## Remediation Management Services Company

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August 14, 2020

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 2020, that documents the results at Olympic Pipe Line Company LLC, Tacoma Junction located at 2660 Frank Albert Road East, Fife, Washington.

Sincerely yours,

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

cc: File, Antea Group

# Semi-Annual Status Report

First Half of 2020
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
La Palma, CA 90623
and
BP Pipelines and Logistics
Olympic District
600 SW 39th Street, Suite 275
Renton, WA 98057

August 14, 2020
FSID No. 24529
Project No. WATJUAA201

us.anteagroup.com

# Contents



**Tables**



**Figures**

| | |
|---|---|
| **Reporting Period** | January 2020 – June 2020 |
| **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** | Alexandria Crooks, +1 425 981 2590 |
| **Antea®Group Contact** | Megan Richard, +1 425 498 7711 |

# 1.0 Site History

- This site is an active OPLC (Olympic Pipe Line 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 February 6, 2020 and June 24, 2020. Groundwater samples were collected from monitoring wells MW-1 through MW-5.
- This semi-annual groundwater monitoring report was prepared.

# 3.0 Project Status

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

# 4.0 Data Review and Recommendations

- Groundwater analytical data from the first and second quarter sampling events did not indicate concentrations of petroleum hydrocarbons in excess of MTCA Method A Cleanup Levels in monitoring wells MW-1, and MW-3 through MW-5. MW-2 had concentrations of benzene, TPH-G, and/or TPH-D in excess of MTCA Method A Cleanup Levels in the first and second quarter sampling events.
- 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 August 2020.

# 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

Danielle R. Kinkel

Date: August 14, 2020

Danielle Kinkel
Staff Professional

Reviewed by:


Date: August 14, 2020

Megan Richard, LG
Senior Project Manager

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)
File, Antea Group

# Contact Information

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# Tables

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-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-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 | -- |

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| Well I.D. | Date | GROUNDWATER ELEVATION DATA | | | | | |
|---|---|---|---|---|---|---|---|
| | | TOC Elevation (ft) | Water Level Depth (ft) | LNAPL Depth (ft) | LNAPL Thickness (ft) | Water Level Elevation* (ft) | Qualifiers |
| MW-2 | 8/1/2019 | 99.59 | 2.87 | NP | -- | 96.72 | -- |
| MW-2 | 10/30/2019 | 99.59 | 1.90 | NP | -- | 97.69 | -- |
| MW-2 | 2/6/2020 | 99.59 | 0.87 | NP | -- | 98.72 | -- |
| MW-2 | 6/24/2020 | 99.59 | 1.55 | NP | -- | 98.04 | -- |
| | | | | | | | |
| MW-3 | 6/29/2016 | 99.91 | 1.98 | NP | -- | 97.93 | -- |
| MW-3 | 9/8/2016 | 99.91 | 2.61 | NP | -- | 97.30 | -- |
| MW-3 | 12/1/2016 | 99.91 | 1.02 | NP | -- | 98.89 | -- |
| MW-3 | 2/22/2017 | 99.91 | 1.11 | NP | -- | 98.80 | -- |
| MW-3 | 5/10/2017 | 99.91 | 1.32 | NP | -- | 98.59 | -- |
| MW-3 | 8/16/2017 | 99.91 | 2.26 | NP | -- | 97.65 | -- |
| MW-3 | 10/31/2017 | 99.91 | 1.51 | NP | -- | 98.40 | -- |
| MW-3 | 2/13/2018 | 99.91 | 1.00 | NP | -- | 98.91 | -- |
| MW-3 | 5/2/2018 | 99.91 | 1.28 | NP | -- | 98.63 | -- |
| MW-3 | 8/8/2018 | 99.91 | 2.46 | NP | -- | 97.45 | -- |
| MW-3 | 10/23/2018 | 99.91 | 2.11 | NP | -- | 97.80 | -- |
| MW-3 | 1/30/2019 | 99.91 | 1.09 | NP | -- | 98.82 | -- |
| MW-3 | 4/24/2019 | 99.91 | 1.33 | NP | -- | 98.58 | -- |
| MW-3 | 8/1/2019 | 99.91 | 1.84 | NP | -- | 98.07 | -- |
| MW-3 | 10/30/2019 | 99.91 | 1.21 | NP | -- | 98.70 | -- |
| MW-3 | 2/6/2020 | 99.91 | 0.85 | NP | -- | 99.06 | -- |
| MW-3 | 6/24/2020 | 99.91 | 1.29 | NP | -- | 98.62 | -- |
| | | | | | | | |
| MW-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 | -- |

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 | 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-5 | 6/29/2016 | 99.60 | 1.49 | NP | -- | 98.11 | -- |
| MW-5 | 9/8/2016 | 99.60 | 1.57 | NP | -- | 98.03 | -- |
| MW-5 | 12/1/2016 | 99.60 | 0.61 | NP | -- | 98.99 | -- |
| MW-5 | 2/22/2017 | 99.60 | 0.77 | NP | -- | 98.83 | -- |
| MW-5 | 5/10/2017 | 99.60 | 1.27 | NP | -- | 98.33 | -- |
| MW-5 | 8/16/2017 | 99.60 | 1.70 | NP | -- | 97.90 | -- |
| MW-5 | 10/31/2017 | 99.60 | 1.02 | NP | -- | 98.58 | -- |
| MW-5 | 2/13/2018 | 99.60 | 0.82 | NP | -- | 98.78 | -- |
| MW-5 | 5/2/2018 | 99.60 | 1.12 | NP | -- | 98.48 | -- |
| MW-5 | 8/8/2018 | 99.60 | 1.80 | NP | -- | 97.80 | -- |
| MW-5 | 10/23/2018 | 99.60 | 1.52 | NP | -- | 98.08 | -- |
| MW-5 | 1/30/2019 | 99.60 | 0.73 | NP | -- | 98.87 | -- |
| MW-5 | 4/24/2019 | 99.60 | 1.20 | NP | -- | 98.40 | -- |
| MW-5 | 8/1/2019 | 99.60 | 1.55 | NP | -- | 98.05 | -- |
| MW-5 | 10/30/2019 | 99.60 | 0.89 | NP | -- | 98.71 | -- |
| MW-5 | 2/6/2020 | 99.60 | 0.50 | NP | -- | 99.10 | -- |
| MW-5 | 6/24/2020 | 99.60 | 1.13 | NP | -- | 98.47 | -- |

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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 |

**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

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-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-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-2 | 1/30/2019 | **130** | 7.2 | 74.0 | 94.0 | **4500** | **1800** | < 350 |
| MW-2 | 8/1/2019 | **110** | 6.2 | 25.0 | 43.0 | **1600** | **1000** | < 350 |
| MW-2 | 10/30/2019 | **140** | 6.1 | 62.0 | 51.0 | **3400** | **2000** | < 350 |
| MW-2 | 2/6/2020 | **120** | 5.4 | 44.0 | 35.0 | **2300** | **930** | < 360 |
| MW-2 | 6/24/2020 | **13** | < 2.0 | 9.5 | 3.0 | 750 | **590** | < 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-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 |
| 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-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-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 |

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

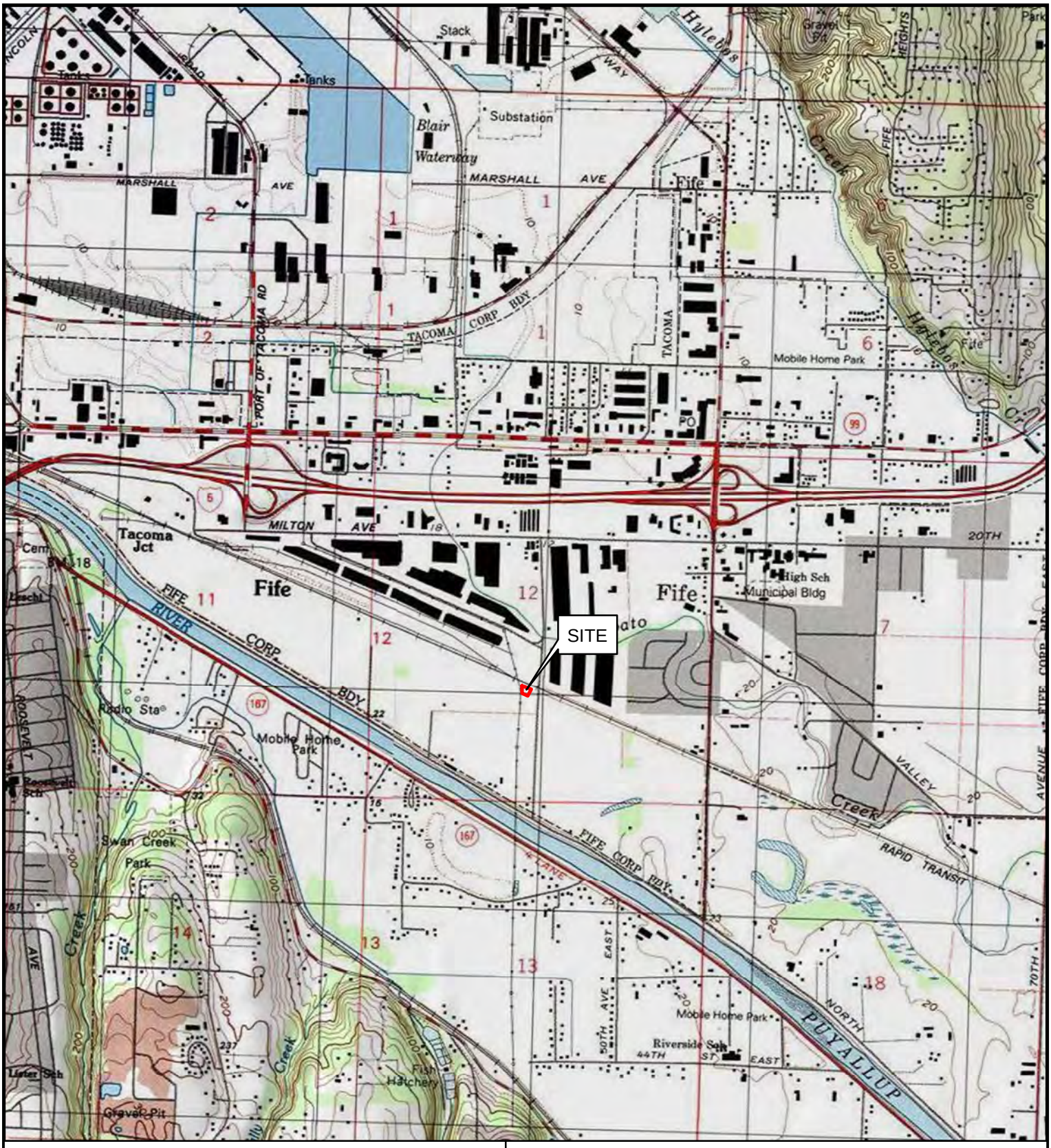
| CONSTITUENT | | B | T | E | X | TPH-G | TPH-D | TPH-O |
|---|---|---|---|---|---|---|---|---|
| UNIT | | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L |
| **MTCA METHOD A CLEANUP LEVELS** | | **5** | **1000** | **700** | **1000** | **800** | **500** | **500** |
| MW-4 | 10/30/2019 | < 3.0 | < 2.0 | < 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-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 |
| 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 |

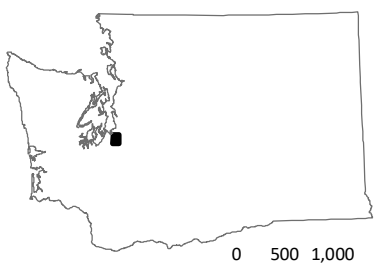
Table 2
Groundwater Analytical Data
Tacoma Junction
2660 Frank Albert Road E, Fife WA

| CONSTITUENT<br>UNIT | B<br>ug/L | T<br>ug/L | E<br>ug/L | X<br>ug/L | TPH-G<br>ug/L | TPH-D<br>ug/L | TPH-O<br>ug/L |
|---|---|---|---|---|---|---|---|
| **MTCA METHOD A CLEANUP LEVELS** | **5** | **1000** | **700** | **1000** | **800** | **500** | **500** |

**Notes:**
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes, Total
TPH-G = Total petroleum hydrocarbons as gasoline by Northwest Method NWTPH-Gx
TPH-D = Total petroleum hydrocarbons as diesel by Northwest Method NWTPH-Dx
TPH-O = Total petroleum hydrocarbons as oil by Northwest Method NWTPH-Dx
1,000/800[1] ug/L if no detectable levels of Benzene in the sample - otherwise 800 ug/L
<1.0 = Concentrations were not detected above the laboratory method reporting limit.
ug/L = Micrograms per liter (ppb)
-- = No value given/Not analyzed/Not applicable
MTCA = Model Toxics Control Act
Results in **bold** indicate concentrations in excess of MTCA Method A Cleanup Levels
* = RPD of the LCS and LCSD exceeds the control limits. LCS or LCSD is outside acceptance limits.

# Figures



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

N

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

**FIGURE 1**

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

| PROJECT NO. | PREPARED BY | REF SCALE |
|---|---|---|
| *WATACIUSA181* | *MB* | *1:24,000* |
| **DATE** | **REVIEWED BY** | **MAP SCALE** |
| *1/24/2019* | *FS* | *1 INCH = 2,000 FEET* |

anteagroup

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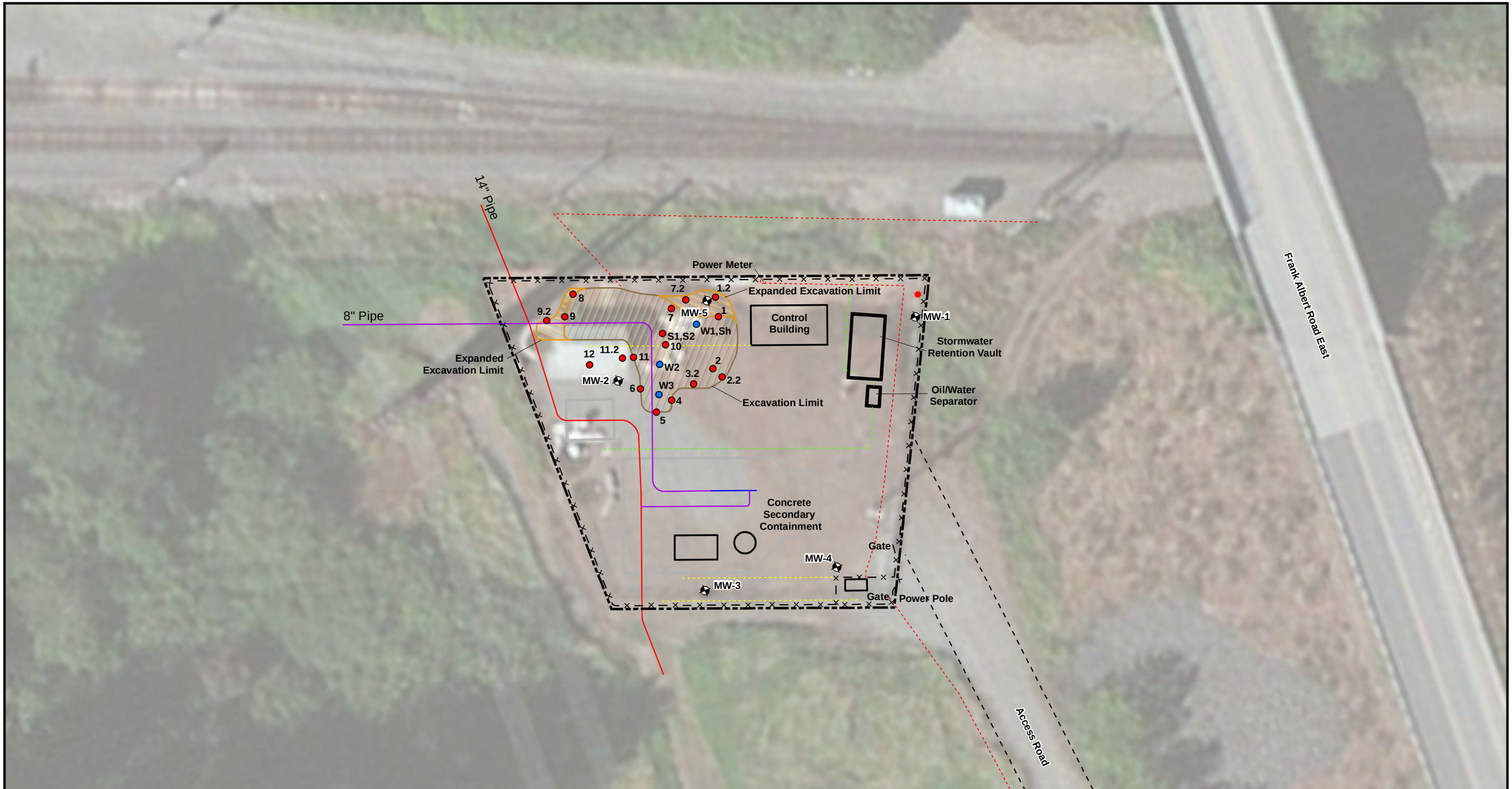


**Legend**

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

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

0 15 30 60 90 120 Feet

**FIGURE 2**

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

| PROJECT NO. | PREPARED BY | REF SCALE |
|---|---|---|
| WATACJUSA181 | MB | 1:360 |
| DATE | REVIEWED BY | MAP SCALE |
| 1/24/2019 | FS | 1 INCH = 30 FEET |

anteagroup

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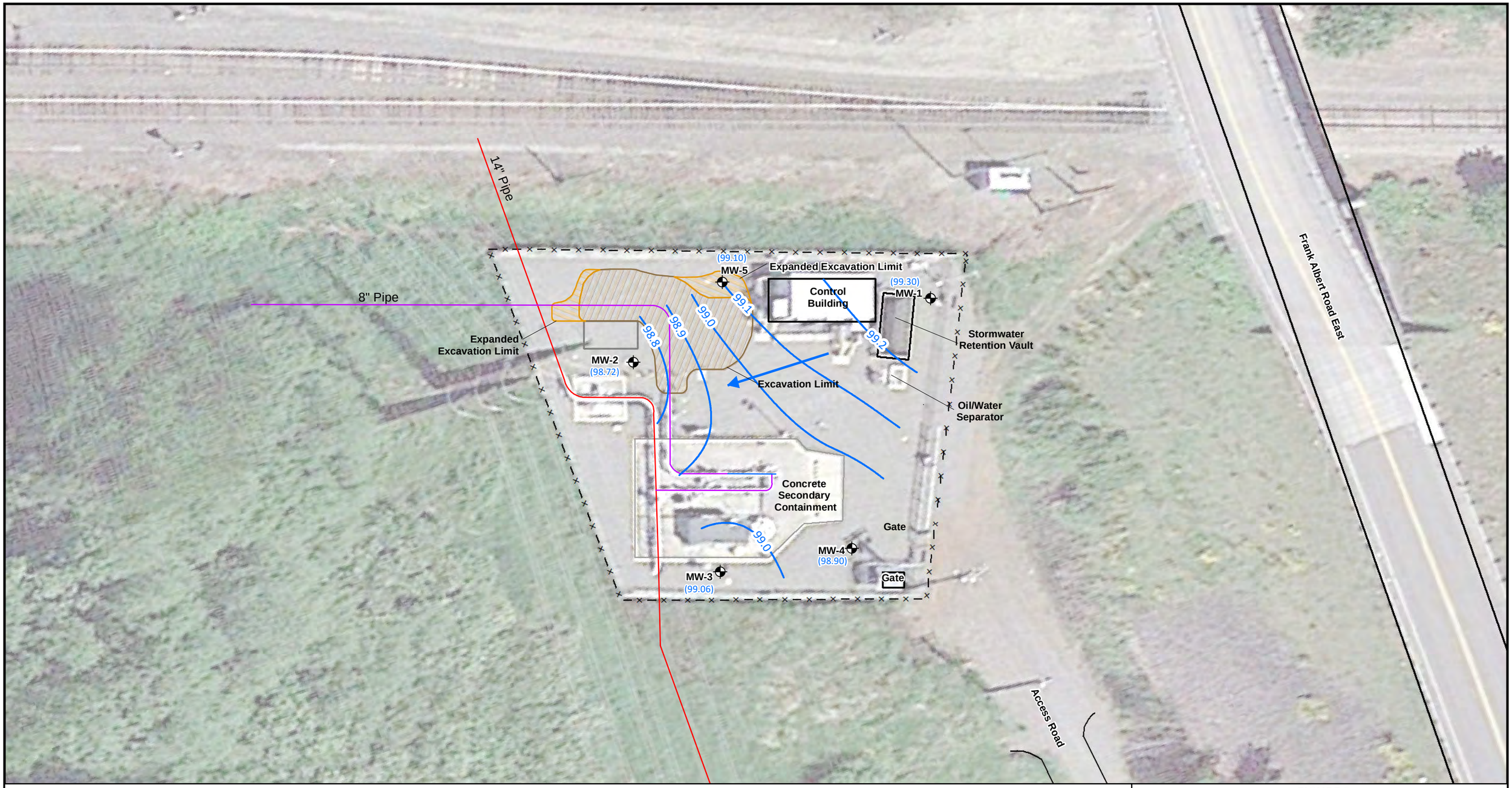


**Legend**

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.90) 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 3**

GROUNDWATER ELEVATION CONTOUR MAP
FEBRUARY 6, 2020
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

| PROJECT NO. | PREPARED BY | REF SCALE |
|---|---|---|
| WATJUAA201 | MB | 1:360 |
| DATE | REVIEWED BY | MAP SCALE |
| 8/13/2020 | JS | 1 INCH = 30 FEET |

anteagroup

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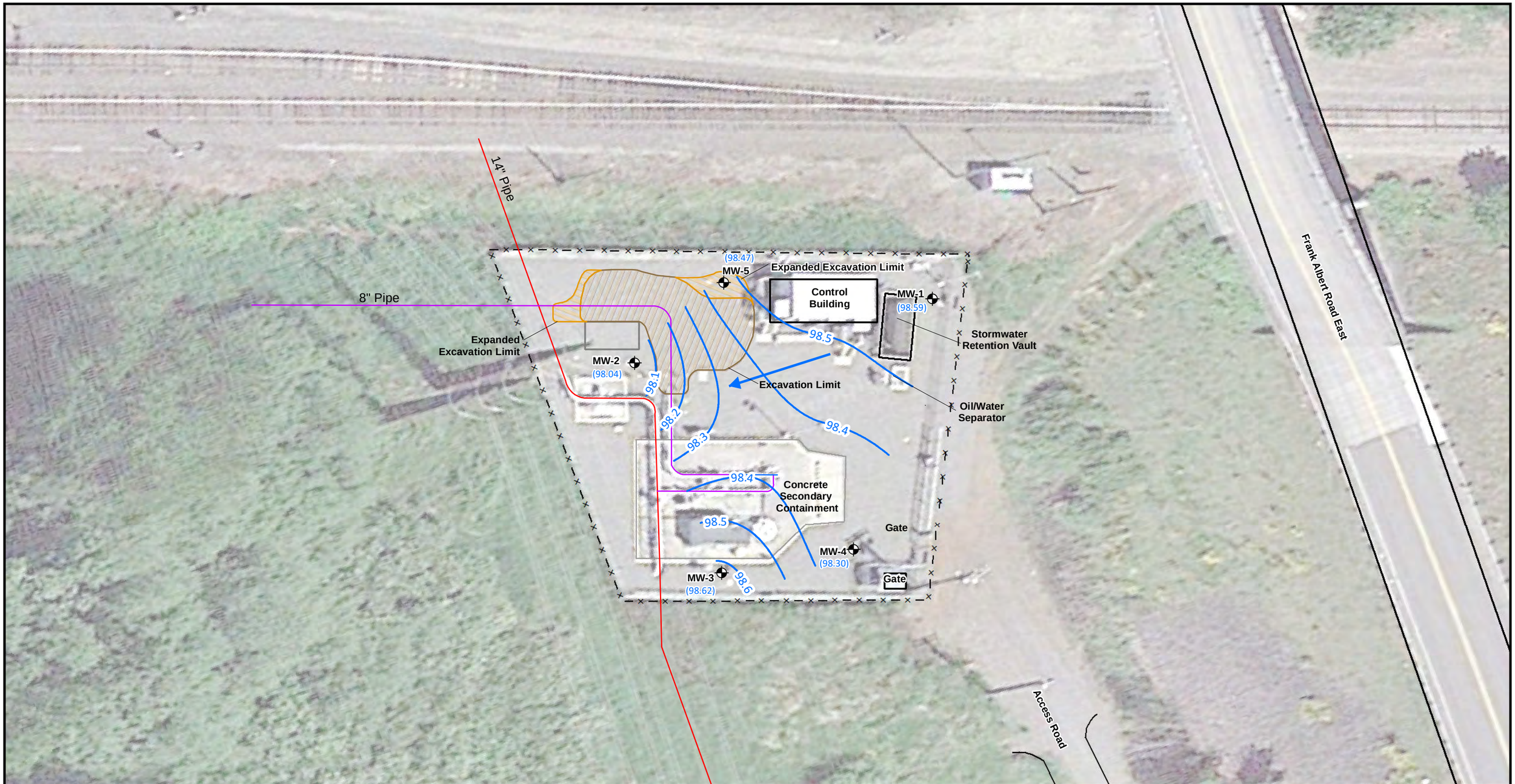


**Legend**

- Property Boundary
- Fence
- Monitoring Well Location
- 14" Pipeline
- 10" Pipeline
- 8" Pipeline
- Original Excavation
- Expanded Excavation
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Flow Direction
- (98.62) 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
JUNE 24, 2020
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

| PROJECT NO. | PREPARED BY | REF SCALE |
|---|---|---|
| WATJUAA201 | MB | 1:360 |
| DATE | REVIEWED BY | MAP SCALE |
| 8/13/2020 | JS | 1 INCH = 30 FEET |

anteagroup

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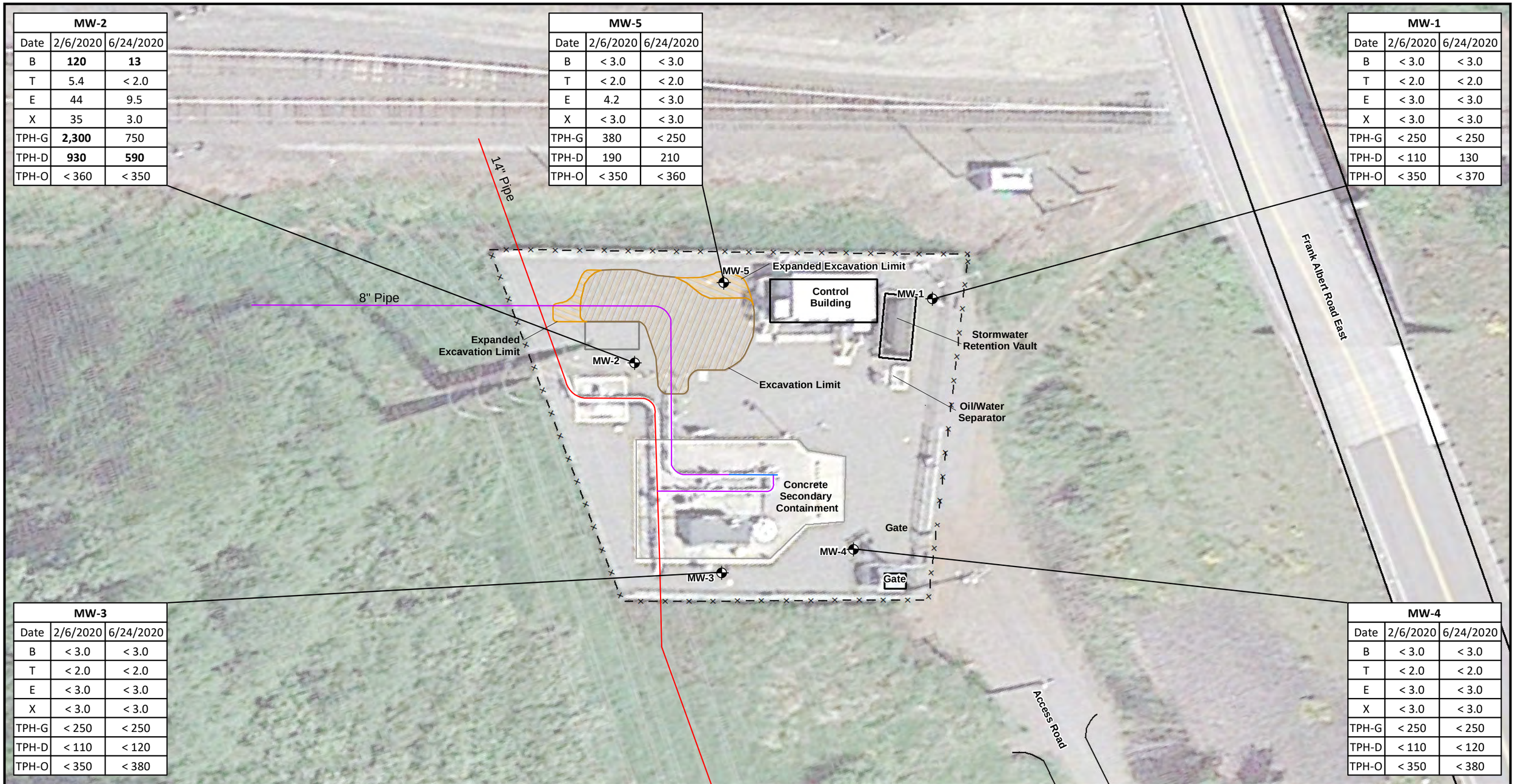
| MW-2 | | |
|---|---|---|
| Date | 2/6/2020 | 6/24/2020 |
| B | **120** | **13** |
| T | 5.4 | < 2.0 |
| E | 44 | 9.5 |
| X | 35 | 3.0 |
| TPH-G | **2,300** | 750 |
| TPH-D | **930** | **590** |
| TPH-O | < 360 | < 350 |

| MW-5 | | |
|---|---|---|
| Date | 2/6/2020 | 6/24/2020 |
| B | < 3.0 | < 3.0 |
| T | < 2.0 | < 2.0 |
| E | 4.2 | < 3.0 |
| X | < 3.0 | < 3.0 |
| TPH-G | 380 | < 250 |
| TPH-D | 190 | 210 |
| TPH-O | < 350 | < 360 |

| MW-1 | | |
|---|---|---|
| Date | 2/6/2020 | 6/24/2020 |
| B | < 3.0 | < 3.0 |
| T | < 2.0 | < 2.0 |
| E | < 3.0 | < 3.0 |
| X | < 3.0 | < 3.0 |
| TPH-G | < 250 | < 250 |
| TPH-D | < 110 | 130 |
| TPH-O | < 350 | < 370 |

| MW-3 | | |
|---|---|---|
| Date | 2/6/2020 | 6/24/2020 |
| B | < 3.0 | < 3.0 |
| T | < 2.0 | < 2.0 |
| E | < 3.0 | < 3.0 |
| X | < 3.0 | < 3.0 |
| TPH-G | < 250 | < 250 |
| TPH-D | < 110 | < 120 |
| TPH-O | < 350 | < 380 |

| MW-4 | | |
|---|---|---|
| Date | 2/6/2020 | 6/24/2020 |
| B | < 3.0 | < 3.0 |
| T | < 2.0 | < 2.0 |
| E | < 3.0 | < 3.0 |
| X | < 3.0 | < 3.0 |
| TPH-G | < 250 | < 250 |
| TPH-D | < 110 | < 120 |
| TPH-O | < 350 | < 380 |




**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
< - Concentrations were not detected above the laboratory reporting limit
All values in micrograms per liter (µg/L)

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

0 7.5 15 30 Feet

**FIGURE 5**
GROUNDWATER ANALYTICAL DATA MAP
FEBRUARY 6, 2020 AND JUNE 24, 2020
OLYMPIC PIPELINE COMPANY
TACOMA JUNCTION
2660 FRANK ALBERT ROAD EAST
FIFE, WASHINGTON

| PROJECT NO. | PREPARED BY | REF SCALE |
|---|---|---|
| *WATACDF191* | *MSS* | *1:360* |
| DATE | REVIEWED BY | MAP SCALE |
| *8/13/2020* | *JS* | *1 INCH = 30 FEET* |

anteagroup

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

eurofins | Environment Testing TestAmerica

# ANALYTICAL REPORT

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

Laboratory Job ID: 580-92672-1
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:*
*2/24/2020 2:22:49 PM*

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

# Table of Contents

# Definitions/Glossary

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

Job ID: 580-92672-1

## 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 |
| 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) |

## Job ID: 580-92672-1

### Laboratory: Eurofins TestAmerica, Seattle

**Narrative**

**Job Narrative**
**580-92672-1**

**Receipt**
Six samples were received on 2/7/2020 1:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.5º C.

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

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

**GC Semi VOA**
Method NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-2_20200206 (580-92672-2) and MW-5_20200206 (580-92672-5).

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

# Detection Summary

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

Job ID: 580-92672-1

## Client Sample ID: MW-1_20200206 — Lab Sample ID: 580-92672-1

No Detections.

## Client Sample ID: MW-2_20200206 — Lab Sample ID: 580-92672-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 120 | | 3.0 | | ug/L | 1 | | 8260C | Total/NA |
| Ethylbenzene | 44 | | 3.0 | | ug/L | 1 | | 8260C | Total/NA |
| Toluene | 5.4 | | 2.0 | | ug/L | 1 | | 8260C | Total/NA |
| Xylenes, Total | 35 | | 3.0 | | ug/L | 1 | | 8260C | Total/NA |
| Gasoline | 2300 | | 250 | | ug/L | 1 | | NWTPH-Gx | Total/NA |
| #2 Diesel (C10-C24) | 930 | | 110 | | ug/L | 1 | | NWTPH-Dx | Total/NA |

## Client Sample ID: MW-3_20200206 — Lab Sample ID: 580-92672-3

No Detections.

## Client Sample ID: MW-4_20200206_ — Lab Sample ID: 580-92672-4

No Detections.

## Client Sample ID: MW-5_20200206 — Lab Sample ID: 580-92672-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 4.2 | | 3.0 | | ug/L | 1 | | 8260C | Total/NA |
| Gasoline | 380 | | 250 | | ug/L | 1 | | NWTPH-Gx | Total/NA |
| #2 Diesel (C10-C24) | 190 | | 110 | | ug/L | 1 | | NWTPH-Dx | Total/NA |

## Client Sample ID: Trip Blank_20200206 — Lab Sample ID: 580-92672-6

No Detections.

This Detection Summary does not include radiochemical test results.

## Client Sample ID: MW-1_20200206

**Lab Sample ID: 580-92672-1**

**Date Collected: 02/06/20 10:00**

**Matrix: Water**

**Date Received: 02/07/20 13:00**

### 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 | | | 02/17/20 13:28 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 02/17/20 13:28 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 13:28 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 13:28 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *80 - 126* | | *02/17/20 13:28* | *1* |
| *4-Bromofluorobenzene (Surr)* | *99* | | *80 - 120* | | *02/17/20 13:28* | *1* |
| *Dibromofluoromethane (Surr)* | *96* | | *80 - 120* | | *02/17/20 13:28* | *1* |
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *02/17/20 13:28* | *1* |
| *Trifluorotoluene (Surr)* | *105* | | *80 - 120* | | *02/17/20 13:28* | *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 | | | 02/17/20 21:40 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *105* | | *50 - 150* | | *02/17/20 21:40* | *1* |
| *Trifluorotoluene (Surr)* | *85* | | *50 - 150* | | *02/17/20 21:40* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | ND | | 110 | | ug/L | | 02/19/20 10:56 | 02/21/20 19:06 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 02/19/20 10:56 | 02/21/20 19:06 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *91* | | *50 - 150* | *02/19/20 10:56* | *02/21/20 19:06* | *1* |

## Client Sample ID: MW-2_20200206

**Lab Sample ID: 580-92672-2**

**Date Collected: 02/06/20 09:30**

**Matrix: Water**

**Date Received: 02/07/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **120** | | 3.0 | | ug/L | | | 02/17/20 13:56 | 1 |
| **Ethylbenzene** | **44** | | 3.0 | | ug/L | | | 02/17/20 13:56 | 1 |
| **Toluene** | **5.4** | | 2.0 | | ug/L | | | 02/17/20 13:56 | 1 |
| **Xylenes, Total** | **35** | | 3.0 | | ug/L | | | 02/17/20 13:56 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *80 - 126* | | *02/17/20 13:56* | *1* |
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* | | *02/17/20 13:56* | *1* |
| *Dibromofluoromethane (Surr)* | *96* | | *80 - 120* | | *02/17/20 13:56* | *1* |
| *Toluene-d8 (Surr)* | *105* | | *80 - 120* | | *02/17/20 13:56* | *1* |
| *Trifluorotoluene (Surr)* | *104* | | *80 - 120* | | *02/17/20 13:56* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Gasoline** | **2300** | | 250 | | ug/L | | | 02/17/20 22:04 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *137* | | *50 - 150* | | *02/17/20 22:04* | *1* |

## Client Sample ID: MW-2_20200206

**Lab Sample ID: 580-92672-2**
**Date Collected: 02/06/20 09:30**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

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

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Trifluorotoluene (Surr)* | *131* | | *50 - 150* | | *02/17/20 22:04* | *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)** | **930** | | 110 | | ug/L | | 02/19/20 10:56 | 02/21/20 19:26 | 1 |
| Motor Oil (>C24-C36) | ND | | 360 | | ug/L | | 02/19/20 10:56 | 02/21/20 19:26 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *89* | | *50 - 150* | *02/19/20 10:56* | *02/21/20 19:26* | *1* |

## Client Sample ID: MW-3_20200206

**Lab Sample ID: 580-92672-3**
**Date Collected: 02/06/20 09:15**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

### 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 | | | 02/17/20 15:58 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 02/17/20 15:58 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 15:58 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 15:58 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *80 - 126* | | *02/17/20 15:58* | *1* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *80 - 120* | | *02/17/20 15:58* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | | *02/17/20 15:58* | *1* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* | | *02/17/20 15:58* | *1* |
| *Trifluorotoluene (Surr)* | *102* | | *80 - 120* | | *02/17/20 15:58* | *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 | | | 02/20/20 00:20 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *104* | | *50 - 150* | | *02/20/20 00:20* | *1* |
| *Trifluorotoluene (Surr)* | *97* | | *50 - 150* | | *02/20/20 00:20* | *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 | | 02/19/20 10:56 | 02/21/20 19:47 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 02/19/20 10:56 | 02/21/20 19:47 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *82* | | *50 - 150* | *02/19/20 10:56* | *02/21/20 19:47* | *1* |

## Client Sample ID: MW-4_20200206_

**Lab Sample ID: 580-92672-4**
**Date Collected: 02/06/20 09:00**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

### 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 | | | 02/17/20 16:25 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 02/17/20 16:25 | 1 |

## Client Sample ID: MW-4_20200206_

**Lab Sample ID: 580-92672-4**

**Date Collected: 02/06/20 09:00**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 16:25 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 16:25 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *80 - 126* | | *02/17/20 16:25* | *1* |
| *4-Bromofluorobenzene (Surr)* | *101* | | *80 - 120* | | *02/17/20 16:25* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | | *02/17/20 16:25* | *1* |
| *Toluene-d8 (Surr)* | *100* | | *80 - 120* | | *02/17/20 16:25* | *1* |
| *Trifluorotoluene (Surr)* | *107* | | *80 - 120* | | *02/17/20 16:25* | *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 | | | 02/20/20 00:44 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *50 - 150* | | *02/20/20 00:44* | *1* |
| *Trifluorotoluene (Surr)* | *90* | | *50 - 150* | | *02/20/20 00:44* | *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 | | 02/19/20 10:56 | 02/21/20 20:07 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 02/19/20 10:56 | 02/21/20 20:07 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *88* | | *50 - 150* | *02/19/20 10:56* | *02/21/20 20:07* | *1* |

## Client Sample ID: MW-5_20200206

**Lab Sample ID: 580-92672-5**

**Date Collected: 02/06/20 09:45**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

### 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 | | | 02/17/20 16:52 | 1 |
| **Ethylbenzene** | **4.2** | | 3.0 | | ug/L | | | 02/17/20 16:52 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 16:52 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 16:52 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *80 - 126* | | *02/17/20 16:52* | *1* |
| *4-Bromofluorobenzene (Surr)* | *101* | | *80 - 120* | | *02/17/20 16:52* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* | | *02/17/20 16:52* | *1* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* | | *02/17/20 16:52* | *1* |
| *Trifluorotoluene (Surr)* | *101* | | *80 - 120* | | *02/17/20 16:52* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Gasoline** | **380** | | 250 | | ug/L | | | 02/20/20 01:08 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *107* | | *50 - 150* | | *02/20/20 01:08* | *1* |
| *Trifluorotoluene (Surr)* | *94* | | *50 - 150* | | *02/20/20 01:08* | *1* |

## Client Sample ID: MW-5_20200206

**Lab Sample ID: 580-92672-5**

**Date Collected: 02/06/20 09:45**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **#2 Diesel (C10-C24)** | **190** | | 110 | | ug/L | | 02/19/20 10:56 | 02/21/20 20:27 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 02/19/20 10:56 | 02/21/20 20:27 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *83* | | *50 - 150* | *02/19/20 10:56* | *02/21/20 20:27* | *1* |

## Client Sample ID: Trip Blank_20200206

**Lab Sample ID: 580-92672-6**

**Date Collected: 02/06/20 00:00**
**Matrix: Water**
**Date Received: 02/07/20 13:00**

### 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 | | | 02/17/20 17:19 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 02/17/20 17:19 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 17:19 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 17:19 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *80 - 126* | | *02/17/20 17:19* | *1* |
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* | | *02/17/20 17:19* | *1* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* | | *02/17/20 17:19* | *1* |
| *Toluene-d8 (Surr)* | *100* | | *80 - 120* | | *02/17/20 17:19* | *1* |
| *Trifluorotoluene (Surr)* | *103* | | *80 - 120* | | *02/17/20 17:19* | *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 | | | 02/19/20 17:31 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *100* | | *50 - 150* | | *02/19/20 17:31* | *1* |
| *Trifluorotoluene (Surr)* | *97* | | *50 - 150* | | *02/19/20 17:31* | *1* |

# Surrogate Summary

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

Job ID: 580-92672-1

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

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

| | | Percent Surrogate Recovery (Acceptance Limits) | | | | |
|---|---|---|---|---|---|---|
| Lab Sample ID | Client Sample ID | DCA (80-126) | BFB (80-120) | DBFM (80-120) | TOL (80-120) | TFT (80-120) |
| 580-92672-1 | MW-1_20200206 | 100 | 99 | 96 | 102 | 105 |
| 580-92672-2 | MW-2_20200206 | 99 | 102 | 96 | 105 | 104 |
| 580-92672-3 | MW-3_20200206 | 100 | 104 | 101 | 99 | 102 |
| 580-92672-4 | MW-4_20200206_ | 101 | 101 | 101 | 100 | 107 |
| 580-92672-5 | MW-5_20200206 | 99 | 101 | 99 | 99 | 101 |
| 580-92672-6 | Trip Blank_20200206 | 101 | 102 | 100 | 100 | 103 |
| LCS 580-322943/4 | Lab Control Sample | 99 | 105 | 97 | 100 | 100 |
| LCSD 580-322943/5 | Lab Control Sample Dup | 101 | 104 | 98 | 98 | 102 |
| MB 580-322943/7 | Method Blank | 99 | 99 | 98 | 102 | 104 |

**Surrogate Legend**

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

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

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

| | | Percent Surrogate Recovery (Acceptance Limits) | |
|---|---|---|---|
| Lab Sample ID | Client Sample ID | BFB1 (50-150) | TFT1 (50-150) |
| 580-92672-1 | MW-1_20200206 | 105 | 85 |
| 580-92672-2 | MW-2_20200206 | 137 | 131 |
| 580-92672-3 | MW-3_20200206 | 104 | 97 |
| 580-92672-4 | MW-4_20200206_ | 102 | 90 |
| 580-92672-5 | MW-5_20200206 | 107 | 94 |
| 580-92672-6 | Trip Blank_20200206 | 100 | 97 |
| LCS 580-322966/6 | Lab Control Sample | 104 | 115 |
| LCS 580-323179/6 | Lab Control Sample | 113 | 101 |
| LCSD 580-322966/7 | Lab Control Sample Dup | 111 | 102 |
| LCSD 580-323179/7 | Lab Control Sample Dup | 101 | 101 |
| MB 580-322966/5 | Method Blank | 101 | 89 |
| MB 580-323179/5 | Method Blank | 99 | 97 |

**Surrogate Legend**

BFB = 4-Bromofluorobenzene (Surr)
TFT = Trifluorotoluene (Surr)

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

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

| | | Percent Surrogate Recovery (Acceptance Limits) |
|---|---|---|
| Lab Sample ID | Client Sample ID | OTPH (50-150) |
| 580-92672-1 | MW-1_20200206 | 91 |
| 580-92672-2 | MW-2_20200206 | 89 |
| 580-92672-3 | MW-3_20200206 | 82 |
| 580-92672-4 | MW-4_20200206_ | 88 |
| 580-92672-5 | MW-5_20200206 | 83 |

# Surrogate Summary

Client: Antea USA Inc. Job ID: 580-92672-1
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) | | | | | | | |
| LCS 580-323124/2-B | Lab Control Sample | 94 | | | | | | | |
| LCSD 580-323124/3-B | Lab Control Sample Dup | 91 | | | | | | | |
| MB 580-323124/1-B | Method Blank | 102 | | | | | | | |

**Surrogate Legend**

OTPH = o-Terphenyl

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

**Lab Sample ID: MB 580-322943/7**
**Matrix: Water**
**Analysis Batch: 322943**

**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 | | | 02/17/20 11:24 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 02/17/20 11:24 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 02/17/20 11:24 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 02/17/20 11:24 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *80 - 126* | | *02/17/20 11:24* | *1* |
| *4-Bromofluorobenzene (Surr)* | *99* | | *80 - 120* | | *02/17/20 11:24* | *1* |
| *Dibromofluoromethane (Surr)* | *98* | | *80 - 120* | | *02/17/20 11:24* | *1* |
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *02/17/20 11:24* | *1* |
| *Trifluorotoluene (Surr)* | *104* | | *80 - 120* | | *02/17/20 11:24* | *1* |

**Lab Sample ID: LCS 580-322943/4**
**Matrix: Water**
**Analysis Batch: 322943**

**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 | 8.88 | | ug/L | | 89 | 75 - 121 | | |
| Ethylbenzene | | | 10.0 | 8.99 | | ug/L | | 90 | 80 - 120 | | |
| m-Xylene & p-Xylene | | | 10.0 | 9.21 | | ug/L | | 92 | 80 - 120 | | |
| o-Xylene | | | 10.0 | 8.99 | | ug/L | | 90 | 80 - 120 | | |
| Toluene | | | 10.0 | 9.13 | | ug/L | | 91 | 80 - 120 | | |
| Xylenes, Total | | | 20.0 | 18.2 | | ug/L | | 91 | 80 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *80 - 126* |
| *4-Bromofluorobenzene (Surr)* | *105* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *100* | | *80 - 120* |
| *Trifluorotoluene (Surr)* | *100* | | *80 - 120* |

**Lab Sample ID: LCSD 580-322943/5**
**Matrix: Water**
**Analysis Batch: 322943**

**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 | 9.36 | | ug/L | | 94 | 75 - 121 | 5 | 14 |
| Ethylbenzene | | | 10.0 | 9.17 | | ug/L | | 92 | 80 - 120 | 2 | 14 |
| m-Xylene & p-Xylene | | | 10.0 | 9.46 | | ug/L | | 95 | 80 - 120 | 3 | 14 |
| o-Xylene | | | 10.0 | 9.39 | | ug/L | | 94 | 80 - 120 | 4 | 16 |
| Toluene | | | 10.0 | 9.46 | | ug/L | | 95 | 80 - 120 | 4 | 19 |
| Xylenes, Total | | | 20.0 | 18.9 | | ug/L | | 94 | 80 - 120 | 4 | 16 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *80 - 126* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *98* | | *80 - 120* |

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

**Lab Sample ID: LCSD 580-322943/5**
**Matrix: Water**
**Analysis Batch: 322943**

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

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 98 | | 80 - 120 |
| Trifluorotoluene (Surr) | 102 | | 80 - 120 |

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

**Lab Sample ID: MB 580-322966/5**
**Matrix: Water**
**Analysis Batch: 322966**

**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 | | | 02/17/20 13:38 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 101 | | 50 - 150 | | 02/17/20 13:38 | 1 |
| Trifluorotoluene (Surr) | 89 | | 50 - 150 | | 02/17/20 13:38 | 1 |

**Lab Sample ID: LCS 580-322966/6**
**Matrix: Water**
**Analysis Batch: 322966**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | 1000 | 932 | | ug/L | | 93 | 79 - 120 | | |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 104 | | 50 - 150 |
| Trifluorotoluene (Surr) | 115 | | 50 - 150 |

**Lab Sample ID: LCSD 580-322966/7**
**Matrix: Water**
**Analysis Batch: 322966**

**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 | 1020 | | ug/L | | 102 | 79 - 120 | 9 | 10 |

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 111 | | 50 - 150 |
| Trifluorotoluene (Surr) | 102 | | 50 - 150 |

**Lab Sample ID: MB 580-323179/5**
**Matrix: Water**
**Analysis Batch: 323179**

**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 | | | 02/19/20 13:36 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 99 | | 50 - 150 | | 02/19/20 13:36 | 1 |

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

**Lab Sample ID: MB 580-323179/5**
**Matrix: Water**
**Analysis Batch: 323179**

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

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Trifluorotoluene (Surr)* | *97* | | *50 - 150* | | *02/19/20 13:36* | *1* |

**Lab Sample ID: LCS 580-323179/6**
**Matrix: Water**
**Analysis Batch: 323179**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | 1000 | 1020 | | ug/L | | 102 | 79 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *113* | | *50 - 150* |
| *Trifluorotoluene (Surr)* | *101* | | *50 - 150* |

**Lab Sample ID: LCSD 580-323179/7**
**Matrix: Water**
**Analysis Batch: 323179**

**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 | 971 | | ug/L | | 97 | 79 - 120 | 5 | 10 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *50 - 150* |
| *Trifluorotoluene (Surr)* | *101* | | *50 - 150* |

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

**Lab Sample ID: MB 580-323124/1-B**
**Matrix: Water**
**Analysis Batch: 323429**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 323124**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | ND | | 110 | | ug/L | | 02/19/20 10:55 | 02/22/20 00:29 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 02/19/20 10:55 | 02/22/20 00:29 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *102* | | *50 - 150* | *02/19/20 10:55* | *02/22/20 00:29* | *1* |

**Lab Sample ID: LCS 580-323124/2-B**
**Matrix: Water**
**Analysis Batch: 323429**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 323124**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | | | 2000 | 1710 | | ug/L | | 86 | 50 - 120 | | |
| Motor Oil (>C24-C36) | | | 2000 | 1850 | | ug/L | | 92 | 64 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *94* | | *50 - 150* |

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

**Lab Sample ID: LCSD 580-323124/3-B**
**Matrix: Water**
**Analysis Batch: 323429**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 323124**

| 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 | 2 | 26 |
| Motor Oil (>C24-C36) | | | 2000 | 1920 | | ug/L | | 96 | 64 - 120 | 4 | 24 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *91* | | *50 - 150* |

# QC Association Summary

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

Job ID: 580-92672-1

## GC/MS VOA

### Analysis Batch: 322943

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-1 | MW-1_20200206 | Total/NA | Water | 8260C | |
| 580-92672-2 | MW-2_20200206 | Total/NA | Water | 8260C | |
| 580-92672-3 | MW-3_20200206 | Total/NA | Water | 8260C | |
| 580-92672-4 | MW-4_20200206_ | Total/NA | Water | 8260C | |
| 580-92672-5 | MW-5_20200206 | Total/NA | Water | 8260C | |
| 580-92672-6 | Trip Blank_20200206 | Total/NA | Water | 8260C | |
| MB 580-322943/7 | Method Blank | Total/NA | Water | 8260C | |
| LCS 580-322943/4 | Lab Control Sample | Total/NA | Water | 8260C | |
| LCSD 580-322943/5 | Lab Control Sample Dup | Total/NA | Water | 8260C | |

## GC VOA

### Analysis Batch: 322966

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-1 | MW-1_20200206 | Total/NA | Water | NWTPH-Gx | |
| 580-92672-2 | MW-2_20200206 | Total/NA | Water | NWTPH-Gx | |
| MB 580-322966/5 | Method Blank | Total/NA | Water | NWTPH-Gx | |
| LCS 580-322966/6 | Lab Control Sample | Total/NA | Water | NWTPH-Gx | |
| LCSD 580-322966/7 | Lab Control Sample Dup | Total/NA | Water | NWTPH-Gx | |

### Analysis Batch: 323179

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-3 | MW-3_20200206 | Total/NA | Water | NWTPH-Gx | |
| 580-92672-4 | MW-4_20200206_ | Total/NA | Water | NWTPH-Gx | |
| 580-92672-5 | MW-5_20200206 | Total/NA | Water | NWTPH-Gx | |
| 580-92672-6 | Trip Blank_20200206 | Total/NA | Water | NWTPH-Gx | |
| MB 580-323179/5 | Method Blank | Total/NA | Water | NWTPH-Gx | |
| LCS 580-323179/6 | Lab Control Sample | Total/NA | Water | NWTPH-Gx | |
| LCSD 580-323179/7 | Lab Control Sample Dup | Total/NA | Water | NWTPH-Gx | |

## GC Semi VOA

### Prep Batch: 323124

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-1 | MW-1_20200206 | Total/NA | Water | 3510C | |
| 580-92672-2 | MW-2_20200206 | Total/NA | Water | 3510C | |
| 580-92672-3 | MW-3_20200206 | Total/NA | Water | 3510C | |
| 580-92672-4 | MW-4_20200206_ | Total/NA | Water | 3510C | |
| 580-92672-5 | MW-5_20200206 | Total/NA | Water | 3510C | |
| MB 580-323124/1-B | Method Blank | Total/NA | Water | 3510C | |
| LCS 580-323124/2-B | Lab Control Sample | Total/NA | Water | 3510C | |
| LCSD 580-323124/3-B | Lab Control Sample Dup | Total/NA | Water | 3510C | |

### Cleanup Batch: 323322

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| MB 580-323124/1-B | Method Blank | Total/NA | Water | 3630C | 323124 |
| LCS 580-323124/2-B | Lab Control Sample | Total/NA | Water | 3630C | 323124 |
| LCSD 580-323124/3-B | Lab Control Sample Dup | Total/NA | Water | 3630C | 323124 |

### Analysis Batch: 323429

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-1 | MW-1_20200206 | Total/NA | Water | NWTPH-Dx | 323124 |

## GC Semi VOA (Continued)

### Analysis Batch: 323429 (Continued)

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-92672-2 | MW-2_20200206 | Total/NA | Water | NWTPH-Dx | 323124 |
| 580-92672-3 | MW-3_20200206 | Total/NA | Water | NWTPH-Dx | 323124 |
| 580-92672-4 | MW-4_20200206_ | Total/NA | Water | NWTPH-Dx | 323124 |
| 580-92672-5 | MW-5_20200206 | Total/NA | Water | NWTPH-Dx | 323124 |
| MB 580-323124/1-B | Method Blank | Total/NA | Water | NWTPH-Dx | 323322 |
| LCS 580-323124/2-B | Lab Control Sample | Total/NA | Water | NWTPH-Dx | 323322 |
| LCSD 580-323124/3-B | Lab Control Sample Dup | Total/NA | Water | NWTPH-Dx | 323322 |

# Lab Chronicle

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

Job ID: 580-92672-1

## Client Sample ID: MW-1_20200206
**Date Collected: 02/06/20 10:00**
**Date Received: 02/07/20 13:00**

**Lab Sample ID: 580-92672-1**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 13:28 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 322966 | 02/17/20 21:40 | W1T | TAL SEA |
| Total/NA | Prep | 3510C | | | 323124 | 02/19/20 10:56 | T1L | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 323429 | 02/21/20 19:06 | T1W | TAL SEA |

## Client Sample ID: MW-2_20200206
**Date Collected: 02/06/20 09:30**
**Date Received: 02/07/20 13:00**

**Lab Sample ID: 580-92672-2**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 13:56 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 322966 | 02/17/20 22:04 | W1T | TAL SEA |
| Total/NA | Prep | 3510C | | | 323124 | 02/19/20 10:56 | T1L | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 323429 | 02/21/20 19:26 | T1W | TAL SEA |

## Client Sample ID: MW-3_20200206
**Date Collected: 02/06/20 09:15**
**Date Received: 02/07/20 13:00**

**Lab Sample ID: 580-92672-3**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 15:58 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 323179 | 02/20/20 00:20 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 323124 | 02/19/20 10:56 | T1L | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 323429 | 02/21/20 19:47 | T1W | TAL SEA |

## Client Sample ID: MW-4_20200206_
**Date Collected: 02/06/20 09:00**
**Date Received: 02/07/20 13:00**

**Lab Sample ID: 580-92672-4**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 16:25 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 323179 | 02/20/20 00:44 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 323124 | 02/19/20 10:56 | T1L | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 323429 | 02/21/20 20:07 | T1W | TAL SEA |

## Client Sample ID: MW-5_20200206
**Date Collected: 02/06/20 09:45**
**Date Received: 02/07/20 13:00**

**Lab Sample ID: 580-92672-5**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 16:52 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 323179 | 02/20/20 01:08 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 323124 | 02/19/20 10:56 | T1L | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 323429 | 02/21/20 20:27 | T1W | TAL SEA |

# Lab Chronicle

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

Job ID: 580-92672-1

## Client Sample ID: Trip Blank_20200206

**Date Collected: 02/06/20 00:00**
**Date Received: 02/07/20 13:00**

## Lab Sample ID: 580-92672-6

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 322943 | 02/17/20 17:19 | TL1 | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 323179 | 02/19/20 17:31 | JSM | TAL SEA |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-92672-1
Project/Site: BP - OPLC - Tacoma Junction

## Laboratory: Eurofins TestAmerica, Seattle

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

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Washington | State | C553 | 02-18-21 * |

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

# Method Summary

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

Job ID: 580-92672-1

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

TAL SEA = Eurofins TestAmerica, 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: 580-92672-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 580-92672-1 | MW-1_20200206 | Water | 02/06/20 10:00 | 02/07/20 13:00 | |
| 580-92672-2 | MW-2_20200206 | Water | 02/06/20 09:30 | 02/07/20 13:00 | |
| 580-92672-3 | MW-3_20200206 | Water | 02/06/20 09:15 | 02/07/20 13:00 | |
| 580-92672-4 | MW-4_20200206_ | Water | 02/06/20 09:00 | 02/07/20 13:00 | |
| 580-92672-5 | MW-5_20200206 | Water | 02/06/20 09:45 | 02/07/20 13:00 | |
| 580-92672-6 | Trip Blank_20200206 | Water | 02/06/20 00:00 | 02/07/20 13:00 | |

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

Page 1 of 1

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

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

| | | | | | |
|---|---|---|---|---|---|
| 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: | WATJUAA201.10123 |
| 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: | WR826964/00BPT-0008 | Phone: 425-498-7711 Email: | Megan.Richard@anteagroup.com |
| Lab Bottle Order No: | NA | Accounting Mode: | Provision __X___ OOC-BU _____ OOC-RM _____ | Send/Submit EDD to: | Megan.Richard@anteagroup.com |
| Other Info: | elaine.walker@testamericainc.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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW-1_ 20200206 | 2-6-20 | 1000 | W | | | | G | 8 | | | | X | X | X |
| | MW-2_ 20200206 | 2-6-20 | 0930 | W | | | | G | 8 | | | | X | X | X |
| | MW-3_ 20200206 | 2-6-20 | 0915 | W | | | | G | 8 | | | | X | X | X |
| | MW-4_ 20200206 | 2-6-20 | 0900 | W | | | | G | 8 | | | | X | X | X |
| | MW-5_ 20200206 | 2-6-20 | 0945 | W | | | | G | 8 | | | | X | X | X |
| | Trip Blank | 2-6-20 | 0000 | W | | | | G | 6 | | | | X | X | |
| | | | | | | | | | | | | | | | |

580-92672 Chain of Custody

Therm. ID: T2 Cor: 0.5 ° Unc: 0.4 °

Cooler Dsc: Ice Blue

Packing: Bub

Cust. Seal: Yes ___ No ___

Blue Ice, Wet Dry, None

FedEx: ____

UPS: ____

Lab Cour: ____

Other: ____

| Sampler's Name: BA & JL | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Company: Antea Group | Manuel Bernal / Antea | 2-7-20 | 1300 | | 2-7-2020 | 13:00 |
| Ship Method: Pickup Ship Date: | | | | | | |
| Shipment Tracking No: | | | | | | |

**Special Instructions:**

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

BP LaMP Soil/H2O COC July 2018

# Login Container Summary Report

580-92672

Temperature readings: _____

| Client Sample ID | Lab ID | Container Type | Container pH | Container Temp | Preservative Added (mls) | Lot # |
|---|---|---|---|---|---|---|
| MW-1_ | 580-92672-G-1 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-1_ | 580-92672-H-1 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-2_ | 580-92672-G-2 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-2_ | 580-92672-H-2 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-3_ | 580-92672-G-3 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-3_ | 580-92672-H-3 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-4_ | 580-92672-G-4 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-4_ | 580-92672-H-4 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-5_ | 580-92672-G-5 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |
| MW-5_ | 580-92672-H-5 | Amber Glass 250mL - hydrochloric acid | <2 | 1.3 | 0 | N/A |

# Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-92672-1

**Login Number: 92672**
**List Number: 1**
**Creator: Vallelunga, Diana L**

**List Source: Eurofins TestAmerica, 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 322943  Batch Start Date: 02/17/20 09:10  Batch Analyst: Limwiroj, Thanyawan 1

Batch Method: 8260C  Batch End Date:

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | Initial pH | 5X SUR/IS/TFT 00011 | VOAMasterMix 00050 | |
|---|---|---|---|---|---|---|---|---|---|
| LCS 580-322943/4 | | 8260C | | 5 mL | 5 mL | | 2 uL | 10 uL | |
| LCSD 580-322943/5 | | 8260C | | 5 mL | 5 mL | | 2 uL | 10 uL | |
| MB 580-322943/7 | | 8260C | | 5 mL | 5 mL | | 2 uL | | |
| 580-92672-C-1 | MW-1_20200206 | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-92672-C-2 | MW-2_20200206 | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-92672-C-3 | MW-3_20200206 | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-92672-C-4 | MW-4_20200206_ | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-92672-C-5 | MW-5_20200206 | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-92672-C-6 | Trip Blank_20200206 | 8260C | T | 5 mL | 5 mL | <2 SU | 2 uL | | |

| Batch Notes | |
|---|---|
| | |

| 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 322966  Batch Start Date: 02/17/20 12:50  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 00040 | GRO_LCS 00059 | TFT Spike 00038 |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-322966/5 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | | 10.75 uL |
| LCS 580-322966/6 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| LCSD 580-322966/7 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| 580-92672-D-1 | MW-1_20200206 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |
| 580-92672-D-2 | MW-2_20200206 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | V2.4TFT-EX 00047 |
|---|---|---|---|---|
| MB 580-322966/5 | | NWTPH-Gx | | |
| LCS 580-322966/6 | | NWTPH-Gx | | 2.5 mL |
| LCSD 580-322966/7 | | NWTPH-Gx | | 2.5 mL |
| 580-92672-D-1 | MW-1_20200206 | NWTPH-Gx | T | |
| 580-92672-D-2 | MW-2_20200206 | NWTPH-Gx | T | |

| Batch Notes | |
|---|---|
| | |

| 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323179  Batch Start Date: 02/19/20 12:48  Batch Analyst: McKell, Justin S

Batch Method: NWTPH-Gx  Batch End Date:

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | Initial pH | BFBGRO ARCHON 00040 | GRO_LCS 00059 | TFT Spike 00038 |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-323179/5 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | | 10.75 uL |
| LCS 580-323179/6 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| LCSD 580-323179/7 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| 580-92672-B-6 | Trip Blank 20200206 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |
| 580-92672-B-3 | MW-3_20200206 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |
| 580-92672-B-4 | MW-4_20200206_ | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |
| 580-92672-B-5 | MW-5_20200206 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | 10.75 uL |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | V2.4TFT-EX 00047 |
|---|---|---|---|---|
| MB 580-323179/5 | | NWTPH-Gx | | |
| LCS 580-323179/6 | | NWTPH-Gx | | 2.5 mL |
| LCSD 580-323179/7 | | NWTPH-Gx | | 2.5 mL |
| 580-92672-B-6 | Trip Blank 20200206 | NWTPH-Gx | T | |
| 580-92672-B-3 | MW-3_20200206 | NWTPH-Gx | T | |
| 580-92672-B-4 | MW-4_20200206_ | NWTPH-Gx | T | |
| 580-92672-B-5 | MW-5_20200206 | NWTPH-Gx | T | |

| Batch Notes | |
|---|---|
| Vial Lot Number | 0217701E |

| 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323124  Batch Start Date: 02/19/20 10:55  Batch Analyst: Linna, Troy 1

Batch Method: 3510C  Batch End Date: 02/20/20 19:00

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | ResidualChloCheck | ReceivedpH | FirstAdjustpH | TPH_Water_Spk 00023 |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-323124/1 | | 3510C, 3630C, NWTPH-Dx | | 250 mL | 1.0 mL | no | 7.0 SU | 2.0 SU | |
| LCS 580-323124/2 | | 3510C, 3630C, NWTPH-Dx | | 250 mL | 1.0 mL | no | 7.0 SU | 2.0 SU | 100 uL |
| LCSD 580-323124/3 | | 3510C, 3630C, NWTPH-Dx | | 250 mL | 1.0 mL | no | 7.0 SU | 2.0 SU | 100 uL |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | TPH_WaterSurr 00052 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-323124/1 | | 3510C, 3630C, NWTPH-Dx | | 100 uL | | | | | |
| LCS 580-323124/2 | | 3510C, 3630C, NWTPH-Dx | | 100 uL | | | | | |
| LCSD 580-323124/3 | | 3510C, 3630C, NWTPH-Dx | | 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323124  Batch Start Date: 02/19/20 10:55  Batch Analyst: Linna, Troy 1

Batch Method: 3510C  Batch End Date: 02/20/20 19:00

| Batch Notes | |
|---|---|
| Acid Used for pH Adjustment ID | 1:1H2SO4_00054 |
| Balance ID | SEA225 |
| Batch Comment | Vialed by: TL |
| Analyst ID - Concentration | FCG |
| Concentration 1 Corrected Temperature | 69.2-74.2 Degrees C |
| Concentration 2 Corrected Temperature | 18.1 Degrees C |
| Equipment ID - Concentration 1 | Steam Bath 1 |
| Equipment ID - Concentration 2 | TurboVap 5 |
| Analyst ID - Extraction | TL |
| Filter ID | 17005216 |
| Method/Fraction | 3510C_LVI/NWTPH_Dx |
| Na2SO4 ID | 2565536 |
| pH Indicator ID | pH 0-6 (6908005) , pH 4.5-10 (6705002) |
| Pipette/Syringe/Dispenser ID | MP3 |
| Prep Solvent ID | 2566794 |
| Prep Solvent Volume Used | 120 mL |
| Silica Gel ID | 2539313 |
| Analyst ID - Spike Analyst | TL |
| Sufficient Volume for Batch QC | MB, LCS, LCSD |
| Thermometer ID - Concentration 1 | 61013-040-1 |
| Thermometer ID - Concentration 2 | Digital Readout |
| Concentration 1 Uncorrected Temperature | 70-75 Degrees C |
| Concentration 2 Uncorrected Temperature | 20.0 Degrees C |
| Vial Lot Number | 18072413 |

| 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323124  Batch Start Date: 02/19/20 10:55  Batch Analyst: Linna, Troy 1

Batch Method: 3510C  Batch End Date: 02/20/20 19:00

| Lab Sample ID | Client Sample ID | Method Chain | Basis | GrossWeight | TareWeight | InitialAmount | FinalAmount | ResidualChloCheck | ReceivedpH |
|---|---|---|---|---|---|---|---|---|---|
| 580-92672-G-1 | MW-1_20200206 | 3510C, NWTPH-Dx | T | 00413.17 g | 00166.04 g | 247.1 mL | 1.0 mL | no | 2.0 SU |
| 580-92672-G-2 | MW-2_20200206 | 3510C, NWTPH-Dx | T | 00411.87 g | 00166.39 g | 245.5 mL | 1.0 mL | no | 2.0 SU |
| 580-92672-H-3 | MW-3_20200206 | 3510C, NWTPH-Dx | T | 00414.30 g | 00166.52 g | 247.8 mL | 1.0 mL | no | 2.0 SU |
| 580-92672-G-4 | MW-4_20200206_ | 3510C, NWTPH-Dx | T | 00414.30 g | 00165.64 g | 248.7 mL | 1.0 mL | no | 2.0 SU |
| 580-92672-G-5 | MW-5_20200206 | 3510C, NWTPH-Dx | T | 00414.32 g | 00165.89 g | 248.4 mL | 1.0 mL | no | 2.0 SU |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | FirstAdjustpH | TPH_WaterSurr 00052 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 580-92672-G-1 | MW-1_20200206 | 3510C, NWTPH-Dx | T | 2.0 SU | 100 uL | | | | |
| 580-92672-G-2 | MW-2_20200206 | 3510C, NWTPH-Dx | T | 2.0 SU | 100 uL | | | | |
| 580-92672-H-3 | MW-3_20200206 | 3510C, NWTPH-Dx | T | 2.0 SU | 100 uL | | | | |
| 580-92672-G-4 | MW-4_20200206_ | 3510C, NWTPH-Dx | T | 2.0 SU | 100 uL | | | | |
| 580-92672-G-5 | MW-5_20200206 | 3510C, NWTPH-Dx | T | 2.0 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323124  Batch Start Date: 02/19/20 10:55  Batch Analyst: Linna, Troy 1

Batch Method: 3510C  Batch End Date: 02/20/20 19:00

| Batch Notes | |
|---|---|
| Acid Used for pH Adjustment ID | 1:1H2SO4_00054 |
| Balance ID | SEA225 |
| Batch Comment | Vialed by: TL |
| Analyst ID - Concentration | FCG |
| Concentration 1 Corrected Temperature | 69.2-74.2 Degrees C |
| Concentration 2 Corrected Temperature | 18.1 Degrees C |
| Equipment ID - Concentration 1 | Steam Bath 1 |
| Equipment ID - Concentration 2 | TurboVap 5 |
| Analyst ID - Extraction | TL |
| Filter ID | 17005216 |
| Method/Fraction | 3510C_LVI/NWTPH_Dx |
| Na2SO4 ID | 2565536 |
| pH Indicator ID | pH 0-6 (6908005) , pH 4.5-10 (6705002) |
| Pipette/Syringe/Dispenser ID | MP3 |
| Prep Solvent ID | 2566794 |
| Prep Solvent Volume Used | 120 mL |
| Silica Gel ID | 2539313 |
| Analyst ID - Spike Analyst | TL |
| Sufficient Volume for Batch QC | MB, LCS, LCSD |
| Thermometer ID - Concentration 1 | 61013-040-1 |
| Thermometer ID - Concentration 2 | Digital Readout |
| Concentration 1 Uncorrected Temperature | 70-75 Degrees C |
| Concentration 2 Uncorrected Temperature | 20.0 Degrees C |
| Vial Lot Number | 18072413 |

| 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 TestAmerica, Seattle  Job No.: 580-92672-1

SDG No.:

Batch Number: 323322  Batch Start Date: 02/20/20 19:12  Batch Analyst: Linna, Troy 1

Batch Method: 3630C  Batch End Date: 02/20/20 19:14

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-323124/1-A | | 3630C, NWTPH-Dx | | 1 mL | 1.0 mL | | | | |
| LCS 580-323124/2-A | | 3630C, NWTPH-Dx | | 1 mL | 1.0 mL | | | | |
| LCSD 580-323124/3-A | | 3630C, NWTPH-Dx | | 1 mL | 1.0 mL | | | | |

| Batch Notes | |
|---|---|
| Batch Comment | Vialed by: TL |
| Na2SO4 ID | 2565536 |
| Silica Gel ID | 2539313 |

| Basis | Basis Description |
|---|---|
| | |

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

Laboratory Job ID: 580-95613-1
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:*
*7/7/2020 1:39:09 PM*

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

# Table of Contents

# Definitions/Glossary

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

Job ID: 580-95613-1

## 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: 580-95613-1

### Laboratory: Eurofins TestAmerica, Seattle

**Narrative**

**Job Narrative**
**580-95613-1**

**Receipt**
Six samples were received on 6/25/2020 1:00 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.9º C.

**GC/MS VOA**
No analytical or quality issues were noted, other than those described 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**
Method NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-1_20200624 (580-95613-1).

Method NWTPH-Dx: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-2_20200624 (580-95613-2).

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

# Detection Summary

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

Job ID: 580-95613-1

## Client Sample ID: MW-1_20200624 — Lab Sample ID: 580-95613-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | 130 | | 120 | | ug/L | 1 | | NWTPH-Dx | Total/NA |

## Client Sample ID: MW-2_20200624 — Lab Sample ID: 580-95613-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 13 | | 3.0 | | ug/L | 1 | | 8260D | Total/NA |
| Ethylbenzene | 9.5 | | 3.0 | | ug/L | 1 | | 8260D | Total/NA |
| Xylenes, Total | 3.0 | | 3.0 | | ug/L | 1 | | 8260D | Total/NA |
| Gasoline | 750 | | 250 | | ug/L | 1 | | NWTPH-Gx | Total/NA |
| #2 Diesel (C10-C24) | 590 | | 110 | | ug/L | 1 | | NWTPH-Dx | Total/NA |

## Client Sample ID: MW-3_20200624 — Lab Sample ID: 580-95613-3

No Detections.

## Client Sample ID: MW-4_20200624 — Lab Sample ID: 580-95613-4

No Detections.

## Client Sample ID: MW-5_20200624 — Lab Sample ID: 580-95613-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | 210 | | 110 | | ug/L | 1 | | NWTPH-Dx | Total/NA |

## Client Sample ID: Trip Blank_20200624 — Lab Sample ID: 580-95613-6

No Detections.

This Detection Summary does not include radiochemical test results.

## Client Sample ID: MW-1_20200624

**Lab Sample ID: 580-95613-1**

**Date Collected: 06/24/20 09:45**

**Matrix: Water**

**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 3.0 | | ug/L | | | 07/03/20 20:54 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 20:54 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 20:54 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 20:54 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *07/03/20 20:54* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *104* | | *80 - 126* | | *07/03/20 20:54* | *1* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *80 - 120* | | *07/03/20 20:54* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* | | *07/03/20 20:54* | *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 | | | 07/02/20 08:39 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *90* | | *50 - 150* | | *07/02/20 08:39* | *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** | | 120 | | ug/L | | 06/26/20 13:13 | 06/27/20 18:51 | 1 |
| Motor Oil (>C24-C36) | ND | | 370 | | ug/L | | 06/26/20 13:13 | 06/27/20 18:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *72* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 18:51* | *1* |

## Client Sample ID: MW-2_20200624

**Lab Sample ID: 580-95613-2**

**Date Collected: 06/24/20 10:30**

**Matrix: Water**

**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **13** | | 3.0 | | ug/L | | | 07/03/20 21:22 | 1 |
| **Ethylbenzene** | **9.5** | | 3.0 | | ug/L | | | 07/03/20 21:22 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 21:22 | 1 |
| **Xylenes, Total** | **3.0** | | 3.0 | | ug/L | | | 07/03/20 21:22 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *103* | | *80 - 120* | | *07/03/20 21:22* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *80 - 126* | | *07/03/20 21:22* | *1* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *80 - 120* | | *07/03/20 21:22* | *1* |
| *Dibromofluoromethane (Surr)* | *98* | | *80 - 120* | | *07/03/20 21:22* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Gasoline** | **750** | | 250 | | ug/L | | | 07/02/20 09:03 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *50 - 150* | | *07/02/20 09:03* | *1* |

## Client Sample ID: MW-2_20200624

**Lab Sample ID: 580-95613-2**
**Date Collected: 06/24/20 10:30**
**Matrix: Water**
**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **#2 Diesel (C10-C24)** | **590** | | 110 | | ug/L | | 06/26/20 13:13 | 06/27/20 19:31 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 06/26/20 13:13 | 06/27/20 19:31 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *78* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 19:31* | *1* |

## Client Sample ID: MW-3_20200624

**Lab Sample ID: 580-95613-3**
**Date Collected: 06/24/20 11:25**
**Matrix: Water**
**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 3.0 | | ug/L | | | 07/03/20 21:48 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 21:48 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 21:48 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 21:48 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *07/03/20 21:48* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *80 - 126* | | *07/03/20 21:48* | *1* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *80 - 120* | | *07/03/20 21:48* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* | | *07/03/20 21:48* | *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 | | | 07/02/20 09:27 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *97* | | *50 - 150* | | *07/02/20 09:27* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | ND | | 120 | | ug/L | | 06/26/20 13:13 | 06/27/20 19:51 | 1 |
| Motor Oil (>C24-C36) | ND | | 380 | | ug/L | | 06/26/20 13:13 | 06/27/20 19:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *71* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 19:51* | *1* |

## Client Sample ID: MW-4_20200624

**Lab Sample ID: 580-95613-4**
**Date Collected: 06/24/20 11:55**
**Matrix: Water**
**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 3.0 | | ug/L | | | 07/03/20 22:15 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 22:15 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 22:15 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 22:15 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *07/03/20 22:15* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *80 - 126* | | *07/03/20 22:15* | *1* |

## Client Sample ID: MW-4_20200624

**Lab Sample ID: 580-95613-4**

**Date Collected: 06/24/20 11:55**
**Matrix: Water**
**Date Received: 06/25/20 13:00**

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

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *94* | | *80 - 120* | | *07/03/20 22:15* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* | | *07/03/20 22:15* | *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 | | | 07/02/20 09:51 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *85* | | *50 - 150* | | *07/02/20 09:51* | *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) | ND | | 120 | | ug/L | | 06/26/20 13:13 | 06/27/20 20:11 | 1 |
| Motor Oil (>C24-C36) | ND | | 380 | | ug/L | | 06/26/20 13:13 | 06/27/20 20:11 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *74* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 20:11* | *1* |

## Client Sample ID: MW-5_20200624

**Lab Sample ID: 580-95613-5**

**Date Collected: 06/24/20 10:10**
**Matrix: Water**
**Date Received: 06/25/20 13:00**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 3.0 | | ug/L | | | 07/03/20 22:42 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 22:42 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 22:42 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 22:42 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *07/03/20 22:42* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *80 - 126* | | *07/03/20 22:42* | *1* |
| *4-Bromofluorobenzene (Surr)* | *93* | | *80 - 120* | | *07/03/20 22:42* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* | | *07/03/20 22:42* | *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 | | | 07/02/20 10:15 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *50 - 150* | | *07/02/20 10:15* | *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 | | 06/26/20 13:13 | 06/27/20 20:31 | 1 |
| Motor Oil (>C24-C36) | ND | | 360 | | ug/L | | 06/26/20 13:13 | 06/27/20 20:31 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *73* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 20:31* | *1* |

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

Job ID: 580-95613-1

## Client Sample ID: Trip Blank_20200624

**Date Collected: 06/24/20 00:00**
**Date Received: 06/25/20 13:00**

## Lab Sample ID: 580-95613-6

**Matrix: Water**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 3.0 | | ug/L | | | 07/03/20 20:27 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 20:27 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 20:27 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 20:27 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *103* | | *80 - 120* | | *07/03/20 20:27* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *80 - 126* | | *07/03/20 20:27* | *1* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *80 - 120* | | *07/03/20 20:27* | *1* |
| *Dibromofluoromethane (Surr)* | *98* | | *80 - 120* | | *07/03/20 20:27* | *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 | | | 07/02/20 03:49 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *98* | | *50 - 150* | | *07/02/20 03:49* | *1* |

# Surrogate Summary

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

Job ID: 580-95613-1

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

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

| | | Percent Surrogate Recovery (Acceptance Limits) | | | |
|---|---|---|---|---|---|
| | | TOL | DCA | BFB | DBFM |
| Lab Sample ID | Client Sample ID | (80-120) | (80-126) | (80-120) | (80-120) |
| 580-95613-1 | MW-1_20200624 | 102 | 104 | 96 | 99 |
| 580-95613-2 | MW-2_20200624 | 103 | 105 | 96 | 98 |
| 580-95613-3 | MW-3_20200624 | 102 | 106 | 95 | 99 |
| 580-95613-4 | MW-4_20200624 | 102 | 106 | 94 | 97 |
| 580-95613-5 | MW-5_20200624 | 102 | 103 | 93 | 97 |
| 580-95613-6 | Trip Blank_20200624 | 103 | 105 | 95 | 98 |
| LCS 580-332250/4 | Lab Control Sample | 99 | 106 | 96 | 101 |
| LCSD 580-332250/5 | Lab Control Sample Dup | 102 | 103 | 96 | 100 |
| MB 580-332250/7 | Method Blank | 102 | 105 | 95 | 98 |

**Surrogate Legend**

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (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) |
| 580-95613-1 | MW-1_20200624 | 90 |
| 580-95613-2 | MW-2_20200624 | 103 |
| 580-95613-3 | MW-3_20200624 | 97 |
| 580-95613-4 | MW-4_20200624 | 85 |
| 580-95613-5 | MW-5_20200624 | 95 |
| 580-95613-6 | Trip Blank_20200624 | 98 |
| LCS 580-332299/6 | Lab Control Sample | 96 |
| LCSD 580-332299/7 | Lab Control Sample Dup | 102 |
| MB 580-332299/5 | 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) |
| 580-95613-1 | MW-1_20200624 | 72 |
| 580-95613-2 | MW-2_20200624 | 78 |
| 580-95613-3 | MW-3_20200624 | 71 |
| 580-95613-4 | MW-4_20200624 | 74 |
| 580-95613-5 | MW-5_20200624 | 73 |
| LCS 580-331710/2-A | Lab Control Sample | 83 |
| LCSD 580-331710/3-A | Lab Control Sample Dup | 86 |
| MB 580-331710/1-A | Method Blank | 76 |

**Surrogate Legend**

OTPH = o-Terphenyl

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

**Lab Sample ID: MB 580-332250/7**
**Matrix: Water**
**Analysis Batch: 332250**

**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 | | | 07/03/20 19:07 | 1 |
| Ethylbenzene | ND | | 3.0 | | ug/L | | | 07/03/20 19:07 | 1 |
| Toluene | ND | | 2.0 | | ug/L | | | 07/03/20 19:07 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 07/03/20 19:07 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | | *07/03/20 19:07* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *80 - 126* | | *07/03/20 19:07* | *1* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *80 - 120* | | *07/03/20 19:07* | *1* |
| *Dibromofluoromethane (Surr)* | *98* | | *80 - 120* | | *07/03/20 19:07* | *1* |

**Lab Sample ID: LCS 580-332250/4**
**Matrix: Water**
**Analysis Batch: 332250**

**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 | 11.4 | | ug/L | | 114 | 82 - 122 |
| Ethylbenzene | 10.0 | 10.8 | | ug/L | | 108 | 80 - 120 |
| m-Xylene & p-Xylene | 10.0 | 10.8 | | ug/L | | 108 | 80 - 120 |
| o-Xylene | 10.0 | 10.6 | | ug/L | | 106 | 80 - 125 |
| Toluene | 10.0 | 11.3 | | ug/L | | 113 | 80 - 120 |
| Xylenes, Total | 20.0 | 21.4 | | ug/L | | 107 | 80 - 120 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* |
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *80 - 126* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* |

**Lab Sample ID: LCSD 580-332250/5**
**Matrix: Water**
**Analysis Batch: 332250**

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

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 10.0 | 11.9 | | ug/L | | 119 | 82 - 122 | 4 | 14 |
| Ethylbenzene | 10.0 | 10.9 | | ug/L | | 109 | 80 - 120 | 1 | 14 |
| m-Xylene & p-Xylene | 10.0 | 11.2 | | ug/L | | 112 | 80 - 120 | 4 | 14 |
| o-Xylene | 10.0 | 10.9 | | ug/L | | 109 | 80 - 125 | 3 | 16 |
| Toluene | 10.0 | 11.3 | | ug/L | | 113 | 80 - 120 | 0 | 13 |
| Xylenes, Total | 20.0 | 22.1 | | ug/L | | 111 | 80 - 120 | 3 | 16 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* |
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *80 - 126* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* |

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

**Lab Sample ID: MB 580-332299/5**
**Matrix: Water**
**Analysis Batch: 332299**

**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 | | | 07/02/20 02:14 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *88* | | *50 - 150* | | *07/02/20 02:14* | *1* |

**Lab Sample ID: LCS 580-332299/6**
**Matrix: Water**
**Analysis Batch: 332299**

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

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | 1000 | 970 | | ug/L | | 97 | 79 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *96* | | *50 - 150* |

**Lab Sample ID: LCSD 580-332299/7**
**Matrix: Water**
**Analysis Batch: 332299**

**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 | 997 | | ug/L | | 100 | 79 - 120 | 3 | 10 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *50 - 150* |

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

**Lab Sample ID: MB 580-331710/1-A**
**Matrix: Water**
**Analysis Batch: 331747**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 331710**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | ND | | 110 | | ug/L | | 06/26/20 13:13 | 06/27/20 15:50 | 1 |
| Motor Oil (>C24-C36) | ND | | 350 | | ug/L | | 06/26/20 13:13 | 06/27/20 15:50 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *76* | | *50 - 150* | *06/26/20 13:13* | *06/27/20 15:50* | *1* |

**Lab Sample ID: LCS 580-331710/2-A**
**Matrix: Water**
**Analysis Batch: 331747**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 331710**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | | | 2000 | 1700 | | ug/L | | 85 | 50 - 120 | | |
| Motor Oil (>C24-C36) | | | 2000 | 2090 | | ug/L | | 105 | 64 - 120 | | |

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

**Lab Sample ID: LCS 580-331710/2-A**
**Matrix: Water**
**Analysis Batch: 331747**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 331710**

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

**Lab Sample ID: LCSD 580-331710/3-A**
**Matrix: Water**
**Analysis Batch: 331747**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 331710**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| #2 Diesel (C10-C24) | | | 2000 | 1940 | | ug/L | | 97 | 50 - 120 | 13 | 26 |
| Motor Oil (>C24-C36) | | | 2000 | 2290 | | ug/L | | 114 | 64 - 120 | 9 | 24 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *86* | | *50 - 150* |

# QC Association Summary

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

Job ID: 580-95613-1

## GC/MS VOA

### Analysis Batch: 332250

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-95613-1 | MW-1_20200624 | Total/NA | Water | 8260D | |
| 580-95613-2 | MW-2_20200624 | Total/NA | Water | 8260D | |
| 580-95613-3 | MW-3_20200624 | Total/NA | Water | 8260D | |
| 580-95613-4 | MW-4_20200624 | Total/NA | Water | 8260D | |
| 580-95613-5 | MW-5_20200624 | Total/NA | Water | 8260D | |
| 580-95613-6 | Trip Blank_20200624 | Total/NA | Water | 8260D | |
| MB 580-332250/7 | Method Blank | Total/NA | Water | 8260D | |
| LCS 580-332250/4 | Lab Control Sample | Total/NA | Water | 8260D | |
| LCSD 580-332250/5 | Lab Control Sample Dup | Total/NA | Water | 8260D | |

## GC VOA

### Analysis Batch: 332299

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-95613-1 | MW-1_20200624 | Total/NA | Water | NWTPH-Gx | |
| 580-95613-2 | MW-2_20200624 | Total/NA | Water | NWTPH-Gx | |
| 580-95613-3 | MW-3_20200624 | Total/NA | Water | NWTPH-Gx | |
| 580-95613-4 | MW-4_20200624 | Total/NA | Water | NWTPH-Gx | |
| 580-95613-5 | MW-5_20200624 | Total/NA | Water | NWTPH-Gx | |
| 580-95613-6 | Trip Blank_20200624 | Total/NA | Water | NWTPH-Gx | |
| MB 580-332299/5 | Method Blank | Total/NA | Water | NWTPH-Gx | |
| LCS 580-332299/6 | Lab Control Sample | Total/NA | Water | NWTPH-Gx | |
| LCSD 580-332299/7 | Lab Control Sample Dup | Total/NA | Water | NWTPH-Gx | |

## GC Semi VOA

### Prep Batch: 331710

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-95613-1 | MW-1_20200624 | Total/NA | Water | 3510C | |
| 580-95613-2 | MW-2_20200624 | Total/NA | Water | 3510C | |
| 580-95613-3 | MW-3_20200624 | Total/NA | Water | 3510C | |
| 580-95613-4 | MW-4_20200624 | Total/NA | Water | 3510C | |
| 580-95613-5 | MW-5_20200624 | Total/NA | Water | 3510C | |
| MB 580-331710/1-A | Method Blank | Total/NA | Water | 3510C | |
| LCS 580-331710/2-A | Lab Control Sample | Total/NA | Water | 3510C | |
| LCSD 580-331710/3-A | Lab Control Sample Dup | Total/NA | Water | 3510C | |

### Analysis Batch: 331747

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 580-95613-1 | MW-1_20200624 | Total/NA | Water | NWTPH-Dx | 331710 |
| 580-95613-2 | MW-2_20200624 | Total/NA | Water | NWTPH-Dx | 331710 |
| 580-95613-3 | MW-3_20200624 | Total/NA | Water | NWTPH-Dx | 331710 |
| 580-95613-4 | MW-4_20200624 | Total/NA | Water | NWTPH-Dx | 331710 |
| 580-95613-5 | MW-5_20200624 | Total/NA | Water | NWTPH-Dx | 331710 |
| MB 580-331710/1-A | Method Blank | Total/NA | Water | NWTPH-Dx | 331710 |
| LCS 580-331710/2-A | Lab Control Sample | Total/NA | Water | NWTPH-Dx | 331710 |
| LCSD 580-331710/3-A | Lab Control Sample Dup | Total/NA | Water | NWTPH-Dx | 331710 |

# Lab Chronicle

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

Job ID: 580-95613-1

## Client Sample ID: MW-1_20200624
**Date Collected: 06/24/20 09:45**
**Date Received: 06/25/20 13:00**

**Lab Sample ID: 580-95613-1**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 20:54 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 08:39 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 331710 | 06/26/20 13:13 | APR | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 331747 | 06/27/20 18:51 | T1W | TAL SEA |

## Client Sample ID: MW-2_20200624
**Date Collected: 06/24/20 10:30**
**Date Received: 06/25/20 13:00**

**Lab Sample ID: 580-95613-2**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 21:22 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 09:03 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 331710 | 06/26/20 13:13 | APR | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 331747 | 06/27/20 19:31 | T1W | TAL SEA |

## Client Sample ID: MW-3_20200624
**Date Collected: 06/24/20 11:25**
**Date Received: 06/25/20 13:00**

**Lab Sample ID: 580-95613-3**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 21:48 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 09:27 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 331710 | 06/26/20 13:13 | APR | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 331747 | 06/27/20 19:51 | T1W | TAL SEA |

## Client Sample ID: MW-4_20200624
**Date Collected: 06/24/20 11:55**
**Date Received: 06/25/20 13:00**

**Lab Sample ID: 580-95613-4**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 22:15 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 09:51 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 331710 | 06/26/20 13:13 | APR | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 331747 | 06/27/20 20:11 | T1W | TAL SEA |

## Client Sample ID: MW-5_20200624
**Date Collected: 06/24/20 10:10**
**Date Received: 06/25/20 13:00**

**Lab Sample ID: 580-95613-5**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 22:42 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 10:15 | JSM | TAL SEA |
| Total/NA | Prep | 3510C | | | 331710 | 06/26/20 13:13 | APR | TAL SEA |
| Total/NA | Analysis | NWTPH-Dx | | 1 | 331747 | 06/27/20 20:31 | T1W | TAL SEA |

# Lab Chronicle

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

Job ID: 580-95613-1

## Client Sample ID: Trip Blank_20200624

**Date Collected: 06/24/20 00:00**
**Date Received: 06/25/20 13:00**

## Lab Sample ID: 580-95613-6

**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260D | | 1 | 332250 | 07/03/20 20:27 | JSM | TAL SEA |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 332299 | 07/02/20 03:49 | JSM | TAL SEA |

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Antea USA Inc.
Job ID: 580-95613-1
Project/Site: BP - OPLC - Tacoma Junction

## Laboratory: Eurofins TestAmerica, Seattle

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

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| Washington | State | C553 | 02-18-21 |

# Method Summary

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

Job ID: 580-95613-1

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

TAL SEA = Eurofins TestAmerica, 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: 580-95613-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received | Asset ID |
|---|---|---|---|---|---|
| 580-95613-1 | MW-1_20200624 | Water | 06/24/20 09:45 | 06/25/20 13:00 | |
| 580-95613-2 | MW-2_20200624 | Water | 06/24/20 10:30 | 06/25/20 13:00 | |
| 580-95613-3 | MW-3_20200624 | Water | 06/24/20 11:25 | 06/25/20 13:00 | |
| 580-95613-4 | MW-4_20200624 | Water | 06/24/20 11:55 | 06/25/20 13:00 | |
| 580-95613-5 | MW-5_20200624 | Water | 06/24/20 10:10 | 06/25/20 13:00 | |
| 580-95613-6 | Trip Blank_20200624 | Water | 06/24/20 00:00 | 06/25/20 13:00 | |

# bp rm Laboratory Management Program (LaMP) Chain of Custody Record

## Soil, Sediment and Groundwater Samples

Page 1 of 1

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

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

Loc: 580
95613

| | | | | | |
|---|---|---|---|---|---|
| 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: | WATJUAA201.10123 |
| 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 Acct: | NA | Enfos Proposal No: | WR826964/00BPT-0008 | Phone: 425-498-7711 Email: | Megan.Richard@anteagroup.com |
| Lab Bottle Order No: | NA | Accounting Mode: Provision __X__ OOC-BU ____ OOC-RM ____ | | Send/Submit EDD to: | Megan.Richard@anteagroup.com |
| Other Info: | elaine.walker@testamericainc.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 | | | | |

**Sample Details** | **Requested Analyses** | **Report Type & QC Level**

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_20200624 | 6/24/20 | 0945 | W | | | | G | | | | X | X | X | |
| | MW-2_20200624 | 6/24/20 | 1030 | W | | | | G | | | | X | X | X | |
| | MW-3_20200624 | 6/24/20 | 1125 | W | | | | G | | | | X | X | X | |
| | MW-4_20200624 | 6/24/20 | 1195 | W | | | | G | | | | X | X | X | |
| | MW-5_20200624 | 6/24/20 | 1010 | W | | | | G | | | | X | X | X | |
| | Trip Blank_ | 6/24/20 | 0000 | W | | | | G | | | | X | X | | |
| | | | | | | | | | | | | | | | |

580-95613 Chain of Custody

| Sampler's Name: Nathan Han | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Company: Antea Group | [signature] Antea | 6/25/20 | 1045 | [signature] Q. Powell | 6/25/20 | 10:45 |
| Ship Method: Courier Ship Date: 6/25 | [signature] Q. Powell | 6/25/20 | 1100 | [signature] | 6/25/20 | 1330 |
| Shipment Tracking No: | | | | | | |

**Special Instructions:**

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

Therm. ID: IR6 Cor: 5.9 ° Unc: 5.9 °
Cooler Dsc: Ice Blue
Packing: Bubble
Cust. Seal: Yes ~~No~~ No ____
Blue Ice (Wet) Dry, None
FedEx: _____
UPS: _____
Lab Courier: _____
Other: _____

6/25/2020

# Login Container Summary Report

580-95613

7/7/2020

Temperature readings: _____

| Client Sample ID | Lab ID | Container Type | Container pH | Container Temp | Preservative Added (mls) | Lot # |
|---|---|---|---|---|---|---|
| MW-1_20200624 | 580-95613-A-1 | Amber Glass 250mL - hydrochloric acid | <2 | | | 0315401E-590 |
| MW-1_20200624 | 580-95613-B-1 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-2_20200624 | 580-95613-A-2 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-2_20200624 | 580-95613-B-2 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-3_20200624 | 580-95613-A-3 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-3_20200624 | 580-95613-B-3 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-4_20200624 | 580-95613-A-4 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-4_20200624 | 580-95613-B-4 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-5_20200624 | 580-95613-A-5 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |
| MW-5_20200624 | 580-95613-B-5 | Amber Glass 250mL - hydrochloric acid | | | | 0315401E-590 |

# Login Sample Receipt Checklist

Client: Antea USA Inc.

Job Number: 580-95613-1

**Login Number: 95613**
**List Number: 1**
**Creator: Hobbs, Kenneth F**

**List Source: Eurofins TestAmerica, 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 TestAmerica, Seattle  Job No.: 580-95613-1

SDG No.:

Batch Number: 332250  Batch Start Date: 07/03/20 16:52  Batch Analyst: McKell, Justin S

Batch Method: 8260D  Batch End Date:

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | Initial pH | 5X SUR/IS 00001 | VOAMasterMix 00057 | |
|---|---|---|---|---|---|---|---|---|---|
| LCS 580-332250/4 | | 8260D | | 5 mL | 5 mL | | 2 uL | 10 uL | |
| LCSD 580-332250/5 | | 8260D | | 5 mL | 5 mL | | 2 uL | 10 uL | |
| MB 580-332250/7 | | 8260D | | 5 mL | 5 mL | | 2 uL | | |
| 580-95613-B-6 | Trip Blank 20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-D-1 | MW-1_20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-D-2 | MW-2_20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-D-3 | MW-3_20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-D-4 | MW-4_20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-D-5 | MW-5_20200624 | 8260D | T | 5 mL | 5 mL | <2 SU | 2 uL | | |

| Batch Notes | |
|---|---|
| Vial Lot Number | 0103101f |

| 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 TestAmerica, Seattle  Job No.: 580-95613-1

SDG No.:

Batch Number: 332299  Batch Start Date: 07/02/20 01:26  Batch Analyst: McKell, Justin S

Batch Method: NWTPH-Gx  Batch End Date:

| Lab Sample ID | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | Initial pH | BFBGRO ARCHON 00044 | GRO_LCS 00061 | TFT Spike 00040 |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-332299/5 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | | 10.75 uL |
| LCS 580-332299/6 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| LCSD 580-332299/7 | | NWTPH-Gx | | 5 mL | 5 mL | | 2 uL | 50 uL | |
| 580-95613-A-6 | Trip Blank 20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-C-1 | MW-1_20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-C-2 | MW-2_20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-C-3 | MW-3_20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-C-4 | MW-4_20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |
| 580-95613-C-5 | MW-5_20200624 | NWTPH-Gx | T | 5 mL | 5 mL | <2 SU | 2 uL | | |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | V2.4TFT-EX 00052 |
|---|---|---|---|---|
| MB 580-332299/5 | | NWTPH-Gx | | |
| LCS 580-332299/6 | | NWTPH-Gx | | 2.5 mL |
| LCSD 580-332299/7 | | NWTPH-Gx | | 2.5 mL |
| 580-95613-A-6 | Trip Blank 20200624 | NWTPH-Gx | T | |
| 580-95613-C-1 | MW-1_20200624 | NWTPH-Gx | T | |
| 580-95613-C-2 | MW-2_20200624 | NWTPH-Gx | T | |
| 580-95613-C-3 | MW-3_20200624 | NWTPH-Gx | T | |
| 580-95613-C-4 | MW-4_20200624 | NWTPH-Gx | T | |
| 580-95613-C-5 | MW-5_20200624 | NWTPH-Gx | T | |

| Batch Notes | |
|---|---|
| Vial Lot Number | 0103101f |

| 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 TestAmerica, Seattle  Job No.: 580-95613-1

SDG No.:

Batch Number: 331710  Batch Start Date: 06/26/20 13:13  Batch Analyst: Ruslander, Amanda P

Batch Method: 3510C  Batch End Date: 06/26/20 17:40

| Lab Sample ID | Client Sample ID | Method Chain | Basis | GrossWeight | TareWeight | InitialAmount | FinalAmount | ReceivedpH | FirstAdjustpH |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-331710/1 | | 3510C, NWTPH-Dx | | | | 250 mL | 1 mL | 7 SU | 2 SU |
| LCS 580-331710/2 | | 3510C, NWTPH-Dx | | | | 250 mL | 1 mL | 7 SU | 2 SU |
| LCSD 580-331710/3 | | 3510C, NWTPH-Dx | | | | 250 mL | 1 mL | 7 SU | 2 SU |
| 580-95613-A-1 | MW-1_20200624 | 3510C, NWTPH-Dx | T | 00411.57 g | 00175.46 g | 236.1 mL | 1 mL | 2 SU | 2 SU |
| 580-95613-A-2 | MW-2_20200624 | 3510C, NWTPH-Dx | T | 00422.07 g | 00174.09 g | 248 mL | 1 mL | 2 SU | 2 SU |
| 580-95613-A-3 | MW-3_20200624 | 3510C, NWTPH-Dx | T | 00405.95 g | 00175.51 g | 230.4 mL | 1 mL | 2 SU | 2 SU |
| 580-95613-B-4 | MW-4_20200624 | 3510C, NWTPH-Dx | T | 00404.79 g | 00177.18 g | 227.6 mL | 1 mL | 2 SU | 2 SU |
| 580-95613-A-5 | MW-5_20200624 | 3510C, NWTPH-Dx | T | 00418.73 g | 00175.62 g | 243.1 mL | 1 mL | 2 SU | 2 SU |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | TPH_Water_Spk 00023 | TPH_WaterSurr 00053 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MB 580-331710/1 | | 3510C, NWTPH-Dx | | | 100 uL | | | | |
| LCS 580-331710/2 | | 3510C, NWTPH-Dx | | 100 uL | 100 uL | | | | |
| LCSD 580-331710/3 | | 3510C, NWTPH-Dx | | 100 uL | 100 uL | | | | |
| 580-95613-A-1 | MW-1_20200624 | 3510C, NWTPH-Dx | T | | 100 uL | | | | |
| 580-95613-A-2 | MW-2_20200624 | 3510C, NWTPH-Dx | T | | 100 uL | | | | |
| 580-95613-A-3 | MW-3_20200624 | 3510C, NWTPH-Dx | T | | 100 uL | | | | |
| 580-95613-B-4 | MW-4_20200624 | 3510C, NWTPH-Dx | T | | 100 uL | | | | |
| 580-95613-A-5 | MW-5_20200624 | 3510C, NWTPH-Dx | T | | 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 TestAmerica, Seattle  Job No.: 580-95613-1

SDG No.:

Batch Number: 331710  Batch Start Date: 06/26/20 13:13  Batch Analyst: Ruslander, Amanda P

Batch Method: 3510C  Batch End Date: 06/26/20 17:40

| Batch Notes | |
|---|---|
| Acid Used for pH Adjustment ID | 2638373 |
| Balance ID | sea225 |
| Batch Comment | vialed by rjl |
| Analyst ID - Concentration | rjl |
| Concentration 1 Corrected Temperature | 69.2-74.2 Degrees C |
| Concentration 2 Corrected Temperature | 21.1 Degrees C |
| Equipment ID - Concentration 1 | steam bath 1 |
| Analyst ID - Extraction | ar |
| Filter ID | 2606840 |
| Method/Fraction | 3510/fuel |
| Na2SO4 ID | 2642515 |
| pH Indicator ID | 6910003 |
| Pipette/Syringe/Dispenser ID | mp4 |
| Prep Solvent ID | 2640517 |
| Prep Solvent Volume Used | 100 mL |
| Analyst ID - Spike Analyst | ar |
| Thermometer ID - Concentration 1 | 61013-040-1 |
| Thermometer ID - Concentration 2 | digital readout |
| Concentration 1 Uncorrected Temperature | 70-75 Degrees C |
| Concentration 2 Uncorrected Temperature | 23 Degrees C |
| Vial Lot Number | 24155753 |
| Reagent Water ID | di |

| 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.