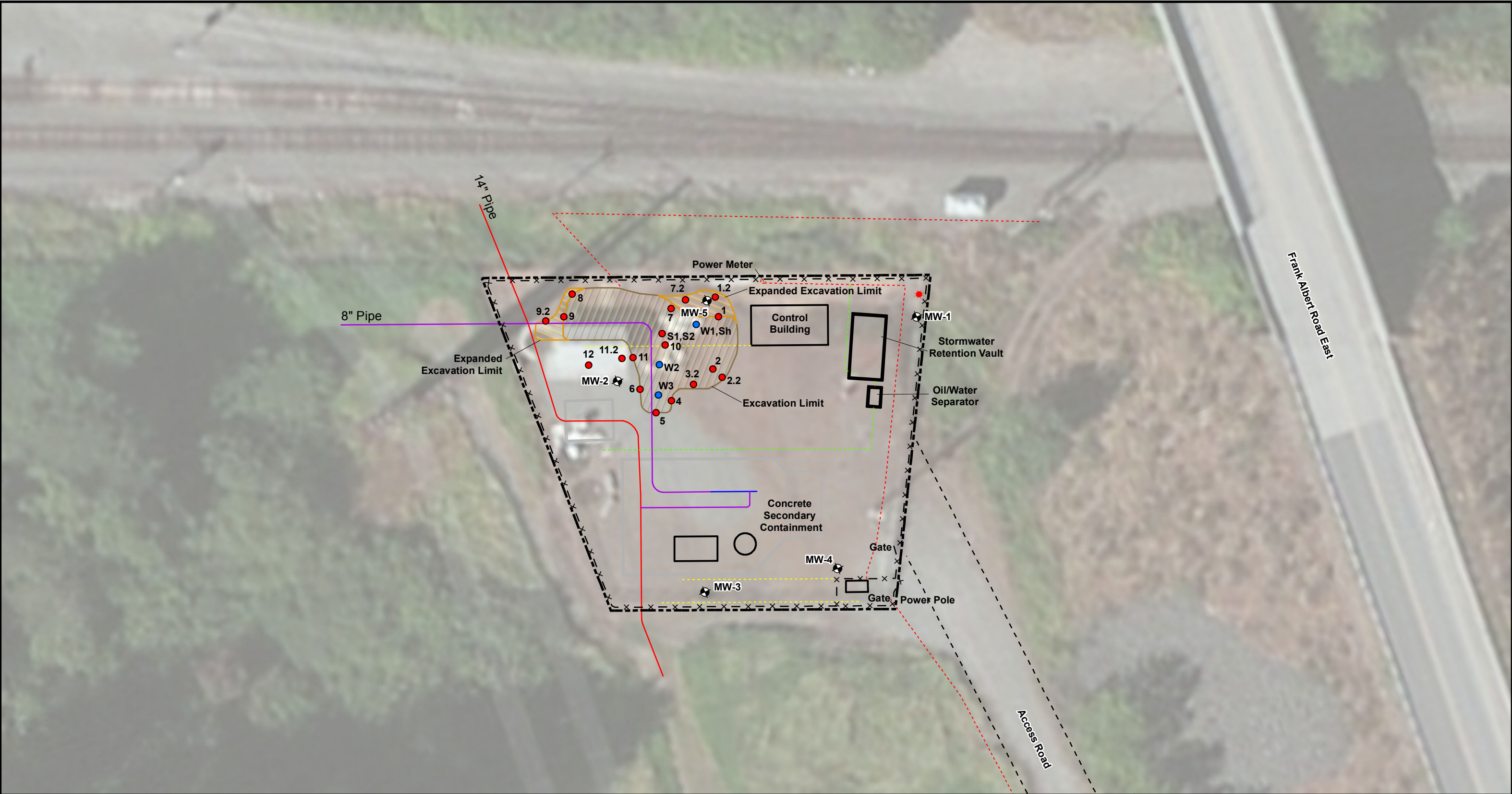
0 500 1,000 2,000 3,000 4,000 Feet



FIGURE 1

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

PROJECT NO. WATACJUSA181	PREPARED BY MB	REF SCALE 1:24,000	
DATE 1/24/2019	REVIEWED BY FS	MAP SCALE 1 INCH = 2,000 FEET	



Legend

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

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

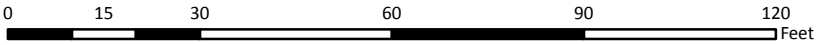
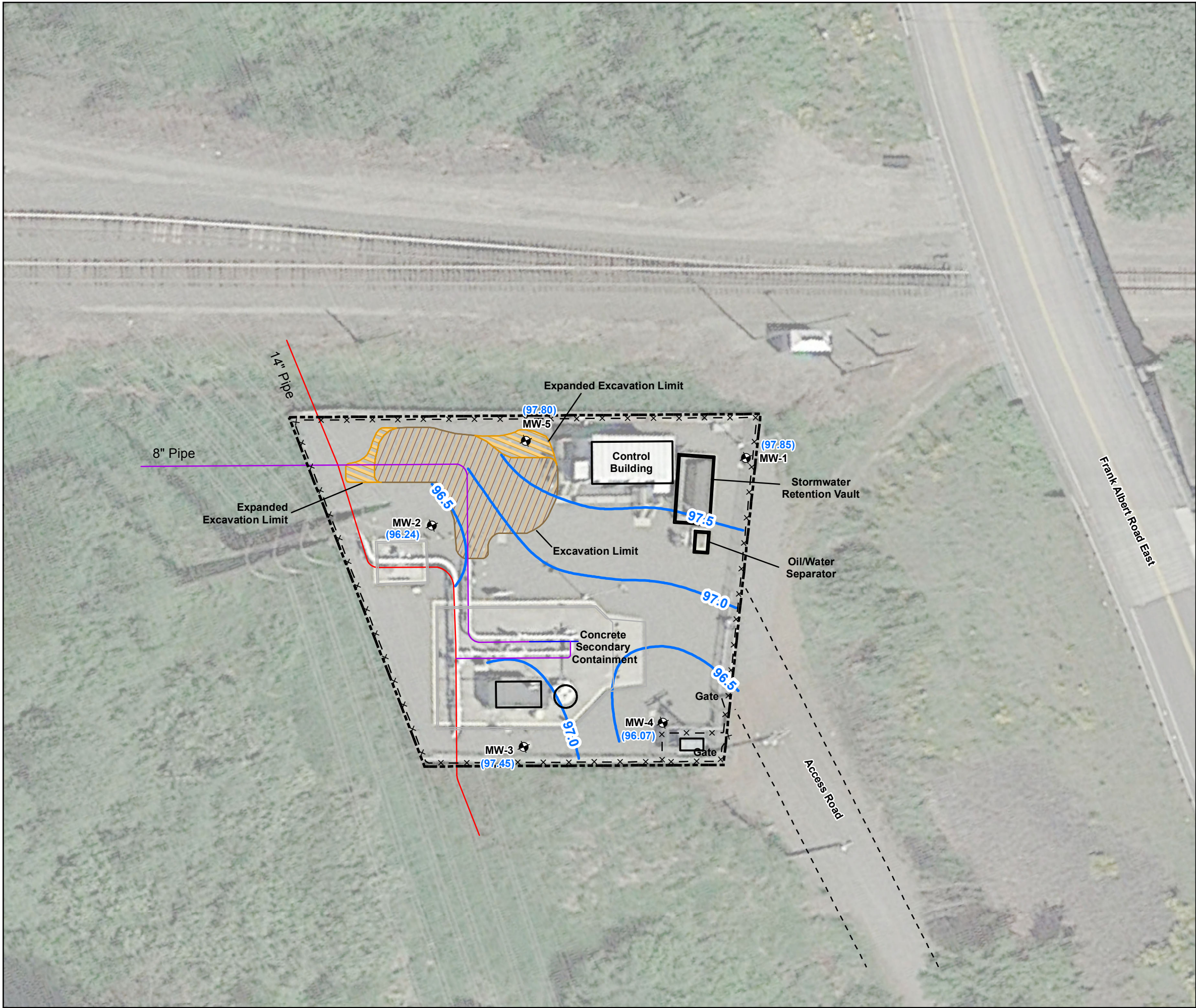


FIGURE 2

SITE MAP

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

PROJECT NO. WATACI/USA181	PREPARED BY MB	REF SCALE 1:360	
DATE 1/24/2019	REVIEWED BY FS	MAP SCALE 1 INCH = 30 FEET	



Legend

- Monitoring Well Location
- Property Boundary
- Fence
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (feet)

Source: GoogleEarth (05/13/2018)

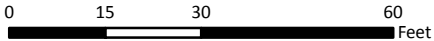


FIGURE 3

GROUNDWATER ELEVATION CONTOUR MAP

08/08/2018

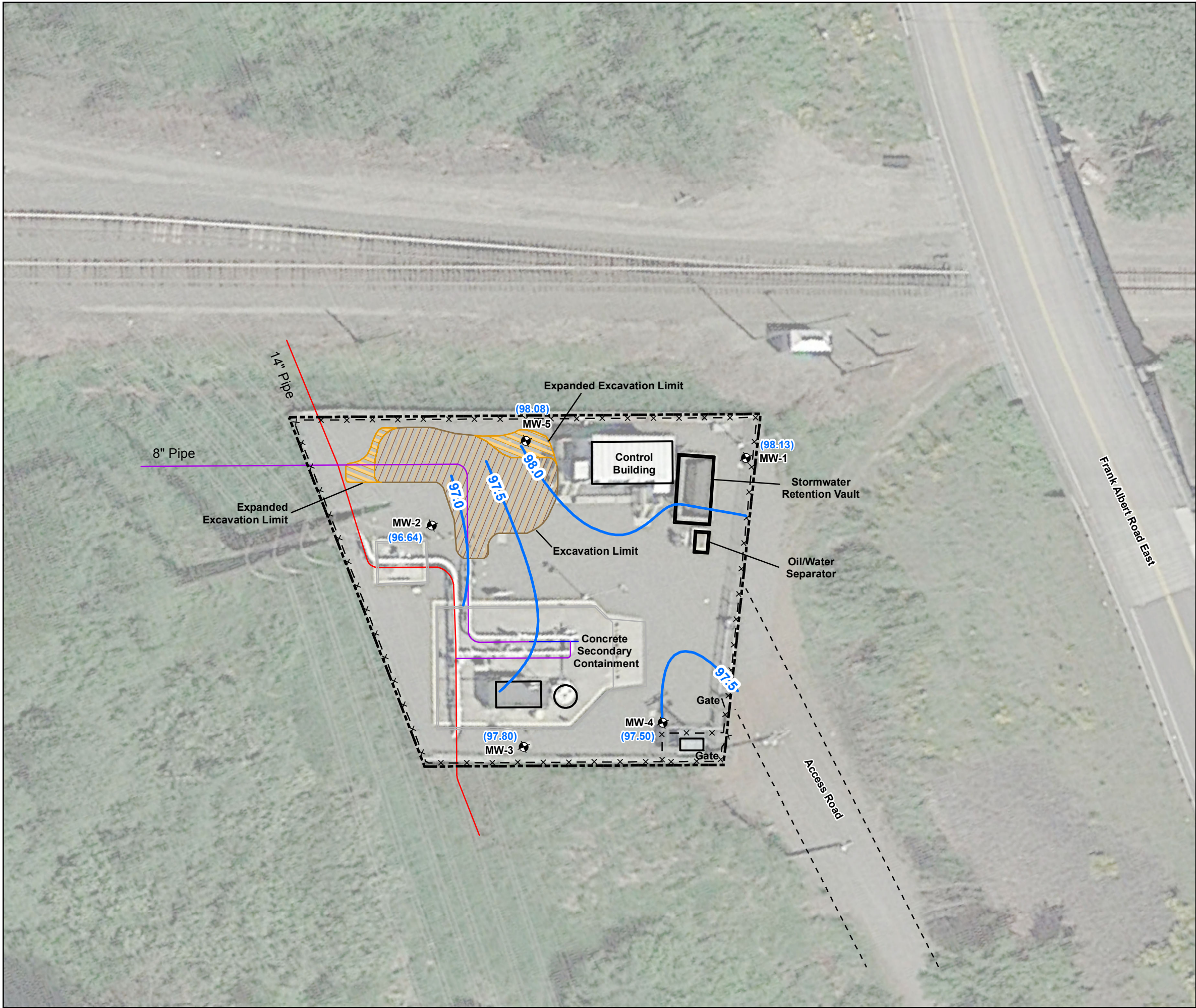
OLYMPIC PIPE LINE COMPANY

TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. WATACJUSA181	PREPARED BY JH	REF SCALE 1:360
DATE 12/12/2018	REVIEWED BY BE/MR	MAP SCALE 1 INCH = 30 FEET



Legend

- Monitoring Well Location
- Groundwater Elevation Contour (feet)
- Property Boundary
- Fence
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation

Source: GoogleEarth (05/13/2018)

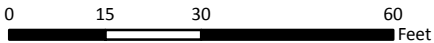


FIGURE 4

GROUNDWATER ELEVATION CONTOUR MAP

10/23/2018

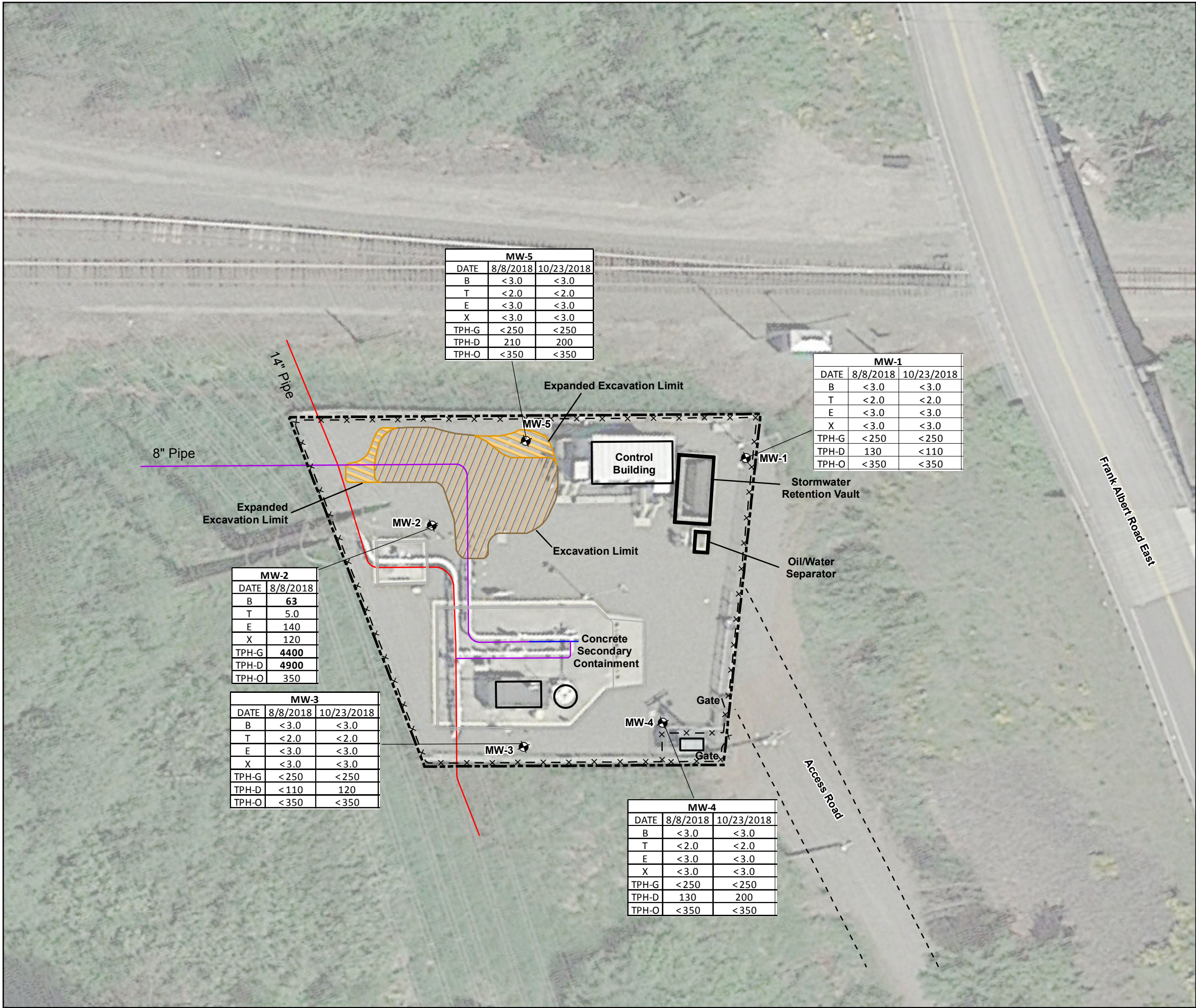
OLYMPIC PIPE LINE COMPANY

TACOMA JUNCTION

2660 FRANK ALBERT ROAD EAST

FIFE, WASHINGTON

PROJECT NO. WATACI/USA181	PREPARED BY JH	REF SCALE 1:360
DATE 12/12/2018	REVIEWED BY BE/MR	MAP SCALE 1 INCH = 30 FEET



Legend

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

Source: GoogleEarth (05/13/2018)

Notes:


B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes, Total
Benzene, Toluene, Ethylbenzene, andTotal Xylenes analyzed by EPA Method 8260C
TPH-G = Total petroleum hydrocarbons as gasoline analyzed by Northwest Method NWTPH-Gx
TPH-D = Total petroleum hydrocarbons as diesel analyzed by Northwest Method NWTPH-Dx
TPH-O = Total petroleum hydrocarbons as oil analyzed by Northwest Method NWTPH-Dx
*1,000/800 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
All concentrations reported in micrograms per liter (µg/L)
MTCA = Model Toxics Control Act
BOLD= Concentrations in excess of MTCA Method A Cleanup Levels

Substance	MTCA Method A
B	5
T	1,000
E	700
X	1,000
TPH-G	*1,000/800
TPH-D	500
TPH-O	500
Lead	15

0 15 30 60 Feet

FIGURE 5

GROUNDWATER ANALYTICAL DATA MAP
08/08/2018 & 10/23/2018
OLYMPIC PIPE LINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

PROJECT NO. WATACI/USA181	PREPARED BY JH	REF SCALE 1:360	
DATE 12/12/2018	REVIEWED BY BE/MR	MAP SCALE 1 INCH = 30 FEET	

Appendix A

Analytical Lab Reports and Chain-of-Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
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Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-79494-1

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

For:

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

Attn: Mackie Stock

Kristine D. Allen

Authorized for release by:

8/23/2018 9:22:51 AM

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

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

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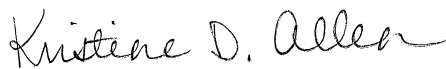
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The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the BPLAMP Technical Specifications, applicable federal, state, local regulations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



Kristine Allen
Manager of Project Management
8/23/2018 9:22:52 AM

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Case Narrative

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

TestAmerica Job ID: 580-79494-1

Job ID: 580-79494-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-79494-1

Comments

No additional comments.

Receipt

The samples were received on 8/9/2018 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° C.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-281746 recovered above the upper control limit for 1,2-Dichloroethane-d4 (Surr). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCVIS 580-281746/3).

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2_20180808 (580-79494-2). Elevated reporting limits (RLs) are provided.

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

GC Semi VOA

Method(s) NWTPH-Dx: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-1_20180808 (580-79494-1).

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

Organic Prep

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

Definitions/Glossary

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

TestAmerica Job ID: 580-79494-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-1_20180808

Lab Sample ID: 580-79494-1

Date Collected: 08/08/18 09:30

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 06:06	1
Toluene	ND		2.0		ug/L			08/16/18 06:06	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 06:06	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 06:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		80 - 120		08/16/18 06:06	1
Toluene-d8 (Surr)	106		80 - 122		08/16/18 06:06	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 126		08/16/18 06:06	1
4-Bromofluorobenzene (Surr)	97		80 - 125		08/16/18 06:06	1
Dibromofluoromethane (Surr)	97		77 - 120		08/16/18 06:06	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			08/15/18 15:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		50 - 150		08/15/18 15:46	1
Trifluorotoluene (Surr)	119		50 - 150		08/15/18 15:46	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)	130		110		ug/L		08/12/18 10:22	08/14/18 01:36	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/12/18 10:22	08/14/18 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	59		50 - 150	08/12/18 10:22	08/14/18 01:36	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-2_20180808

Lab Sample ID: 580-79494-2

Date Collected: 08/08/18 10:10

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	63		3.0		ug/L			08/16/18 06:33	1
Toluene	5.0		2.0		ug/L			08/16/18 06:33	1
Xylenes, Total	120		3.0		ug/L			08/16/18 06:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		80 - 120					08/16/18 06:33	1
Toluene-d8 (Surr)	106		80 - 122					08/16/18 06:33	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 126					08/16/18 06:33	1
4-Bromofluorobenzene (Surr)	102		80 - 125					08/16/18 06:33	1
Dibromofluoromethane (Surr)	95		77 - 120					08/16/18 06:33	1

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	140		30		ug/L			08/16/18 23:55	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		80 - 120					08/16/18 23:55	10
Toluene-d8 (Surr)	104		80 - 122					08/16/18 23:55	10
1,2-Dichloroethane-d4 (Surr)	113		80 - 126					08/16/18 23:55	10
4-Bromofluorobenzene (Surr)	99		80 - 125					08/16/18 23:55	10
Dibromofluoromethane (Surr)	99		77 - 120					08/16/18 23:55	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	4400		250		ug/L			08/15/18 16:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	149		50 - 150					08/15/18 16:16	1
Trifluorotoluene (Surr)	110		50 - 150					08/15/18 16:16	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)	4900		110		ug/L		08/12/18 10:22	08/14/18 01:59	1
Motor Oil (>C24-C36)	350		350		ug/L		08/12/18 10:22	08/14/18 01:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150				08/12/18 10:22	08/14/18 01:59	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-3_20180808

Lab Sample ID: 580-79494-3

Date Collected: 08/08/18 10:25

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 06:59	1
Toluene	ND		2.0		ug/L			08/16/18 06:59	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 06:59	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 06:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		80 - 120		08/16/18 06:59	1
Toluene-d8 (Surr)	106		80 - 122		08/16/18 06:59	1
1,2-Dichloroethane-d4 (Surr)	91		80 - 126		08/16/18 06:59	1
4-Bromofluorobenzene (Surr)	98		80 - 125		08/16/18 06:59	1
Dibromofluoromethane (Surr)	94		77 - 120		08/16/18 06:59	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			08/15/18 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		50 - 150		08/15/18 17:16	1
Trifluorotoluene (Surr)	117		50 - 150		08/15/18 17:16	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		08/12/18 10:22	08/14/18 02:21	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/12/18 10:22	08/14/18 02:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	08/12/18 10:22	08/14/18 02:21	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-4_20180808

Lab Sample ID: 580-79494-4

Date Collected: 08/08/18 10:45

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 07:24	1
Toluene	ND		2.0		ug/L			08/16/18 07:24	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 07:24	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 07:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		80 - 120		08/16/18 07:24	1
Toluene-d8 (Surr)	108		80 - 122		08/16/18 07:24	1
1,2-Dichloroethane-d4 (Surr)	90		80 - 126		08/16/18 07:24	1
4-Bromofluorobenzene (Surr)	97		80 - 125		08/16/18 07:24	1
Dibromofluoromethane (Surr)	93		77 - 120		08/16/18 07:24	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			08/15/18 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		50 - 150		08/15/18 17:46	1
Trifluorotoluene (Surr)	117		50 - 150		08/15/18 17:46	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)	130		110		ug/L		08/12/18 10:22	08/14/18 02:44	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/12/18 10:22	08/14/18 02:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	84		50 - 150	08/12/18 10:22	08/14/18 02:44	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-5_20180808

Lab Sample ID: 580-79494-5

Date Collected: 08/08/18 09:50

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 07:51	1
Toluene	ND		2.0		ug/L			08/16/18 07:51	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 07:51	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 07:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	94		80 - 120		08/16/18 07:51	1
Toluene-d8 (Surr)	109		80 - 122		08/16/18 07:51	1
1,2-Dichloroethane-d4 (Surr)	90		80 - 126		08/16/18 07:51	1
4-Bromofluorobenzene (Surr)	98		80 - 125		08/16/18 07:51	1
Dibromofluoromethane (Surr)	92		77 - 120		08/16/18 07:51	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			08/15/18 18:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		50 - 150		08/15/18 18:16	1
Trifluorotoluene (Surr)	121		50 - 150		08/15/18 18:16	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)	210		110		ug/L		08/12/18 10:22	08/14/18 03:06	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/12/18 10:22	08/14/18 03:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	08/12/18 10:22	08/14/18 03:06	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: Trip Blank_20180808

Lab Sample ID: 580-79494-6

Date Collected: 08/08/18 00:00

Matrix: Water

Date Received: 08/09/18 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 03:55	1
Toluene	ND		2.0		ug/L			08/16/18 03:55	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 03:55	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 03:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		80 - 120		08/16/18 03:55	1
Toluene-d8 (Surr)	106		80 - 122		08/16/18 03:55	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 126		08/16/18 03:55	1
4-Bromofluorobenzene (Surr)	98		80 - 125		08/16/18 03:55	1
Dibromofluoromethane (Surr)	96		77 - 120		08/16/18 03:55	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			08/15/18 14:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		50 - 150		08/15/18 14:02	1
Trifluorotoluene (Surr)	114		50 - 150		08/15/18 14:02	1

QC Sample Results

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

TestAmerica Job ID: 580-79494-1

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

Lab Sample ID: MB 580-281646/5

Matrix: Water

Analysis Batch: 281646

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			08/16/18 00:25	1
Toluene	ND		2.0		ug/L			08/16/18 00:25	1
Ethylbenzene	ND		3.0		ug/L			08/16/18 00:25	1
Xylenes, Total	ND		3.0		ug/L			08/16/18 00:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	96		80 - 120		08/16/18 00:25	1
Toluene-d8 (Surr)	107		80 - 122		08/16/18 00:25	1
1,2-Dichloroethane-d4 (Surr)	96		80 - 126		08/16/18 00:25	1
4-Bromofluorobenzene (Surr)	99		80 - 125		08/16/18 00:25	1
Dibromofluoromethane (Surr)	95		77 - 120		08/16/18 00:25	1

Lab Sample ID: LCS 580-281646/6

Matrix: Water

Analysis Batch: 281646

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	9.61		ug/L		96	75 - 128
Toluene	10.0	9.43		ug/L		94	75 - 120
Ethylbenzene	10.0	9.31		ug/L		93	75 - 120
m-Xylene & p-Xylene	10.0	9.46		ug/L		95	75 - 120
o-Xylene	10.0	9.51		ug/L		95	74 - 120
Xylenes, Total	20.0	19.0		ug/L		95	74 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	95		80 - 120
Toluene-d8 (Surr)	106		80 - 122
1,2-Dichloroethane-d4 (Surr)	98		80 - 126
4-Bromofluorobenzene (Surr)	99		80 - 125
Dibromofluoromethane (Surr)	95		77 - 120

Lab Sample ID: LCSD 580-281646/7

Matrix: Water

Analysis Batch: 281646

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.51		ug/L		95	75 - 128	1	14
Toluene	10.0	9.37		ug/L		94	75 - 120	1	13
Ethylbenzene	10.0	9.32		ug/L		93	75 - 120	0	14
m-Xylene & p-Xylene	10.0	9.35		ug/L		94	75 - 120	1	14
o-Xylene	10.0	9.41		ug/L		94	74 - 120	1	16
Xylenes, Total	20.0	18.8		ug/L		94	74 - 120	1	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	96		80 - 120
Toluene-d8 (Surr)	104		80 - 122
1,2-Dichloroethane-d4 (Surr)	97		80 - 126

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79494-1

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

Lab Sample ID: LCSD 580-281646/7

Matrix: Water

Analysis Batch: 281646

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		80 - 125
Dibromofluoromethane (Surr)	97		77 - 120

Lab Sample ID: MB 580-281746/5

Matrix: Water

Analysis Batch: 281746

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
Benzene	ND		3.0		ug/L			08/16/18 15:36	1	
Toluene	ND		2.0		ug/L			08/16/18 15:36	1	
Ethylbenzene	ND		3.0		ug/L			08/16/18 15:36	1	
Xylenes, Total	ND		3.0		ug/L			08/16/18 15:36	1	

	MB	MB								
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil	Fac			
Trifluorotoluene (Surr)	95		80 - 120		08/16/18 15:36	1				
Toluene-d8 (Surr)	106		80 - 122		08/16/18 15:36	1				
1,2-Dichloroethane-d4 (Surr)	122		80 - 126		08/16/18 15:36	1				
4-Bromofluorobenzene (Surr)	100		80 - 125		08/16/18 15:36	1				
Dibromofluoromethane (Surr)	103		77 - 120		08/16/18 15:36	1				

Lab Sample ID: LCS 580-281746/6

Matrix: Water

Analysis Batch: 281746

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

	Spike	LCS	LCS					%Rec.		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits			
Benzene	10.0	9.24		ug/L		92	75 - 128			
Toluene	10.0	9.10		ug/L		91	75 - 120			
Ethylbenzene	10.0	9.05		ug/L		91	75 - 120			
m-Xylene & p-Xylene	10.0	9.04		ug/L		90	75 - 120			
o-Xylene	10.0	9.22		ug/L		92	74 - 120			
Xylenes, Total	20.0	18.3		ug/L		91	74 - 120			

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Trifluorotoluene (Surr)	95		80 - 120
Toluene-d8 (Surr)	104		80 - 122
1,2-Dichloroethane-d4 (Surr)	120		80 - 126
4-Bromofluorobenzene (Surr)	101		80 - 125
Dibromofluoromethane (Surr)	101		77 - 120

Lab Sample ID: LCSD 580-281746/7

Matrix: Water

Analysis Batch: 281746

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	Spike	LCSD	LCSD					%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	10.0	9.68		ug/L		97	75 - 128	5	14	
Toluene	10.0	9.28		ug/L		93	75 - 120	2	13	
Ethylbenzene	10.0	9.12		ug/L		91	75 - 120	1	14	

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79494-1

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

Lab Sample ID: LCSD 580-281746/7

Matrix: Water

Analysis Batch: 281746

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
m-Xylene & p-Xylene	10.0	9.16		ug/L		92	75 - 120	1	14
o-Xylene	10.0	9.48		ug/L		95	74 - 120	3	16
Xylenes, Total	20.0	18.6		ug/L		93	74 - 120	2	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	93		80 - 120
Toluene-d8 (Surr)	104		80 - 122
1,2-Dichloroethane-d4 (Surr)	120		80 - 126
4-Bromofluorobenzene (Surr)	100		80 - 125
Dibromofluoromethane (Surr)	102		77 - 120

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

Lab Sample ID: MB 580-281624/5

Matrix: Water

Analysis Batch: 281624

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			08/15/18 11:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		50 - 150		08/15/18 11:33	1
Trifluorotoluene (Surr)	132		50 - 150		08/15/18 11:33	1

Lab Sample ID: LCS 580-281624/6

Matrix: Water

Analysis Batch: 281624

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1000	865		ug/L		87	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		50 - 150
Trifluorotoluene (Surr)	110		50 - 150

Lab Sample ID: LCSD 580-281624/7

Matrix: Water

Analysis Batch: 281624

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	906		ug/L		91	79 - 120	5	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		50 - 150
Trifluorotoluene (Surr)	132		50 - 150

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-79494-1

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

Lab Sample ID: MB 580-281383/1-A

Matrix: Water

Analysis Batch: 281390

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 281383

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		08/12/18 10:22	08/13/18 23:44	1
Motor Oil (>C24-C36)	ND		350		ug/L		08/12/18 10:22	08/13/18 23:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150				08/12/18 10:22	08/13/18 23:44	1

Lab Sample ID: LCS 580-281383/2-A

Matrix: Water

Analysis Batch: 281390

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 281383

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	2000	1850		ug/L		92	50 - 120
Motor Oil (>C24-C36)	2000	1920		ug/L		96	64 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
o-Terphenyl	98		50 - 150				

Lab Sample ID: LCSD 580-281383/3-A

Matrix: Water

Analysis Batch: 281390

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 281383

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	2000	1870		ug/L		93	50 - 120	1	26
Motor Oil (>C24-C36)	2000	1990		ug/L		100	64 - 120	4	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	106		50 - 150						

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-79494-1

Client Sample ID: MW-1_20180808

Lab Sample ID: 580-79494-1

Date Collected: 08/08/18 09:30

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 06:06	RSB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 15:46	JSM	TAL SEA
Total/NA	Prep	3510C			281383	08/12/18 10:22	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	281390	08/14/18 01:36	TL1	TAL SEA

Client Sample ID: MW-2_20180808

Lab Sample ID: 580-79494-2

Date Collected: 08/08/18 10:10

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 06:33	RSB	TAL SEA
Total/NA	Analysis	8260C	DL	10	281746	08/16/18 23:55	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 16:16	JSM	TAL SEA
Total/NA	Prep	3510C			281383	08/12/18 10:22	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	281390	08/14/18 01:59	TL1	TAL SEA

Client Sample ID: MW-3_20180808

Lab Sample ID: 580-79494-3

Date Collected: 08/08/18 10:25

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 06:59	RSB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 17:16	JSM	TAL SEA
Total/NA	Prep	3510C			281383	08/12/18 10:22	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	281390	08/14/18 02:21	TL1	TAL SEA

Client Sample ID: MW-4_20180808

Lab Sample ID: 580-79494-4

Date Collected: 08/08/18 10:45

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 07:24	RSB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 17:46	JSM	TAL SEA
Total/NA	Prep	3510C			281383	08/12/18 10:22	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	281390	08/14/18 02:44	TL1	TAL SEA

Client Sample ID: MW-5_20180808

Lab Sample ID: 580-79494-5

Date Collected: 08/08/18 09:50

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 07:51	RSB	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: Antea USA, Inc.

TestAmerica Job ID: 580-79494-1

Project/Site: BP - OPLC - Tacoma Junction

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 18:16	JSM	TAL SEA
Total/NA	Prep	3510C			281383	08/12/18 10:22	JCM	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	281390	08/14/18 03:06	TL1	TAL SEA

Client Sample ID: Trip Blank_20180808

Lab Sample ID: 580-79494-6

Date Collected: 08/08/18 00:00

Matrix: Water

Date Received: 08/09/18 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	281646	08/16/18 03:55	RSB	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	281624	08/15/18 14:02	JSM	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 580-79494-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	Xylenes, Total

Sample Summary

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

TestAmerica Job ID: 580-79494-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-79494-1	MW-1_20180808	Water	08/08/18 09:30	08/09/18 12:10
580-79494-2	MW-2_20180808	Water	08/08/18 10:10	08/09/18 12:10
580-79494-3	MW-3_20180808	Water	08/08/18 10:25	08/09/18 12:10
580-79494-4	MW-4_20180808	Water	08/08/18 10:45	08/09/18 12:10
580-79494-5	MW-5_20180808	Water	08/08/18 09:50	08/09/18 12:10
580-79494-6	Trip Blank_20180808	Water	08/08/18 00:00	08/09/18 12:10

Login Sample Receipt Checklist

Client: Antea USA, Inc.

Job Number: 580-79494-1

Login Number: 79494

List Source: TestAmerica Seattle

List Number: 1

Creator: Gall, Brandon A

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

TestAmerica Job ID: 580-81279-1

Client Project/Site: 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:
11/12/2018 5:33:01 PM

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

LINKS

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

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

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



Elaine Walker
Project Manager II
11/12/2018 5:33:01 PM

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Case Narrative

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

TestAmerica Job ID: 580-81279-1

Job ID: 580-81279-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative 580-81279-1

Receipt

Five samples were received on 10/23/2018 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.3° C.

Receipt Exceptions

All samples were received at 8.3C however considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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 above or in the Definitions/Glossary page.

Definitions/Glossary

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

TestAmerica Job ID: 580-81279-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: MW-1_20181023

Lab Sample ID: 580-81279-1

Date Collected: 10/23/18 10:30

Matrix: Water

Date Received: 10/23/18 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/02/18 20:15	1
Toluene	ND		2.0		ug/L			11/02/18 20:15	1
Ethylbenzene	ND		3.0		ug/L			11/02/18 20:15	1
Xylenes, Total	ND		3.0		ug/L			11/02/18 20:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	98		80 - 120		11/02/18 20:15	1
Toluene-d8 (Surr)	106		80 - 122		11/02/18 20:15	1
1,2-Dichloroethane-d4 (Surr)	96		80 - 126		11/02/18 20:15	1
4-Bromofluorobenzene (Surr)	98		80 - 125		11/02/18 20:15	1
Dibromofluoromethane (Surr)	100		77 - 120		11/02/18 20:15	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			11/03/18 07:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		50 - 150		11/03/18 07:24	1
Trifluorotoluene (Surr)	99		50 - 150		11/03/18 07:24	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		11/05/18 07:59	11/07/18 13:06	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/05/18 07:59	11/07/18 13:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	91		50 - 150	11/05/18 07:59	11/07/18 13:06	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: MW-3_20181023

Date Collected: 10/23/18 09:45

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/02/18 20:40	1
Toluene	ND		2.0		ug/L			11/02/18 20:40	1
Ethylbenzene	ND		3.0		ug/L			11/02/18 20:40	1
Xylenes, Total	ND		3.0		ug/L			11/02/18 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		80 - 120		11/02/18 20:40	1
Toluene-d8 (Surr)	104		80 - 122		11/02/18 20:40	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 126		11/02/18 20:40	1
4-Bromofluorobenzene (Surr)	93		80 - 125		11/02/18 20:40	1
Dibromofluoromethane (Surr)	102		77 - 120		11/02/18 20:40	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			11/03/18 07:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		50 - 150		11/03/18 07:51	1
Trifluorotoluene (Surr)	99		50 - 150		11/03/18 07:51	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)	120		110		ug/L		11/05/18 10:21	11/06/18 11:19	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/05/18 10:21	11/06/18 11:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	84		50 - 150	11/05/18 10:21	11/06/18 11:19	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: MW-4_20181023

Date Collected: 10/23/18 10:05

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/01/18 21:42	1
Toluene	ND		2.0		ug/L			11/01/18 21:42	1
Ethylbenzene	ND		3.0		ug/L			11/01/18 21:42	1
Xylenes, Total	ND		3.0		ug/L			11/01/18 21:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		80 - 120		11/01/18 21:42	1
Toluene-d8 (Surr)	99		80 - 122		11/01/18 21:42	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		11/01/18 21:42	1
4-Bromofluorobenzene (Surr)	85		80 - 125		11/01/18 21:42	1
Dibromofluoromethane (Surr)	104		77 - 120		11/01/18 21:42	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			11/03/18 08:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150		11/03/18 08:18	1
Trifluorotoluene (Surr)	110		50 - 150		11/03/18 08:18	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)	200		110		ug/L		11/05/18 10:21	11/06/18 11:39	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/05/18 10:21	11/06/18 11:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	90		50 - 150	11/05/18 10:21	11/06/18 11:39	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: MW-5_20181023

Lab Sample ID: 580-81279-4

Date Collected: 10/23/18 10:50

Matrix: Water

Date Received: 10/23/18 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/01/18 22:09	1
Toluene	ND		2.0		ug/L			11/01/18 22:09	1
Ethylbenzene	ND		3.0		ug/L			11/01/18 22:09	1
Xylenes, Total	ND		3.0		ug/L			11/01/18 22:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		80 - 120		11/01/18 22:09	1
Toluene-d8 (Surr)	80		80 - 122		11/01/18 22:09	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 126		11/01/18 22:09	1
4-Bromofluorobenzene (Surr)	99		80 - 125		11/01/18 22:09	1
Dibromofluoromethane (Surr)	104		77 - 120		11/01/18 22:09	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			11/03/18 08:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		50 - 150		11/03/18 08:45	1
Trifluorotoluene (Surr)	100		50 - 150		11/03/18 08:45	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)	200		110		ug/L		11/06/18 16:09	11/09/18 15:47	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/06/18 16:09	11/09/18 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	11/06/18 16:09	11/09/18 15:47	1

TestAmerica Seattle

Client Sample Results

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: Trip Blank20181023

Lab Sample ID: 580-81279-5

Date Collected: 10/23/18 00:00

Matrix: Water

Date Received: 10/23/18 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/01/18 22:35	1
Toluene	ND		2.0		ug/L			11/01/18 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	105		80 - 120		11/01/18 22:35	1
1,2-Dichloroethane-d4 (Surr)	105		80 - 126		11/01/18 22:35	1
4-Bromofluorobenzene (Surr)	102		80 - 125		11/01/18 22:35	1
Dibromofluoromethane (Surr)	102		77 - 120		11/01/18 22:35	1

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		3.0		ug/L			11/02/18 21:04	1
Xylenes, Total	ND		3.0		ug/L			11/02/18 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		80 - 120		11/02/18 21:04	1
Toluene-d8 (Surr)	107		80 - 122		11/02/18 21:04	1
1,2-Dichloroethane-d4 (Surr)	96		80 - 126		11/02/18 21:04	1
4-Bromofluorobenzene (Surr)	99		80 - 125		11/02/18 21:04	1
Dibromofluoromethane (Surr)	101		77 - 120		11/02/18 21:04	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			11/03/18 09:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		50 - 150		11/03/18 09:12	1
Trifluorotoluene (Surr)	104		50 - 150		11/03/18 09:12	1

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-81279-1

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

Lab Sample ID: MB 580-287998/5

Matrix: Water

Analysis Batch: 287998

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/01/18 16:03	1
Toluene	ND		2.0		ug/L			11/01/18 16:03	1
Ethylbenzene	ND		3.0		ug/L			11/01/18 16:03	1
Xylenes, Total	ND		3.0		ug/L			11/01/18 16:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		80 - 120		11/01/18 16:03	1
Toluene-d8 (Surr)	101		80 - 122		11/01/18 16:03	1
1,2-Dichloroethane-d4 (Surr)	102		80 - 126		11/01/18 16:03	1
4-Bromofluorobenzene (Surr)	97		80 - 125		11/01/18 16:03	1
Dibromofluoromethane (Surr)	102		77 - 120		11/01/18 16:03	1

Lab Sample ID: LCS 580-287998/6

Matrix: Water

Analysis Batch: 287998

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	8.77		ug/L		88	75 - 128
Toluene	10.0	9.08		ug/L		91	75 - 120
Ethylbenzene	10.0	8.89		ug/L		89	75 - 120
m-Xylene & p-Xylene	10.0	9.02		ug/L		90	75 - 120
o-Xylene	10.0	9.12		ug/L		91	74 - 120
Xylenes, Total	20.0	18.1		ug/L		91	74 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	99		80 - 120
Toluene-d8 (Surr)	98		80 - 122
1,2-Dichloroethane-d4 (Surr)	100		80 - 126
4-Bromofluorobenzene (Surr)	98		80 - 125
Dibromofluoromethane (Surr)	101		77 - 120

Lab Sample ID: LCSD 580-287998/7

Matrix: Water

Analysis Batch: 287998

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.79		ug/L		98	75 - 128	11	14
Toluene	10.0	9.81		ug/L		98	75 - 120	8	13
Ethylbenzene	10.0	9.49		ug/L		95	75 - 120	6	14
m-Xylene & p-Xylene	10.0	9.58		ug/L		96	75 - 120	6	14
o-Xylene	10.0	9.37		ug/L		94	74 - 120	3	16
Xylenes, Total	20.0	19.0		ug/L		95	74 - 120	4	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	98		80 - 120
Toluene-d8 (Surr)	102		80 - 122
1,2-Dichloroethane-d4 (Surr)	99		80 - 126

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-81279-1

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

Lab Sample ID: LCSD 580-287998/7

Matrix: Water

Analysis Batch: 287998

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 125
Dibromofluoromethane (Surr)	101		77 - 120

Lab Sample ID: MB 580-288109/5

Matrix: Water

Analysis Batch: 288109

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0		ug/L			11/02/18 19:02	1
Toluene	ND		2.0		ug/L			11/02/18 19:02	1
Ethylbenzene	ND		3.0		ug/L			11/02/18 19:02	1
Xylenes, Total	ND		3.0		ug/L			11/02/18 19:02	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	99		80 - 120				11/02/18 19:02	1
Toluene-d8 (Surr)	106		80 - 122				11/02/18 19:02	1
1,2-Dichloroethane-d4 (Surr)	94		80 - 126				11/02/18 19:02	1
4-Bromofluorobenzene (Surr)	98		80 - 125				11/02/18 19:02	1
Dibromofluoromethane (Surr)	100		77 - 120				11/02/18 19:02	1

Lab Sample ID: LCS 580-288109/6

Matrix: Water

Analysis Batch: 288109

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

				Spike	LCS	LCS				
Analyte				Added	Result	Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene				10.0	9.88		ug/L		99	75 - 128
Toluene				10.0	9.77		ug/L		98	75 - 120
Ethylbenzene				10.0	10.2		ug/L		102	75 - 120
m-Xylene & p-Xylene				10.0	10.5		ug/L		105	75 - 120
o-Xylene				10.0	9.77		ug/L		98	74 - 120
Xylenes, Total				20.0	20.3		ug/L		101	74 - 120

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Trifluorotoluene (Surr)	99		80 - 120
Toluene-d8 (Surr)	100		80 - 122
1,2-Dichloroethane-d4 (Surr)	96		80 - 126
4-Bromofluorobenzene (Surr)	99		80 - 125
Dibromofluoromethane (Surr)	102		77 - 120

Lab Sample ID: LCSD 580-288109/7

Matrix: Water

Analysis Batch: 288109

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

				Spike	LCSD	LCSD				%Rec.	RPD
Analyte				Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD
Benzene				10.0	9.97		ug/L		100	75 - 128	1
Toluene				10.0	9.65		ug/L		96	75 - 120	1
Ethylbenzene				10.0	9.83		ug/L		98	75 - 120	4

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-81279-1

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

Lab Sample ID: LCSD 580-288109/7

Matrix: Water

Analysis Batch: 288109

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
m-Xylene & p-Xylene	10.0	9.68		ug/L		97	75 - 120	8	14
o-Xylene	10.0	9.30		ug/L		93	74 - 120	5	16
Xylenes, Total	20.0	19.0		ug/L		95	74 - 120	7	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	99		80 - 120
Toluene-d8 (Surr)	99		80 - 122
1,2-Dichloroethane-d4 (Surr)	97		80 - 126
4-Bromofluorobenzene (Surr)	97		80 - 125
Dibromofluoromethane (Surr)	103		77 - 120

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

Lab Sample ID: MB 580-288105/6

Matrix: Water

Analysis Batch: 288105

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			11/03/18 05:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		50 - 150		11/03/18 05:36	1
Trifluorotoluene (Surr)	107		50 - 150		11/03/18 05:36	1

Lab Sample ID: LCS 580-288105/7

Matrix: Water

Analysis Batch: 288105

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1000	994		ug/L		99	79 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		50 - 150
Trifluorotoluene (Surr)	114		50 - 150

Lab Sample ID: LCSD 580-288105/8

Matrix: Water

Analysis Batch: 288105

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	961		ug/L		96	79 - 120	3	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		50 - 150
Trifluorotoluene (Surr)	109		50 - 150

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-81279-1

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

Lab Sample ID: MB 580-288149/1-A

Matrix: Water

Analysis Batch: 288338

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 288149

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		11/05/18 07:59	11/07/18 12:06	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/05/18 07:59	11/07/18 12:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150				11/05/18 07:59	11/07/18 12:06	1

Lab Sample ID: LCS 580-288149/2-A

Matrix: Water

Analysis Batch: 288338

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 288149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	2000	1750		ug/L		87	50 - 120		
Motor Oil (>C24-C36)	2000	2110		ug/L		106	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
o-Terphenyl	105		50 - 150						

Lab Sample ID: LCSD 580-288149/3-A

Matrix: Water

Analysis Batch: 288338

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 288149

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2000	1880		ug/L		94	50 - 120	7	26
Motor Oil (>C24-C36)	2000	2200		ug/L		110	64 - 120	4	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
o-Terphenyl	110		50 - 150						

Lab Sample ID: MB 580-288170/1-A

Matrix: Water

Analysis Batch: 288242

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 288170

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		110		ug/L		11/05/18 10:21	11/06/18 10:19	1
Motor Oil (>C24-C36)	ND		350		ug/L		11/05/18 10:21	11/06/18 10:19	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150				11/05/18 10:21	11/06/18 10:19	1

Lab Sample ID: LCS 580-288170/2-A

Matrix: Water

Analysis Batch: 288242

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 288170

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
#2 Diesel (C10-C24)	2000	1750		ug/L		87	50 - 120		
Motor Oil (>C24-C36)	2000	2210		ug/L		110	64 - 120		

TestAmerica Seattle

QC Sample Results

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

TestAmerica Job ID: 580-81279-1

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

Lab Sample ID: LCS 580-288170/2-A

Matrix: Water

Analysis Batch: 288242

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 288170

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -Terphenyl	95		50 - 150

Lab Sample ID: LCSD 580-288170/3-A

Matrix: Water

Analysis Batch: 288242

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 288170

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2000	1400		ug/L		70	50 - 120	22	26
Motor Oil (>C24-C36)	2000	1750		ug/L		88	64 - 120	23	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	81		50 - 150						

Lab Sample ID: LCS 580-288306/2-A

Matrix: Water

Analysis Batch: 288500

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 288306

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)	2000	1870		ug/L		93	50 - 120		
Motor Oil (>C24-C36)	2000	2000		ug/L		100	64 - 120		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
<i>o</i> -Terphenyl	106		50 - 150						

Lab Sample ID: LCSD 580-288306/3-A

Matrix: Water

Analysis Batch: 288500

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 288306

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	2000	1740		ug/L		87	50 - 120	7	26
Motor Oil (>C24-C36)	2000	1890		ug/L		95	64 - 120	5	24
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
<i>o</i> -Terphenyl	101		50 - 150						

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-81279-1

Client Sample ID: MW-1_20181023

Date Collected: 10/23/18 10:30

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	288109	11/02/18 20:15	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	288105	11/03/18 07:24	T1W	TAL SEA
Total/NA	Prep	3510C			288149	11/05/18 07:59	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	288338	11/07/18 13:06	Z1R	TAL SEA

Client Sample ID: MW-3_20181023

Date Collected: 10/23/18 09:45

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	288109	11/02/18 20:40	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	288105	11/03/18 07:51	T1W	TAL SEA
Total/NA	Prep	3510C			288170	11/05/18 10:21	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	288242	11/06/18 11:19	Z1R	TAL SEA

Client Sample ID: MW-4_20181023

Date Collected: 10/23/18 10:05

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	287998	11/01/18 21:42	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	288105	11/03/18 08:18	T1W	TAL SEA
Total/NA	Prep	3510C			288170	11/05/18 10:21	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	288242	11/06/18 11:39	Z1R	TAL SEA

Client Sample ID: MW-5_20181023

Date Collected: 10/23/18 10:50

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	287998	11/01/18 22:09	W1T	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	288105	11/03/18 08:45	T1W	TAL SEA
Total/NA	Prep	3510C			288306	11/06/18 16:09	KO	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	288500	11/09/18 15:47	Z1R	TAL SEA

Client Sample ID: Trip Blank20181023

Date Collected: 10/23/18 00:00

Date Received: 10/23/18 11:30

Lab Sample ID: 580-81279-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	287998	11/01/18 22:35	W1T	TAL SEA
Total/NA	Analysis	8260C	RA	1	288109	11/02/18 21:04	JSM	TAL SEA

TestAmerica Seattle

Lab Chronicle

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

TestAmerica Job ID: 580-81279-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		1	288105	11/03/18 09:12	T1W	TAL SEA

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 580-81279-1

Laboratory: TestAmerica Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C553	02-17-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	Xylenes, Total

Sample Summary

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

TestAmerica Job ID: 580-81279-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-81279-1	MW-1_20181023	Water	10/23/18 10:30	10/23/18 11:30
580-81279-2	MW-3_20181023	Water	10/23/18 09:45	10/23/18 11:30
580-81279-3	MW-4_20181023	Water	10/23/18 10:05	10/23/18 11:30
580-81279-4	MW-5_20181023	Water	10/23/18 10:50	10/23/18 11:30
580-81279-5	Trip Blank20181023	Water	10/23/18 00:00	10/23/18 11:30



Laboratory Management Program LaMP Chain of Custody Record

Loc: 580
81279

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BP/ARC Project Name: Olympic Pipe Line Company

Req Due Date (mm/dd/yy): Standard

s No

BP/ARC 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 WA 98424				Consultant/Contractor Project No: WATJUA71.10123														
Lab PM: Elaine Walker				Lead Regulatory Agency: WA Department of Ecology				Address: 4006 148th Avenue NE, Redmond, WA 98052														
Lab Phone: 253.248.4972				California Global ID No.: NA				Consultant/Contractor PM: Megan Richard														
Lab Shipping Acct: NA				Entos Proposal No: 00BPT-0003/WR313786				Phone: P: 425.498.7711 F: 425.869.1892														
Lab Bottle Order No: NA				Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>				Email EDD To: Megan.Richard@anteagroup.com														
Other Info: elaine.walker@testamericainc.com				Stage: Appraise (10) Activity: Interim Measures (123)				Invoice To: BP/ARC <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>														
BP/ARC EBM: Wade Melton				Matrix		No. Containers / Preservative		Requested Analyses						Report Type & QC Level								
EBM Phone: 360-594-7978														Standard <input checked="" type="checkbox"/>								
EBM Email: wade.melton@bp.com														Full Data Package <input type="checkbox"/>								
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	NaOH Zn Acetate	8260BTEX	NWTPH-Gx	NWTPH-DX	Pb Total	Comments				
	MW-1_20181023	10-23-18	10:30	X										X	X	X						
	MW-2_20181023	10-23-18		X										X	X	X			No sample			
	MW-3_20181023	10-23-18	09:45	X										X	X	X						
	MW-4_20181023	10-23-18	10:05	X										X	X	X						
	MW-5_20181023	10-23-18	10:50	X										X	X	X						
	Trip Blank_20181023	10-23-18	-	X										X	X							
																Therm. ID: 41 Cor: 8.3 ° Unc: 8.3 °						
																Cooler Desc: LB						
																Packing: B-b FedEx:						
																Cust. Seal: Yes No <input checked="" type="checkbox"/> UPS:						
																Packs/Dry Ice/None Lab Cour:						
																Other: LD						
Sampler's Name: Grace Hilbert				Relinquished By / Affiliation				Date	Time	Accepted By / Affiliation				Date	Time							
Sampler's Company: Antea Group				Grace Hilbert / Anka				10-23-18	11:30	Cunningham TASEA				10-23-18	11:30							
Shipment Method: Ship Date:																						
Shipment Tracking No:																						
Special Instructions:																						
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No				Temp Blank: <input type="checkbox"/>																		



580-81279 Chain of Custody

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Trip Blank: Yes / No

MS/MSD Sample Submitted: Yes / No

11/12/2018

10/24/2018

Login Container Summary Report

580-81279

Temperature readings:

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
MW-1_20181023	580-81279-A-1	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-1_20181023	580-81279-B-1	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-3_20181023	580-81279-A-2	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-3_20181023	580-81279-B-2	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-4_20181023	580-81279-A-3	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-4_20181023	580-81279-B-3	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-5_20181023	580-81279-A-4	Amber Glass 250mL - hydrochloric	1.5		0312801D-571
MW-5_20181023	580-81279-B-4	Amber Glass 250mL - hydrochloric	1.5		0312801D-571

Login Sample Receipt Checklist

Client: Antea USA, Inc.

Job Number: 580-81279-1

Login Number: 81279

List Source: TestAmerica Seattle

List Number: 1

Creator: Hobbs, Kenneth F

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