

Chevron Environmental Management Company

# 2022 Groundwater Monitoring and Dual-Phase Extraction System Operation Report

**Former Unocal Edmonds Bulk Fuel Terminal  
11720 Unoco Road  
Edmonds, Washington**

October 12, 2023

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## Acronyms and Abbreviations

2022 GOR	2022 Groundwater Monitoring and Dual-Phase Extraction System Operation Report
µg/L	microgram per liter
Arcadis	Arcadis U.S., Inc.
CEMC	Chevron Environmental Management Company
CMP	Compliance Monitoring Plan
COC	constituent of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CUL	cleanup level
DB-1	Detention Basin 1
DMR	discharge monitoring report
DPE	dual-phase extraction
DRO	diesel range organics
Ecology	Washington State Department of Ecology
Final IAWP	Final Interim Action Work Plan
GRO	gasoline-range organics
HO	heavy-oil-range organics
LEL	lower explosive limit
LNAPL	light nonaqueous phase liquid
MNA	monitored natural attenuation
NAVD 88	North American Vertical Datum of 1988
NPDES	National Pollutant Discharge Elimination System
OM&M	operation, maintenance, and monitoring
OM&M Manual	Dual-Phase Extraction System Operation, Maintenance, and Monitoring Manual
PID	photo ionization detector
PLC	programmable logic controller
POC	point of compliance
PSCAA	Puget Sound Clean Air Agency
Site	former Unocal Edmonds Bulk Fuel Terminal, located at 11720 Unoco Road, Edmonds, Washington

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SVE	soil vapor extraction
TEQ	toxic equivalency
TPH	total petroleum hydrocarbons
Unocal	Union Oil Company of California
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code

# 1 Introduction

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) prepared this *2022 Groundwater Monitoring and Dual-Phase Extraction System Operation Report (2022 GOR)* for the former Union Oil Company of California (Unocal) Edmonds Bulk Fuel Terminal, located at 11720 Unoco Road in Edmonds, Washington (Site). CEMC manages environmental matters at the Site on behalf of Unocal. The Site and surrounding area are shown on Figure 1-1.

This 2022 GOR is written in accordance with the specifications of the Compliance Monitoring Plan (CMP), which was provided as Appendix B of the Draft Cleanup Action Plan (Arcadis 2017c) and was submitted to the Washington State Department of Ecology (Ecology) on July 31, 2017. The Site is currently under Agreed Order No. DE 4460 (Ecology 2007).

The Site is formally known as Unocal Edmonds Bulk Fuel Terminal 0178 in Ecology's database. Identifiers are:

- Facility Site Identification Number: 2720
- Cleanup Site Identification Number: 5180

In 2022, Arcadis performed the following activities:

- Quarterly groundwater monitoring events
- Operation of the dual-phase extraction (DPE) remediation system according to the *Final Interim Action Work Plan* (Final IAWP; Arcadis 2016b), the *Dual-Phase Extraction System Operation, Maintenance, and Monitoring Manual* (OM&M Manual; Arcadis 2017a) and the National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA0991007.

The 2022 GOR includes:

- Descriptions of field activities, including any unusual or unexpected events or conditions
- Tables containing groundwater monitoring data, as well as groundwater sample analytical results
- Figures showing total petroleum hydrocarbons (TPH), benzene, and total toxic equivalency (TEQ) carcinogenic polycyclic aromatic hydrocarbon (cPAH) concentrations in the groundwater samples
- Copies of laboratory reports and chain of custody documentation
- Discharge monitoring reports in accordance with NPDES permit requirements.

## 2 Site Description

The Site, as defined by the Model Toxics Control Act (MTCA), comprises the areas of the Lower Yard and the former Upper Yard. The Site layout, as well as the areas of the Lower Yard, are shown on Figure 2-1.

The approximately 25-acre former Upper Yard is located south of the Lower Yard (Figure 2-1). Unocal sold the former Upper Yard to Point Edwards, LLC in October 2003 after Ecology confirmed that Unocal had completed cleanup activities in the Upper Yard (Ecology 2003). The Upper Yard was subsequently redeveloped as the Point Edwards condominium complex. The aquifer beneath the Site is considered a site-wide aquifer; therefore, groundwater constituents of concern (COCs) are the same for the former Upper Yard and the Lower Yard. Additionally, points of compliance (POCs) for the former Upper Yard are monitored at POC monitoring well locations in the Lower Yard.

The approximately 22-acre Lower Yard surrounds the former Upper Yard to the north, east, and west, and is currently owned by Unocal. The Lower Yard is currently a vacant property, with no permanent aboveground structures. A temporary storage shed, concrete pad, and remediation system enclosure are located along lower Unoco Road in the central portion of the Lower Yard. The Lower Yard stormwater system conveys direct precipitation and stormwater to Detention Basin 1 (DB-1).

Willow Creek runs along the northern portion of the western boundary and the entire eastern boundary of the Lower Yard. To the north and northeast of the Lower Yard beyond Willow Creek is Edmonds Marsh, which is a 23-acre freshwater and brackish water marsh. Willow Creek and Edmonds Marsh are directly connected to Puget Sound and are tidally influenced. At high tide, water flows from Puget Sound upstream in Willow Creek into Edmonds Marsh; at low tide, water drains from Edmonds Marsh through Willow Creek into Puget Sound. At its nearest point (the southwest corner of the Lower Yard), the Site is approximately 160 feet from the Puget Sound shoreline. The tidal variations in water levels in Puget Sound also influence groundwater elevations at the Site perimeter.



### 3 Groundwater Monitoring

This section discusses the groundwater monitoring program, groundwater cleanup levels, and groundwater sampling events conducted at the Site in 2022.

#### 3.1 Groundwater Monitoring Program

The groundwater monitoring program is conducted with quarterly events that include sampling the 37 interior and perimeter monitoring wells listed in the CMP (Arcadis 2017c), presented in Table 3-1 (below), and shown on Figure 3-1. Note that well MW-E-R was added to the monitoring network in March 2018 but is not part of the historical network of compliance monitoring wells. The groundwater monitoring program also includes gauging 53 monitoring wells (i.e. the 37 monitoring wells listed below in addition to monitoring wells in the southeast Lower Yard [MW-108, MW-109, MW-135, MW-136, MW-500, and MW-501], southwest Lower Yard [MW-147, MW-149-R, MW-150, MW-523, and MW-524], and southeast Lower Yard near the Willow Creek fish hatchery [MW-13U, MW-134X, MW-203, MW-527, and MW-528]).

Table 3-1. Groundwater Compliance Monitoring Wells

Perimeter Wells	Interior Wells
LM-2	MW-126
MW-8R	MW-143
MW-20R	MW-502
MW-101	MW-503
MW-104	MW-504
MW-129R	MW-505
MW-139R	MW-506
MW-518	MW-507
MW-522	MW-509
MW-530	MW-511
MW-533	MW-512
MW-535	MW-513
	MW-514
	MW-515
	MW-516
	MW-517
	MW-519
	MW-520
	MW-521
	MW-525
	MW-526
	MW-531
	MW-532

Perimeter Wells	Interior Wells
	MW-E-R MW-534

The groundwater monitoring program includes gauging the monitoring wells to measure water levels and assess the presence of light nonaqueous phase liquid (LNAPL; measurable thickness or trace) within 2 hours of low tide, according to the tide charts for Edmonds, Washington obtained from the National Oceanic and Atmospheric Administration (NOAA), which are provided in Appendix A.<sup>1</sup>

The groundwater monitoring program also includes purging and collecting groundwater samples using low-flow methods, monitoring water quality parameters (dissolved oxygen, oxidation-reduction potential, pH, conductivity, and temperature), and submitting groundwater samples to an Ecology-approved laboratory under chain of custody for the analyses described in the CMP (Arcadis 2017c) and summarized below:

- COCs:
  - Benzene by United States Environmental Protection Agency (USEPA) Method 8260<sup>2</sup>
  - Gasoline-range organics (GRO) by Ecology Method NWTPH-Gx
  - Diesel-range organics (DRO) and heavy-oil-range organics (HO) by Ecology Method NWTPH-Dx (after silica gel cleanup)
  - cPAHs by USEPA Method 8270 selected ion monitoring (SIM), including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
- Monitored natural attenuation (MNA) parameters:
  - Sulfate and nitrate by USEPA Method 300.0
  - Dissolved methane by USEPA Method RSK 175
  - Dissolved manganese by USEPA Method 200.8 (field filtered)
  - Ferrous iron (Hach® field kits; measured in the field only).

Groundwater samples are submitted for analyses quarterly for COCs and biannually for MNA parameters.

### 3.2 Groundwater Cleanup Levels

Groundwater cleanup levels (CULs) for the Site are presented in Table 3-2, below. Further details regarding CUL identification are provided in the *Public Review Draft Final Feasibility Study Report* (Arcadis 2017b).

<sup>1</sup> Available at <https://tidesandcurrents.noaa.gov/oaatidepredictions.html?id=9447427&legacy=1>

<sup>2</sup> The method previously approved in the CMP (Arcadis 2017c), USEPA Method 8021, for analysis of benzene is now obsolete and has been replaced by the USEPA Method 8260.

Table 3-2. Groundwater Cleanup Levels

COCs <sup>1</sup>	CULs (for protection of surface water) <sup>1</sup>
TPH <sup>2</sup>	— <sup>4</sup>
Benzene	16 µg/L <sup>5</sup>
Total cPAHs TEQ <sup>3</sup>	0.05 µg/L <sup>6</sup>

**Notes:**

<sup>1</sup> The aquifer beneath the Site is considered a site-wide aquifer; therefore, groundwater COCs and CULs are the same for the former Upper Yard and the Lower Yard.

<sup>2</sup> TPH concentration calculated by summing the concentrations of GRO, DRO, and HO. For results that do not exceed method reporting limits, one-half of the reporting limit is added to determine TPH concentration.

<sup>3</sup> Total cPAHs calculated by summing the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene; and are adjusted for toxicity using TEQ factors to represent a total benzo(a)pyrene concentration (Washington Administrative Code [WAC] 173-340-900). For results that do not exceed method reporting limits, one-half of the reporting limit is added to determine the total cPAH concentration.

<sup>4</sup> Method A (WAC 173-340-900, Table 720-1); TPH calculated on a sample-specific basis. The CUL will fall between 500 and 800 micrograms per liter (µg/L), depending on the sample’s composition.

<sup>5</sup> National Recommended Water Quality Criteria for human-health (organisms only; USEPA 2015).

<sup>6</sup>Total cPAH TEQ adjusted for practical quantitation limit based on WAC 173-340-730(5)(c).

### 3.3 2022 Groundwater Sampling Events

#### 3.3.1 Field Activities

Arcadis performed the following quarterly groundwater sampling events in 2022:

- *First quarter.* February 28 through March 3.
- *Second quarter.* June 13 through 16.
- *Third quarter.* August 22 through 25. Monitoring well MW-109 could not be gauged during the third quarter due to vegetation blocking its access. Monitoring well LM-2 was resampled on September 27 due to matrix issues as further explained in Section 3.3.3.
- *Fourth quarter.* November 7 through 11. Monitoring wells MW-526 and MW 531 were re-sampled on December 16. Laboratory quality control issues were observed during the fourth quarter event. DRO and/or HO concentrations were rejected by the Arcadis data validation team for 16 wells (MW-101, MW-126, MW-139R, MW-143, MW-502, MW-503, MW-511 to MW-514, MW-518, MW-519, MW-520, MW-522, MW-526, and MW-531). The laboratory data quality issues were due to internal laboratory processes related to recovery on control samples and replicability of the results.

Gauging was implemented per the groundwater monitoring program described in Section 3.1. The depths to groundwater in monitoring wells were measured on March 4, June 14, August 23, and November 9, 2022 within a 2-hour window during low tide, according to the tide charts for Edmonds presented in Appendix A. Groundwater event field notes are provided in Appendix B.

Sampling was conducted per the groundwater monitoring program described in Section 3.1. Groundwater samples were submitted to Lancaster Laboratories Environmental located in Lancaster, Pennsylvania, an Ecology-approved laboratory, under chain of custody and were analyzed in accordance with the methods described in Section 3.1.

### 3.3.2 Groundwater Elevation and Flow Direction

Groundwater elevations throughout the Lower Yard have remained consistent from October 2008 through December 2022, with average groundwater elevations ranging between 5 and 9 feet above North American Vertical Datum of 1988 (NAVD 88) and depth to groundwater ranging from 0.95 to 26.32 feet below ground surface.<sup>3</sup> In general, the seasonal variation includes the difference between the highest groundwater elevations observed during January and the lowest groundwater elevations observed between June and September.

Historically, the observed groundwater flow direction is to the north-northwest in the central portion of the Site (Central Lower Yard) and to the northwest in the western portion of the Site (Western Boundary, West/Northwest Lower Yard, and Southwest Lower Yard).

Measured depth to water and groundwater elevations in 2022, as well as historical data, are presented in Table 3-3. Groundwater elevations and contours are shown on the figures provided in Appendix C. The interpreted groundwater flow direction has generally been to the northwest for the Site with local variations: north to north-northwest in the central portion of the Site (Central Lower Yard), west-northwest to west in the western portion of the Site (Western Boundary, West/Northwest Lower Yard, and Southwest Lower Yard), and a mounding effect in the southeast Lower Yard. The 2022 groundwater flow directions were consistent with historical data.

### 3.3.3 Analytical Results

Thirty-two (32) of the 37 POC monitoring wells contained either non-detect COC concentrations or concentrations less than the respective CULs. Analytical results are presented in Tables 3-4 and 3-5. Figures 3-2 and 3-3 show the Site groundwater remediation status as of fourth quarter 2022. During 2022, 48 of the 53 wells were in compliance for four consecutive quarters with the Site groundwater CULs. Most wells have met the Site groundwater CULs for more than eight consecutive quarters and up to 51 consecutive quarters (Figures 3-2 and 3-3). The only wells with groundwater concentrations greater than the Site groundwater CULs are located within the areas currently being remediated by the DPE system (MW-101, MW-129-R, MW-518, and MW-E-R). One well located outside of the areas currently being remediated (LM-2) had an estimated TPH groundwater concentration greater than the Site groundwater CUL during the third quarter event, but this result appeared to be anomalous and is not considered representative of actual conditions in the area of the well. The GRO reporting limit (2,500 µg/L) and method detection limit (430 µg/L) were both elevated due to matrix interference and an estimated GRO concentration of 2,174 µg/L was noted for the sample collected from LM-2. It is suspected that natural conditions in the area of the well related to its proximity to DB-1, including high turbidity, are the likely cause of the matrix interference.

Low-flow sampling field notes are provided in Appendix B. COC concentrations are shown on the figures provided in Appendix C. Groundwater laboratory analytical reports and chain of custody documents are provided in

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<sup>3</sup> Excluding data for the southeast Lower Yard, which indicates the presence of an area of localized groundwater mounding, with average groundwater elevations ranging between 9 and 12 feet above NAVD 88 and groundwater elevations in monitoring wells MW-500 and MW-501 generally observed several feet higher than nearby wells.

Appendix D. A data review report evaluating the quality of the analyses conducted for the samples collected from LM-2 during third quarter and a data review report evaluating the quality of the analyses conducted during fourth quarter are also provided in Appendix D.

### 3.3.3.1 Constituent of Concern Concentrations

For each quarterly groundwater sampling event during 2022, COC results relative to the respective CULs are listed below (see Table 3-4):

- First quarter:
  - *TPH*. MW-518, MW-518 (duplicate), MW-E-R, and MW-E-R (duplicate) contained TPH concentrations of 1,214, 1,205, 1,000, and 920 µg/L, respectively.
  - *Benzene*. No exceedances were observed.
  - *cPAHs*. No exceedances were observed.
- Second quarter:
  - *TPH*. MW-101, MW-101 (duplicate), MW-E-R, and MW-E-R (duplicate) contained TPH concentrations of 1,071, 1,181, 1,212, and 1,248 µg/L, respectively.
  - *Benzene*. No exceedances were observed.
  - *cPAHs*. No exceedances were observed.
- Third quarter:
  - *TPH*. MW-101, MW-101 (duplicate), MW-129R, MW-518, MW-518 (duplicate), MW-E-R, and MW-E-R (duplicate) contained TPH concentrations of 1,629, 1,634, 795, 860, 852, 1,035, and 1,048 µg/L, respectively.

The sample collected from LM-2 on August 24 contained an estimated TPH concentration of 2,174 µg/L. The GRO reporting limit (2,500 µg/L) and method detection limit (430 µg/L) were elevated due to matrix interference. A re-sample was collected on September 27 to obtain a better matrix; however, the GRO reporting limit (2,500 µg/L) and method detection limit (430 µg/L) were again elevated due to matrix interference, and the estimated TPH concentration was 944 µg/L. As mentioned above, the third quarter estimated TPH concentrations in LM-2 are not considered representative of actual groundwater conditions in area of the well.
  - *Benzene*. No exceedances were observed.
  - *cPAHs*. No exceedances were observed.
- Fourth quarter:
  - *TPH*. MW-E-R contained a TPH concentration of 1,237 µg/L. TPH concentrations in MW-101 and MW-518 are considered exceedances despite the absence of calculated values. Due to laboratory quality control issues, HO concentrations were rejected by the Arcadis data validation team, and a TPH calculation and sample-specific TPH CUL for MW-101, MW-101 (duplicate), MW-518, and MW-518 (duplicate) could not be calculated. Based on historical TPH CUL calculations, the GRO concentrations observed in these samples would likely result in exceedances of the sample-specific TPH CUL.
  - *Benzene*. No exceedances were observed.
  - *cPAHs*. No exceedances were observed.

### 3.3.3.2 Monitored Natural Attenuation Parameters

Twenty-seven (27) of the 37 POCs sampled during the June 2022 event contained methane concentrations greater than the reporting limit of 3 µg/L, and 16 of those POCs contained methane concentrations greater than 100 µg/L, suggesting ongoing degradation of organic constituents (i.e., petroleum hydrocarbons).

Twenty-four (24) of the 37 POCs sampled during the November 2022 event contained methane concentrations greater than the reporting limit of 3 µg/L, and 17 of those POCs contained methane concentrations greater or equal to 100 µg/L, again suggesting degradation of organic constituents.

### 3.3.4 Light Nonaqueous Phase Liquid Monitoring

LNAPL is monitored at the Site during the quarterly groundwater monitoring events and remediation system compliance monitoring. LNAPL is assessed using an oil-water interface probe. The electronic interface probe is placed at the depth where the instrument produces a signal indicating a fluid interface (LNAPL and groundwater interfaces produce distinct signals). The interface probe is then brought back to the surface of the well and the tip of the interface probe is inspected for any indication of LNAPL. If an LNAPL signal is produced or trace LNAPL is observed on the tip of the probe, a bailer is used to confirm the absence/presence of measurable LNAPL. If measurable or trace LNAPL is observed an oil absorbent sock will be installed in the well along with weekly gauging until no trace of LNAPL is observed on the interface probe or in a bailer for a minimum of eight consecutive weeks. Historically, trace or measurable LNAPL is observed in MW-129R, PZ-2 and MW-E-R several weeks after periods of remediation system shutdown. The measurable or trace LNAPL is not observed following continued system operation. The remediation system operation is further discussed in Section 4.2 and presented in Tables 4-1 through 4-7.

Fifty (50) of the 52 groundwater compliance monitoring wells contained no LNAPL (measurable thickness or trace) during 2022. Eight of the nine piezometers used as observation wells for the DPE system also contained no LNAPL (measurable thickness or trace) during 2022 (see Tables 3-3 and 4-6).

On January 31, 2022, trace LNAPL was observed on the side of the interface probe while gauging PZ-2 (located 8 feet from active extraction well DPE-1). This observation occurred approximately 3 and a half weeks after the prolonged system shutdown due to freezing weather in December 2021. As a result, an oil absorbent sock was placed in PZ-2. The oil absorbent sock was replaced as needed and eventually removed on February 10, 2022. During the June 14, 2022 groundwater sampling and gauging event, trace LNAPL was observed on the side of the interface probe while gauging monitoring wells MW-129R and MW-E-R (MW-129R is located 8 feet from active extraction well DPE-18, and MW-E-R is located approximately 9 feet from active extraction well DPE-17). This observation occurred approximately one week following the June 6 shutdown. As a result, an oil absorbent sock was placed in both wells. The oil absorbent socks were replaced as needed and eventually removed from both wells on July 21, 2022. On November 16, 2022, trace LNAPL was observed on the side of the interface probe while gauging MW-129R. This observation occurred approximately two and a half weeks following the October 24 shutdown. As a result, an oil absorbent sock was placed in the well. The oil absorbent sock was replaced as needed and eventually removed on December 12, 2022. No LNAPL has been observed onsite since this time.

## 4 Remediation System

This section discusses the remediation system background and operations conducted at the Site in 2022.

### 4.1 Remediation System Background

The DPE system was installed in 2017 to address remaining impacts near the Washington State Department of Transportation (WSDOT) stormwater line, as discussed in the *Engineering Design Report* and the Final IAWP (Arcadis 2016a, 2016b). Construction details for the DPE system were described in the *Dual-Phase Extraction System As-Built Report* (Arcadis 2018b). The groundwater extraction unit treating the extracted groundwater includes a 500-gallon conical bottom settling tank, a 500-gallon batch tank, a Goulds centrifugal transfer pump, two sets in parallel of two-bag filters, and two sets in parallel of two 3,000-pound granular activated carbon vessels. Extracted vapors are treated using a catalytic oxidizer unit prior to discharge to the atmosphere. Treated water from the DPE system is discharged to DB-1 and then to Willow Creek at Outfall #002 under NPDES Waste Discharge Permit No. WA0991007. An application for Renewal of NPDES Permit No. WA0991007 was submitted to Ecology on April 28, 2021. Ecology acknowledged receiving the application on August 19, 2021 (Ecology 2021). In accordance with this letter, the current permit and its terms and conditions are administratively extended until Ecology issues a new permit. The draft permit and fact sheet was submitted for public comment by Ecology on August 30, 2023. The active NPDES permit requires the collection of discharge water samples weekly at Outfall #002 during system operation and submittal of the samples to an Ecology-approved laboratory for the following analyses:

- Benzene by USEPA Method 624
- GRO by Ecology Method NWTPH-Gx
- DRO by Ecology Method NWTPH-Dx (after silica gel cleanup)
- cPAHs by USEPA Method 8270 SIM
- pH (field measurement onsite).

NPDES Waste Discharge Permit No. WA0991007 requires discharge monitoring reports (DMRs; provided in Appendix E) to be entered by the 28th day of each month into Ecology's online system WQWebDMR.

Treated effluent vapors from the DPE system are discharged under the Puget Sound Clean Air Agency (PSCAA) Permit No. 29892 per the permit restrictions and conditions.

DPE system startup began on December 1, 2017 with the groundwater extraction components. The soil vapor extraction (SVE) portion of the DPE system commenced operation on December 11, 2017. The SVE portion of the DPE system was turned off on November 21, 2018 to prepare for the December 2018 groundwater monitoring event. As discussed in the *Washington State Stormwater Line Compliance Soil Sampling Work Plan* (Arcadis 2018a), upon startup in December 2017, vapor-phase mass removal rates exceeded 40 pounds per day but by December 2018 had decreased to less than 1 pound per day and reached asymptotic levels. Therefore, the SVE operation was not resumed following the December 2018 groundwater monitoring event. The SVE portion of the DPE system was restarted on September 23, 2019 based on results of rebound testing in September 2019 following the DPE system expansion. A mechanical failure required DPE system shutdown from September 27, 2019 to January 31, 2020 when repairs were completed. The groundwater extraction components of the DPE system were restarted on January 31, 2020, while the SVE components were restarted on February 13, 2020.

The system operated from January 31 to July 12, 2020 with the exception of two shutdown periods to allow for groundwater monitoring and short-term disruption for routine system maintenance such as bag filter change. The system shut down on July 13, 2020 due to mechanical issues that were repaired on August 7. The system operated from August 7 to September 9, 2020 with the exception of short-term disruptions for routine system maintenance. A carbon vessel failure required DPE system shutdown from September 9, 2020 to June 15, 2021 when repairs were completed and new vessels were installed. The groundwater extraction and SVE components of the DPE system were restarted on June 15, 2021. The system operated from June 15 to December 23, 2021, with the exception of three shutdown periods to allow for groundwater monitoring and other short-term disruptions for routine system maintenance such as bag filter change and carbon changeout. The DPE system was shut down and remained off from December 23, 2021 through January 5, 2022 due to severe winter weather conditions.

## 4.2 2022 Remediation System Operation

From January 1 through December 31, 2022, the following activities related to DPE system operation were performed:

- Arcadis conducted DPE system operation, maintenance, and monitoring (OM&M) according to the OM&M Manual (Arcadis 2017a). In 2022, DPE system operation is summarized below:
  - As mentioned above, the DPE system was shut down and remained off from December 23 through January 5, 2022 due to severe winter weather conditions. The system operated normally from January 5 through 24, 2022. The SVE components were shut down on January 24 due to a catalytic oxidizer programmable logic controller (PLC) fault.
  - The groundwater extraction components continued operation through February 22, 2022 with minimal shutdowns due to bag filter changeouts. The system was shut down on February 22, 2022 to allow for the first quarter groundwater monitoring event.
  - The groundwater extraction components of the system were restarted on March 14, 2022 and operated through March 21, 2022 when excessive back pressure on the lead carbon vessels was observed. Repairs to the catalytic oxidizer PLC were attempted on March 21; however, the system remained off pending carbon changeout.
  - Carbon changeout occurred from April 6 through 14, 2022 and the system was restarted; however, following 1 day of operation, the catalytic oxidizer shut down due to the recurring PLC fault. It was determined that a new PLC was needed for the catalytic oxidizer. Due to supply chain issues, the PLC was not available for installation until July 19, 2022. The groundwater extraction portion of the system operated from April 15 through June 6, 2022, when the system was shut down for second quarter groundwater monitoring and gauging.
  - The groundwater extraction portion of the system was restarted on June 16, 2022, while the SVE portion of the system was restarted following replacement of the PLC on the catalytic oxidizer unit on July 19, 2023. The system was shut down on August 15, 2022 in preparation for the third quarter groundwater monitoring event.
  - Both the SVE and groundwater extraction components of the system operated from September 1 through September 15, 2022 when the system was shut down for mechanical fittings replacement on the piping system and additional preventative maintenance.



- Both the SVE and groundwater extraction components operated from October 14 through 24, 2022, when a lower explosive limit (LEL) alarm fault caused the system to shut down. Troubleshooting concluded that the LEL meter required replacement and a part was placed on back order. The groundwater extraction components were restarted on November 16, 2022 following LEL meter repair and the fourth quarter groundwater monitoring event. The groundwater extraction system was shut down again on November 28 to repair some process piping components. Repairs were made on December 16, 2022; however, the system was shut down for the remainder of the year due to freezing conditions and inclement weather.
- As part of the DPE system OM&M, Arcadis gauged the observation and DPE wells to assess drawdown. Drawdown assessment indicates that operation of the remediation system creates an inward gradient towards the remaining impacted wells. Potentiometric surface maps showing drawdown during system operation are presented in Appendix F.
- Arcadis monitored the discharged treated water by collecting samples and the discharged treated vapor using a photo ionization detector (PID) and by collecting samples as needed (see Section 4.3).

Groundwater and vapor extraction data since the beginning of operation are presented in Tables 4-1 and 4-2. Influent and effluent vapor laboratory data since the beginning of operation, and mass removal calculations are presented in Table 4-3. Individual DPE well groundwater and vapor data since the beginning of operation are presented in Tables 4-4 and 4-5. Observation well data since the beginning of operation are presented in Table 4-6. Catalytic oxidizer operational data since the beginning of operation are presented in Table 4-7. DPE system mass removal rates and cumulative mass removal are shown on Figure 4-1.

The DPE system operation is summarized below:

<b>System startup date:</b>	December 1, 2017.
<b>Remedial technology:</b>	DPE and treatment system.
<b>System operation:</b>	Operation from December 1, 2017 to December 16, 2022 (not continuous) with approximately 11,966 hours of operation time since system startup.
<b>System OM&amp;M schedule:</b>	OM&M was performed according to the OM&M Manual (Arcadis 2017a) and the CMP (Arcadis 2017c).
<b>NPDES permit conditions met:</b>	Yes.
<b>PSCAA permit conditions met:</b>	Yes.
<b>Total water volume treated (gallons) since beginning of operation:</b>	20,367,878.
<b>Approximate total vapor-phase mass (pounds) removed since beginning of operation:</b>	583.12.

## 4.3 Effluent Discharge

### 4.3.1 2022 Water Discharge

Samples of the discharge into Willow Creek at Outfall #002 under NPDES Waste Discharge Permit No. WA0991007 were collected weekly throughout 2022 for the analytical program described in Section 4.1. If the discharge was suspended for a given week, the associated sampling event was suspended accordingly. DPE

system treated water discharge analytical data and field parameters are presented in Table 4-8. The sample results met the NPDES permit conditions during 2022.

DMRs are presented in Appendix E. Outfall #002 laboratory analytical results and chain-of-custody documents are provided in Appendix G.

### **4.3.2 2022 Vapor Discharge**

Pre- and post-treatment effluent vapor monitoring using the PID meter under PSCAA Permit No. 29892 was implemented during operation of the SVE system. All post-treatment vapor discharge concentrations, discharge flow, and treatment temperatures met permit conditions during 2022. Vapor discharge rates and PID concentrations were low to non-detect during system operation and laboratory analytical data was not collected.

## 5 References

- Arcadis. 2016a. Engineering Design Report. Former Unocal Edmonds Bulk Fuel Terminal. March 8.
- Arcadis. 2016b. Final Interim Action Work Plan. Former Unocal Edmonds Bulk Fuel Terminal. July 19.
- Arcadis. 2017a. Dual-Phase Extraction System Operation, Maintenance, and Monitoring Manual. Former Unocal Edmonds Bulk Fuel Terminal. June 14.
- Arcadis. 2017b. Public Review Draft Final Feasibility Study Report. Former Unocal Edmonds Bulk Fuel Terminal. June 16.
- Arcadis. 2017c. Draft Cleanup Action Plan. Former Unocal Edmonds Bulk Fuel Terminal. July 31.
- Arcadis. 2018a. Washington State Department of Transportation Stormwater Line Compliance Soil Sampling Work Plan. Former Unocal Edmonds Bulk Fuel Terminal. November 29.
- Arcadis. 2018b. Dual-Phase Extraction System As-Built Report. Former Unocal Edmonds Bulk Fuel Terminal. May 10.
- Arcadis 2019. Final Additional Dual Phase Extraction Well Installation Work Plan. Former Unocal Edmonds Bulk Fuel Terminal. May 29.
- Ecology. 2003. Letter RE: Edmonds Bulk Fuel Terminal, Upper Yard: Completion of Cleanup per Interim Action Report. October 9.
- Ecology. 2007. Agreed Order No. DE 4460
- Ecology. 2021. National Pollutant Discharge Elimination System (NPDES) Permit No. WA0991007; Former Unocal Edmonds Bulk Terminal. August 19.
- USEPA. 2015. National Recommended Water Quality Criteria – Human Health Criteria Table. <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>. Accessed on June 6, 2016.

# Tables

**Table 3-3**  
**Groundwater Elevation Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
LM-2	03/04/22	10:52	8.14	1.15	--	NP	6.99	--
LM-2	06/14/22	10:44	8.14	0.95	--	NP	7.19	--
LM-2	08/23/22	9:05	8.14	1.44	--	NP	6.70	--
LM-2	11/09/22	11:09	8.14	0.95	--	NP	7.19	--
MW-E-R	03/04/22	10:52	14.30	6.45	--	NP	7.85	PID: 0.2
MW-E-R	06/14/22	11:12	14.30	6.62	--	NP	7.68	No measurable LNAPL. Trace LNAPL observed on probe and bailer tip only. PID: 0.3
MW-E-R	08/23/22	8:49	14.30	7.10	--	NP	7.20	PID: 2.6
MW-E-R	11/09/22	10:44	14.30	6.55	--	NP	7.75	PID: 0.7
MW-8R	03/04/22	11:14	13.82	7.43	--	NP	6.39	--
MW-8R	06/14/22	10:19	13.82	7.80	--	NP	6.02	--
MW-8R	08/23/22	8:38	13.82	8.23	--	NP	5.59	--
MW-8R	11/09/22	10:34	13.82	7.40	--	NP	6.42	--
MW-101	03/04/22	11:07	14.99	8.10	--	NP	6.89	PID: 0.3
MW-101	06/14/22	10:33	14.99	8.55	--	NP	6.44	PID: 0.1
MW-101	08/23/22	8:49	14.99	8.97	--	NP	6.02	PID: 0.2
MW-101	11/09/22	10:44	14.99	8.19	--	NP	6.80	--
MW-104	03/04/22	11:08	14.08	7.39	--	NP	6.69	--
MW-104	06/14/22	10:31	14.08	8.01	--	NP	6.07	--
MW-104	08/23/22	8:47	14.08	8.40	--	NP	5.68	--
MW-104	11/09/22	10:41	14.08	7.46	--	NP	6.62	--
MW-108	03/04/22	10:55	12.40	5.11	--	NP	7.29	--
MW-108	06/14/22	11:21	12.40	5.13	--	NP	7.27	--
MW-108	08/23/22	9:12	12.40	5.77	--	NP	6.63	--
MW-108	11/09/22	11:15	12.40	5.08	--	NP	7.32	--
MW-109	03/04/22	12:10	13.53	6.30	--	NP	7.23	--
MW-109	06/14/22	12:01	13.53	6.43	--	NP	7.10	--
MW-109	08/23/22	--	13.53	--	--	NP	--	Well inaccessible
MW-109	11/09/22	11:19	13.53	6.27	--	NP	7.26	--
MW-126	03/04/22	11:30	12.40	4.03	--	NP	8.37	PID: 0.4
MW-126	06/14/22	9:54	12.40	4.61	--	NP	7.79	--
MW-126	08/23/22	8:14	12.40	5.58	--	NP	6.82	--
MW-126	11/09/22	11:40	12.40	4.35	--	NP	8.05	--
MW-129R	03/04/22	10:54	12.92	4.98	--	NP	7.94	PID: 1.9
MW-129R	06/14/22	11:06	12.92	4.17	--	NP	8.75	No measurable LNAPL. Trace LNAPL observed on probe and bailer tip only.
MW-129R	08/23/22	8:47	12.92	5.60	--	NP	7.32	PID: 0.1
MW-129R	11/09/22	10:41	12.92	4.87	--	NP	8.05	PID: 6.5
MW-13U	03/04/22	11:37	25.60	16.61	--	NP	8.99	--
MW-13U	06/14/22	9:52	25.60	16.84	--	NP	8.76	--
MW-13U	08/23/22	8:10	25.60	17.18	--	NP	8.42	--
MW-13U	11/09/22	11:18	25.60	17.01	--	NP	8.59	--
MW-134X	03/04/22	11:43	35.13	25.84	--	NP	9.29	--
MW-134X	06/14/22	10:06	35.13	26.03	--	NP	9.10	--
MW-134X	08/23/22	8:13	35.13	26.25	--	NP	8.88	--
MW-134X	11/09/22	11:12	35.13	26.32	--	NP	8.81	--

**Table 3-3**  
**Groundwater Elevation Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-135	03/04/22	11:12	18.13	9.90	--	NP	8.23	--
MW-135	06/14/22	10:18	18.13	10.42	--	NP	7.71	--
MW-135	08/23/22	8:24	18.13	11.25	--	NP	6.88	--
MW-135	11/09/22	10:32	18.13	11.03	--	NP	7.10	--
MW-136	03/04/22	11:13	15.99	7.72	--	NP	8.27	PID: 0.3
MW-136	06/14/22	10:23	15.99	8.06	--	NP	7.93	--
MW-136	08/23/22	9:58	15.99	8.43	--	NP	7.56	--
MW-136	11/09/22	10:31	15.99	8.24	--	NP	7.75	--
MW-139R	03/04/22	11:05	13.84	6.40	--	NP	7.44	--
MW-139R	06/14/22	10:37	13.84	6.63	--	NP	7.21	--
MW-139R	08/23/22	8:51	13.84	7.12	--	NP	6.72	--
MW-139R	11/09/22	10:48	13.84	6.44	--	NP	7.40	--
MW-143	03/04/22	11:38	11.94	4.11	--	NP	7.83	--
MW-143	06/14/22	9:57	11.94	4.47	--	NP	7.47	PID: 1.0
MW-143	08/23/22	8:16	11.94	5.13	--	NP	6.81	PID: 0.8
MW-143	11/09/22	11:39	11.94	4.24	--	NP	7.70	PID: 0.7
MW-147	03/04/22	11:18	11.02	3.18	--	NP	7.84	--
MW-147	06/14/22	10:14	11.02	5.04	--	NP	5.98	Tree roots present in well
MW-147	08/23/22	8:35	11.02	5.71	--	NP	5.31	--
MW-147	11/09/22	10:30	11.02	3.31	--	NP	7.71	--
MW-149R	03/04/22	11:21	12.18	5.85	--	NP	6.33	--
MW-149R	06/14/22	10:08	12.18	6.63	--	NP	5.55	--
MW-149R	08/23/22	8:29	12.18	7.13	--	NP	5.05	--
MW-149R	11/09/22	10:23	12.18	5.79	--	NP	6.39	--
MW-150	03/04/22	11:22	12.36	5.74	--	NP	6.62	--
MW-150	06/14/22	10:05	12.36	6.46	--	NP	5.90	--
MW-150	08/23/22	8:27	12.36	6.96	--	NP	5.40	--
MW-150	11/09/22	10:21	12.36	5.99	--	NP	6.37	--
MW-151	06/14/22	--	11.05	--	--	--	--	Not part of the monitoring network
MW-151	08/23/22	8:25	11.05	5.64	--	NP	5.41	Not part of the monitoring network
MW-151	11/09/22	10:27	11.05	4.43	--	NP	6.62	Not part of the monitoring network
MW-20R	03/04/22	11:10	12.17	5.93	--	NP	6.24	--
MW-20R	06/14/22	10:27	12.17	6.51	--	NP	5.66	--
MW-20R	08/23/22	8:44	12.17	6.88	--	NP	5.29	--
MW-20R	11/09/22	10:37	12.17	5.77	--	NP	6.40	--
MW-203	03/04/22	11:40	31.15	22.05	--	NP	9.10	--
MW-203	06/14/22	9:56	31.15	22.24	--	NP	8.91	--
MW-203	08/23/22	8:13	31.15	22.53	--	NP	8.62	--
MW-203	11/09/22	11:15	31.15	22.45	--	NP	8.70	--
MW-500	03/04/22	11:10	16.64	2.54	--	NP	14.10	--
MW-500	06/14/22	10:47	16.64	4.35	--	NP	12.29	--
MW-500	08/23/22	8:30	16.64	6.15	--	NP	10.49	--
MW-500	11/09/22	10:36	16.64	4.76	--	NP	11.88	--
MW-501	03/04/22	11:09	15.24	4.81	--	NP	10.43	PID: 0.2
MW-501	06/14/22	10:53	15.24	4.30	--	NP	10.94	PID: 0.1
MW-501	08/23/22	8:32	15.24	5.22	--	NP	10.02	PID: 0.5
MW-501	11/09/22	10:39	15.24	6.75	--	NP	8.49	PID: 0.2

**Table 3-3**  
**Groundwater Elevation Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-502	03/04/22	11:20	13.00	4.55	--	NP	8.45	--
MW-502	06/14/22	11:40	13.00	4.90	--	NP	8.10	--
MW-502	08/23/22	8:36	13.00	5.32	--	NP	7.68	--
MW-502	11/09/22	11:29	13.00	4.89	--	NP	8.11	--
MW-503	03/04/22	11:22	12.22	4.52	--	NP	7.70	--
MW-503	06/14/22	11:39	12.22	4.79	--	NP	7.43	--
MW-503	08/23/22	9:11	12.22	5.22	--	NP	7.00	--
MW-503	11/09/22	11:37	12.22	4.57	--	NP	7.65	--
MW-504	03/04/22	11:03	13.32	5.88	--	NP	7.44	--
MW-504	06/14/22	11:37	13.32	6.16	--	NP	7.16	--
MW-504	08/23/22	8:53	13.32	6.63	--	NP	6.69	--
MW-504	11/09/22	10:49	13.32	5.93	--	NP	7.39	--
MW-505	03/04/22	11:03	11.42	3.97	--	NP	7.45	--
MW-505	06/14/22	11:35	11.42	4.23	--	NP	7.19	--
MW-505	08/23/22	9:06	11.42	4.70	--	NP	6.72	--
MW-505	11/09/22	10:50	11.42	4.02	--	NP	7.40	--
MW-506	03/04/22	10:56	13.44	5.94	--	NP	7.50	--
MW-506	06/14/22	11:31	13.44	6.21	--	NP	7.23	--
MW-506	08/23/22	8:54	13.44	6.69	--	NP	6.75	--
MW-506	11/09/22	10:47	13.44	6.00	--	NP	7.44	--
MW-507	03/04/22	10:57	13.60	5.99	--	NP	7.61	--
MW-507	06/14/22	11:29	13.60	6.41	--	NP	7.19	--
MW-507	08/23/22	8:56	13.60	6.85	--	NP	6.75	--
MW-507	11/09/22	11:03	13.60	6.13	--	NP	7.47	--
MW-509	03/04/22	12:10	10.28	2.84	--	NP	7.44	--
MW-509	06/14/22	10:55	10.28	3.09	--	NP	7.19	--
MW-509	08/23/22	8:53	10.28	3.56	--	NP	6.72	--
MW-509	11/09/22	11:49	10.28	2.89	--	NP	7.39	--
MW-511	03/04/22	11:32	15.20	7.30	--	NP	7.90	--
MW-511	06/14/22	9:51	15.20	7.49	--	NP	7.71	--
MW-511	08/23/22	8:02	15.20	7.92	--	NP	7.28	--
MW-511	11/09/22	11:20	15.20	7.39	--	NP	7.81	--
MW-512	03/04/22	11:25	13.19	5.83	--	NP	7.36	--
MW-512	06/14/22	11:11	13.19	6.10	--	NP	7.09	--
MW-512	08/23/22	8:40	13.19	6.58	--	NP	6.61	--
MW-512	11/09/22	11:40	13.19	5.89	--	NP	7.30	--
MW-513	03/04/22	11:27	11.09	3.66	--	NP	7.43	--
MW-513	06/14/22	11:06	11.09	3.93	--	NP	7.16	--
MW-513	08/23/22	9:14	11.09	4.42	--	NP	6.67	--
MW-513	11/09/22	11:51	11.09	3.73	--	NP	7.36	--
MW-514	03/04/22	11:26	11.39	3.97	--	NP	7.42	--
MW-514	06/14/22	11:07	11.39	4.24	--	NP	7.15	--
MW-514	08/22/22	9:16	11.39	4.73	--	NP	6.66	Roots present in well
MW-514	11/09/22	11:42	11.39	4.04	--	NP	7.35	--
MW-515	03/04/22	11:28	11.60	4.17	--	NP	7.43	--
MW-515	06/14/22	10:57	11.60	4.45	--	NP	7.15	--
MW-515	08/23/22	8:55	11.60	4.92	--	NP	6.68	--
MW-515	11/09/22	11:48	11.60	4.25	--	NP	7.35	--

**Table 3-3**  
**Groundwater Elevation Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-516	03/04/22	11:30	11.25	3.83	--	NP	7.42	--
MW-516	06/14/22	10:59	11.25	4.11	--	NP	7.14	--
MW-516	08/23/22	8:56	11.25	4.59	--	NP	6.66	--
MW-516	11/09/22	11:47	11.25	3.91	--	NP	7.34	--
MW-517	03/04/22	11:31	12.00	4.60	--	NP	7.40	--
MW-517	06/14/22	11:02	12.00	4.86	--	NP	7.14	--
MW-517	08/23/22	8:58	12.00	5.35	--	NP	6.65	--
MW-517	11/09/22	11:46	12.00	4.64	--	NP	7.36	--
MW-518	03/04/22	11:06	14.60	7.72	--	NP	6.88	--
MW-518	06/14/22	10:36	14.60	8.12	--	NP	6.48	--
MW-518	08/23/22	8:49	14.60	8.49	--	NP	6.11	--
MW-518	11/09/22	10:46	14.60	7.65	--	NP	6.95	--
MW-519	03/04/22	11:29	12.60	6.19	--	NP	6.41	--
MW-519	06/14/22	9:59	12.60	6.52	--	NP	6.08	--
MW-519	08/23/22	8:19	12.60	6.96	--	NP	5.64	--
MW-519	11/09/22	11:35	12.60	6.16	--	NP	6.44	--
MW-520	03/04/22	11:28	13.31	6.88	--	NP	6.43	--
MW-520	06/14/22	10:21	13.31	7.22	--	NP	6.09	--
MW-520	08/23/22	8:21	13.31	7.66	--	NP	5.65	--
MW-520	11/09/22	11:30	13.31	6.86	--	NP	6.45	--
MW-521	03/04/22	11:27	12.18	5.79	--	NP	6.39	--
MW-521	06/14/22	10:01	12.18	6.13	--	NP	6.05	--
MW-521	08/23/22	8:23	12.18	6.55	--	NP	5.63	--
MW-521	11/09/22	11:33	12.18	5.76	--	NP	6.42	--
MW-522	03/04/22	11:12	13.82	7.42	--	NP	6.40	--
MW-522	06/14/22	10:19	13.82	7.81	--	NP	6.01	--
MW-522	08/23/22	8:41	13.82	8.23	--	NP	5.59	--
MW-522	11/09/22	10:36	13.82	7.36	--	NP	6.46	--
MW-523	03/04/22	11:16	13.53	7.12	--	NP	6.41	--
MW-523	06/14/22	10:17	13.53	7.47	--	NP	6.06	--
MW-523	08/23/22	8:38	13.53	7.97	--	NP	5.56	--
MW-523	11/09/22	10:32	13.53	7.10	--	NP	6.43	--
MW-524	03/04/22	11:19	13.16	6.32	--	NP	6.84	--
MW-524	06/14/22	10:11	13.16	7.31	--	NP	5.85	--
MW-524	08/23/22	8:32	13.16	7.75	--	NP	5.41	--
MW-524	11/09/22	10:25	13.16	6.56	--	NP	6.60	--
MW-525	03/04/22	11:37	12.62	5.63	--	NP	6.99	--
MW-525	06/14/22	10:24	12.62	5.94	--	NP	6.68	--
MW-525	08/23/22	8:09	12.62	6.37	--	NP	6.25	--
MW-525	11/09/22	11:46	12.62	5.59	--	NP	7.03	--
MW-526	03/04/22	11:23	12.90	4.53	--	NP	8.37	--
MW-526	06/14/22	11:15	12.90	4.84	--	NP	8.06	--
MW-526	08/23/22	8:43	12.90	6.58	--	NP	6.32	--
MW-526	11/09/22	11:23	12.90	4.55	--	NP	8.35	--
MW-527	03/04/22	11:18	19.09	5.73	--	NP	13.36	PID: 1.6
MW-527	06/14/22	10:41	19.09	9.12	--	NP	9.97	--
MW-527	08/23/22	8:26	19.09	10.06	--	NP	9.03	PID: 1.5
MW-527	11/09/22	10:23	19.09	9.27	--	NP	9.82	PID: 2.4



**Table 3-3**  
**Groundwater Elevation Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Monitoring Well	Date	Time	Top of Casing Elevation (feet)	Depth to Water (top of casing) (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet amsl)	Comment
MW-528	03/04/22	11:15	19.74	7.96	--	NP	11.78	PID: 0.01
MW-528	06/14/22	10:31	19.74	9.52	--	NP	10.22	--
MW-528	08/23/22	8:22	19.74	10.72	--	NP	9.02	--
MW-528	11/09/22	10:29	19.74	10.45	--	NP	9.29	--
MW-530	03/04/22	10:58	12.73	6.14	--	NP	6.59	--
MW-530	06/14/22	10:43	12.73	6.36	--	NP	6.37	--
MW-530	08/23/22	9:08	12.73	6.79	--	NP	5.94	--
MW-530	11/09/22	11:11	12.73	5.89	--	NP	6.84	--
MW-531	03/04/22	11:32	13.26	6.85	--	NP	6.41	--
MW-531	06/14/22	10:22	13.26	7.16	--	NP	6.10	--
MW-531	08/23/22	8:59	13.26	7.61	--	NP	5.65	--
MW-531	11/09/22	11:43	13.26	6.81	--	NP	6.45	--
MW-532	03/04/22	11:31	13.38	6.04	--	NP	7.34	--
MW-532	06/14/22	10:26	13.38	6.62	--	NP	6.76	--
MW-532	08/23/22	8:12	13.38	7.24	--	NP	6.14	--
MW-532	11/09/22	11:48	13.38	6.45	--	NP	6.93	--
MW-533	03/04/22	11:03	11.79	4.46	--	NP	7.33	--
MW-533	06/14/22	10:39	11.79	4.70	--	NP	7.09	--
MW-533	08/23/22	9:01	11.79	5.13	--	NP	6.66	--
MW-533	11/09/22	11:03	11.79	4.48	--	NP	7.31	--
MW-534	03/04/22	10:34	10.28	3.15	--	NP	7.13	--
MW-534	06/14/22	10:50	10.28	3.00	--	NP	7.28	--
MW-534	08/23/22	8:58	10.28	3.50	--	NP	6.78	--
MW-534	11/09/22	11:07	10.28	2.93	--	NP	7.35	--
MW-535	03/04/22	11:01	11.55	4.29	--	NP	7.26	--
MW-535	06/14/22	10:41	11.55	4.50	--	NP	7.05	--
MW-535	08/23/22	9:01	11.55	4.92	--	NP	6.63	--
MW-535	11/09/22	11:07	11.55	4.27	--	NP	7.28	--

**Acronyms and Abbreviations:**

- = not measured
- amsl = above mean
- LNAPL = light nonaqueous phase liquid
- NP = not present
- PID = photo ionization detector
- Unocal = Union Oil Company of California

Table 3-4  
 Summary of Groundwater Analytical Data – Petroleum and Polynuclear Aromatic Hydrocarbons  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	BTEX <sup>1</sup> (µg/L)				Total cPAHs Adjusted for Toxicity <sup>2</sup> (µg/L)	Diesel <sup>3</sup> (µg/L)	Gasoline <sup>4</sup> (µg/L)	Heavy Oil <sup>5</sup> (µg/L)	TPH <sup>5</sup> (µg/L)	TPH CUL <sup>6</sup> (µg/L)
		B	T	E	X						
		CUL= 16	,	--	--						
LM-2*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
LM-2*	06/14/22	15.0 U	NA	NA	NA	0.009 UU	46 U	220 U	100 U	183 UU	646
LM-2*	08/24/22	1.5 U	NA	NA	NA	0.009 UU	47 U	2,100 J	100 U	2,174 J	784
LM-2*	09/27/22	0.3 U	NA	NA	NA	0.009 J	49 J	840 J	110 U	944 J	750
LM-2*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	46 UJ	860 U	100 UJ	503 UU	736
MW-101*	03/01/22	0.3 U	NA	NA	NA	0.010 UU	47 U	210 J	100 U	284	692
MW-101* (Duplicate)	03/01/22	0.3 U	NA	NA	NA	0.009 UU	47 U	190 J	100 U	264	685
MW-101*	06/15/22	0.3 U	NA	NA	NA	0.009 UU	51 U	990	110 U	1,071	765
MW-101* (Duplicate)	06/15/22	0.3 U	NA	NA	NA	0.009 UU	51 U	1,100	110 U	1,181	769
MW-101*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	79 J	1,500	100 U	1,629	764
MW-101* (Duplicate)	08/24/22	0.3 U	NA	NA	NA	0.009 UU	84 J	1,500	100 U	1,634	762
MW-101*	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	58 J	1,300 J	-- R	-- <sup>7</sup>	--
MW-101* (Duplicate)	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	67 J	1,400 J	-- R	-- <sup>7</sup>	--
MW-104*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	110 J	100 U	224	788
MW-104*	06/14/22	0.3 U	NA	NA	NA	0.009 UU	49 U	140 J	110 U	220	657
MW-104*	08/23/22	0.3 U	NA	NA	NA	0.009 UU	46 U	210 J	100 U	283	693
MW-104*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	49 U	50 J	110 U	130	585
MW-126	02/28/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-126	06/15/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	100 U	85 UU	526
MW-126	08/22/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-126	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-129R*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	56 J	40 J	110 U	151	555
MW-129R*	06/14/22	0.3 U	NA	NA	NA	0.009 UU	47 U	30 J	100 U	104	561
MW-129R*	08/23/22	0.3 U	NA	NA	NA	0.009 UU	530	210 J	110 U	795	555
MW-129R*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	170	43 U	100 U	242	517
MW-139R*	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	19 U	100 U	83 UU	522
MW-139R*	06/15/22	0.3 U	NA	NA	NA	0.009 UU	46 U	22 U	100 U	84 UU	526
MW-139R*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-139R*	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-143	03/01/22	0.3 U	NA	NA	NA	0.009 UU	50 U	19 U	110 U	90 UU	521
MW-143	06/15/22	0.3 U	NA	NA	NA	0.009 UU	48 U	22 U	110 U	90 UU	524
MW-143	08/22/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-143	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-20R*	02/28/22	0.3 U	NA	NA	NA	0.009 UU	45 U	19 U	100 U	82 UU	523
MW-20R*	06/15/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	110 U	90 UU	524
MW-20R*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-20R*	11/11/22	0.3 U	NA	NA	NA	0.009 UU	48 U	43 U	110 U	101 UU	544
MW-502	03/01/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-502	06/15/22	0.3 U	NA	NA	NA	0.009 UU	46 U	22 U	100 U	84 UU	526
MW-502	08/22/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-502	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-503	03/01/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-503	06/14/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	100 U	85 UU	526
MW-503	08/24/22	0.3 U	NA	NA	NA	0.009 UU	48 U	43 U	110 U	101 UU	544
MW-503	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--

**Table 3-4**  
**Summary of Groundwater Analytical Data – Petroleum and Polynuclear Aromatic Hydrocarbons**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**



Monitoring Well	Date Sampled	BTEX <sup>1</sup> (µg/L)				Total cPAHs Adjusted for Toxicity <sup>2</sup> (µg/L)	Diesel <sup>3</sup> (µg/L)	Gasoline <sup>4</sup> (µg/L)	Heavy Oil <sup>5</sup> (µg/L)	TPH <sup>5</sup> (µg/L)	TPH CUL <sup>6</sup> (µg/L)
		B	T	E	X						
		CUL= 16	,	--	--						
MW-504	03/01/22	0.3 U	NA	NA	NA	0.009 UU	45 U	19 U	100 U	82 UU	523
MW-504	06/16/22	0.3 U	NA	NA	NA	0.009 UU	48 U	22 U	110 U	90 UU	524
MW-504	08/22/22	0.3 U	NA	NA	NA	0.009 UU	50 U	43 U	110 U	102 UU	543
MW-504	11/07/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-505	03/01/22	0.3 U	NA	NA	NA	0.009 UJ	45 U	19 J	100 U	92	542
MW-505	06/16/22	0.3 U	NA	NA	NA	0.009 UU	50 U	22 U	110 U	91 UU	524
MW-505	08/22/22	0.3 U	NA	NA	NA	0.010 UU	52 U	43 U	120 U	108 UU	541
MW-505	11/07/22	0.3 U	NA	NA	NA	0.009 UU	53 U	43 U	120 U	108 UU	540
MW-506	02/28/22	0.3 U	NA	NA	NA	0.009 UU	46 U	23 J	100 U	96	549
MW-506	06/16/22	0.3 U	NA	NA	NA	0.010 UJ	48 U	22 J	110 U	101	544
MW-506	08/22/22	0.3 U	NA	NA	NA	0.009 UU	51 U	43 U	110 U	102 UU	543
MW-506	11/07/22	0.3 U	NA	NA	NA	0.009 UU	47 UJ	43 U	100 UJ	95 UU	546
MW-507	03/01/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-507	06/16/22	0.3 U	NA	NA	NA	0.010 UJ	47 U	22 U	110 U	90 UU	524
MW-507	08/22/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-507	11/07/22	0.3 U	NA	NA	NA	0.009 UU	48 U	43 U	110 U	101 UU	544
MW-509	02/28/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-509	06/16/22	0.3 U	NA	NA	NA	0.009 UU	46 U	22 U	100 U	84 UU	526
MW-509	08/24/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-509	11/07/22	0.3 U	NA	NA	NA	0.009 UU	47 UJ	43 U	100 UJ	95 UU	546
MW-511	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	19 U	100 U	83 UU	522
MW-511	06/15/22	0.3 U	NA	NA	NA	0.009 UU	48 U	22 U	110 U	90 UU	524
MW-511	08/22/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-511	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-512	02/28/22	0.3 U	NA	NA	NA	0.009 UU	45 U	44 J	100 U	117	583
MW-512	06/16/22	0.3 U	NA	NA	NA	0.016 UJ	49 U	47 J	110 U	127	581
MW-512	08/24/22	0.3 U	NA	NA	NA	0.009 UU	46 U	97 J	100 U	170	636
MW-512	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	130 J	-- R	--	--
MW-513	03/01/22	0.3 U	NA	NA	NA	0.009 UU	45 U	19 U	100 U	82 UU	523
MW-513	06/16/22	0.3 U	NA	NA	NA	0.009 UU	46 U	22 U	100 U	84 UU	526
MW-513	08/25/22	0.3 U	NA	NA	NA	0.009 UU	71 J	57 J	110 U	183	566
MW-513	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	52 J	-- R	--	--
MW-514	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	24 J	100 U	98	551
MW-514	06/16/22	0.3 U	NA	NA	NA	0.009 UU	46 U	25 J	100 U	98	553
MW-514	08/25/22	0.3 U	NA	NA	NA	0.009 UU	46 U	56 J	100 U	129	597
MW-514	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	53 J	-- R	--	--
MW-515	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	27 J	100 U	101	556
MW-515	06/15/22	0.3 U	NA	NA	NA	0.009 UU	52 U	22 U	120 U	97 UU	522
MW-515	08/25/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 J	100 U	116	581
MW-515	11/07/22	0.3 U	NA	NA	NA	0.009 UU	49 U	43 U	110 U	101 UU	543
MW-516	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	19 U	100 U	83 UU	522
MW-516	06/15/22	0.3 U	NA	NA	NA	0.009 UU	52 U	22 U	110 U	92 UU	523
MW-516	08/25/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-516	11/07/22	0.3 U	NA	NA	NA	0.010 UU	50 U	43 U	110 U	102 UU	543

Table 3-4  
 Summary of Groundwater Analytical Data – Petroleum and Polynuclear Aromatic Hydrocarbons  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	BTEX <sup>1</sup> (µg/L)				Total cPAHs Adjusted for Toxicity <sup>2</sup> (µg/L)	Diesel <sup>3</sup> (µg/L)	Gasoline <sup>4</sup> (µg/L)	Heavy Oil <sup>5</sup> (µg/L)	TPH <sup>5</sup> (µg/L)	TPH CUL <sup>6</sup> (µg/L)
		B	T	E	X						
		CUL= 16	,	--	--						
MW-517	02/28/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-517	06/16/22	0.3 U	NA	NA	NA	0.009 UU	46 U	22 U	100 U	84 UU	526
MW-517	08/25/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-517	11/07/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 J	100 U	117	580
MW-518*	02/28/22	0.3 U	NA	NA	NA	0.009 UU	59 J	1,100	110 U	1,214	757
MW-518* (Duplicate)	02/28/22	0.3 U	NA	NA	NA	0.009 UU	55 J	1,100	100 U	1,205	760
MW-518*	06/15/22	0.3 U	NA	NA	NA	0.009 UU	46 U	470	100 U	543	740
MW-518* (Duplicate)	06/15/22	0.3 U	NA	NA	NA	0.009 UU	--	430	--	--	--
MW-518*	08/22/22	0.3 U	NA	NA	NA	0.009 UU	55 J	750	110 U	860	743
MW-518* (Duplicate)	08/22/22	0.3 U	NA	NA	NA	0.009 UU	57 J	740	110 U	852	742
MW-518*	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	54 J	750 J	-- R	-- 7	--
MW-518* (Duplicate)	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	61 J	730 J	-- R	-- 7	--
MW-519	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	19 U	100 U	83 UU	522
MW-519	06/15/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	100 U	85 UU	526
MW-519	08/22/22	0.3 U	NA	NA	NA	0.009 UU	49 U	43 U	110 U	101 UU	543
MW-519	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	52 J	43 UJ	-- R	--	--
MW-520	02/28/22	0.3 U	NA	NA	NA	0.009 UU	49 U	19 U	110 U	89 UU	521
MW-520	06/16/22	0.3 U	NA	NA	NA	0.039 UJ	49 U	22 U	110 U	91 UU	524
MW-520	08/24/22	0.3 U	NA	NA	NA	0.009 UU	49 U	43 U	110 U	101 UU	543
MW-520	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-521	02/28/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-521	06/16/22	0.3 U	NA	NA	NA	0.009 UU	48 U	22 U	110 U	90 UU	524
MW-521	08/24/22	0.3 U	NA	NA	NA	0.009 UU	48 U	43 U	110 U	101 UU	544
MW-521	11/09/22	0.3 U	NA	NA	NA	0.010 UU	53 U	43 U	120 U	108 UU	540
MW-522*	02/28/22	0.3 U	NA	NA	NA	0.009 UU	47 U	19 U	100 U	83 UU	522
MW-522*	06/16/22	0.3 U	NA	NA	NA	0.009 UU	49 U	22 U	110 U	91 UU	524
MW-522*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	47 U	44 J	100 U	118	582
MW-522*	11/10/22	0.3 UJ	NA	NA	NA	0.009 UU	-- R	43 UJ	-- R	--	--
MW-525	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-525	06/14/22	0.3 U	NA	NA	NA	0.009 UU	48 U	40 J	110 U	119	572
MW-525	08/23/22	0.3 U	NA	NA	NA	0.009 UU	46 U	50 J	100 U	123	590
MW-525	11/09/22	0.3 U	NA	NA	NA	0.009 UU	49 UJ	43 U	110 UJ	101 UU	543
MW-525 (Duplicate)	11/09/22	0.3 U	NA	NA	NA	-- R	-- R	43 U	-- R	--	--
MW-526	03/02/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-526	06/13/22	1.5 U	NA	NA	NA	0.009 UU	61 J	490	100 U	601	720
MW-526 (Duplicate)	06/13/22	1.5 U	NA	NA	NA	0.009 UU	69 J	510	100 U	629	718
MW-526	08/23/22	1.5 U	NA	NA	NA	0.009 UU	79 J	530	100 U	659	716
MW-526 (Duplicate)	08/23/22	0.3 U	NA	NA	NA	0.009 UU	150	450	110 U	655	674
MW-526	11/09/22	0.3 U	NA	NA	NA	0.010 UU	-- R	52 J	-- R	--	--
MW-526 (Duplicate)	11/09/22	0.3 U	NA	NA	NA	0.009 UU	-- R	43 U	-- R	--	--
MW-526	12/16/22	0.3 U	NA	NA	NA	--	54 U	43 U	120 U	109 UU	540
MW-530*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-530*	06/14/22	0.3 U	NA	NA	NA	0.009 UU	49 U	22 U	110 U	91 UU	524
MW-530*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	47 U	52 J	100 U	126	592
MW-530*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	48 U	43 U	110 U	101 UU	544

**Table 3-4**  
**Summary of Groundwater Analytical Data – Petroleum and Polynuclear Aromatic Hydrocarbons**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**



Monitoring Well	Date Sampled	BTEX <sup>1</sup> (µg/L)				Total cPAHs Adjusted for Toxicity <sup>2</sup> (µg/L)	Diesel <sup>3</sup> (µg/L)	Gasoline <sup>4</sup> (µg/L)	Heavy Oil <sup>5</sup> (µg/L)	TPH <sup>5</sup> (µg/L)	TPH CUL <sup>6</sup> (µg/L)
		B	T	E	X						
		CUL= 16	,	--	--						
MW-531	03/02/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-531 (Duplicate)	03/02/22	0.3 U	NA	NA	NA	0.009 UU	48 U	19 U	110 U	89 UU	521
MW-531	06/14/22	0.3 U	NA	NA	NA	0.009 UU	48 U	22 U	110 U	90 UU	524
MW-531	08/23/22	0.3 U	NA	NA	NA	0.009 UU	46 U	43 U	100 U	95 UU	547
MW-531	11/09/22	0.3 U	NA	NA	NA	0.009 UU	-- R	43 U	-- R	--	--
MW-531	12/16/22	0.3 U	NA	NA	NA	--	49 U	43 U	110 U	101 UU	543
MW-532	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-532	06/14/22	1.5 U	NA	NA	NA	0.009 UU	47 U	22 U	100 U	85 UU	526
MW-532	08/23/22	0.3 U	NA	NA	NA	0.009 UU	49 U	51 J	110 U	131	586
MW-532	11/09/22	0.3 U	NA	NA	NA	0.010 UU	49 U	43 U	130 J	176	524
MW-8R*	03/01/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-8R*	06/16/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	110 U	90 UU	524
MW-8R*	08/25/22	0.3 U	NA	NA	NA	0.009 UU	49 U	51 J	110 U	131	586
MW-8R*	11/09/22	0.3 U	NA	NA	NA	0.019 J	46 UJ	43 U	100 U	95 UU	547
MW-533*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	46 U	19 U	100 U	83 UU	523
MW-533*	06/13/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	100 U	85 UU	526
MW-533*	08/23/22	0.3 U	NA	NA	NA	0.009 UU	52 U	43 U	120 U	108 UU	541
MW-533*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-534	03/03/22	0.3 U	NA	NA	NA	0.009 UU	50 U	19 U	110 U	90 UU	521
MW-534	06/13/22	0.3 U	NA	NA	NA	0.010 UU	49 U	22 U	110 U	91 UU	524
MW-534	08/23/22	0.3 U	NA	NA	NA	0.010 UU	49 U	43 U	110 U	101 UU	543
MW-534	11/09/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-535*	03/02/22	0.3 U	NA	NA	NA	0.009 UU	83 J	19 U	100 U	143	513
MW-535*	06/14/22	0.3 U	NA	NA	NA	0.009 UU	47 U	22 U	140 J	175	512
MW-535*	08/24/22	0.3 U	NA	NA	NA	0.009 UU	47 U	43 U	100 U	95 UU	546
MW-535*	11/08/22	0.3 U	NA	NA	NA	0.009 UU	49 U	43 U	110 U	101 UU	543
MW-E-R	03/02/22	0.3 U	NA	NA	NA	0.009 UU	110	840	100 U	1,000	730
MW-E-R (Duplicate)	03/02/22	0.3 U	NA	NA	NA	0.009 UU	100	770	100 U	920	729
MW-E-R	06/14/22	1.5 U	NA	NA	NA	0.009 UU	57 J	1,100	110 U	1,212	758
MW-E-R (Duplicate)	06/14/22	1.5 U	NA	NA	NA	0.009 UU	93 J	1,100	110 U	1,248	747
MW-E-R	08/23/22	0.3 U	NA	NA	NA	0.009 UU	95 J	890	100 U	1,035	738
MW-E-R (Duplicate)	08/23/22	0.3 U	NA	NA	NA	0.009 UU	83 J	910	110 U	1,048	741
MW-E-R	11/08/22	0.3 U	NA	NA	NA	0.009 UU	82 J	1,100	110 UJ	1,237	750

**Table 3-4**  
**Summary of Groundwater Analytical Data – Petroleum and Polynuclear Aromatic Hydrocarbons**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

**Notes:**

1. Highlighted cell indicates an exceedance of the site-specific CUL.
2. Shaded values indicate the most recent sampling event.

<sup>1</sup> B = benzene, T = toluene, E = ethylbenzene, X = xylenes. BTEX analyzed by USEPA Method 8021B.

<sup>2</sup> cPAHs analyzed by USEPA Method 8270C-HVI. cPAHs adjusted for toxicity according to WAC 173-340-708(8) and Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors (CalEPA 2005). If one or more adjusted cPAH constituents were reported as nondetect, half of the reporting limit was used in calculations.

<sup>3</sup> Diesel and heavy oil (lube) analyzed by method NWTPH-D extended.

<sup>4</sup> Gasoline analyzed by method NWTPH-G.

<sup>5</sup> TPH calculated by summing the concentrations of gasoline, diesel, and heavy oil. For results that did not exceed method reporting limits, half of the reporting limit was added to determine TPH.

<sup>6</sup> Sample-specific TPH CULs are developed by setting a hazard index for all TPH mixtures (GRO, DRO, HO) to 1, and adjusting the compositions relative to their mixtures and MTCA A CULs for groundwater. The calculation used is from Section 5.3 of the Interim Action Report (SLR 2007) and is as follows:  $TPH\ CUL = 1/((\%GRO/800 + \%DRO/500 + \%HO/500))$ . For constituents that are less than detection limits, half of the detection limit was used in the calculation.

<sup>7</sup> Due to the rejection of heavy oil concentration (R), a TPH calculation and sample-specific TPH CUL could not be calculated. Based on historical TPH CUL calculations, the GRO concentration in this sample would result in a likely TPH concentration exceeding the sample-specific TPH CUL. The TPH concentration is therefore marked as an exceedance.

**Acronyms and Abbreviations:**

\* = denotes perimeter wells

-- = not applicable

µg/L = microgram per liter

BTEX = benzene, toluene, ethylbenzene, and xylene

CalEPA = California Environmental Protection Agency

cPAH = carcinogenic polycyclic aromatic hydrocarbon

CUL = cleanup level

DRO = diesel-range organics

GRO = gasoline-range organics

HO = heavy-oil-range organics

NA = not analyzed

TPH = total petroleum hydrocarbons

Unocal = Union Oil Company of California

USEPA = United States Environmental Protection Agency

WAC = Washington Administrative Code

**Qualifiers:**

J = Indicates an estimated value.

R = Data rejected during data validation.

U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

UJ = The compound was analyzed for but not detected. The associated value is the estimated compound quantitation limit.

UU = The constituents making up the total are all nondetects.

**References:**

CalEPA. 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors.

California Environmental Protection Agency Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology Section. May.

SLR. 2007. Interim Action Report.

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
LM-2	10/23/08	57.54	3.51	17,373.54	0.39	222.94	5 U	914	1 UJ	28.1	0.349	4.0
LM-2	12/11/08	53.17	3.89	13,859.08	0.17	338.86	5 U	942	0.2 U	46.9	0.358	5.0
LM-2	02/26/09	49.78	3.82	12,912.70	1.62	371.08	0.46 U	915	0.250 U	59	0.367	3.2
LM-2	04/23/09	51.06	4.91	11,367.56	7.37	133.42	9.7	768	0.250 U	50	0.298	6.0
LM-2	06/25/09	55.63	5.36	17,476.72	3.18	-38.23	43.4	1,280	0.640	41	0.239	6.0
LM-2	08/20/09	60.42	6.03	23,943.90	5.43	-93.49	90.6	2,220	0.250 UW	25 P	0.277	6.0
LM-2	10/30/09	56.50	4.16	5,546.90	0.91	325.52	30.2	401	0.250 U	15	0.292	7.5
LM-2	10/29/10	59.54	5.27	12,292.11	1.08	27.03	90.4	385	5.000 U	760	0.196	5.2
LM-2	12/16/11	49.80	4.12	17,054.02	0.85	370	460 U	829	0.250 U	85	0.309	3.4
LM-2	12/18/12	50.34	4.98	14,232.66	1.15	112	35.9	652	0.250 U	2,300	0.263	5.5
LM-2	12/18/13	50.45	6.08	6,670.25	0.23	-39.01	43	337	0.250 U	1,800	0.213	6.0
LM-2	12/09/14	54.22	6.02	15,451.56	0.43	-191.87	101	563	0.250 U	1,700	0.569	>10
LM-2	07/26/17	64.92	6.29	4,426.9	0.07	-79.2	NA	10.0	0.250 U	5,600	0.184	10
LM-2	03/20/18	53.75	6.26	6,640.4	0.48	-14.5	NA	NA	NA	NA	NA	NA
LM-2	06/27/18	61.84	6.22	6,198.0	0.31	-71.0	NA	133.0	0.250 U	670	0.162	6
LM-2	11/27/18	55.99	6.02	4,512.3	0.01	-101.5	NA	93.2	0.250 U	640	0.097	7
LM-2	06/20/19	62.10	5.97	6,213	0.54	-48.5	NA	155.0	0.250 U	860	0.107	6.5
LM-2	12/11/19	53.12	6.10	10,221	0.04	-80.3	NA	185.0	0.620	400	0.001 J	7.0
LM-2	06/23/20	62.88	6.15	9,516	0.08	-153.5	NA	290.0	0.250 U	1,600	0.150	7.0
LM-2	11/03/20	59.47	6.14	10,419	0.11	-100.8	NA	200.0	0.250 U	820	0.210	6.5
LM-2	06/23/21	63.19	5.99	10,178	0.26	-36.4	NA	320.0	0.570	1.4	0.190	2.0
LM-2	11/03/21	59.46	6.08	13,895	0.23	-66.9	NA	420.0	0.250 U	2,300	250.000	5.5
LM-2	06/14/22	60.44	5.97	3,771.000	0.04	-102.3	NA	180.0	0.250 U	1,500	0.100 B	6.5
LM-2	11/08/22	58.27	6.03	8,724	0.11	-49.5	NA	150	0.250 U	2,800	0.16	3.0
MW-101	10/22/08	59.63	6.13	2,774	0.19	64.36	42	96.2	0.21	170	1.33	3.6
MW-101	12/10/08	55.79	5.99	1,808	0.41	132.69	50	41	0.45	708	3.32	2.2
MW-101	02/24/09	43.38	6.32	870.43	0.78	49.88	110	70.6	0.39	3,000	2.38	2.4
MW-101	04/22/09	49.80	6.19	452.57	3.79	24.22	83	83.3	0.98	300	0.977	1.0
MW-101	06/25/09	57.14	6.10	901.96	1.65	129.31	56	135	0.250 U	71	1.55	0.5
MW-101	08/20/09	64.03	6.15	1,865	0.66	48.55	75.8	110	0.250 UW	250 P	2.98	6.0
MW-101	10/27/09	59.81	6.11	877.98	1.56	141.54	101	37.5	1.20	1.7	0.185	0.5
MW-101	10/27/10	59.43	6.12	3,096	2.12	-48.48	108	107	0.250 U	200	1.33	5.0
MW-101	12/14/11	54.44	6.54	1,096	0.95	100	130	35.3	0.910	320	0.0501	0.0
MW-101	12/18/12	52.84	6.63	180.44	9.59	119.91	109	16.3	1.300	3.0 U	0.0012	0.0
MW-101	12/20/13	52.58	6.22	1,632	1.43	94.46	203	9.7	0.490	2,600	0.0509	0.0
MW-101	12/10/14	56.57	6.65	347.63	5.55	135.62	90	20	1.800	25	0.0013	0.0
MW-101	07/25/17	58.75	6.50	445.74	2.28	116.9	NA	38.5	0.250 U	8.5	0.043	0.25
MW-101 (Duplicate)	07/25/17	--	--	--	--	--	--	33.7	0.290	9.8	0.036	--
MW-101	03/22/18	50.41	6.61	246.3	5.94	114.5	NA	NA	NA	NA	NA	NA
MW-101	06/28/18	57.72	6.81	440.3	0.34	77.8	NA	10.2	0.450	320	0.065	0
MW-101	11/28/18	57.30	7.00	1,463	0.69	-63.7	NA	3.9	0.250 U	4,100	2.220	6
MW-101	06/18/19	55.79	6.25	2,726	3.47	145.2	NA	131.0	0.580	55	0.870	1
MW-101	12/12/19	57.27	7.07	4,079	0.30	-126.7	NA	14.8	0.250 U	2,700	12.700	7.0
MW-101 (Duplicate)	12/12/19	57.27	7.07	4,079	0.30	-126.7	--	14.5	0.250 U	2,600	11.100	7.0
MW-101	06/24/20	58.26	6.99	717.6	0.26	-98.5	NA	37.0	0.250 UH	4,200	4.600	>7.0
MW-101	11/06/20	58.57	7.10	2,589	0.70	-147.1	NA	100.0	0.250 UH	3,900	11.000	3.5
MW-101	06/24/21	58.34	6.64	462.5	0.30	-40.8	NA	21.0	0.250 U	5,100	4.100 B	4.5
MW-101	11/01/21	60.84	7.70	924.3	3.27	91.5	NA	46.0	1.100	310	1.500	1.0
MW-101 (Duplicate)	11/01/21	--	--	--	--	--	--	41.0	0.940 H	470	1.500	--
MW-101	06/15/22	59.18	6.82	1,866	0.65	127.2	NA	21.0	0.250 U	1,300	2.600	0.0
MW-101 (Duplicate)	06/15/22	--	--	--	--	--	--	21.0	0.253 U	360	2.500	--
MW-101	11/10/22	57.89	6.51	701.4	0.56	11.00	NA	3 UJ	0.25 UJ	2,800 EJ	11.0	3.5
MW-101 (Duplicate)	11/10/22	--	--	--	--	--	NA	3 UJ	0.25 UJ	2,800 EJ	9.9	--

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-104	10/22/08	58.72	6.26	2,428	-0.01	-13.09	35.6	66.6	0.200 U	594	1.02	4.0
MW-104	12/10/08	55.07	6.24	982.41	0.22	30.53	53.8	23.1	0.200 U	1,160	1.13	3.0
MW-104	02/24/09	49.93	6.08	967.89	0.21	-26.14	58.8	17	0.250 U	2,200	1.19	3.2
MW-104	04/23/09	48.22	6.23	566.34	1.01	-121.29	59.2	60.2	0.73	1,800	0.959	4.0
MW-104	06/24/09	58.33	6.34	506.78	0.21	-62.91	63.9	39.2	0.25 U	1,200	0.714	6.0
MW-104	08/19/09	62.87	6.32	1,353	0.29	-61.28	75.6	45	0.25 U	950	0.901	6.0
MW-104	10/27/09	60.10	6.12	2,590	0.43	-27.46	110	92.4	0.3	3,200	1.4	4.5
MW-104	10/27/10	58.17	6.16	1,640	0.04	-86.19	95.1	31.2	0.25 U	1,300	1.3	2.1
MW-104	12/13/11	53.28	6.19	863.19	0.14	-10.00	112	52.8	0.53 U	1,700	0.765	3.0
MW-104	12/18/12	50.70	6.35	229.74	3.31	197.61	96.4	17.2	1.6	37	0.061	1.0
MW-104	12/17/13	53.92	6.17	323.93	0.13	-66.63	108	18.3	0.3	980	0.287	0.12
MW-104	12/09/14	56.77	6.36	358.53	0.06	11.37	109	26	0.250 U	1,300	0.367	0.6
MW-104	07/26/17	60.48	6.53	360.84	0.18	17.2	NA	6.8	0.250 U	440	0.254	2.5
MW-104	03/20/18	50.34	NA	NA	10.31	NA	NA	NA	NA	NA	NA	NA
MW-104	06/27/18	59.74	6.47	506.2	0.21	-192.3	NA	13.0	0.250 U	280	0.339	1
MW-104	11/27/18	58.81	6.71	632.6	0.02	-108.7	NA	7.4	0.250 U	960	0.380	4
MW-104	06/20/19	55.38	6.62	624.0	0.43	-37.3	NA	7.2	0.250 U	310	0.445	4.5
MW-104	12/12/19	55.08	6.41	5,784	2.18	-42.9	NA	132.0	0.250 U	230	1.870	6.5
MW-104	07/01/20	57.23	6.43	3,278	0.00	-186.0	NA	100.0	0.250 U	310	1.300	2.0
MW-104	11/04/20	58.93	5.80	10,327	0.11	-67.9	NA	300.0	0.250 UH	200 F1	2,300	2.0
MW-104	06/23/21	58.41	6.55	1,703	0.16	-30.3	NA	24.0 F1	0.250 U F1	420	0.750	0.0
MW-104 (Duplicate)	06/23/21	--	--	--	--	--	--	23.0	0.250 UH	400	0.760	--
MW-104	11/02/21	60.05	7.33	5,551	0.56	50.7	NA	140.0	0.410 J	650	1,400	2.5
MW-104	06/14/22	56.77	6.32	649.6	0.23	-54.7	NA	11.0	0.250 U	550	0.460 B	3.0
MW-104	11/08/22	57.08	6.14	7,393	0.12	-134.1	NA	210	0.25 U	330	1.7	7.0
MW-108	10/23/08	53.88	6.26	14,852	0.20	-83.53	509	373	1 UJ	2,390 D	0.208	1.4
MW-108	12/11/08	50.51	6.29	14,241	0.01	-184.14	557	288	0.200 U	1,410 D	0.242	1.2
MW-108	02/26/09	50.02	6.28	15,209	0.19	-268.28	549	456	0.250 U	3,000	0.263	3.0
MW-108	04/23/09	49.14	6.36	14,219	0.02	-270.38	517	315	0.250 U	2,400	0.278	3.0
MW-108	06/25/09	54.05	6.30	15,829	0.72	-132.71	486	507	0.52	2,100	0.284	4.5
MW-108	08/20/09	56.41	6.31	16,789	0.07	-158.78	525	401	0.25 UW	3,500	0.254	2.0
MW-108	10/30/09	55.36	6.31	18,050	0.12	-88.09	495	566	0.25 U	2,100	0.267	5.0
MW-108	10/29/10	54.88	6.31	23,518	0.02	-260.17	475	508	5 U	1,600	0.191	1.2
MW-108	12/16/11	51.90	6.27	20,084	0.07	-110.00	356	426	0.25 U	1,100	0.318	2.0
MW-108	12/18/12	45.21	6.17	12,903	0.63	-156.33	376	391	0.25 U	1,000	0.141	2.7
MW-108	12/19/13	50.97	6.51	21,819	-0.03	-267.22	545	381	0.25 U	2,100	0.124	0.2
MW-108	12/09/14	55.06	6.49	22,617	0.04	-321.05	605	404	0.250 U	3,300	0.107	1.0
MW-109	10/23/08	54.91	6.22	16,332	1.34	-194.55	342	693	1 UJ	785	1.59	0.6
MW-109	12/12/08	51.03	6.29	12,565	0.80	-193.01	291	640	0.200 U	560	0.528	0.2
MW-109	02/26/09	47.82	6.38	13,624	3.97	-179.39	300	993	0.250 U	820	1.21	0.4
MW-109	04/23/09	47.97	6.03	8,714	1.84	-192.93	316	546	0.250 U	350	1.58	1.0
MW-109	06/25/09	54.17	6.21	22,125	0.52	-138.25	202	1,660	1.4	570	1.09	3.0
MW-109	08/20/09	55.99	6.37	23,873	2.33	-155.34	331	1,540	0.25 UW	320 P	1,650	1.0
MW-109	10/30/09	55.51	6.00	14,893	0.76	-41.77	332	1,200	0.25 U	400	1.38	1.0
MW-109	10/29/10	54.34	6.54	23,528	3.14	-262.04	348	824	0.25 U	420	1.93	0.1
MW-109	12/16/11	50.80	6.35	13,574	1.60	-120.00	259	597	0.25 U	310	1.58	1.6
MW-109	12/18/12	46.13	5.94	3,373	1.39	-92.39	153	193	0.250 U	390	0.381	3.1
MW-109	12/19/13	49.84	6.70	22,150	6.62	-204.45	440	547	0.25 U	160	1.84	0.0
MW-109	12/09/14	54.73	6.63	14,320	6.42	-244.96	361	450	0.250 U	1,300	1.520	0.2
MW-126	12/18/12	49.66	6.75	301.47	2.81	13.21	249	19.6	0.250 U	3.0 U	0.126	2.0
MW-126	12/17/13	50.04	6.69	666.12	1.75	48.55	264	39.1	0.280	3.0 U	0.294	3.0
MW-126	12/10/14	52.14	6.73	730.22	0.13	38.63	283	25.3	0.250 U	3.0 U	0.0592	0.0
MW-126	07/25/17	55.16	6.09	461.04	0.95	232.7	NA	33.2	0.250 U	3.0 U	0.008	0.95
MW-126	03/22/18	46.35	7.14	515.3	7.04	199.5	NA	NA	NA	NA	NA	NA



Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-126	06/29/18	53.45	6.72	487.1	0.49	164.3	NA	26.8	0.250 U	3.0 U	0.025	2
MW-126	11/30/18	52.38	7.09	514.5	10.25	136.1	NA	35.8	3.100	3.0 U	0.005 U	0
MW-126 (Duplicate)	11/30/18	--	--	--	--	--	--	43.5	3.600	3.0 U	0.005 U	NA
MW-126	06/19/19	58.53	7.38	0.1	9.51	101.3	NA	38.8	0.250 U	3.0 U	0.015	0.0
MW-126	12/11/19	51.47	6.91	384.3	0.68	99.7	NA	31.0	0.250 U	3.0 U	0.036	0.5
MW-126	06/24/20	59.96	6.72	506.8	1.26	8.8	NA	41.0	0.250 UH	3.0 U	0.047	1.0
MW-126	11/06/20	54.15	6.73	441.0	0.56	93.1	NA	29.0	0.380 JH	3.0 U	0.016	0.0
MW-126	06/23/21	52.32	6.15	449.6	2.49	150.6	NA	35.0	0.300 J	3.0 U	0.120	1.0
MW-126	11/01/21	54.00	6.44	484.0	6.63	165.9	NA	33.0	4.600	3.0 U	62.000	0.0
MW-126	06/15/22	52.42	6.85	625.4	4.02	142.6	NA	11.0	0.250 U	3.0 U	0.001 J	0.0
MW-126	11/10/22	53.97	6.59	569.82	7.21	140.9	NA	24 J	2.30 J	3.0 UJ	0.00098 U	0.0
MW-129R	10/24/08	54.76	6.45	839.57	-0.02	-33.84	502	23.8	0.200 U	1,930	5.74	5.8
MW-129R	12/12/08	51.10	6.62	867.09	0.12	-76.86	469	91.6	0.200 U	1,600 D	10.3	5.4
MW-129R	02/27/09	47.80	6.50	836.19	0.18	-70.26	505	47.1	0.250 U	6,000	8.56	5.8
MW-129R	04/27/09	49.18	6.56	822.66	0.17	-116.70	485	60.4	0.250 U	10,000	8.21	10.0
MW-129R	06/26/09	54.44	6.54	1,301	0.07	-79.11	493	64.4	0.250 U	9,100	7.81	9.0
MW-129R	08/21/09	57.58	6.58	1,014	0.06	-286.98	597	51.3	0.250 U	5,400	7.88	9.0
MW-129R	10/28/09	55.23	6.75	1,919	0.05	-161.96	1,150	1.7	0.250 U	15,000	5.22	8.0
MW-129R	11/01/10	55.53	6.58	1,397	0.10	-155.22	742	75.3	0.250 U	5,500	8.92	2.8
MW-129R	12/19/11	52.20	6.52	1,680	0.01	-110.00	1,000	25.2	0.250 U	11,000	7.00	5.0
MW-129R	12/18/12	51.77	6.60	1,485	0.29	-82.07	687	102	0.250 U	3,900	10.3	5.0
MW-129R	12/18/13	52.41	6.73	1,114	0.08	-117.71	699	66.3	0.250 U	2,300	11.3	4.5
MW-129R	12/09/14	54.53	6.69	1,490	0.06	-134.58	710	11	0.05 U	5,200	10.5	>10
MW-129R	07/26/17	58.59	6.64	1,435	0.11	-41.5	NA	112	0.250 U	4,200	8.270	7.0
MW-129R	03/20/18	50.15	6.71	1,377	0.11	-125.1	NA	NA	NA	NA	NA	NA
MW-129R	06/27/18	55.04	6.64	1,445	0.18	-188.1	NA	87.6	0.250 U	2,900	8.530	7
MW-129R	11/28/18	54.32	6.85	1,297	0.06	-127.7	NA	98.6	0.250 U	1,800	7.670	7
MW-129R	06/20/19	54.65	6.82	1,321	0.32	-55.8	NA	66.2	0.410 J	1,000	7.810	6.0
MW-129R	12/11/19	51.65	6.85	1,371	0.15	-98.0	NA	41.4	0.250 U	1,500	8.610	7.5
MW-129R	06/24/20	57.08	6.73	1,282	0.26	-111.7	NA	170	0.25 UH	1,500	7.700	7.0
MW-129R (Duplicate)	06/24/20	--	--	--	--	--	--	170.0	0.250 UH	1,500	7.800	--
MW-129R	11/04/20	56.82	6.91	1,352	0.07	-184.2	NA	110.0	0.250 UH	1,300	7.800	3.5
MW-129R	06/22/21	59.88	6.87	1,330	0.17	-50.6	NA	130.0	1.200	920	7.400	5.0
MW-129R	11/02/21	56.41	5.31	2,303	0.20	-66.1	NA	1,400	0.250 U	340	18,000	4.5
MW-129R	06/14/22	55.19	5.86	536.811	0.00	-53.1	NA	410.0	0.250 U	4,000	4.700	6.0
MW-129R	11/08/22	54.44	5.89	815.20	0.27	85.6	NA	340	0.55	220	4.2	3.5
MW-134X	12/14/12	51.75	6.42	306.96	10.37	109.28	124	32.2	0.890	3.0 U	0.102	2.0
MW-134X	12/19/13	50.93	6.23	256.29	2.61	1.35	139	34	1.200	3.0 U	0.0	2.5
MW-134X	12/10/14	55.84	6.29	422.07	3.12	41.77	133	38	1.300	13	0.003	0.6
MW-135	10/27/08	54.94	6.51	1,848	-0.03	-60.48	959	4.12	0.200 U	10,800 D	2.68	4.0
MW-135	12/15/08	49.73	6.59	1,955	-0.09	-81.98	1,070	1.43	0.200 U	7,170 D	2.69	2.2
MW-135	02/27/09	52.61	6.38	760.32	0.27	22.19	402	79.1	0.250 U	1,100	1.31	3.4
MW-135	04/24/09	50.76	6.48	649.63	0.13	-134.17	382	67.2	0.250 U	620	0.743	2.0
MW-135	06/29/09	51.44	6.47	1,319	1.09	-31.25	752	33	0.43	2,600	1.66	6.0
MW-135	08/24/09	53.02	6.56	2,050	0.29	-60.39	1,140	6	0.250 U	11,000	1.67	7.0
MW-135	10/29/09	52.90	6.54	2,163	0.14	-87.07	1,220	2.4	0.250 U	12,000	1.75	8.0
MW-135	11/01/10	54.37	6.46	2,819	0.06	-74.99	1,160	1.5 U	0.250 U	12,000	1.24	5.6
MW-135	12/16/11	51.80	6.57	1,201	0.04	-20.00	425	101	0.250 U	250	0.37	7.0
MW-135	12/19/12	50.79	6.42	504.30	4.73	15.82	291	32.5	1.5	1,200	0.142	3.4
MW-135	12/20/13	50.87	6.50	1,914	0.03	549.43	1,080	1.5 U	0.250 U	20,000	0.755	4.9
MW-135	12/12/14	54.03	6.36	818.48	1.44	-13.44	291	49	0.250 U	740	0.080	7.5

Table 3-5  
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 Former Unocal Edmonds Bulk Fuel Terminal  
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Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-136	10/27/08	53.88	6.34	2,331	0.06	-57.07	851	0.42	0.200 U	16,800 D	3.19	4.2
MW-136	12/15/08	46.47	6.31	1,093	0.17	-99.68	629	32.5	0.200 U	9,050 D	4.31	2.8
MW-136	02/27/09	47.97	6.34	990.82	0.43	-56.64	474	72.1	0.250 U	8,900	4.05	5.6
MW-136	04/24/09	49.91	6.41	925.24	0.07	-193.85	405	91.1	0.250 U	13,000	4.62	8.0
MW-136	06/29/09	51.53	6.43	975.31	0.37	-75.06	492	72.1	0.250 U	16,000	4.86	7.0
MW-136	08/24/09	54.28	6.43	1,021	0.14	-92.53	544	36.3	0.250 U	21,000	4.82	10.0
MW-136	10/29/09	53.78	6.35	981.76	0.25	-113.64	574	1.5 U	0.250 U	19,000	4.63	7.0
MW-136	11/01/10	54.50	6.44	1,148	0.05	-140.56	576	1.5 U	0.250 U	17,000	6.13	1.8
MW-136	12/16/11	51.90	6.43	2,964,573	-0.01	-94.97	523	2.8	0.250 U	20,000	12.6	2.0
MW-136	12/19/12	49.27	6.61	771.17	0.06	-216.79	416	14.8	0.250 U	8,200	10.2	7.0
MW-136	12/20/13	49.48	6.30	696.18	0.07	-202.27	488	1.5 U	0.250 U	25,000	12.9	6.0
MW-136	12/12/14	52.88	6.76	734.70	1.96	-54.76	405	5	0.250 U	10,000	10.700	9.5
MW-139R	10/22/08	63.60	6.87	664.62	0.01	-22.31	243	64.8	0.200 U	864	2.48	1.0
MW-139R	12/10/08	54.36	6.96	708.71	0.78	15.38	167	76.1	0.2	13	0.902	0.5
MW-139R	02/25/09	43.11	7.06	334.12	3.34	136.11	105	53	0.4	5.0 U	0.115	0.4
MW-139R	04/23/09	47.34	7.08	180.00	1.66	-104.66	81.4	32.3	0.250 U	10 U	0.0102	0.4
MW-139R	06/25/09	62.38	7.14	365.34	0.50	-96.96	134	51.5	0.250 U	34	0.523	2.0
MW-139R	08/20/09	69.85	7.10	439.97	0.22	-108.16	156	49.7	0.250 UW	77 P	0.512	1.0
MW-139R	10/28/09	60.58	6.95	277.93	1.41	71.75	110	37.5	0.250 U	5.2	0.0215	0.5
MW-139R	10/28/10	61.92	6.86	447.33	2.11	-69.41	185	60.4	0.250 U	52	0.189	1.0
MW-139R	12/15/11	51.33	6.99	258.44	2.69	70.00	114	35.2	0.250 U	5.0 U	0.027	0.0
MW-139R	12/18/12	49.36	6.93	258.61	4.11	196.75	85.2	16.3	0.260	3.0 U	0.0024	0.0
MW-139R	12/18/13	53.40	6.89	374.82	1.21	-103.26	139	33.8	0.250 U	5.6	0.0272	1.2
MW-139R	12/10/14	56.26	7.01	416.71	1.78	102.78	135	31	0.25 U	3.0 U	0.0185	0.1
MW-139R	07/27/17	63.47	6.88	467.67	0.29	NA	NA	25.9	0.250 U	160	0.176	1.25
MW-139R	03/22/18	48.73	7.06	1,376	4.72	138.0	NA	NA	NA	NA	NA	NA
MW-139R	06/28/18	63.40	7.61	462.4	2.21	-92.5	NA	24.0	0.540	80	0.129	0
MW-139R	11/28/18	53.25	7.45	1,371	6.69	99.0	NA	58.4	1.700	3.0 U	0.005 U	0
MW-139R	06/18/19	59.19	7.06	38,257	7.24	153.8	NA	1,390	0.360 J	18	0.041	0
MW-139R	12/09/19	52.51	7.27	2,920	4.75	67.8	NA	135.0	0.480 J	11	0.002 J	0.5
MW-139R	06/24/20	59.69	6.93	16,387	3.45	200.2	NA	1,100	0.320 JH	3 U	0.002	0.5
MW-139R	11/03/20	55.27	7.09	27,560	7.87	103.8	NA	1,300	0.500	4 J	0.002	0.0
MW-139R (Duplicate)	11/03/20	--	--	--	--	--	--	1,300	0.500	3 J	0.003	--
MW-139R	06/22/21	64.91	6.94	11,644	4.10	62.5	NA	510	0.820	12	0.003	0.0
MW-139R	11/03/21	59.25	8.36	2,904	2.49	194.9	NA	97	0.770	3.0 U	2.000 J	0.5
MW-139R (Duplicate)	11/03/21	--	--	--	--	--	--	93	0.870 H	3 U	1.600 J	--
MW-139R	06/15/22	58.75	6.90	2,883,000	0.82	108.5	NA	180	0.800 U	3.0 U	0.002	4.5
MW-139R	11/10/22	56.82	7.00	7,073	1.43	159.2	NA	260 J	0.53 J	6.8 J	0.081	0.0
MW-13U	12/14/12	23.38	33.19 <sup>A</sup>	53,947	2.96	-1,395.87	116	14.9	0.850	3.0 U	0.0019	0.0
MW-13U	12/20/13	52.45	6.25	181.31	2.40	-66.63	109	67.3	0.670	3.0 U	0.00073 U	0.0
MW-13U	12/10/14	57.94	6.48	281.43	3.25	147.77	104	16	0.950	3.0 U	0.001	0.0
MW-143	10/22/08	59.41	6.49	383.51	0.01	-49.00	142	34.4	0.200 U	2,210 D	1.26	5.4
MW-143	12/16/08	50.76	6.39	367.82	0.06	-73.14	194	12.9	0.200 U	7,630 D	3.82	3.2
MW-143	02/25/09	49.77	6.32	391.78	0.23	-61.12	229	1.5 U	0.250 U	18,000	4.47	4.2
MW-143	04/21/09	51.98	6.44	395.08	0.12	-167.60	220	1.8	0.250 U	17,000	4.28	5.8
MW-143	06/24/09	59.07	6.39	418.65	0.37	-130.39	210	1.5 U	0.250 U	15,000	3.67	6.0
MW-143	08/19/09	61.70	6.42	379.94	0.06	-84.88	182	9.1	0.250 U	4,100	1.86	2.0
MW-143	10/27/09	60.32	6.35	356.97	0.17	-144.82	154	14.5	0.360	4,900	0.868	6.5
MW-143	10/27/10	59.34	6.56	268.76	0.51	-174.12	68.5	55.7	0.250 U	620	0.214	3.0
MW-143	12/14/11	52.72	6.36	392.01	0.08	-81.55	229	1.5 U	0.250 U	19,000	4.01	5.5
MW-143	12/20/12	52.68	6.34	403.71	0.10	-76.85	244	1.5 U	0.250 U	17,000	4.37	5.3
MW-143	12/18/13	53.20	6.34	398.11	1.18	-41.69	206	1.5 U	0.250 U	22,000	3.7	4.6
MW-143	12/10/14	55.73	6.39	595.43	1.10	-63.38	227	2	0.25 U	19,000	4.04	>10
MW-143	07/25/17	59.95	6.40	660.49	0.19	-55.3	NA	1.5 U	0.250 U	20,000	4.450	>7
MW-143	03/22/18	47.88	6.75	289.8	0.43	-83.0	NA	NA	NA	NA	NA	NA

Table 3-5  
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 11720 Unoco Road  
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Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-143	06/29/18	57.29	6.41	460.9	0.18	-96.6	NA	94.6	0.250 U	1,000	1.570	6
MW-143	11/30/18	55.58	6.41	318.0	0.06	-180.2	NA	1.5 U	0.250 U	6,200	1.140	7
MW-143	06/19/19	54.75	6.51	516.4	0.44	-42.7	NA	4.4 J	0.250 U	5,100	3.740	4.5
MW-143	12/11/19	53.05	6.45	261.6	0.57	-123.1	NA	19.7	0.250 U	1,900 E	1.370	5.5
MW-143	06/24/20	56.23	6.46	564.6	0.33	-14.7	NA	1.5 U	0.250 UH	12,000	3.700	7.0
MW-143	11/06/20	55.43	6.10	411.8	0.18	-60.3	NA	2.9 J F1	0.250 U H F1	11,000 F1	2.300	2.0
MW-143	06/23/21	55.59	6.31	580.5	0.10	-151.6	NA	3.3 J	0.250 U	3,600	4.700	3.5
MW-143	11/01/21	56.26	6.23	498.6	0.28	-84.6	NA	0.4 U	0.250 U	9,300	2,200	7.0
MW-143	06/15/22	55.16	6.41	653.5	0.29	-76.1	NA	1.5 U	0.250 U	10,000	4.500	NA
MW-143	11/10/22	55.69	6.16	525.78	0.17	-135.3	NA	3 UJ	0.25 UJ	4,800 EJ	3.2	3.5
MW-147	10/21/08	58.43	6.24	516.46	-0.02	-18.40	131	67.2	0.200 U	330	2.38	5.2
MW-147	12/09/08	52.49	6.42	692.37	0.18	-104.13	301	141	0.200 U	895	4.16	6.4
MW-147	02/23/09	49.80	6.42	776.76	0.12	-93.21	407	111	0.250 U	1,000	4.86	5.4
MW-147	04/21/09	50.50	6.50	629.49	0.09	634.02	334	86.9	0.250 U	1,500	4.08	6.0
MW-147	06/23/09	55.54	6.50	696.30	0.04	-108.35	393	49.6	0.250 U	340	3.92	7.0
MW-147	08/18/09	60.57	6.46	605.85	0.06	-45.34	272	74.2	0.250 U	610	3.01	7.0
MW-147	10/26/09	58.00	6.35	518.53	0.10	-41.83	205	84.6	0.250 U	890	3.26	8.0
MW-147	10/26/10	56.07	6.34	426.81	0.20	-74.33	162	83.6	0.250 U	340	2.96	5.2
MW-147	12/13/11	52.52	5.99	440.75	0.12	-13.48	181	134	0.640	15	2.61	1.6
MW-147	12/14/12	52.59	6.05	399.49	3.72	141.88	147	144	0.250 U	5.4	3.61	3.6
MW-147	12/17/13	53.28	6.05	510.40	0.31	147.70	145	189	0.290	36	2.13	1.0
MW-147	12/09/14	52.65	5.95	466.27	4.61	229.44	92.3	136	0.250 U	3.0 U	1.190	0.1
MW-149R	10/21/08	58.41	6.56	521.83	0.09	-34.31	225	52.5	0.200 U	1,610 D	0.963	1.6
MW-149R	12/09/08	52.55	6.22	466.01	0.17	101.87	117	165	0.200 U	224	1.06	0.6
MW-149R	02/23/09	48.40	6.43	441.39	0.09	82.90	161	133	0.250 U	420	0.507	0.6
MW-149R	04/21/09	48.99	6.37	329.88	1.25	589.02	115	117	0.71	60	0.216	0.2
MW-149R	06/23/09	56.35	6.56	556.71	0.01	15.84	217	118	0.250 U	860	0.338	3.0
MW-149R	08/18/09	62.17	6.56	643.81	0.15	-22.07	256	121	0.250 U	1,100	0.48	3.0
MW-149R	10/26/09	58.37	6.21	404.24	3.57	203.93	76.4	160	1.600	7.9	0.0113	1.0
MW-149R	10/26/10	57.49	6.36	501.89	0.55	50.72	150	135	0.770	28	0.14	0.5
MW-149R	12/13/11	50.53	6.39	277.74	0.67	210.00	79.1	122	1.6	5.0 U	0.0163	0.0
MW-149R	12/14/12	49.79	6.42	442.76	5.35	227.31	154	172	0.770	3.0 U	0.0074	0.5
MW-149R	12/17/13	51.91	6.32	446.22	0.22	150.77	83.2	128	1.5	3.0 U	0.0051	1.0
MW-149R	12/09/14	51.67	6.41	306.80	5.37	258.01	84.7	57	1.800	3.0 U	0.001	0.1
MW-150	10/21/08	58.35	6.52	748.62	-0.05	25.37	444	68.7	0.200 U	622	1.52	1.4
MW-150	12/09/08	52.71	6.54	761.44	0.20	32.64	440	134	0.200 U	389	1.52	1.8
MW-150	02/23/09	48.38	6.56	586.85	0.14	71.82	371	101	0.250 U	180	1.24	1.0
MW-150	04/21/09	48.86	6.69	570.05	0.15	-80.49	341	86.5	0.250 U	50	1.14	1.0
MW-150	06/23/09	57.16	6.77	569.79	0.27	31.03	347	60.8	0.250 U	220	0.945	1.0
MW-150	08/18/09	62.67	6.61	708.96	0.06	-5.64	403	69.3	0.250 U	350	1.24	1.8
MW-150	10/26/09	58.83	6.64	587.23	0.96	70.66	316	73	0.380	51	0.295	1.0
MW-150	10/26/10	58.28	6.34	2,521.507	0.60	33.14	347	63.6	1.1	110	0.812	1.8
MW-150	12/13/11	51.57	6.54	619.48	0.06	3.17	390	89.4	0.380	150	1.37	2.0
MW-150	12/14/12	51.94	6.59	409.93	0.48	101.66	263	41.1	0.250 U	26.0	0.179	0.0
MW-150	12/17/13	52.39	6.55	822.42	0.29	19.61	386	64.6	0.250 U	980	2.24	3.0
MW-150	12/09/14	54.45	6.39	591.47	1.31	235.42	309	54	0.250 U	280	0.440	0.1
MW-203	12/17/12	51.62	6.23	197.93	5.66	229.49	79.1	10.2	2.0	3.0 U	0.00083	NA
MW-203	12/19/13	48.13	6.33	143.10	4.97	2.03	80.7	9.2	1.9	3.0 U	0.0021	1.5
MW-203	12/10/14	53.67	6.35	233.78	5.29	130.18	77.1	11	2.300	3.0 U	0.001 U	0.1
MW-20R	10/22/08	55.85	6.68	10,026	0.15	-63.43	306	283	0.200 U	771	2.97	6.0
MW-20R	12/10/08	54.77	6.63	7,040	0.00	-88.61	263	238	0.200 U	886	1.63	4.0
MW-20R	02/24/09	49.87	6.89	2,668	0.11	-94.36	271	77.7	0.250 U	3,300	0.404	2.0
MW-20R	04/22/09	48.29	6.77	1,614	0.53	-71.76	250	33.6	0.250 U	2,800	0.293	5.5
MW-20R	06/24/09	54.32	6.73	6,859	0.44	-54.70	234	287	0.39	160	1.24	3.5
MW-20R	08/19/09	58.26	6.72	12,574	0.18	-122.78	229	592	0.250 U	900	2.49	6.0

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-20R	10/27/09	57.49	6.43	11,375	0.61	-95.09	153	520	2.80	340	1.41	2.0
MW-20R	10/27/10	57.29	6.80	30,823	0.07	-143.50	128	1,710	1.2	51	0.839	2.6
MW-20R	12/14/11	53.47	6.56	10,516	-0.01	-39.92	220	566	0.250 U	1,400	0.488	2.6
MW-20R	12/17/12	51.84	5.76	177.51	7.57	236.30	39.9	63.6	0.250 U	3.0 U	0.127	0.5
MW-20R	12/18/13	53.27	6.72	6,773	0.07	-113.24	231	315	0.250 U	1,400	0.22	0.6
MW-20R	12/10/14	55.64	6.44	5,415	2.64	-208.01	129	232	0.25 U	140	0.116	0.1
MW-20R	07/26/17	58.29	6.51	17,957	3.14	40.8	NA	835	0.250 U	410	1.520	4.75
MW-20R	03/22/18	48.65	6.81	9,009	0.58	-13.0	NA	NA	NA	NA	NA	NA
MW-20R	06/29/18	55.83	7.05	9,558	0.17	-149.2	NA	344.0	0.250 U	160	0.526	2
MW-20R	11/29/18	55.71	6.84	12,493	1.48	-85.7	NA	426.0	0.250 U	80	0.354	2
MW-20R (Duplicate)	11/29/18	--	--	--	--	--	--	473.0	0.250 U	86	0.353	--
MW-20R	06/19/19	55.17	6.79	22,038	0.20	61	NA	1,350	0.250 U	120	0.746	1.0
MW-20R (Duplicate)	06/19/19	--	--	--	--	--	--	1,420	0.250 U	92	0.680	--
MW-20R	12/12/19	54.47	6.75	22,661	0.05	-48.7	NA	778.0	0.250 U	630	0.744	6
MW-20R	07/01/20	56.13	6.57	25,377	0.00	-173.2	NA	1,100	0.050 U	71	0.570	0
MW-20R	11/06/20	56.57	6.60	26,169	0.25	-161.3	NA	1,100 F1	0.250 UH	100	0.600	3
MW-20R	06/23/21	59.96	6.42	28,323	0.09	-90.6	NA	980.0	1.500	160	0.810	0
MW-20R	11/03/21	60.14	6.57	16,171	4.87	223.6	NA	780.0	0.250 U	3.0 U	250.000	0
MW-20R	06/15/22	55.20	5.74	13,520	4.90	228.4	NA	1,000	2.530 U	26	0.200	1
MW-20R	11/11/22	56.29	6.56	26,242	1.18	42.4	NA	1,200	2.50 U	41	0.18	1.0
MW-500	10/27/08	60.04	6.44	4,500	0.05	-10.17	977	172	0.200 U	8,590 D	0.97	4.2
MW-500	12/15/08	48.50	6.73	641.64	0.50	76.79	362	134	0.23	1,940 D	0.511	0.0
MW-500	02/27/09	44.74	6.77	475.25	0.29	111.07	334	37.7	0.250 U	6,400	0.2	1.2
MW-500	04/24/09	50.90	6.73	339.34	0.44	-143.85	263	18.6	0.250 U	39	0.0808	0.4
MW-500	06/29/09	59.99	6.38	1,002	-0.08	-44.59	464	17,900	0.250 U	16,000	1,340	3.0
MW-500	08/21/09	67.41	6.38	1,342	0.10	-233.97	647	2.20	0.250 U	15,000	1.82	2.5
MW-500	10/29/09	59.42	6.42	734.24	0.16	-104.24	362	131	0.350	13,000	1.97	1.5
MW-500	11/01/10	58.82	6.16	735.00	0.07	-145.52	451	22.4	0.250 U	12,000	1.8	5.5
MW-500	12/16/11	52.50	6.26	1,101,367	0.13	-103.35	175	4.3	0.250 U	9,400	0.344	5.2
MW-500	12/19/12	49.54	6.97	120.55	7.19	124.35	86.8	4.6	0.350	3.0 U	0.0012	0.6
MW-500	12/20/13	47.66	6.09	2,126	7.41	-25.52	401	1.5 U	0.250 U	19,000	1.38	0.14
MW-500	12/11/14	51.79	6.62	243.84	0.59	11.00	98.5	8	0.250 U	8,400	0.100	0.2
MW-501	10/24/08	60.21	6.53	3,806	-0.02	-27.98	1,700	59.2	0.200 U	10,500 DJ	3.49	5.0
MW-501	12/15/08	51.44	6.66	475.85	4.55	91.22	269	55.4	1.73	92	0.0552	0.0
MW-501	03/02/09	49.42	6.49	434.37	2.35	216.95	317	34.7	1.2	56	0.67	0.8
MW-501	04/24/09	51.05	6.53	374.33	1.03	-42.42	248	29.7	0.250 U	140	0.694	1.0
MW-501	06/26/09	59.01	6.40	1,026	0.04	37.36	NA	12.6	0.250 U	16,000	2.8	0.0
MW-501	08/21/09	67.17	6.44	1,361	0.19	-47.09	752	2.7	0.250 U	13,000	5	7.0
MW-501	10/29/09	58.23	6.43	366.98	0.24	-105.85	242	26.1	0.250 U	380	4.9	5.0
MW-501	11/01/10	59.18	6.26	844.99	0.10	-102.31	509	1.5 U	0.250 U	14,000	4.95	7.2
MW-501	12/16/11	52.30	6.31	1,364,321	0.02	-162.31	219	5.8	0.250 U	1,400	1.65	4.2
MW-501	12/19/12	50.03	6.29	135.87	3.04	-19.66	82.5	3.0	0.250 U	220	0.0812	1.0
MW-501	12/20/13	46.25	6.22	352.27	0.51	80.35	247	11.2	0.250 U	17,000	2.45	5.5
MW-501	12/11/14	52.36	6.24	312.79	0.07	-115.67	118	4	0.250 U	4,400	1.530	5.0
MW-502	10/24/08	59.77	6.31	558.51	0.05	-36.88	98	70.2	0.200 U	99 D	1.1	6.4
MW-502	12/12/08	53.20	6.36	482.08	0.04	-33.02	87.2	63.4	0.200 U	67	0.739	3.0
MW-502	02/25/09	48.02	6.37	343.38	0.11	-24.32	67.9	56.8	0.250 U	53	0.681	6.4
MW-502	04/22/09	50.96	6.36	314.18	0.03	226.34	67.7	48	0.250 U	40	0.635	7.0
MW-502	06/26/09	61.26	6.37	379.61	0.14	-57.95	95	52.8	0.250 U	33	0.627	6.5
MW-502	08/21/09	64.60	6.17	364.92	0.10	-38.59	107	27.6	0.250 U	20 P	0.585	6.0
MW-502	10/28/09	60.10	6.34	413.99	0.14	-65.94	153	41.4	0.250 U	45	0.568	6.0
MW-502	10/28/10	59.88	6.09	377.99	0.11	31.93	100	30.2	0.250 U	5.2	0.407	4.8
MW-502	12/16/11	53.40	6.12	280.64	0.05	127.40	84.3	31.4	0.250 U	5.7	0.244	0.8
MW-502	12/19/12	49.12	6.13	201.10	0.50	100.97	101	27.4	1.2	56	0.149	1.0
MW-502	12/20/13	50.47	6.26	431.25	0.10	33.60	79	34	0.250 U	3.0	0.355	3.6

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
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Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-502	12/11/14	51.82	6.20	390.23	0.75	206.18	118	26	2.8	3.0 U	0.0724	0.1
MW-502	07/26/17	58.28	6.24	315.05	0.14	48.2	NA	29.1	0.250 U	3.0 U	0.258	4.25
MW-502 (Duplicate)	07/26/17	--	--	--	--	--	--	26.9	0.250 U	3.0 U	0.251	--
MW-502	03/21/18	48.61	6.54	283.9	0.06	50.7	NA	NA	NA	NA	NA	NA
MW-502	06/27/18	57.25	5.96	274.6	0.02	17.7	NA	23.0	0.250 U	5.2	0.247	3
MW-502	11/28/18	54.31	6.25	260.7	0.18	92.1	NA	19.2	2.400	3.0 U	0.208	2
MW-502	06/18/19	54.78	6.41	233.5	0.38	44.3	NA	24.0	0.250 U	6.6	0.254	2.0
MW-502 (Duplicate)	06/18/19	--	--	--	--	--	--	23.6	0.250 U	4.5 J	0.250	--
MW-502	12/09/19	52.97	6.35	266.1	0.18	-28.8	NA	21.7	0.250 U	3.5 J	0.261	2.5
MW-502	07/01/20	56.22	6.34	273.0	0.07	56.5	NA	4.7	0.050 U	3.0 U	0.290	0.5
MW-502	11/03/20	55.41	6.19	0.1	8.61	108.5	NA	20.0	0.250 U	3.0 U	0.280	1.0
MW-502	06/21/21	57.92	6.11	249.3	0.25	153.6	NA	21.0	0.250 U H H3	6.2	0.440	0.0
MW-502	11/02/21	55.17	6.46	253.2	0.16	80.6	NA	20.0	0.250 U	3.0 U	270.000	0.0
MW-502	06/15/22	53.36	6.39	290.5	0.18	112.0	NA	19.0	0.250 U	3.0 U	0.240	0.0
MW-502	11/10/22	54.97	6.20	252.54	0.28	106.7	NA	20 J	0.25 UJ	3.0 UJ	0.29	3.0
MW-503	10/27/08	58.09	6.21	359.03	0.00	-44.22	189	8.44	0.200 U	478	0.139	3.0
MW-503	12/12/08	54.35	6.36	302.27	0.07	-38.20	169	9.51	0.200 U	306	0.188	4.6
MW-503	02/26/09	50.47	6.29	280.63	0.12	-14.44	155	11.8	0.250 U	210	0.196	2.0
MW-503	04/22/09	51.85	6.36	273.33	0.02	259.93	152	12.3	0.250 U	150	0.245	7.0
MW-503	06/26/09	55.34	6.36	281.37	0.05	-56.57	156	16.3	0.250 U	190	0.225	6.5
MW-503	08/21/09	60.08	6.34	311.25	0.02	-37.47	158	11.7	0.250 U	180 P	0.238	7.0
MW-503	10/28/09	58.50	6.31	314.43	0.04	-44.90	159	12.1	0.250 U	190	0.241	10.0
MW-503	10/28/10	58.32	6.18	512.56	0.10	-23.74	145	14.9	0.250 U	180	0.318	5.6
MW-503	12/15/11	54.30	6.26	443.34	0.00	-17.75	137	24.2	0.250 U	130	0.478	5.2
MW-503	12/18/12	55.26	6.22	494.81	0.02	-90.25	155	37.8	0.250 U	100	0.534	1.0
MW-503	12/19/13	55.23	6.14	1,265	0.01	-23.91	145	40.3	0.250 U	74	0.567	5.2
MW-503	12/11/14	55.83	6.28	651.61	0.15	-21.99	142.0	38.5	0.250 U	61	0.518	9.5
MW-503	03/21/18	52.02	6.53	499.9	0.06	-50.4	NA	NA	NA	NA	NA	NA
MW-503	06/28/18	57.51	6.22	511.0	0.17	-69.8	NA	35.2	0.250 U	140	0.608	4
MW-503 (Duplicate)	06/28/18	--	--	--	--	--	--	33.5	0.250 U	140	0.584	--
MW-503	11/28/18	58.90	6.51	492.8	0.03	-90.4	NA	31.9	0.250 U	95	0.543	6
MW-503	06/18/19	63.47	6.92	0.1	9.10	8.8	NA	30.1	0.420 J	90	0.520	5.0
MW-503	12/09/19	56.18	6.45	416.7	0.16	-31.1	NA	25.5	0.250 U	67.0	0.489	6.5
MW-503	06/25/20	57.45	6.48	434.3	0.08	23.5	NA	240.0	0.250 U	79.0	0.520	1.5
MW-503	11/03/20	58.88	6.37	398.5	0.20	-68.2	NA	22.0	0.250 U	96.0	0.460	6.0
MW-503	06/21/21	64.12	6.66	28,633	2.59	151.4	NA	24.0	0.250 U H H3	100	0.340	0.0
MW-503 (Duplicate)	06/21/21	--	--	--	--	--	--	24.0 F1	0.250 U H H3 F1	100.0	0.480	--
MW-503	11/01/21	58.95	10.17	0.3	9.81	67.8	NA	24.0	0.250 U	95	420.000	4.0
MW-503	06/14/22	58.91	6.39	290.5	0.18	112.0	NA	24.0 F1	0.250 U	110	0.450	3.0
MW-503	11/10/22	54.38	6.29	0.07	0.26	6.2	NA	24 J	0.25 UJ	68 J	0.43	3.0
MW-504	10/24/08	58.92	6.73	1,158	0.08	5.06	435	64.2	0.200 U	1,970 D	3.24	0.8
MW-504	12/12/08	49.76	6.98	958.10	0.24	36.78	261	188	0.71	269	1.14	0.2
MW-504	02/27/09	46.92	7.04	572.72	0.28	473.30	251	119	0.4	120	0.376	0.2
MW-504	04/24/09	49.13	7.08	566.26	0.92	-47.37	227	129	0.71	56	0.228	0.2
MW-504	06/26/09	59.97	7.08	595.29	0.14	33.80	274	106	0.250 U	170	0.419	0.0
MW-504	08/21/09	66.52	6.88	797.96	0.04	28.06	338	84.7	0.250 U	840	1.19	0.0
MW-504	10/28/09	60.48	6.81	637.65	0.41	52.25	311	86.7	0.650	380	0.676	1.5
MW-504	10/28/10	60.75	6.76	786.39	0.73	-63.57	301	47.8	0.250 U	180	0.804	0.5
MW-504	12/16/11	54.30	6.83	412.10	0.96	153.17	225	66.3	0.250 U	170	0.4	0.0
MW-504	12/18/12	48.08	7.44	235.83	8.60	69.47	115.0	8.4	0.250 U	3.0 U	0.0015	0.0
MW-504	12/19/13	53.95	6.22	351.95	0.03	-40.96	223	17	0.250 U	700	1.08	2.0
MW-504	12/11/14	50.76	7.15	309.59	6.81	72.46	115	16	0.25 U	620	0.0011	0.1
MW-504	07/26/17	62.32	6.84	420.98	0.10	46.3	NA	12.0	0.250 U	570	0.650	0.0
MW-504	03/21/18	49.63	7.14	1,912	4.41	73.8	NA	NA	NA	NA	NA	NA
MW-504	06/28/18	60.45	7.02	1,577	0.36	-54.7	NA	51.9	0.250 U	450	1.920	1.5

Table 3-5 - MNA Parameters

Table 3-5  
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 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-504	11/28/18	54.44	7.06	839.44	9.20	43.2	NA	39.0	0.750	15	0.443	0.0
MW-504	06/18/19	60.68	6.65	11,684	0.83	17.3	NA	508.0	0.480 J	610	7.010	2.5
MW-504	12/09/19	55.24	6.84	6,204	0.96	-22.6	NA	259.0	0.960	160.0	0.641	1.0
MW-504	06/25/20	60.37	6.82	5,151	0.44	42.5	NA	93.0 F1	0.250 U	61.0 F1	1.400	0.5
MW-504	11/05/20	60.22	6.91	6,247	1.38	1.5	NA	270.0	0.340 JH	76.0	1.100	2.0
MW-504	06/24/21	60.71	6.68	3,205	0.13	44.6	NA	130.0	0.250 U	190	0.990 B	1.5
MW-504	11/01/21	57.69	10.17	3.1	9.91	103.4	NA	51.0	0.800	3.0 U	1.600 J	0.0
MW-504	06/16/22	59.58	6.73	3,283	0.24	42.4	NA	120.0	0.250 U	99	0.980	1.5
MW-504	11/07/22	56.40	6.98	327	9.52	72.6	NA	44	0.98	3.0 U	0.0027	0.0
MW-505	10/24/08	56.61	6.77	1,292	0.42	23.88	289	119	0.54	961	2.41	0.6
MW-505	12/15/08	51.14	6.89	823.56	2.25	68.13	216	144	0.63	219	1.42	0.0
MW-505	02/27/09	46.85	6.85	659.23	2.72	182.77	181	167	0.39	130	1.16	0.0
MW-505	04/22/09	49.75	7.04	586.48	1.48	-144.75	184	134	0.43	100	1.1	0.0
MW-505	06/26/09	62.11	7.01	637.54	1.42	-17.29	190	133	0.34	190	9.11	0.5
MW-505	08/21/09	64.00	6.88	719.54	0.60	-15.81	185	72.9	0.25 U	190 P	0.997	1.0
MW-505	10/28/09	57.61	6.87	620.60	1.83	26.22	187	136	0.38	230	1.1	0.5
MW-505	10/29/10	59.58	6.75	613.95	0.05	-59.16	219	58.6	0.25 U	1,000	1.17	1.8
MW-505	12/15/11	53.63	6.77	530.14	0.65	0.00	245	92.3	0.25 U	390	1.41	1.2
MW-505	12/18/12	52.29	6.91	260.87	6.66	71.61	125	69.7	0.250 U	5.0	0.143	1.0
MW-505	12/19/13	53.04	6.25	1,301	0.01	-8.82	237	66.3	0.250 U	490	1.24	2.5
MW-505	12/11/14	52.91	6.87	328.26	5.83	138.69	97.8	21	0.25 U	460	0.366	0.2
MW-505	07/26/17	63.49	6.78	542.29	0.18	-19.6	NA	44.4	0.250 U	1,300	1.230	3.5
MW-505	03/21/18	51.98	6.83	2,016	0.05	-98.7	NA	NA	NA	NA	NA	NA
MW-505	06/28/18	60.95	6.72	845.44	0.31	-96.3	NA	40.4	0.250 U	530	0.871	5.0
MW-505	11/28/18	53.45	6.88	2,025	3.27	-29.5	NA	83.2	0.250 U	480	1.520	4.5
MW-505	06/19/19	59.47	6.67	12,193	0.30	-29.7	NA	483.0	0.250 U	1,100	11.000	6.0
MW-505	12/09/19	55.13	6.71	5,496	0.34	-89.2	NA	253.0	0.250 U	2,000	3.670	3.5
MW-505	06/25/20	61.58	6.70	5,457	0.16	13.2	NA	180.0	0.250 U	1,500	2.500	0.5
MW-505	11/04/20	61.73	6.67	9,282	0.13	-187.8	NA	420.0	0.250 UH	630.0	3.900	4.5
MW-505	06/23/21	62.47	6.11	4,357	0.22	-43.8	NA	170.0	0.250 U	1,700	1.800	3.5
MW-505	11/01/21	60.38	7.05	3.0	9.52	69.8	NA	440.0	0.250 U	940	6,300	3.0
MW-505	06/16/22	62.69	6.71	3,033	0.33	-35.6	NA	130.0	0.250 U	1,100	1,100	2.0
MW-505	11/07/22	56.07	6.77	974	2.38	60.9	NA	110	0.50 U	1,200	0.83	1.5
MW-506	10/24/08	58.38	6.90	851.73	-0.03	-3.02	238	147	0.200 U	2,820 D	1.42	0.8
MW-506	12/12/08	49.85	6.88	863.65	0.35	52.81	186	90.7	0.21	1,770 D	1.61	0.4
MW-506	02/27/09	47.32	7.10	363.65	0.50	76.54	121	59.9	0.56	140	0.105	0.0
MW-506	04/24/09	48.74	7.12	272.22	0.56	-138.25	115	53.6	1	36	0.0139	0.0
MW-506	06/26/09	57.74	7.11	601.49	0.11	85.41	183	74.3	320	1,800	0.135	0.0
MW-506	08/21/09	62.46	7.06	329.13	0.07	46.69	141	28.1	0.25 U	2,200	0.434	0.5
MW-506	10/30/09	59.70	6.89	363.42	0.37	4.84	132	71.7	0.25 U	1,600	0.729	0.5
MW-506	10/29/10	58.82	6.83	518.80	0.09	-28.40	207	29.8	0.25 U	5,200	1.97	0.6
MW-506	12/15/11	52.57	7.04	283.39	0.15	38.13	183	36.1	0.85	140	0.273	0.0
MW-506	12/19/12	51.08	6.94	226.17	4.59	158.02	143	27.1	0.250 U	42	0.0897	0.0
MW-506	12/19/13	52.82	6.75	422.56	0.03	-38.21	192	17.8	0.25 U	2,700	2.15	1.0
MW-506	12/11/14	54.27	7.29	429.59	6.55	110.57	153	32	1	45	0.139	0.1
MW-506	07/27/17	59.29	6.98	416.24	0.12	92.70	NA	4.3	0.250 U	4,900	1.6300	0.5
MW-506	03/21/18	49.25	7.17	499.96	0.16	-4.80	NA	NA	NA	NA	NA	NA
MW-506 (Duplicate)	03/21/18	--	--	--	--	--	NA	NA	NA	NA	NA	NA
MW-506	06/28/18	60.59	6.92	522.39	0.27	-86.9	NA	1.5 U	0.250 U	12,000	0.994	4.0
MW-506	11/28/18	57.09	6.86	587.37	0.57	-54.5	NA	19.8	0.250 U	12,000	1.180	3.0
MW-506	06/19/19	59.92	6.66	703.5	0.16	-75.1	NA	11.7	0.250 U	16,000	1.880	3.5
MW-506	12/09/19	54.37	6.87	4,577	0.04	-125.5	NA	142.0	0.250 U	11,000	7.400	5.5
MW-506	06/24/20	58.44	6.65	4,907	0.51	-102.2	NA	120.0	0.250 UH	6,600	5.300	6.0
MW-506	11/05/20	59.18	6.72	6,190	0.13	-203.6	NA	140.0	0.250 UH	5,400	7.600	5.0
MW-506	06/23/21	62.34	6.73	5,195	0.22	-85.1	NA	100.0	0.650 F1	5,200	5.600	4.0

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-506	11/03/21	59.53	6.99	2,471	0.55	-35.6	NA	47.0	0.540 F1	1,800 F1	1,200 F1	0.5
MW-506	06/16/22	58.49	6.66	4,928	0.14	-130.2	NA	51.0	0.250 U	5,600	6.100	0.0
MW-506	11/07/22	58.99	6.68	5,470	0.23	-59.2	NA	22	0.25 U	6,000	4.8	0.0
MW-507	10/24/08	58.31	6.54	642.48	0.01	-93.26	214	80.7	0.200 U	1,110 D	5.1	6.0
MW-507	12/12/08	52.21	6.61	795.60	0.07	-46.04	297	151	0.200 U	850	3.31	3.8
MW-507	02/27/09	48.70	6.51	909.55	0.26	37.35	290	279	0.250 U	1,600	3.97	3.2
MW-507	04/24/09	51.10	6.53	992.50	0.14	-38.69	293	364	0.250 U	1,600	3.4	3.0
MW-507	06/26/09	56.60	6.52	1,351	0.03	-29.33	252	282	0.250 U	1,100	4.27	7.0
MW-507	08/21/09	61.75	6.48	964.71	0.20	-46.15	279	297	0.250 U	2,300	6.04	7.0
MW-507	10/28/09	59.50	6.59	1,035	0.38	-20.79	350	302	0.250 U	280	3.39	2.0
MW-507	10/29/10	59.85	6.62	1,098	0.36	-66.97	347	243	0.250 U	59	1.67	1.5
MW-507	12/16/11	54.20	6.65	843.34	0.21	113.30	307	314	0.250 U	150	1.4	0.8
MW-507	12/19/12	48.76	6.65	809.79	1.61	6.98	213	174	0.330 U	6.7	0.175	1.5
MW-507	12/19/13	53.46	6.55	1,088	0.08	-76.22	365	203	0.250 U	250	1.08	1.2
MW-507	12/11/14	53.84	6.62	863.67	3.13	-97.50	218	171	0.68	3.0 U	0.0288	0.1
MW-507	07/27/17	60.09	6.74	905.45	0.42	197.4	NA	142	0.250 U	22	0.746	1.75
MW-507 (Duplicate)	07/27/17	--	--	--	--	--	--	142	0.250 U	37	0.689	--
MW-507	03/21/18	49.19	6.99	799.40	2.63	283.0	NA	NA	NA	NA	NA	NA
MW-507	06/28/18	59.42	6.78	908.98	0.57	106.8	NA	162.0	0.250 U	100	0.197	0.0
MW-507	11/28/18	56.47	6.81	782.13	5.82	130.4	NA	144.0	2.400 U	3.9	0.084	0.5
MW-507	06/19/19	58.45	6.60	910.97	0.28	202.7	NA	172.0	0.250 U	59	0.078	0.0
MW-507 (Duplicate)	06/19/19	--	--	--	--	--	--	206.0	0.250 U	54	0.069	--
MW-507	12/09/19	56.02	6.82	1,052	0.43	100.4	NA	134.0	0.250 U	53	0.945	0.0
MW-507	06/24/20	59.91	6.66	992.9	0.38	52.6	NA	240.0	0.250 UH	13.0	0.014	1.0
MW-507	11/05/20	60.40	6.94	776.9	0.14	10.8	NA	40.0	0.250 UH	460.0	4.700	0.0
MW-507	06/24/21	61.65	6.62	930.1	0.12	115.1	NA	210.0	0.300 J	61	0.380 B	0.0
MW-507	11/03/21	60.79	6.90	834.0	2.69	87.1	NA	170.0	1.200 U	3.0 U	290.000	0.0
MW-507	06/16/22	58.31	6.49	580.8	0.28	80.6	NA	110.0	0.250 U	48	0.370	0.0
MW-507	11/07/22	57.28	6.56	618.79	5.48	161.1	NA	120	0.25 J	4.7 J	0.012	0.0
MW-509	10/23/08	59.60	6.62	489.68	0.23	44.82	185	66	0.26	514	0.926	0.4
MW-509	12/11/08	50.47	6.83	445.56	1.34	113.25	90	66.2	1.92	52.5	0.45	0.4
MW-509	02/25/09	44.22	6.98	256.98	6.04	391.88	80.8	44.4	0.250 U	5.0 U	0.0127	0.2
MW-509	04/23/09	51.31	7.07	192.88	4.78	-52.52	74.8	40.6	0.250 U	10 U	0.0063	0.0
MW-509	06/25/09	64.34	6.98	321.70	0.12	-14.93	117	55.9	0.250 U	9.0	0.0996	0.5
MW-509	08/21/09	67.68	6.90	365.42	0.21	-268.87	129	38.9	0.250 U	120	0.365	0.5
MW-509	10/28/09	57.40	6.80	219.09	2.56	99.13	95.8	29.5	0.250 U	29	0.131	0.0
MW-509	10/28/10	59.45	6.71	387.07	0.40	68.41	128	43.5	0.250 U	20	0.113	0.4
MW-509	12/15/11	49.65	6.86	236.46	1.05	90	108	43.5	0.250 U	5.0 U	0.0413	0.0
MW-509	12/19/12	49.43	7.01	138.92	6.55	131.63	81.7	14.8	0.250 U	3.0 U	0.007	0.7
MW-509	12/19/13	49.66	6.79	225.92	0.62	144.66	184	50.4	0.250 U	240	0.222	0.0
MW-509	12/11/14	52.90	6.60	108.65	5.60	158.07	44.1	6	0.25 U	3.0 U	0.0168	0.1
MW-509	07/27/17	65.33	6.76	415.49	0.39	-3.6	NA	49.3	0.250 U	170	0.427	0.5
MW-509	03/21/18	48.85	8.65	0.38	11.36	148.3	NA	NA	NA	NA	NA	NA
MW-509	06/28/18	63.93	6.84	2,235	0.56	72.8	NA	73.1	0.250 U	12	0.168	0.0
MW-509	11/28/18	54.96	6.89	4,102	3.14	78.0	NA	193.0	1.400 U	50	0.057	0.0
MW-509	06/19/19	61.37	6.74	24,454	1.37	213.8	NA	1,740	0.320 J	3.0 U	0.031	0.5
MW-509	12/09/19	51.02	7.05	1.1	11.91	98.3	NA	137.0	0.410 J	91.0	0.180	0.0
MW-509	06/25/20	62.01	6.71	34,504	1.43	76.7	NA	1,400	0.250 U	3.0 U	0.013	0.0
MW-509	11/05/20	58.95	6.88	31,336	1.72	69.2	NA	1,500	0.440 JH	3.0 U	0.004	0.0
MW-509	06/21/21	64.12	6.66	28,633	2.59	151.4	NA	1,000	1.000 H H3	3.0 U	0.190	0.0
MW-509	11/03/21	60.44	8.00	1,679	2.68	125.9	NA	62.0	0.470 J	20	240.000 ^2	0.0
MW-509	06/16/22	59.74	6.82	7,403,000	0.38	164.1	NA	660.0	0.250 U	7.2	0.035	1.0
MW-509	11/07/22	60.63	6.80	26,653	0.44	277.1	NA	1,300	0.50 U cn	10	1.1	0.0
MW-511	10/24/08	55.73	6.59	248.56	0.41	25.86	122	23.1	0.35	1.63	0.289	0.2

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-511	12/12/08	51.90	6.44	235.10	1.84	122.09	110	25.2	0.94	1.2 U	0.446	0.2
MW-511	02/25/09	48.43	6.12	350.22	3.73	140.09	77.9	23.3	1.1	5.0 U	0.169	0.0
MW-511	04/21/09	49.64	6.23	240.99	4.34	143.96	77.3	30.4	0.93	5.0 U	0.0887	0.0
MW-511	06/24/09	54.46	6.27	213.52	2.87	178.32	87.1	27.2	0.94	6.4	0.0855	NA
MW-511	08/19/09	58.96	6.30	211.69	3.17	145.06	86.1	22.3	0.94	5.4	0.0573	0.5
MW-511	10/28/09	54.96	6.20	211.44	3.68	91.82	94.4	23.2	1.4	5.0 U	0.0439	0.0
MW-511	10/28/10	55.71	6.26	263.83	3.75	26.79	88.4	24.2	830	5.0 U	0.0046	0.1
MW-511	12/19/11	50.80	6.30	255.22	5.16	196.26	95.2	31.9	0.72	10 U	0.0015	0.0
MW-511	12/14/12	50.49	-18.06^A	399.71	4.93	1,408	112	28.5	0.250 U	3.00 U	0.0026	0.5
MW-511	12/19/13	51.27	6.67	319.02	3.01	23.45	114	28.4	0.25 U	3.0 U	0.00073 U	NA
MW-511	12/10/14	53.78	6.47	376.51	2.53	160.12	122	30	0.25 U	3.2	0.0016	0.0
MW-511	07/27/17	55.41	6.20	300.62	1.78	148.0	NA	19.2	1.000	3.0 U	0.008	0.0
MW-511	03/21/18	49.82	6.47	225.31	3.63	190.8	NA	NA	NA	NA	NA	NA
MW-511	06/27/18	54.33	6.47	272.15	0.77	84.2	NA	22.6	0.250 U	3.0 U	0.056 U	0.0
MW-511	11/29/18	58.70	8.17	1.72	10.43	90.3	NA	18.2	0.340	3.0 U	0.005 U	NA
MW-511	06/18/19	53.86	6.70	307.2	3.98	46.7	NA	31.3	0.660	3.0 U	0.005 U	0.0
MW-511	12/09/19	52.57	6.47	102.4	3.33	4.8	NA	24.0	0.870	3.0 U	0.002	0.0
MW-511	07/01/20	54.51	6.41	277.2	5.51	61.9	NA	22.0	0.810	3.0 U	0.001 J	0.0
MW-511	11/03/20	54.41	5.99	265.5	3.32	210.1	NA	20.0	0.710	3.0 U	0.002 J	0.0
MW-511	06/21/21	57.41	6.14	171.2	2.68	186.7	NA	18.0	0.690 H H3	3.0 U	0.001 J	0.0
MW-511	11/03/21	56.22	6.05	272.7	3.82	170.2	NA	20.0	0.700	3.0 U	3.100	0.0
MW-511	06/15/22	52.14	6.47	270.5	7.06	180.8	NA	18.0	0.330 J	3.0 U	0.001 U	0.0
MW-511	11/10/22	52.79	6.40	305.47	6.52	86.6	NA	19	0.57	3.3 J	0.0058	0.0
MW-512	10/23/08	60.03	6.54	396.67	-0.04	14.55	150	30.8	0.200 U	1,200 D	1.56	1.2
MW-512	12/11/08	53.48	6.58	480.74	0.01	-48.08	199	31.4	0.200 U	765	2.3	2.0
MW-512	02/25/09	47.91	6.59	441.66	0.64	-3.83	205	34.3	0.250 U	1,200	1.15	2.6
MW-512	04/21/09	51.96	7.05	460.06	0.37	-144.28	179	52.3	0.28	2,100	0.775	2.0
MW-512	06/24/09	61.82	6.65	368.86	0.38	-40.13	152	37	0.250 U	720	0.367	2.0
MW-512	08/19/09	66.20	6.55	346.88	0.23	-23.55	127	33.6	0.250 U	1,200	0.324	2.0
MW-512	10/27/09	59.92	6.66	369.90	2.04	-47.20	157	37.5	0.450	1,600	0.351	1.0
MW-512	10/28/10	59.67	6.72	444.53	0.88	-131.58	164	23.4	0.250 U	930	0.414	2.0
MW-512	12/15/11	51.70	6.90	306.64	0.02	-92.48	174	23.7	0.250 U	1,400	0.556	3.2
MW-512	12/17/12	52.54	6.87	508.74	0.59	-98.08	191	22.6	0.250 U	1,900	0.485	5.0
MW-512	12/18/13	52.11	6.78	291.10	0.13	-66.95	178	17.6	0.250 U	1,000	0.662	2.6
MW-512	12/11/14	53.99	6.89	568.20	6.52	-199.75	181	15	0.25 U	1,700	0.635	0.1
MW-512	07/26/17	61.67	6.99	558.10	0.15	-95.0	NA	9.3	0.250 U	1,300	0.433	5.0
MW-512	03/21/18	49.30	7.09	305.81	0.42	15.80	NA	NA	NA	NA	NA	NA
MW-512 (Duplicate)	03/21/18	--	--	--	--	--	NA	NA	NA	NA	NA	NA
MW-512	06/28/18	62.12	6.80	376.27	1.71	64.6	NA	21.3	0.280	68	0.039	0.0
MW-512 (Duplicate)	06/28/18	--	--	--	--	--	--	22.5	0.250 U	42	0.043	--
MW-512	11/29/18	56.20	6.78	602.89	1.46	-25.2	NA	38.7	0.320	93	0.511	1.0
MW-512	06/18/19	61.14	6.71	3,304	1.16	1.5	NA	116.0	0.250 U	340	3.740	4.5
MW-512	12/09/19	53.16	6.79	3,308	0.31	-81.4	NA	83.4	0.250 U	990	2.730	4.0
MW-512	06/25/20	59.78	6.66	703.9	0.13	-33.2	NA	17.0 B	0.250 U	220.0	500.000	0.0
MW-512	11/03/20	60.16	6.29	3,149	0.07	-36.6	NA	47.0	0.250 U	1,200	2.200	3.5
MW-512	06/24/21	64.38	6.20	701.5	0.28	-34.0	NA	14.0	0.250 U	250	0.650 U	1.5
MW-512	11/03/21	60.34	6.92	1,836	1.74	-66.4	NA	49.0	0.250 U	700	1.500	2.0
MW-512	06/16/22	60.34	6.76	559.3	0.26	-52.0	NA	7.6	0.250 U	380	0.470	2.5
MW-512	11/10/22	56.88	6.77	1,706	0.37	-40.3	NA	44.0 J	0.25 UJ	450 J	1.3	2.0
MW-513	10/23/08	58.08	6.78	405.45	-0.06	-63.03	182	19.3	0.200 U	523	2.09	2.0
MW-513	12/10/08	55.20	6.73	491.21	-0.06	-103.79	197	23.9	0.200 U	465	2.18	2.8
MW-513	02/25/09	49.12	6.76	342.53	0.10	-45.95	210	14.8	0.250 U	490	1.9	2.4
MW-513	04/22/09	50.10	6.81	342.40	0.12	-225.74	182	26.6	0.250 U	650	1.89	3.5
MW-513	06/24/09	59.64	6.82	321.78	0.09	-89.07	167	13.1	0.28	300	1.38	3.0
MW-513	08/20/09	62.58	6.73	343.96	0.11	-81.20	168	15.5	0.250 UW	320 P	1.38	2.8



Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-513	10/27/09	59.76	6.73	374.84	0.08	-96.67	178	24.3	0.250 U	550	1.8	4.0
MW-513	10/28/10	58.03	6.63	395.68	0.10	-103.39	164	11.2	0.250 U	690	1.36	3.8
MW-513	12/15/11	52.17	6.69	289.77	0.05	-60	156	16.7	0.250 U	370	1.28	3.1
MW-513	12/17/12	52.34	6.69	280.90	0.29	-82.64	159	10.4	0.250 U	920	1.17	4.1
MW-513	12/18/13	54.18	6.69	188.41	-0.01	-77.71	182	8.9	0.250 U	840	1.29	3.9
MW-513	12/10/14	55.63	6.75	471.76	-0.01	-59.79	171	13	0.25 U	790	1.07	5.0
MW-513	07/25/17	62.95	6.47	469.48	0.11	7.6	NA	11.8	0.250 U	460	1.050	4.5
MW-513	03/21/18	52.20	6.78	2,190	1.11	-61.7	NA	NA	NA	NA	NA	NA
MW-513	06/28/18	59.39	6.72	1,558	0.10	-81.9	NA	34.3	0.250 U	610	1.330	5.5
MW-513	11/29/18	55.74	6.81	2,541	0.41	-75.2	NA	38.9	0.500 U	450	1.870	5.5
MW-513	06/17/19	59.69	6.73	10,096	1.20	-28.2	NA	514.0	0.250 U	460	6.910	NA
MW-513	12/09/19	55.41	6.62	11,620	2.85	-62.9	NA	529.0	0.250 U	240	6.310	6.5
MW-513	06/25/20	58.72	6.63	7,385	0.92	-42.6	NA	260.0	0.250 U	190.0	4.000	0.0
MW-513	11/04/20	61.37	6.65	16,112	0.31	-32.0	NA	500.0	0.250 UH	280.0	5.700	5.0
MW-513	06/21/21	64.36	6.67	4,565	1.81	-6.0	NA	180.0 F1	0.250 U H H3	63	0.420	5.0
MW-513	11/01/21	59.32	6.75	7,249	1.05	5.4	NA	260.0	0.250 U	150	1,600	2.5
MW-513	06/16/22	61.38	6.89	1,327,000	0.78	-39.0	NA	58.0	0.270 J	100	0.540	1.0
MW-513	11/10/22	58.52	7.02	4,208	0.11	-31.6	NA	140 J	0.25 UJ	250 J	0.71	1.5
MW-514	10/23/08	59.15	6.81	368.79	-0.05	-69.84	182	17.4	0.23	200	1.62	2.2
MW-514	12/10/08	55.53	6.74	410.41	0.01	-105.01	191	29.2	0.200 U	428	2.89	2.8
MW-514	02/24/09	50.68	6.74	330.80	0.15	-84.41	189	21.5	0.250 U	680	2.07	2.2
MW-514	04/21/09	51.33	6.83	345.19	0.43	-150.08	176	28.5	0.250 U	710	1.93	4.0
MW-514	06/24/09	60.09	6.89	340.42	0.21	-133.74	167	17.8	0.31	400	1.54	3.0
MW-514	08/19/09	64.22	6.77	362.34	0.10	-88.48	153	12.7	0.250 U	580	1.47	4.0
MW-514	10/27/09	60.17	6.72	342.77	0.18	-90.96	169	13.8	0.250 U	690	1.67	4.0
MW-514	10/27/10	58.93	6.62	403.73	0.07	-128.19	160	19.2	0.250 U	210	1.94	4.2
MW-514	12/14/11	51.76	6.53	389.84	0.10	-0.09	152	19.3	0.250 U	340	1.69	3.0
MW-514	12/17/12	53.14	6.55	396.25	0.39	-101.68	162	20.4	0.250 U	390	1.510	4.0
MW-514	12/18/13	53.06	6.58	175.41	0.01	-56.60	155	16.9	0.250 U	420	1.68	2.4
MW-514	12/11/14	54.02	6.62	454.38	0.27	-226.67	151	17.1	0.25	360	1.47	2.0
MW-514	07/27/17	64.48	6.73	352.17	0.29	15.5	NA	11.1	0.250 U	620	0.330	0.5
MW-514	03/21/18	52.29	6.67	1,410	0.60	35.9	NA	NA	NA	NA	NA	NA
MW-514	06/28/18	60.62	6.72	505.07	3.92	143.5	NA	23.1	0.280	190	0.155	0.0
MW-514	11/29/18	56.43	6.54	751.89	0.18	47.3	NA	23.2	0.250 U	420	1.850	1.0
MW-514	06/18/19	59.20	6.59	4,698	2.80	40.9	NA	194.0	0.440 J	660	7.520	6.5
MW-514	12/09/19	55.63	6.63	5,851	0.04	-39.6	NA	264.0	0.250 U	600	5.450	3.5
MW-514	06/25/20	59.38	6.49	2,813	0.35	-3.3	NA	78.0	0.250 U	270.0	2.500	2.5
MW-514	11/05/20	59.64	6.48	4,918	0.16	23.7	NA	180.0	0.250 UH	310.0	5.400	3.0
MW-514	06/24/21	66.70	6.39	0.1	9.50	-10.9	NA	45.0 F1	0.250 U F1	220	1,500 B	2.0
MW-514	11/01/21	59.36	6.62	2,879	0.09	78.0	NA	96.0	0.250 U	230	2,100	1.5
MW-514	06/16/22	59.57	6.60	579,419	0.00	-37.6	NA	29.0	0.250 U	130	0.700	1.5
MW-514	11/10/22	58.26	6.60	1,216	0.24	3.4	NA	36 J	0.25 UJ	250 J	1.4	1.5
MW-515	10/22/08	62.15	6.60	451.90	0.00	23.35	174	36.2	0.200 U	395	2.46	1.1
MW-515	12/10/08	53.51	6.66	444.71	0.03	73.86	131	78.2	0.56	12.7	1.32	0.0
MW-515	02/24/09	49.14	6.63	382.79	1.00	76.95	125	61.6	0.250 U	99	0.541	0.0
MW-515	04/22/09	49.78	6.86	288.96	1.29	-156.87	112	54.1	0.250 U	45	0.569	0.0
MW-515	06/24/09	62.81	6.64	514.96	0.11	29.36	185	55.6	0.250 U	510	1.43	0.5
MW-515	08/20/09	67.66	6.65	526.87	0.29	14.84	194	33	0.250 UW	410	1.56	0.2
MW-515	10/27/09	60.81	6.76	319.95	1.41	40.71	137	33	0.250 U	270	0.97	0.5
MW-515	10/27/10	61.29	6.76	334.75	1.35	-91.25	150	30.2	0.250 U	240	0.645	1.0
MW-515	12/14/11	50.52	6.90	278.52	0.05	40	145	50	0.250 U	86	0.419	0.0
MW-515	12/17/12	52.38	6.85	202.11	5.71	111.67	87.6	18.2	0.250 U	9.0	0.119	<1
MW-515	12/18/13	51.48	6.80	279.20	0.21	-68.34	140	24.4	0.250 U	36	0.188	0.8
MW-515	12/11/14	53.51	6.87	379.34	1.32	110.50	126	23	0.25 U	3.0 U	0.0811	0.1
MW-515	07/25/17	65.67	6.73	390.53	0.15	13.4	NA	20.1	0.250 U	330	0.318	0.5

Table 3-5 - MNA Parameters

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-515	03/21/18	48.52	10.18	0.40	11.32	119.9	NA	NA	NA	NA	NA	NA
MW-515	06/28/18	62.54	6.81	862.0	0.11	46.9	NA	30.2	0.250 U	81	0.093	0
MW-515	11/28/18	55.71	6.96	789.58	2.39	92.1	NA	37.9	0.600	4.3	0.087	0.0
MW-515 (Duplicate)	11/28/18	--	--	--	--	--	--	40.0	0.660	6.3	0.081	--
MW-515	06/17/19	61.18	6.51	20,827	0.12	109.0	NA	990.0	0.250 U	160	5.920	0.5
MW-515	12/09/19	54.41	6.74	11,847	0.07	75.1	NA	501.0	0.250 U	700	4.060	0.0
MW-515	06/22/20	Wasp nest in well box. Well neither gauged nor sampled. Nest removed.										
MW-515	11/05/20	59.92	6.70	16,909	0.11	77.7	NA	660.0	0.250 U	480.0	1.200	0.5
MW-515	06/24/21	61.91	6.68	2,062	0.20	59.3	NA	90.0 F1	0.250 U F1	48	0.350	0.0
MW-515	11/02/21	59.49	6.97	10,883	0.13	51.5	NA	470.0	0.250 U	35	410.000	0.5
MW-515	06/15/22	59.18	6.82	1,866	0.65	127.2	NA	57.0	0.310 J	3.0 U	0.012	0.0
MW-515	11/07/22	58.41	6.86	6,112	0.21	220.0	NA	190	0.50 U	100	0.32	0.0
MW-516	10/22/08	60.37	6.75	410.68	0.21	22.93	175	43.2	0.200 U	439	2.23	0.4
MW-516	12/10/08	53.18	6.64	391.95	0.03	54.04	149	57.6	0.33	22	1.58	0.0
MW-516	02/24/09	45.41	6.85	296.90	2.83	109.91	111	55.6	0.75	5.7	0.26	0.0
MW-516	04/22/09	49.82	6.86	290.47	3.59	-7.72	110	54.1	0.5	10 U	0.0591	1.0
MW-516	06/24/09	65.26	6.67	525.02	0.61	24.67	182	48.8	0.250 U	450	0.592	0.0
MW-516	08/20/09	68.95	6.68	474.28	0.83	42.34	184	25.7	0.250 UW	300 P	1.02	0.0
MW-516	10/27/09	60.04	6.69	339.91	1.48	38.92	149	34.4	0.250 U	25	0.831	0.0
MW-516	10/27/10	60.44	6.59	373.46	1.74	-27.12	142	31.4	0.250 U	26	0.386	0.1
MW-516	12/14/11	50.40	6.67	399.03	2.39	110	0.46 U	21.4	0.250 U	150	0.402	0.0
MW-516	12/17/12	49.35	7.26	127.11	10.16	91.17	62.6	3.6	0.250 U	3.0 U	0.0328	0.0
MW-516	12/18/13	51.00	6.75	249.92	0.45	-13.89	134	21.4	0.250 U	62	0.336	0.9
MW-516	12/11/14	53.36	6.85	279.66	3.54	94.10	111	13	0.25 U	7.1	0.228	0.0
MW-516	07/25/17	66.21	6.72	330.69	0.90	51.9	NA	23.3	0.250 U	150	0.095	0.0
MW-516 (Duplicate)	07/25/17	--	--	--	--	--	--	21.4	0.250 U	130	0.089	--
MW-516	03/21/18	48.64	10.03	0.40	11.33	120.7	NA	NA	NA	NA	NA	NA
MW-516	06/28/18	64.49	6.70	719.44	0.56	98.5	NA	32.6	0.250 U	27	0.222	0.0
MW-516	11/29/18	55.69	6.90	417.93	3.31	140.1	NA	21.3	1.900	3.0 U	0.066	0.0
MW-516	06/17/19	67.15	6.89	2.0	9.29	143.5	NA	192.0	0.250 U	190	1.740	0.0
MW-516	12/09/19	53.13	6.87	4,911	1.81	70.1	NA	222.0	0.430 J	130	2.930	0.5
MW-516	06/25/20	62.24	6.65	1,636	0.20	65.3	NA	73.0	0.250 U	38.0	0.500	0.0
MW-516	11/05/20	59.72	6.66	7,015	0.24	97.3	NA	220.0	0.360 J	130.0	1.800	0.0
MW-516	06/24/21	64.44	6.65	1,146	0.24	108.9	NA	55.0	0.250 U	64	0.130 B	0.0
MW-516	11/03/21	60.45	6.88	3,262	0.24	-20.3	NA	59.0	0.250 U	37	830.000	0.0
MW-516	06/15/22	60.28	6.59	725.9	0.32	-32.6	NA	43.0	0.250 U	8.7	0.180	0.0
MW-516	11/07/22	58.61	6.84	2,925	0.45	132.2	NA	86	0.50 U	100	0.73	0.0
MW-517	10/22/08	59.72	6.52	361.40	0.10	15.95	156	39.3	0.200 U	1,080 D	3.17	0.6
MW-517	12/10/08	52.71	6.51	374.55	-0.04	63.88	161	47.4	0.200 U	394	1.81	0.0
MW-517	02/24/09	46.38	6.71	355.26	1.97	101.76	127	65.8	1.2	11	0.892	0.4
MW-517	04/22/09	50.90	6.70	348.44	1.21	-81.24	128	66.7	0.250 U	43	0.584	1.0
MW-517	06/24/09	64.49	6.72	463.93	0.61	-52.18	184	50.5	0.250 U	1,700	1.14	1.0
MW-517	08/20/09	67.06	6.60	437.32	0.33	7.39	184	20.6	0.250 UW	4,400	1.36	0.5
MW-517	10/27/09	60.36	6.66	355.06	0.41	15.34	148	41.9	0.250 U	99	1.09	1.5
MW-517	10/27/10	59.99	6.68	381.89	0.56	-12.51	145	35.3	0.250 U	270	0.641	0.5
MW-517	12/14/11	50.41	6.76	292.70	0.07	43.46	165	26	0.250 U	75	0.788	0.6
MW-517	12/17/12	50.94	7.19	184.80	9.90	73.30	101	8.6	0.250 U	12	0.0913	0.0
MW-517	12/18/13	50.64	6.71	273.51	0.24	-13.52	150	21.8	0.250 U	18	0.474	0.4
MW-517	12/11/14	52.76	6.89	308.53	5.90	77.27	124	15	0.25 U	4.4	0.687	0.1
MW-517	07/25/17	65.75	6.56	232.95	0.36	29.2	NA	11.8	0.250 U	520	0.338	0.5
MW-517	03/21/18	47.83	10.79	0.39	11.43	113.0	NA	NA	NA	NA	NA	NA
MW-517	06/28/18	63.39	6.82	493.84	1.71	89.0	NA	25.7	0.310	3.0 U	0.148	0.0
MW-517	11/29/18	54.54	6.93	415.38	4.11	117.8	NA	21.6	0.390	13	0.062	0.0
MW-517	06/17/19	61.86	6.59	6,649	1.01	-128.0	NA	320.0	0.250 U	310	5.450	1.0
MW-517	12/09/19	52.88	6.79	4,897	4.08	75.7	NA	113.0	0.710	110	5.380	1.0

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-517	06/25/20	62.07	6.56	1,827	1.02	-14.3	NA	80.0	0.250 U	74.0	1.100	0.0
MW-517	11/06/20	57.70	6.64	6,957	1.70	88.5	NA	230.0	0.560 H	210.0	2.600	0.3
MW-517	06/24/21	67.08	6.74	505.1	2.87	150.8	NA	31.0	0.250 U	47	0.190 B	0.0
MW-517	11/03/21	61.06	6.76	4,900	2.04	87.5	NA	160.0	0.530 U	67	1,600	0.0
MW-517	06/16/22	60.37	6.77	227,253	0.35	114.5	NA	26.0	0.250 U	11	0.130	1.0
MW-517	11/07/22	58.62	6.67	2,268	1.91	72.3	NA	96	0.67 J cn	120	1.1	0.0
MW-518	10/22/08	61.89	6.46	2,403	0.10	6.25	194	93.4	0.200 U	2,380 D	1.6	3.0
MW-518	12/10/08	56.07	6.64	590.16	0.08	22.59	247	32.5	0.200 U	1,920 D	2.22	1.6
MW-518	02/25/09	47.59	6.55	482.43	0.15	-9.02	209	61.1	0.250 U	2,900	1.99	2.2
MW-518	04/22/09	48.17	6.52	519.99	0.27	-182.35	163	63.6	0.6	3,100	1.48	2.0
MW-518	06/25/09	58.02	6.48	1,501	0.24	6.00	117	97.6	0.5	1,500	1.67	2.0
MW-518	08/20/09	65.80	6.49	2,675	0.12	-247.61	176	119	0.250 UW	4,500	1.5	3.0
MW-518	10/30/09	62.35	6.50	1,278	0.45	-46.31	224	51.6	0.250 U	4,000	1.57	4.0
MW-518	10/28/10	60.96	6.57	1,588	0.04	-116.69	200	70.4	0.250 U	3,500	1.38	8.0
MW-518	12/14/11	54.16	6.57	645.67	0.56	0.00	213	85.6	0.530	1,500	0.807	4.0
MW-518	12/17/12	54.97	6.60	676.38	1.03	-39.40	223	132	0.480	1,400	0.484	0.7
MW-518	12/19/13	53.90	6.78	319.92	0.25	-40.51	198	7.4	0.250 U	3,700	0.64	1.8
MW-518	12/11/14	57.43	6.69	671.16	1.01	56.96	214	62	0.34	1,900	0.35	0.1
MW-518	07/25/17	62.68	6.91	388.33	NA	22.2	NA	32.5	0.250 U	500	0.181	0.25
MW-518	03/21/18	50.50	9.96	0.4	10.96	113.3	NA	NA	NA	NA	NA	NA
MW-518	06/28/18	57.74	7.11	419.86	0.35	-144.8	NA	18.9	0.250 U	4,200	0.215	0.5
MW-518 (Duplicate)	06/28/18	--	--	--	--	--	--	23.6	0.250 U	4,000	0.213	--
MW-518	11/28/18	58.46	6.81	1,056	0.14	-87.4	NA	7.5	0.250 U	2,300	0.867	4.0
MW-518	06/18/19	55.88	7.12	643.1	0.13	88.5	NA	29.9	0.250 U	3,200	0.273	1.5
MW-518	12/09/19	57.44	6.93	3,738	0.15	-124.6	NA	32.7	0.250 U	2,100	0.785	3.5
MW-518 (Duplicate)	12/09/19	--	--	--	--	--	--	31.3	0.250 U	2,200	0.765	--
MW-518	06/24/20	59.54	7.32	581.63	0.16	-127.9	NA	11.0	0.250 UH	950	0.240	1.0
MW-518 (Duplicate)	06/24/20	--	--	--	--	--	--	11.0	0.250 UH	970	0.240	--
MW-518	11/05/20	60.85	6.79	2,563	0.14	-113.0	NA	26.0	0.250 UH	1,200	0.510	1.5
MW-518 (Duplicate)	11/05/20	--	--	--	--	--	--	30.0	0.250 UH	1,100	0.500	--
MW-518	06/24/21	59.03	6.93	432.6	0.21	-64.7	NA	6.2	0.250 U	850	0.180 B	1.0
MW-518 (Duplicate)	06/24/21	--	--	--	--	--	--	6.8	0.250 UH	450.0	0.180 B	--
MW-518	11/03/21	65.01	7.92	1,470	0.30	-122.9	NA	68.0	0.250 UH	300	--	2.5
MW-518 (Duplicate)	11/03/21	--	--	--	--	--	--	68.0	0.250 UH	300.0	--	--
MW-518	06/15/22	56.90	6.92	199,521	0.10	-98.4	NA	14.0	0.253 U	150	0.320	2.0
MW-518 (Duplicate)	06/15/22	--	--	--	--	--	--	15.0	0.253 U	140.0	0.360	--
MW-518	11/10/22	60.82	6.77	1,267	0.56	-189.9	NA	37.0 J	0.250 UJ	610 EJ	0.260	1.0
MW-518 (Duplicate)	11/10/22	--	--	--	--	--	--	30.0 J	0.250 UJ	640.0 EJ	0.260	--
MW-519	10/22/08	58.05	6.55	535.69	-0.02	-34.53	217	29.8	0.200 U	6,780 D	1.31	3.6
MW-519	12/09/08	53.23	6.64	610.07	0.11	-70.36	250	30	0.200 U	9,760 D	1.34	3.2
MW-519	02/24/09	46.76	6.65	405.26	0.10	-41.65	186	43.1	0.46	8,800	0.847	2.7
MW-519	04/21/09	51.87	6.63	478.38	0.13	638.95	255	21.5	0.250 U	14,000	1.22	2.7
MW-519	06/24/09	60.02	6.58	618.06	0.06	-67.35	290	9.7	0.25 U	13,000	1.15	5.0
MW-519	08/18/09	66.09	6.61	691.65	0.14	-57.02	258	36.7	0.250 U	14,000	1.16	2.5
MW-519	10/27/09	59.84	6.59	364.97	0.31	-72.83	124	49.6	0.250 U	6,400	0.61	2.0
MW-519	10/26/10	59.52	6.53	469.46	0.18	-61.26	170	71.6	0.250 U	3,900	0.473	4.2
MW-519	12/14/11	51.03	6.69	402.43	-0.01	-40	266	38.8	0.370	11,000	0.822	0.0
MW-519	12/17/12	50.40	6.73	300.97	2.09	47.42	145	54.6	0.310	1,300	0.186	0.0
MW-519	12/17/13	50.70	6.66	464.83	-0.01	-50.27	253	17.9	0.250 U	12,000	0.814	3.0
MW-519	12/10/14	51.80	7.00	344.69	5.02	56.84	109	34	0.25 U	170	0.0374	0.1
MW-519	07/25/17	67.16	6.56	647.57	0.25	-36.3	NA	7.0	0.250 U	13,000	0.545	3.5
MW-519	03/22/18	47.66	7.19	370.84	3.57	102.3	NA	NA	NA	NA	NA	NA
MW-519 (Duplicate)	03/22/18	--	--	--	--	--	--	NA	NA	NA	NA	--
MW-519	06/27/18	64.38	6.65	479.94	0.98	9.6	NA	39.2	0.250 U	72	0.586	1.0
MW-519	11/29/18	54.33	7.51	483.32	8.01	97.4	NA	70.1	0.350	3.0 U	0.009	0.0

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-519	06/19/19	63.05	6.61	453.0	0.22	46.1	NA	40.2	0.250 U	390	0.744	0.0
MW-519	12/11/19	53.55	6.94	705.5	3.01	25.2	NA	91.8	0.250 U	830	0.145	0.5
MW-519	06/24/20	59.96	6.97	504.8	0.22	62.3	NA	55.0	0.250 UH	38	0.066	0.5
MW-519	11/03/20	59.49	6.91	880.9	2.28	78.2	NA	91.0	0.250 UH	62	0.120	0.0
MW-519	06/23/21	60.82	6.13	743.2	0.35	-1.4	NA	34.0	0.290 J	3,000	0.930	3.5
MW-519	11/01/21	59.96	6.74	761.7	1.38	103.6	NA	73.0	0.400 J F1	5.0	43.000	0.0
MW-519	06/15/22	58.65	6.84	509.5	1.07	84.9	NA	34.0	0.533	3.9 J	0.014	0.0
MW-519	11/10/22	59.81	6.65	564.45	2.39	98.5	NA	62 J	0.52 J	3.0 UJ	0.002 J	0.0
MW-520	10/21/08	59.76	6.79	944.21	0.02	-14.62	212	32	0.200 U	2,230 D	1.58	1.4
MW-520	12/09/08	53.17	6.81	584.24	0.12	-89.46	189	28.7	0.200 U	2,240 D	1.48	1.4
MW-520	02/23/09	47.79	6.84	477.54	0.16	-57.60	187	22.1	0.250 U	2,500	1.18	1.6
MW-520	04/22/09	48.74	6.75	397.91	0.40	-161.40	162	33.6	0.250 U	2,200	746	2.0
MW-520	06/24/09	60.08	6.67	584.31	0.04	-54.65	202	19.3	0.250 U	4,900	1.46	3.0
MW-520	08/18/09	67.93	6.60	587.53	0.06	27.15	194	5.5	0.250 U	1,600	1.09	2.0
MW-520	10/27/09	60.06	6.50	483.54	0.09	9.18	153	33.6	0.250 U	1,100	1.03	1.0
MW-520	10/27/10	60.39	6.48	731.32	0.20	-82.10	201	16	0.250 U	1,600	1.46	1.8
MW-520	12/14/11	51.35	6.58	612.41	0.16	40	161	51	0.250 U	740	1.08	1.0
MW-520	12/14/12	52.50	6.75	303.23	0.07	-80.88	137	38.4	0.250 U	130	0.833	1.0
MW-520	12/17/13	52.02	6.69	489.30	0.14	-189.75	176	68.3	0.250 U	750	0.676	1.0
MW-520	12/10/14	54.54	7.11	472.05	3.86	125.06	95.6	84	0.25 U	53	0.0639	0.0
MW-520	07/25/17	65.71	6.74	786.68	0.15	183.5	NA	21.7	0.250 U	820	3.550	0.0
MW-520	03/20/18	48.45	7.18	783.61	4.30	106.2	NA	NA	NA	NA	NA	NA
MW-520	06/28/18	60.89	6.87	573.88	0.13	14.8	NA	38.3	0.250 U	120	1.110	0.0
MW-520	11/29/18	55.00	6.97	1,225	6.42	91.7	NA	268.0	0.750	7.9	0.005 U	0.0
MW-520	06/19/19	60.16	7.13	633.4	0.35	164.5	NA	55.3	0.250 U	320	0.928	0.0
MW-520	12/12/19	50.32	5.70	0.4	11.62	151.2	NA	410.0	0.510	3 U	0.001 J	0.0
MW-520	06/24/20	61.91	7.00	733.0	1.45	24.4	NA	76.0	0.250 UH	3 U	0.006	0.5
MW-520	11/05/20	58.60	6.88	944.9	7.81	158.8	NA	330.0	0.350 JH	3 U	0.002	0.0
MW-520	06/23/21	63.33	6.00	2,358	0.40	96.7	NA	110.0	0.360 J	330	2.500	0.0
MW-520	11/03/21	59.32	6.93	1,889	5.97	55.6	NA	240.0	0.350 J	31	580.000 ^2	0.5
MW-520	06/16/22	58.03	7.14	1,015	4.76	150.5	NA	200.0	0.280 J	9.9	0.006	0.0
MW-520	11/10/22	57.10	6.93	813.92	5.46	93.1	NA	220 J	0.360 J	3.0 UJ	0.00098 U	0.0
MW-521	10/21/08	59.50	6.57	818.08	-0.01	4.73	172	63.9	0.200 U	888	1.42	0.9
MW-521	12/09/08	53.28	6.77	555.86	0.38	-70.66	174	37.3	0.200 U	1,310	1.48	0.5
MW-521	02/23/09	46.76	6.78	408.37	0.11	-33.28	150	50.8	0.250 U	1,200	1.44	0.6
MW-521	04/21/09	52.18	6.65	282.87	0.33	643.50	105	43.5	0.250 U	66	0.587	0.2
MW-521	06/23/09	62.33	6.68	366.61	0.35	12.69	142	33.4	0.250 U	530	0.649	1.0
MW-521	08/19/09	66.65	6.54	504.12	0.14	-9.28	172	46.1	0.250 U	740	0.899	1.5
MW-521	10/26/09	60.51	6.71	701.29	0.15	-191.41	154	52.3	0.250 U	3,100	1.73	1.5
MW-521	10/27/10	59.20	6.50	541.24	0.18	-90.60	177	38.2	0.250 U	1,200	1.25	1.6
MW-521	12/14/11	45.43	7.11	220.14	11.97	90	145	143	0.250 U	200	1.04	1.4
MW-521	12/17/12	49.57	6.66	171.31	6.93	158.90	60.6	51.2	0.250 U	3.0 U	0.0157	0.5
MW-521	12/17/13	51.60	6.66	388.24	0.67	40.58	150	64.4	0.250 U	150	0.305	0.5
MW-521	12/10/14	51.76	7.20	227.11	6.97	-69.70	48.7	33	0.25 U	3.0 U	0.0065	0.1
MW-521	07/25/17	67.15	6.19	632.67	0.70	18.4	NA	21.6	0.250 U	310	0.620	1.25
MW-521	03/20/18	49.39	6.99	320.66	1.30	189.0	NA	NA	NA	NA	NA	NA
MW-521	06/28/18	62.98	6.70	574.72	0.74	123.8	NA	52.2	0.250 U	75	1.030	0.0
MW-521	11/30/18	52.16	7.02	314.57	6.34	94.9	NA	49.9	0.250 U	3.0 U	0.005 U	0.5
MW-521	06/19/19	61.72	6.93	431.9	1.45	182.8	NA	47.9	0.470 J	38	0.358	0.0
MW-521	12/11/19	53.79	6.77	953.3	2.10	-4.3	NA	77.4	0.250 U	14	0.216	2.0
MW-521	06/25/20	60.12	6.76	587.9	1.39	161.1	NA	61.0	0.250 U	26	0.260	0.0
MW-521	11/06/20	56.04	6.76	549.4	4.01	160.8	NA	49.0	0.250 UH	3 U	0.069	0.0
MW-521	06/23/21	62.21	5.99	1,896	1.00	166.6	NA	56.0	0.250 U	230	1.700	0.0
MW-521	11/03/21	58.49	6.88	613.3	8.40	145.1	NA	61.0	0.250 U	3.0 U	15.000	0.0
MW-521	06/16/22	57.70	6.84	669.5	0.27	131.3	NA	47.0	0.250 U	4.3 J	0.003	0.0

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-521	11/09/22	54.48	7.05	263.84	6.04	116.6	NA	40	0.25 U	3.0 U	0.00098 U	0.0
MW-522	10/21/08	62.31	6.57	756.65	0.06	-47.72	251	18	0.200 U	972	1.7	5.2
MW-522	12/09/08	53.30	6.71	548.80	0.14	-98.92	200	73.9	0.200 U	297	1.07	5.2
MW-522	02/23/09	48.06	6.56	503.15	0.12	-50.16	171	108	0.250 U	260	1.16	4.6
MW-522	04/21/09	49.60	6.65	393.02	0.11	699.67	154	76.6	0.250 U	74	0.88	5.2
MW-522	06/23/09	59.64	6.61	442.11	0.05	-75.88	186	51	0.250 U	140	0.963	3.0
MW-522	08/18/09	68.79	6.61	621.20	0.07	-68.46	244	29.5	0.250 U	580	1.26	3.0
MW-522	10/26/09	61.92	6.43	1,167	0.09	-25.26	206	560	0.280	400	0.947	3.0
MW-522	10/26/10	59.92	6.30	4,979,442	0.43	-104.90	208	628	0.250 U	180	0.758	0.8
MW-522	12/14/12	53.35	6.54	552.82	0.04	-16.41	203	106	0.250 U	230	1.04	1.5
MW-522	12/14/12	50.74	7.06	545.49	6.53	138.56	163	264	0.250 U	3.0 U	0.0019	0.0
MW-522	12/17/13	54.67	6.54	591.41	0.09	-207.15	221	68.7	0.250 U	560	0.991	0.0
MW-522	12/10/14	52.72	7.08	802.18	5.09	183.44	157	196	0.25 U	3.0 U	0.00055 U	0.0
MW-522	07/25/17	58.45	6.45	451.80	--	102.4	NA	14.0	0.250 U	1,000	1.780	0.0
MW-522	03/20/18	49.86	7.15	567.69	0.72	221.0	NA	NA	NA	NA	NA	NA
MW-522	06/28/18	56.45	6.62	529.64	0.11	55.1	NA	71.6	0.250 U	160	0.786	0.0
MW-522	11/29/18	53.17	7.32	845.16	8.44	164.7	NA	236.0	0.340	3.0 U	0.005 U	0.0
MW-522	06/18/19	56.06	6.50	868.6	0.14	92.2	NA	70.7	0.350 J	160	0.640	0.5
MW-522	12/12/19	54.06	6.68	1,292	0.47	0.4	NA	297.0	0.250 U	58	0.127	0.5
MW-522 (Duplicate)	12/12/19	--	--	--	--	--	--	288.0	0.250 U	62	0.121	--
MW-522	06/30/20	56.43	6.70	587.4	0.00	33.2	NA	92.0 F1	0.250 U	53 F1	0.220	0.0
MW-522	11/06/20	57.39	6.70	952.0	0.15	41.3	NA	85.0	0.250 UH	260	0.300	0.0
MW-522	06/24/21	58.54	6.41	912.2	0.11	25.2	NA	32.0	0.250 U	220	0.380	0.5
MW-522	11/01/21	57.92	8.21	794.1	5.66	293.5	NA	260.0	0.530	3.0 U	0.650 U	0.0
MW-522	06/16/22	54.59	6.81	527.9	2.36	175.2	NA	110.0	0.250 U	3.0 U	0.001 U	0.0
MW-522	11/10/22	55.49	7.01	787.57	8.43	148.2	NA	240 J	0.25 UJ	3.0 UJ	0.00098 U	0.0
MW-523	10/21/08	61.66	6.66	870.33	0.01	24.73	221	45.7	0.200 U	1,940 D	3.28	0.8
MW-523	12/09/08	54.24	6.71	587.13	0.31	31.67	218	53.2	0.200 U	482	3.01	0.6
MW-523	02/23/09	47.46	6.67	420.64	0.41	98.18	164	70	0.250 U	31	1.12	0.0
MW-523	04/21/09	49.53	6.76	353.07	0.35	-56.71	146	56.8	0.250 U	280	1.39	0.0
MW-523	06/23/09	62.92	6.77	437.56	2.42	141.87	164	42.4	0.250 U	5.0 U	0.593	0.0
MW-523	08/18/09	68.16	6.64	614.62	0.16	53.81	199	21	0.250 U	1,600	1.38	0.0
MW-523	10/26/09	62.44	6.65	720.56	0.28	62.64	248	46.5	0.250 U	420	2.95	1.0
MW-523	10/26/10	60.60	6.57	815.65	0.58	31.43	220	102	0.250 U	400	1.15	1.0
MW-523	12/13/11	53.06	6.64	599.47	0.29	70	224	44.2	0.400	72	1.31	0.8
MW-523	12/14/12	53.57	6.71	372.50	6.84	217.62	146	87.2	0.250 U	5.4	0.0707	NA
MW-523	12/17/13	52.41	6.59	385.69	0.31	-195.99	183	49.9	0.250 U	25	0.47	0.0
MW-523	12/10/14	54.18	6.58	620.59	2.77	-20.73	192	63	0.390	3.0 U	0.008	0.0
MW-524	10/21/08	60.03	6.46	965.29	-0.04	16.91	115	402	0.34	51	0.623	1.6
MW-524	12/09/08	52.74	6.58	421.64	2.81	154.94	70.6	172	0.62	2.1	0.0353	0.0
MW-524	02/23/09	47.66	6.62	337.04	2.35	118.32	76.5	141	0.48	6.2	0.0159	0.2
MW-524	04/21/09	48.81	6.60	309.12	4.93	68.52	73.2	119	0.250 U	12	0.0308	0.0
MW-524	06/23/09	59.55	6.59	374.54	0.55	139.04	86	121	0.250 U	5.0 U	0.0235	0.0
MW-524	08/18/09	65.03	6.49	468.64	0.50	108.31	104	154	0.250 U	7.9	0.0537	0.0
MW-524	10/26/09	59.41	6.27	685.50	0.66	259.84	38	410	0.450	5.0 U	0.0106	1.0
MW-524	10/26/10	59.22	6.45	1,908,568	4.24	131.09	52.6	225	0.260	5.0 U	0.84	0.4
MW-524	12/13/11	48.68	6.60	287.04	4.27	200	44.4	200	0.550 U	5.0 U	0.0048	0.0
MW-524	12/14/12	49.55	6.54	159.72	8.71	245.64	59.3	50.5	0.250 U	3.0 U	0.00048	1.0
MW-524	12/17/13	52.89	6.66	327.49	1.68	228.79	69.9	137	0.250 U	3.0 U	0.0031	0.0
MW-524	12/09/14	54.12	6.63	263.18	4.54	233.36	60.0	63	0.250 U	3.0 U	0.001 U	0.0
MW-525	12/14/12	55.41	6.42	485.07	0.10	-160.05	243	4.9	0.250 U	5,100	2.25	6.0
MW-525	12/17/13	53.85	6.37	274.47	0.01	-106.94	165	4.5	0.250 U	1,800	0.96	1.0
MW-525	12/09/14	56.56	6.41	550.92	0.09	-131.07	240	4	0.25 U	8,900	2.86	>10
MW-525	07/26/17	60.26	6.53	353.07	0.11	-66.6	NA	5.9	0.250 U	6,700	0.705	6.5

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-525	03/20/18	50.36	NA	NA	10.55	61.0	NA	NA	NA	NA	NA	NA
MW-525	06/27/18	63.42	5.43	1,013	0.02	-266.6	NA	453.0	0.250 U	1,900	4.210	5.0
MW-525	11/27/18	56.94	6.35	152.34	1.50	-82.0	NA	24.2	0.540	45	0.093	5.0
MW-525	06/20/19	60.44	5.79	7,799	0.67	114.5	NA	519.0	0.250 U	150	6.230	7.0
MW-525	12/11/19	54.78	6.22	9,799	0.16	-16.9	NA	332.0	0.250 U	1,300	4.840	4.5
MW-525	06/23/20	60.10	6.41	5.8	0.28	5.8	NA	150.0	0.250 U	430	1.100	3.5
MW-525	11/04/20	62.05	6.03	944.4	0.35	-156.5	NA	110.0	0.250 UH	540	1.100	7.0
MW-525	06/22/21	63.70	5.46	1,563	0.45	26.0	NA	59.0	0.850	1,900	1.200	5.5
MW-525	11/02/21	59.92	5.76	268.6	1.54	200.8	NA	60.0	0.690	49	74.000	0.0
MW-525	06/14/22	56.72	6.12	1,267	0.13	15.9	NA	79.0	0.250 U	610	0.420	4.0
MW-525	11/09/22	56.70	5.68	252.07	1.20	164.5	NA	33	0.25 U	3.0 U	0.15	0.0
MW-525 (Duplicate)	11/09/22	--	--	--	--	--	NA	33	0.25 U	3 U	0.14	--
MW-526	12/14/12	53.11	6.38	765.25	0.02	-58.05	340	27.5	0.250 U	950	1.36	3.0
MW-526	12/18/13	51.73	6.44	716.30	0.02	-91.82	332	1.5 U	0.250 U	1,500	1.34	1.0
MW-526	12/10/14	54.56	6.64	783.77	0.19	-278.66	293	3	0.25 U	1,500	1.53	>10
MW-526	07/26/17	64.69	6.50	383.76	0.04	-19.3	NA	1.5 U	0.250 U	2,100	1.060	6.75
MW-526	03/20/18	49.73	NA	NA	10.50	-102.7	NA	NA	NA	NA	NA	NA
MW-526	06/27/18	60.72	6.78	567.73	0.29	-97.9	NA	69.0	0.250 U	110	0.557	5.0
MW-526	11/27/18	54.44	6.44	308.85	8.27	108.5	NA	68.5	4.000	3.0 U	0.414	7.0
MW-526	06/20/19	60.89	6.34	266.0	0.07	49.6	NA	43.2	0.340 J	8.4	0.494	7.0
MW-526	12/11/19	51.60	5.84	157.4	0.49	98.3	NA	19.7	0.410 J	4.1 J	0.373	3.0
MW-526	07/01/20	59.26	6.07	145.9	0.38	39.0	NA	14.0	0.400 J	3 U	0.260	0.5
MW-526	11/04/20	59.42	6.76	0.1	10.30	57.2	NA	20.0	0.250 UH	3 U	0.480	1.0
MW-526 (Duplicate)	11/04/20	--	--	--	--	--	--	19.0	0.250 UH	3 J	0.490	--
MW-526	06/22/21	61.62	5.33	169.7	0.10	102.4	NA	12.0 F1	0.250 U F1	7.1	0.500	4.5
MW-526	11/02/21	56.48	6.01	210.0	0.57	180.6	NA	15.0	0.250 U	3.0 U	370.000	0.5
MW-526 (Duplicate)	11/02/21	--	--	--	--	--	--	16.0	0.630	3.0 U	310.000	--
MW-526	06/13/22	57.75	5.88	71,665	0.10	99.8	NA	7.3 F1	0.250 U	12	0.500	2.0
MW-526 (Duplicate)	06/13/22	--	--	--	--	--	--	7.2	0.250 U	13.0	0.520	--
MW-526	11/09/22	53.18	5.76	163.4	2.60	201.8	NA	22.0	1.70	3.0 U	0.12	0.0
MW-526 (Duplicate)	11/09/22	--	--	--	--	--	NA	22.0	1.70	3 U	0.13	--
MW-526	12/16/22	48.74	5.57	127.00	0.83	246.90	NA	--	--	--	--	--
MW-527	12/19/12	48.18	6.60	356.45	3.32	-29.37	206	12.6	0.250 U	24	0.56	0.3
MW-527	12/20/13	48.37	6.45	994.66	0.16	107.81	849	9.8	0.250 U	20,000	15.30	5.0
MW-527	12/12/14	51.72	6.61	401.96	1.25	23.20	251	14	0.250 U	2,300	2.280	3.0
MW-528	12/19/12	50.69	6.55	628.52	0.72	-13.19	433	32.4	0.250 U	5,400	9.27	4.0
MW-528	12/20/13	50.42	6.56	1,035	0.03	-35.07	517	22.7	0.250 U	11,000	18.50	6.8
MW-528	12/12/14	53.69	6.67	785.71	0.07	-54.36	398	22	0.250 U	7,000	11.400	6.0
MW-530	12/17/12	47.82	6.66	26,642	0.14	-189.47	140	1,290	0.250 U	16	0.20	0.3
MW-530	12/18/13	47.60	6.83	17,872	0.07	-230.02	141	1,080	0.250 U	130	0.21	0.5
MW-530	12/09/14	51.28	7.05	23,463	-0.02	-215.89	131	935	0.25 U	20	0.187	0.1
MW-530	07/26/17	61.35	6.41	27,495	0.21	-142.2	NA	1,480	0.250 U	44	0.194	0.0
MW-530	03/20/18	48.64	6.73	20,529	0.14	-252.0	NA	NA	NA	NA	NA	NA
MW-530	06/27/18	58.82	6.87	16,447	0.05	-278.2	NA	769.0	0.250 U	61	0.087	0.0
MW-530	11/27/18	52.27	6.59	24,312	0.10	-280.4	NA	935.0	0.250 U	10	0.091	0.5
MW-530	06/17/19						Well damaged. No sampling. Repaired on 06/28/19.					
MW-530	12/12/19	51.81	6.65	27,440	0.05	-266.7	NA	1,210	0.250 U	920	0.313	0.0
MW-530	06/23/20	57.53	6.58	30,751	0.20	-136.8	NA	1,800	0.250 U	54	0.580	1.0
MW-530	11/03/20	55.37	6.73	32,188	0.10	-270.4	NA	1,200	0.250 U	290	0.410	0.0
MW-530	06/23/21	59.80	6.56	38,508	0.10	-130.2	NA	1,400	6.700	57	0.530	0.0
MW-530	11/03/21	56.22	6.36	32,561	0.13	-271.6	NA	1,600	0.700	270	410.000	0.5
MW-530	06/14/22	55.64	6.44	19,076	0.16	-226.6	NA	600.0	0.250 U	640	0.130	0.5
MW-530	11/08/22	52.68	6.69	29,560	0.21	-136.3	NA	1,400	0.25 U	480	0.26	0.0
MW-531	12/18/12	47.22	6.72	408.24	0.98	-4.57	176	130.0	0.510	120	0.08	0.7

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-531	12/17/13	52.70	6.46	313.43	0.05	-58.89	172	6.1	0.250 U	1,100	0.60	0.3
MW-531	12/09/14	51.09	6.49	292.36	0.06	-8.26	107	33	0.25 U	1,200	0.115	0.6
MW-531	07/26/17	61.39	6.56	254.24	NA	-3.0	NA	1.5 U	0.250 U	3,300	0.532	3.25
MW-531	03/20/18	48.13	7.04	371.15	0.55	109.2	NA	NA	NA	NA	NA	NA
MW-531	06/27/18	60.25	6.63	490.45	1.54	28.8	NA	47.5	0.520	86	0.312	0.0
MW-531	11/27/18	51.75	6.86	775.20	3.86	159.5	NA	224.0	0.670	3.0 U	0.005 U	0.0
MW-531	06/20/19	59.55	6.25	848.59	0.17	178.0	NA	31.1	0.250 U	1,500	0.754	0.0
MW-531 (Duplicate)	06/20/19	--	--	--	--	--	--	30.3	0.250 U	1,400	0.740	--
MW-531	12/11/19	52.69	6.79	1,856	3.65	75.0	NA	156.0	0.390 J	120	2.460	2.5
MW-531	06/24/20	59.46	6.64	2,049	0.18	86.6	NA	64.0	0.250 UH	440	0.810	1.0
MW-531	11/04/20	60.78	6.31	6,437	0.96	111.9	NA	150.0	0.340 JH	170	2.500	0.1
MW-531 (Duplicate)	11/04/20	--	--	--	--	--	--	180.0	0.310 JH	200	2.500	--
MW-531	06/22/21	64.39	6.49	2,345	0.57	46.3	NA	71.0	0.740	0.2	1.900	3.5
MW-531	11/02/21	58.92	6.54	1,604	0.60	87.1	NA	130.0	0.250 U	62	810.000	0.0
MW-531	06/14/22	57.04	6.58	1,015	0.46	59.8	NA	63.0	0.250 U	80	0.520	0.0
MW-531	11/09/22	51.99	6.85	908.2	6.96	171.20	NA	210	0.33 J	17.	0.089	0.0
MW-531	12/16/22	48.92	6.75	1,005	5.68	230.10	NA	--	--	--	--	--
MW-532	12/14/12	53.44	6.35	259.66	0.04	-92.42	113	39.3	0.250 U	220	0.24	1.0
MW-532	12/17/13	53.07	6.20	252.35	0.02	-60.71	105	36.1	0.250 U	210	0.13	0.2
MW-532	12/09/14	54.89	6.34	242.53	0.12	-99.77	112	27	0.25 U	730	0.329	2.5
MW-532	07/26/17	60.82	6.29	373.47	0.07	-62.9	NA	1.5 U	0.250 U	2,500	0.825	7.0
MW-532	03/20/18	48.70	NA	288.13	0.27	NA	NA	NA	NA	NA	NA	NA
MW-532	06/27/18	58.24	5.74	450.76	0.07	-44.0	NA	159.0	0.250 U	360	0.460	0.5
MW-532	11/27/18	55.89	6.60	264.49	8.15	127.5	NA	51.8	0.520	3.0 U	0.017	0.5
MW-532	06/20/19	55.44	6.02	761.11	0.20	168.4	NA	64.2	0.250 U	120	0.438	2.0
MW-532	12/11/19	54.15	6.04	202.54	0.77	172.4	NA	26.0	0.250 U	25	0.040	0.0
MW-532	07/01/20	56.76	5.84	178.3	0.37	187.6	NA	17.0	0.250 U	3 U	0.019	0.0
MW-532	11/04/20	60.56	5.98	186.6	1.86	172.7	NA	22.0	0.250 UH	5	0.033	0.1
MW-532	06/23/21	57.84	5.89	183.2	0.64	129.5	NA	12.0	0.250 U	180	0.100	0.5
MW-532	11/02/21	57.87	5.81	168.4	4.66	271.0	NA	23.0	0.550	5.0	3.600	0.0
MW-532	06/14/22	55.16	5.75	90,388	0.10	222.2	NA	8.1	0.250 U	3.0 U	0.008 B	0.0
MW-532	11/09/22	53.44	5.88	122.40	0.41	84.9	NA	11.0	0.25 U	11	0.096	0.5
MW-533	03/20/18	47.90	6.83	11,287	3.19	155.7	NA	NA	NA	NA	NA	NA
MW-533	06/27/18	63.06	7.18	709.84	0.43	89.7	NA	30.5	0.250 U	5.8	0.035	0.0
MW-533	11/27/18	53.47	7.15	3,300	6.46	109.1	NA	182.0	0.520	3.0 U	0.007 U	0.0
MW-533	06/19/19	60.63	7.07	42,122	4.82	90.9	NA	2,090	0.330 J	3.0 U	0.005 U	0.0
MW-533	12/11/19	51.39	7.62	4,494	0.92	110.3	NA	188.0	0.650	3 U	0.001 U	0.0
MW-533 (Duplicate)	12/11/19	51.39	7.62	4,494	0.92	110.3	NA	185.0	0.620	4 J	0.880 J	0.0
MW-533	06/24/20	58.91	7.38	38,985	6.32	177.1	NA	2,600	0.310 JH	3 U	0.001 U	2.0
MW-533	11/04/20	55.28	7.23	40,956	7.28	78.6	NA	1,700	0.430 JH	3 U	0.001 U	0.0
MW-533	06/22/21	64.32	6.96	38,461	3.85	66.4	NA	1,600	8.500	3.0 U	0.001 U	0.0
MW-533	11/02/21	57.17	8.58	10,090	3.94	201.5	NA	500.0	0.930	3.0 U	1.000 J B	0.5
MW-533	06/13/22	60.87	7.01	7,436	2.85	230.0	NA	300.0	2.500 U	3.0 U	0.001 U	0.0
MW-533	11/08/22	54.14	7.04	14,690	4.57	122.0	NA	740	1.40	3.0 U	0.00098	0.0
MW-534	03/20/18	52.29	6.74	3,908	0.08	-20.0	NA	NA	NA	NA	NA	NA
MW-534	06/27/18	63.17	6.66	2,453	0.15	-184.2	NA	41.3	0.250 U	5,500	3.760	6
MW-534	11/28/18	53.85	6.47	183.11	3.62	109.1	NA	32.5	0.250 U	140	0.209	0.0
MW-534 (Duplicate)	11/28/18	--	--	--	--	--	--	35.4	0.250 U	200	0.226	--
MW-534	06/20/19	62.27	6.26	24,129	0.11	-137.1	NA	1,040	0.250 U	2,500	15.300	6.0
MW-534	12/12/19	53.03	6.66	7,253	0.24	-48.2	NA	510.0	0.250 U	4,500	5.590	3.5
MW-534	06/24/20	61.60	6.55	8,720	0.13	-36.0	NA	360.0	0.250 UH	1,100	3.900	6.5
MW-534	11/04/20	61.99	6.68	12,825	0.22	-99.7	NA	430.0	0.250 UH	1,200	4.000	6.5
MW-534	06/22/21	64.22	6.52	28,698	0.15	9.5	NA	1,100	9.100	480	4.600	0.0
MW-534	11/02/21	60.10	7.87	5,296	0.20	-103.8	NA	230.0	0.250 U	490	2.500	2.0
MW-534	06/13/22	61.99	6.68	1,350	0.16	-172.1	NA	59.0	0.250 U	480	1.500 B	2.5

Table 3-5  
 Summary of Groundwater Analytical Data – Natural Attenuation Parameters  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Monitoring Well	Date Sampled	Temperature (°F) <sup>1</sup>	pH <sup>1</sup>	Conductivity (µS/cm) <sup>1</sup>	DO (mg/L) <sup>1</sup>	ORP (mV) <sup>1</sup>	Total Alkalinity (mg/L as CaCO <sub>3</sub> ) <sup>2</sup>	Sulfate (mg/L) <sup>3</sup>	Nitrate (mg/L) <sup>3</sup>	Methane (µg/L) <sup>4</sup>	Manganese (mg/L) <sup>5</sup>	Ferrous Iron by Field Measurement (mg/L) <sup>6</sup>
MW-534	11/09/22	58.42	6.73	1,378	0.24	4.2	NA	180	0.25 U	360	0.95	1.5
MW-535	03/20/18	48.11	6.96	34,199	5.34	299.10	NA	NA	NA	NA	NA	NA
MW-535 (Duplicate)	03/20/18	--	--	--	--	--	NA	NA	NA	NA	NA	NA
MW-535	06/27/18	68.39	7.27	640.02	0.22	28.8	NA	29.6	0.250 U	8.0	0.044	NA
MW-535 (Duplicate)	06/27/18	--	--	--	--	--	NA	21.9	0.250 U	5.6	0.048	--
MW-535	11/27/18	53.12	6.95	8,102	7.06	9.0	NA	387.0	0.590	5.0	0.016	0.0
MW-535	06/19/19	60.02	7.03	36,607	5.05	143.5	NA	1,840	0.370 J	3.0 U	0.285	0.0
MW-535	12/12/19	49.52	5.84	0.45	11.66	147.4	NA	87.3	0.860	3.0 U	0.010	0.0
MW-535	06/23/20	60.47	7.03	28,958	3.77	149.7	NA	2,000	0.310 J	3 U	0.002 J	0.0
MW-535 (Duplicate)	06/23/20	--	--	--	--	--	--	1,900	0.310 J	3 U	0.003	--
MW-535	11/03/20	53.20	7.03	38,864	5.54	89.1	NA	1,500	0.600 F1	3 U	0.001 U	0.0
MW-535	06/23/21	59.71	6.77	33,417	4.66	179.3	NA	1,700	1.500	3.0 U	0.001 J	0.0
MW-535	11/03/21	54.61	7.31	20,478	4.03	265.2	NA	1,100	0.650	3.0 U	1.500 J	0.0
MW-535	06/14/22	64.06	7.08	8,373	1.91	103.3	NA	340.0	0.250 U	3.0 U	0.019 B	0.0
MW-535	11/08/22	52.76	7.16	16,253	2.09	178.2	NA	680	0.50 U	3.0 U	0.0029	0.0
MW-8R	10/21/08	61.34	6.65	860.34	-0.02	-100.66	217	50.6	0.200 U	304	1.49	1.2
MW-8R	12/09/08	54.32	6.83	494.30	0.40	-132.57	180	58.1	0.200 U	299	0.664	1.2
MW-8R	02/23/09	47.03	6.75	426.42	0.42	-23.66	155	69.9	0.250 U	210	0.682	1.0
MW-8R	04/21/09	49.17	6.81	309.61	0.54	-167.35	134	47.5	0.250 U	21	0.375	0.0
MW-8R	06/23/09	61.01	6.69	404.48	0.22	17.20	168	45.7	0.250 U	100	0.719	2.0
MW-8R	08/18/09	68.36	6.55	568.94	0.11	-5.74	208	40.6	0.250 U	240	0.945	1.0
MW-8R	10/26/09	62.15	6.73	1,126	3.00	201.58	138	503	0.380	120	0.418	0.5
MW-8R	10/26/10	60.46	6.68	1,273	3.23	-24.65	223	376	0.250 U	220	0.497	1.0
MW-8R	12/14/11	52.84	6.57	663.65	0.75	-10.00	185	70.9	0.250 U	150	0.780	0.2
MW-8R	12/14/12	53.45	6.88	476.09	8.02	219.79	155	163	0.250 U	3.0 U	0.0061	1.0
MW-8R	12/17/13	54.35	6.66	470.98	0.43	-183.41	187	37.4	0.250 U	62	0.229	0.2
MW-8R	12/10/14	56.31	6.97	604.21	6.50	214.86	150	84	0.25 U	3.0 U	0.0206	0.0
MW-8R	07/25/17	63.08	6.29	428.73	0.78	129.8	NA	20.6	0.250 U	110	0.085	0.0
MW-8R	03/20/18	48.54	6.86	355.34	0.49	104.9	NA	NA	NA	NA	NA	NA
MW-8R	06/29/18	56.40	6.81	431.53	0.00	103.4	NA	28.5	0.250 U	4.4	0.020	0.0
MW-8R	11/29/18	56.56	7.08	391.20	1.52	124.0	NA	53.3	0.380	3.0 U	0.038	0.0
MW-8R	06/18/19	55.86	6.65	450.02	0.50	126.2	NA	18.9	0.330 J	11	0.014	0.0
MW-8R	12/12/19	54.69	6.75	1,444	0.64	-17.8	NA	54.2	0.250 U	87	0.038	0.0
MW-8R	06/30/20	57.33	6.78	477.9	0.71	114.0	NA	56.0	0.250 U	3 U	0.010	0.0
MW-8R	11/06/20	57.24	6.84	1,006	0.75	81.3	NA	47.0	0.250 UH	3 U	0.012	0.0
MW-8R	06/23/21	57.99	6.57	1,105	1.44	128.5	NA	54.0 F1	0.250 U F1	5.4	0.017	0.0
MW-8R	11/01/21	57.86	8.14	394.2	1.23	244.9	NA	51.0	0.970	3.0 U	3.100	0.0
MW-8R	06/16/22	55.32	6.81	470.1	1.17	171.4	NA	48.0	0.250 U	3.0 U	0.001 U	0.0
MW-8R	11/09/22	57.40	6.80	903.73	7.40	124.7	NA	230 J	0.86	3.0 UJ	0.11	0.0
MW-E-R	07/26/17	59.72	6.68	1,317	0.07	-96.6	NA	42.3	0.250 U	6,200	3.800	7.0
MW-E-R	03/20/18	51.48	6.60	1,507	0.01	-99.6	NA	NA	NA	NA	NA	NA
MW-E-R	06/27/18	59.55	6.58	1,705	0.00	-144.3	NA	1.5 U	0.250 U	23,000	11.800	4.5
MW-E-R	11/27/18	60.04	6.76	1,088	1.63	-87.7	NA	1.5 U	0.250 U	9,600	8.130	7.0
MW-E-R	06/20/19	59.44	6.56	1,650	0.13	-128.5	NA	3.4 J	0.250 U	14,000	15,700	4.0
MW-E-R	12/11/19	55.57	6.74	1,008	0.05	-77.5	NA	1.5 U	0.255 U	17,000	7.120	6.0
MW-E-R	06/23/20	59.80	6.54	1,315	0.06	-119.8	NA	1.5	0.250 U	16,000	8.800	>7.0
MW-E-R (Duplicate)	06/23/20	--	--	--	--	--	--	2.5 J	0.250 U	15,000	8.800	--
MW-E-R	11/04/20	61.92	6.67	1,410	0.07	-147.6	NA	1.6 J	0.250 U	16,000	7.100	6.0
MW-E-R	06/22/21	61.40	6.66	1,504	0.01	-99.7	NA	13.0	0.690	12	9.500	3.0
MW-E-R (Duplicate)	06/22/21	--	--	--	--	--	--	12.0	1.400	9,800	9.200	--
MW-E-R	11/02/21	60.17	6.47	1,233	0.21	-153.9	NA	110.0	0.250 U	35	6.100	4.5
MW-E-R	06/14/22	56.92	6.37	142.1	0.20	-100.8	NA	5.2	0.250 U	18,000	5.900	5.0
MW-E-R (Duplicate)	06/14/22	--	--	--	--	--	--	4.9 J	0.250 U	9,600	6.600	--
MW-E-R	11/08/22	58.77	6.47	1,595	0.25	-86.8	NA	2.5 U	0.25 U	12,000 J	5.1	3.0



**Table 3-5**  
**Summary of Groundwater Analytical Data – Natural Attenuation Parameters**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

**Notes:**

1. Blue shading indicates 4Q22 Event.
- <sup>1</sup> Temperature, pH, DO, conductivity and ORP measured using an In-Situ® 9500 and flow-through cell.
- <sup>2</sup> Total alkalinity analyzed using USEPA Method 310.1.
- <sup>3</sup> Sulfate and nitrate analyzed by USEPA Method 300.0.
- <sup>4</sup> Methane analyzed using Method RSK 175.
- <sup>5</sup> Manganese analyzed using USEPA Method 6020.
- <sup>6</sup> Ferrous iron field measurement analyzed using a Hach field kit.

**Acronyms and Abbreviations:**

°F = degree Fahrenheit  
µg/L = microgram per liter  
µS/cm = microSiemen per centimeter  
^ = measurement error  
-- = Not Analyzed  
< = less than  
> = greater than  
CaCO<sub>3</sub> = calcium carbonate  
DO = dissolved oxygen  
mg/L = milligram per liter  
mV = millivolt  
NA = not analyzed  
ORP = oxidation-reduction potential  
Unocal = Union Oil Company of California  
USEPA = United States Environmental Protection Agency

**Qualifiers:**

B = Compound was found in the blank and sample.  
D = Sample required dilution due to high concentrations of target analyte.  
E = The compound was quantitated above the calibration range.  
F1 = MS and/or MSD recovery exceeds control limits.  
H = Sample was prepped or analyzed beyond the specified holding time.  
H3 = Sample was received and analyzed past holding time.  
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.  
P = Due to interfering peaks on the chromatogram, the value reported for methane represents the lowest reporting limit attainable.  
U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.  
UJ = The compound was analyzed for but not detected. The associated value is the estimated compound quantitation limit.  
W = Post Digestion spike out of control limits.

**Table 4-1**  
**Groundwater Extraction Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

Date and Time (mm/dd/yy hh:mm)	DPE System Enclosure LEL (Meter GT7911)	DPE System Transfer Pump Total Operating Hours (Meter P-5501)	Number of Active Groundwater Extraction Wells (out of 18 Wells)	Number of Active Soil Vapor Extraction Wells (out of 20 Wells)	Groundwater Extracted Volume (Totalizer FT7001)	Groundwater Extracted Volume (calculated per period)	Instantaneous System Flow Rate (Meter FT7001)	NPDES Discharge Sample Collected	NPDES Discharge pH Measured	Comments/System Status
Units	% LEL	Hours	Number of Wells	Number of Wells	gallons	gallons	gpm	Yes/No	pH units	
NPDES Permit No. WA0991007 Effluent Limitations	--	--	--	--	--	--	100	Weekly Sample Outfall #002	6<pH<9	
<b>DPE System Groundwater Extraction Testing Startup: 12/1/17</b>										
<b>DPE System Soil Groundwater Extraction Effective Startup: 12/5/17</b>										
1/5/22 10:55	0.0	5566.7	7	7	16,894,031	94,089	70.2	Yes	7.06	On; system off week of 12/26 due to snow
1/12/22 10:00	0.0	5619.3	7	7	17,081,466	187,435	57.0	No	--	On
1/24/22 14:27	0.0	5705.1	7	0	17,310,070	228,604	46.4	Yes	8.20	SVE system off due to malfunction
1/31/22 11:00	0.0	5765.7	6	0	17,467,655	157,585	50.6	Yes	8.00	SVE system off due to malfunction
2/7/22 14:30	0.0	5819.0	6	0	17,609,045	141,390	17.8	Yes	8.30	SVE off
2/16/22 9:37	0.0	5882.5	6	0	17,774,062	165,017	40.6	No	--	SVE off
3/3/22 12:24	0.0	5902.2	8	0	17,810,079	36,017	41.7	No	--	SVE system off
3/16/22 12:10	0.0	5946.8	8	0	17,915,801	105,722	29.9	No	--	SVE system off
4/22/22 9:10	0.0	6013.9	8	0	18,100,014	184,213	32.1	No	--	SVE system off
5/18/22 0:00	0.0	6161.6	7	0	18,565,078	465,064	0.0	Yes	7.92	SVE system off
6/22/22 8:45	0.0	6374.4	7	0	19,119,214	554,136	40.8	No	--	SVE system off
7/1/22 11:57	0.0	6463.1	7	0	19,325,231	206,017	37.2	No	--	SVE system off
7/5/22 13:29	0.0	6503.0	7	0	19,423,464	98,233	42.5	Yes	7.99	SVE system off
7/12/22 13:40	0.0	6520.0	7	0	19,469,904	46,440	42.3	No	--	SVE system off
7/21/22 9:55	0.0	6593.6	7	6	19,642,496	172,592	31.4	No	--	On
7/27/22 12:21	0.0	6638.3	7	7	19,731,904	89,408	33.8	Yes	7.79	On
8/5/22 11:00	0.0	6723.2	7	0	19,891,680	159,776	34.1	Yes	7.83	SVE system off
8/10/22 14:15	0.0	6742.5	7	7	19,930,112	38,432	34.8	No	--	SVE system on
8/15/22 13:25	0.0	6799.7	7	0	20,026,758	96,646	24.4	Yes	7.75	SVE system off
8/26/22 12:30	0.0	6806.9	7	7	20,046,452	19,694	36.0	Yes	7.52	System on
9/1/22 13:30	0.0	6831.0	7	7	20,086,367	39,915	63.0	Yes	--	System on
9/8/22 15:30	0.0	6863.5	5	5	20,181,234	94,867	33.7	Yes	--	System on
9/16/22 11:10	0.0	6893.9	6	6	20,263,465	82,231	70.2	Yes	--	System on
9/19/22 12:30	0.0	6907.8	6	6	20,313,702	50,237	52.6	Yes	7.72	System on
10/14/22 12:00	0.0	6935.4	7	7	20,367,878	54,176	33.0	Yes	--	System on
10/17/22 12:10	0.0	6950.6	7	7	20,367,878	54,677	49.2	Yes	7.84	System on
12/19/22 10:47	0.0	7041.4	6	6	20,367,878	59,154	66.9	Yes	8.14	System on, groundwater flow totalizer seems to be malfunctioning; used pumping rate for totalizer estimate

**Acronyms and Abbreviations:**

- % = percent
- = data not collected
- < = less than
- DPE = dual-phase extraction
- gpm = gallon per minute
- hh:mm = time in hours and minutes
- LEL = lower explosive limit
- mm/dd/yy = month/day/year
- SVE = soil vapor extraction
- Unocal = Union Oil Company of California

Table 4-3  
 OM&M Vapor Extraction Data – Laboratory Data and Mass Removal  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Date and Time	SVE Operation Data		GRO Mass Removal Calculation			Benzene Mass Removal Calculation		
	Blower Cumulative Operating Period	SVE System Flow Rate (FT-701)	GRO Concentration (VSP-801)	GRO Mass Removal Rate	Cumulative GRO Mass Removed	Benzene Concentration (VSP-801)	Benzene Removal Rate	Cumulative Benzene Mass Removed
mm/dd/yy hh:mm	Cumulative Hours	scfm	ppmv	lbs/day	Pounds	ppmv	lbs/day	Pounds
<b>DPE System SVE Testing: 12/05/17</b>								
<b>DPE System SVE Startup: 12/11/17</b>								
12/14/17 14:00	71.9	330	290	36.36	109	2.4	0.24	0.70
12/20/17 12:40	149.8	315	160	19.15	199	0.91	0.09	1.22
12/27/17 11:55	244.5	344	100	13.07	263	0.48	0.05	1.49
2/20/18 13:40	729.1	165	18	1.13	406	0.28	0.01	2.12
3/14/18 11:50	1,033.4	208	20	1.58	423	0.17	0.01	2.27
5/18/18 15:15	1,172.7	175	34	2.26	434	0.0011	0.00	2.31
7/26/18 14:15	2,100.4	283	17	1.83	513	0.046	0.00	2.38
10/18/18 14:10	2,453.3	149	38	2.15	543	0.640	0.03	2.62
4/17/20 13:12	3,820.6	231	11	0.97	631	0.002	0.00	3.43
8/13/21 9:23	5,817.8	344	32	4.18	846	--	--	--
12/16/21 13:10	7,089.8	281	2.3	0.25	963	--	--	--
4/17/20 13:12	3,820.6	231	11	0.97	631	0.002	0.00	3.43
6/15/21 8:10	--	--	4.8	--	--	0.021	--	--
8/13/21 9:23	5,817.8	344	7.9	1.03	714	0.0013	0.00	3.44
12/16/21 13:10	7,089.8	264	0.57	0.06	743	0.0091	0.00	3.46
2022 Data	Due to low photoionization detector readings, analytical data was not collected in 2022.							

**Table 4-3**  
**OM&M Vapor Extraction Data – Laboratory Data and Mass Removal**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

**Notes:**

$$\begin{aligned}
 1. \text{ GRO mass removal rate (lbs/day)} &= \frac{\text{Flow ft}^3}{\text{minute}} \times \frac{1440 \text{ minutes}}{\text{day}} \times \frac{1 \text{ pound mole}}{379 \text{ ft}^3 \text{ air}} \times \frac{\text{Post Blower Concentration (Lab TPH) parts per million by volume}}{1,000,000 \text{ parts}} \times \frac{100 \text{ pounds}}{\text{pound mole as Gasoline}} \\
 2. \text{ Benzene mass removal rate (lbs/day)} &= \frac{\text{Flow ft}^3}{\text{minute}} \times \frac{1440 \text{ minutes}}{\text{day}} \times \frac{1 \text{ pound mole}}{379 \text{ ft}^3 \text{ air}} \times \frac{\text{Post Blower Concentration (Lab TPH) parts per million by volume}}{1,000,000 \text{ parts}} \times \frac{78.11 \text{ pounds}}{\text{pound mole as Benzene}} \\
 3. \text{ Cumulative mass removed (pounds)} &= \left( \text{Average} \left( \frac{\text{Mass Removal Rate current period (Lab) pounds}}{\text{day}} + \frac{\text{Mass Removal Rate previous period (Lab) pounds}}{\text{day}} \right) \right) \times \frac{\Delta \text{discharge hours}}{24 \frac{\text{hrs}}{\text{day}}} + \text{Cumulative Mass Removed previous period lbs}
 \end{aligned}$$

**Acronyms and Abbreviations:**

-- =Data not collected

DPE = dual-phase extraction

hh:mm = time in hours and minutes

lb/day = pound per day

mm/dd/yy = month/day/year

OM&M = operation, maintenance, and monitoring

ppmv = part per million by volume

scfm = standard cubic foot per minute

SVE = soil vapor extraction

Unocal = Union Oil Company of California

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
PZ-1	12.96	1/12/2022	11:12	0.0	DPE-1	17.8	7.77	--	5.19	1.55	
PZ-1	12.96	2/16/2022	9:55	n.m.	DPE-1	17.8	7.93	--	5.03	1.71	
PZ-1	12.96	3/16/2022	11:31	n.a.	DPE-1	17.8	8.91	--	4.05	2.69	
PZ-1	12.96	4/22/2022	10:26	0.0	DPE-1	17.8	8.63	--	4.33	2.41	
PZ-1	12.96	5/18/2022	11:00	n.m.	DPE-1	17.8	8.64	--	4.32	2.42	PID=3.5
PZ-1	12.96	6/22/2022	10:09	n.a.	DPE-1	17.8	8.92	--	4.04	2.70	
PZ-1	12.96	7/27/2022	11:40	3.1	DPE-1	17.8	9.07	--	3.89	2.85	
PZ-1	12.96	8/10/2022	13:16	-0.5	DPE-1	17.8	8.90	--	4.06	2.68	
PZ-1	12.96	9/16/2022	14:38	3.0	DPE-1	17.8	9.19	--	3.77	2.97	
PZ-1	12.96	12/19/2022	12:45	0.6	DPE-1	17.8	7.64	--	5.32	1.42	
PZ-2	13.18	1/5/2022	12:55	n.m.	DPE-1	8	6.01	--	7.17	-0.23	No evidence of LNAPL.
PZ-2	13.18	1/10/2022	13:00	n.m.	DPE-1	8	7.00	--	6.18	0.76	No evidence of LNAPL.
PZ-2	13.18	1/12/2022	11:30	0.0	DPE-1	8	7.54	--	5.64	1.30	No evidence of LNAPL.
PZ-2	13.18	1/18/2022	13:35	n.m.	DPE-1	8	5.53	--	7.65	-0.71	No evidence of LNAPL.
PZ-2	13.18	1/24/2022	15:05	n.m.	DPE-1	8	8.36	--	4.82	2.12	No evidence of LNAPL.
PZ-2	13.18	1/31/2022	11:30	n.m.	DPE-1	8	7.82	--	5.36	1.58	No measurable LNAPL. Trace LNAPL observed on probe and bailer tip only. Oil absorbent sock placed in well.
PZ-2	13.18	2/3/2022	12:05	n.m.	DPE-1	8	--	--	n.g.	n.g.	No interface probe available. Trace LNAPL observed on bailer tip. Sock presented with discoloration. Sock replaced.
PZ-2	13.18	2/7/2022	12:21	n.m.	DPE-1	8	8.19	--	4.99	1.95	No measurable LNAPL. No LNAPL observed on probe or bailer tip. Sock replaced.
PZ-2	13.18	2/10/2022	15:35	n.m.	DPE-1	8	8.25	--	4.93	2.01	No evidence of LNAPL. Sock appeared with no discoloration. Sock removed.
PZ-2	13.18	2/14/2022	12:45	n.m.	DPE-1	8	7.89	--	5.29	1.65	No evidence of LNAPL.
PZ-2	13.18	2/16/2022	9:40	n.m.	DPE-1	8	8.31	--	4.87	2.07	No evidence of LNAPL.
PZ-2	13.18	2/22/2022			DPE-1	8			n.g.	n.g.	
PZ-2	13.18	3/8/2022	11:50	n.m.	DPE-1	8	6.63	--	6.55	0.39	No evidence of LNAPL.
PZ-2	13.18	3/16/2022	11:33	n.a.	DPE-1	8	8.93	--	4.25	2.69	No evidence of LNAPL.
PZ-2	13.18	3/21/2022	14:15	n.m.	DPE-1	8	6.61	--	6.57	0.37	No evidence of LNAPL.
PZ-2	13.18	3/28/2022	12:20	n.m.	DPE-1	8	6.52	--	6.66	0.28	No evidence of LNAPL.
PZ-2	13.18	4/22/2022	10:28	0.0	DPE-1	8	8.70	--	4.48	2.46	No evidence of LNAPL.
PZ-2	13.18	4/25/2022	12:45	n.m.	DPE-1	8	7.78	--	5.40	1.54	No evidence of LNAPL.
PZ-2	13.18	5/2/2022	12:45	n.m.	DPE-1	8	8.97	--	4.21	2.73	No evidence of LNAPL.
PZ-2	13.18	5/18/2022	11:05	n.m.	DPE-1	8	8.65	--	4.53	2.41	No LNAPL on probe. PID=3.2
PZ-2	13.18	5/23/2022	14:00	n.m.	DPE-1	8	8.57	--	4.61	2.33	No evidence of LNAPL.
PZ-2	13.18	6/22/2022	10:03	n.a.	DPE-1	8	8.95	--	4.23	2.71	No evidence of LNAPL.
PZ-2	13.18	7/27/2022	12:10	6.6	DPE-1	8	9.00	--	4.18	2.76	No evidence of LNAPL.
PZ-2	13.18	8/10/2022	13:20	-1.0	DPE-1	8	8.85	--	4.33	2.61	No evidence of LNAPL.
PZ-2	13.18	9/16/2022	14:45	6.7	DPE-1	8	9.15	--	4.03	2.91	No evidence of LNAPL.
PZ-2	13.18	12/19/2022	12:36	0.2	DPE-1	8	7.74	--	5.44	1.50	No evidence of LNAPL.
PZ-4	14.16	1/12/2022	10:54	0.0	DPE-5 & DPE-6	15	9.30	--	4.86	1.82	
PZ-4	14.16	2/16/2022	9:46	n.m.	DPE-5 & DPE-6	15	8.80	--	5.36	1.32	
PZ-4	14.16	3/16/2022	11:27	n.a.	DPE-5 & DPE-6	15	10.39	--	3.77	2.91	
PZ-4	14.16	4/22/2022	10:19	0.0	DPE-5 & DPE-6	15	10.19	--	3.97	2.71	
PZ-4	14.16	5/18/2022	11:08	n.m.	DPE-5 & DPE-6	15	10.10	--	4.06	2.62	PID=0.2
PZ-4	14.16	6/22/2022	9:58	n.a.	DPE-5 & DPE-6	15	10.34	--	3.82	2.86	
PZ-4	14.16	7/27/2022	11:30	0.8	DPE-5 & DPE-6	15	10.50	--	3.66	3.02	
PZ-4	14.16	8/10/2022	12:12	0.0	DPE-5 & DPE-6	15	10.29	--	3.87	2.81	
PZ-4	14.16	9/16/2022	14:49	0.5	DPE-5 & DPE-6	15	10.59	--	3.57	3.11	
PZ-4	14.16	12/19/2022	12:52	0.0	DPE-5 & DPE-6	15	8.82	--	5.34	1.34	

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
PZ-5	12.84	1/12/2022	10:42	0.0	DPE-7	15	5.02	--	7.82	-0.49	
PZ-5	12.84	2/16/2022	9:58	n.m.	DPE-7	15	6.46	--	6.38	0.95	
PZ-5	12.84	3/16/2022	11:43	n.a.	DPE-7	15	6.48	--	6.36	0.97	
PZ-5	12.84	4/22/2022	10:34	0.0	DPE-7	15	5.92	--	6.92	0.41	
PZ-5	12.84	5/18/2022	11:10	n.m.	DPE-7	15	6.39	--	6.45	0.88	
PZ-5	12.84	6/22/2022	10:15	n.a.	DPE-7	15	6.73	--	6.11	1.22	
PZ-5	12.84	7/27/2022	11:46	0.2	DPE-7	15	6.91	--	5.93	1.40	
PZ-5	12.84	8/10/2022	13:24	0.0	DPE-7	15	6.81	--	6.03	1.30	
PZ-5	12.84	9/16/2022	14:55	0.2	DPE-7	15	6.99	--	5.85	1.48	
PZ-5	12.84	12/19/2022	12:25	0.0	DPE-7	15	5.34	--	7.50	-0.17	
PZ-6	12.96	1/12/2022	10:48	0.0	DPE-8	15	4.88	--	8.08	-0.47	
PZ-6	12.96	2/16/2022	9:58	n.m.	DPE-8	15	6.29	--	6.67	0.94	
PZ-6	12.96	3/16/2022	11:45	n.a.	DPE-8	15	6.24	--	6.72	0.89	
PZ-6	12.96	4/22/2022	10:37	0.0	DPE-8	15	5.81	--	7.15	0.46	
PZ-6	12.96	5/18/2022	11:12	n.m.	DPE-8	15	6.10	--	6.86	0.75	
PZ-6	12.96	6/22/2022	10:17	n.a.	DPE-8	15	6.48	--	6.48	1.13	
PZ-6	12.96	7/27/2022	11:48	0.1	DPE-8	15	6.69	--	6.27	1.34	
PZ-6	12.96	8/10/2022	13:26	0.0	DPE-8	15	6.62	--	6.34	1.27	
PZ-6	12.96	9/16/2022	15:03	0.0	DPE-8	15	6.74	--	6.22	1.39	
PZ-6	12.96	12/19/2022	14:25	0.0	DPE-8	15	5.28	--	7.68	-0.07	
PZ-7	13.05	1/12/2022	10:40	0.0	DPE-10	15	4.67	--	8.38	-0.50	
PZ-7	13.05	2/16/2022	10:04	n.m.	DPE-10	15	6.00	--	7.05	0.83	
PZ-7	13.05	3/16/2022	11:47	n.a.	DPE-10	15	5.74	--	7.31	0.57	
PZ-7	13.05	4/22/2022	10:39	0.0	DPE-10	15	5.66	--	7.39	0.49	
PZ-7	13.05	5/18/2022	11:15	n.m.	DPE-10	15	5.58	--	7.47	0.41	
PZ-7	13.05	6/22/2022	10:19	n.a.	DPE-10	15	5.92	--	7.13	0.75	
PZ-7	13.05	7/27/2022	n.a.	n.a.	DPE-10	15	n.g.	--	n.g.	n.g.	Overgrown by plants, inaccessible.
PZ-7	13.05	8/10/2022	13:30	0.0	DPE-10	15	6.10	--	6.95	0.93	
PZ-7	13.05	9/16/2022	15:09	0.0	DPE-10	15	6.16	--	6.89	0.99	
PZ-7	13.05	12/19/2022	14:31	0.0	DPE-10	15	5.14	--	7.91	-0.03	
PZ-8	12.91	1/12/2022	10:30	0.0	DPE-11	12	5.41	--	7.50	-0.18	
PZ-8	12.91	2/16/2022	10:10	n.m.	DPE-11	12	7.08	--	5.83	1.49	
PZ-8	12.91	3/16/2022	10:40	n.a.	DPE-11	12	6.76	--	6.15	1.17	
PZ-8	12.91	4/22/2022	9:27	0.0	DPE-11	12	6.21	--	6.70	0.62	
PZ-8	12.91	5/18/2022	11:20	n.m.	DPE-11	12	6.00	--	6.91	0.41	
PZ-8	12.91	6/22/2022	9:33	n.a.	DPE-11	12	6.10	--	6.81	0.51	
PZ-8	12.91	7/27/2022	10:51	0.1	DPE-11	12	6.18	--	6.73	0.59	
PZ-8	12.91	8/10/2022	12:30	0.0	DPE-11	12	6.10	--	6.81	0.51	
PZ-8	12.91	9/16/2022	13:29	0.1	DPE-11	12	6.25	--	6.66	0.66	
PZ-8	12.91	12/19/2022	13:23	0.0	DPE-11	12	5.42	--	7.49	-0.17	
PZ-9	12.85	1/12/2022	10:25	0.0	DPE-12-R	16	5.06	--	7.79	-0.24	
PZ-9	12.85	2/16/2022	10:16	n.m.	DPE-12-R	16	5.71	--	7.14	0.41	
PZ-9	12.85	3/16/2022	10:38	n.a.	DPE-12-R	16	5.58	--	7.27	0.28	
PZ-9	12.85	4/22/2022	9:32	0.0	DPE-12-R	16	5.45	--	7.40	0.15	
PZ-9	12.85	5/18/2022	11:23	n.m.	DPE-12-R	16	5.38	--	7.47	0.08	PID=0.2
PZ-9	12.85	6/22/2022	9:26	n.a.	DPE-12-R	16	5.47	--	7.38	0.17	
PZ-9	12.85	7/27/2022	10:50	0.0	DPE-12-R	16	5.70	--	7.15	0.40	
PZ-9	12.85	8/10/2022	12:27	0.0	DPE-12-R	16	5.68	--	7.17	0.38	
PZ-9	12.85	9/16/2022	13:20	0.0	DPE-12-R	16	5.87	--	6.98	0.57	
PZ-9	12.85	12/19/2022	13:44	0.0	DPE-12-R	16	5.36	--	7.49	0.06	

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
PZ-10	12.62	1/12/2022	10:23	0.0	DPE-13	17	4.85	--	7.77	-0.39	
PZ-10	12.62	2/16/2022	10:23	n.m.	DPE-13	17	5.65	--	6.97	0.41	
PZ-10	12.62	3/16/2022	10:47	n.a.	DPE-13	17	5.56	--	7.06	0.32	
PZ-10	12.62	4/22/2022	9:34	0.0	DPE-13	17	5.43	--	7.19	0.19	
PZ-10	12.62	5/18/2022	11:25	n.m.	DPE-13	17	5.32	--	7.30	0.08	
PZ-10	12.62	6/22/2022	9:24	n.a.	DPE-13	17	5.39	--	7.23	0.15	
PZ-10	12.62	7/27/2022	10:49	0.0	DPE-13	17	5.60	--	7.02	0.36	
PZ-10	12.62	8/10/2022	12:24	0.0	DPE-13	17	5.58	--	7.04	0.34	
PZ-10	12.62	9/16/2022	13:17	0.0	DPE-13	17	5.82	--	6.80	0.58	
PZ-10	12.62	12/19/2022	13:49	0.0	DPE-13	17	5.31	--	7.31	0.07	
MW-20R	12.17	1/12/2022	11:27	0.0	DPE-5	n.a.	5.38	--	6.79	n.a.	
MW-20R	12.17	2/16/2022	10:33	n.m.	DPE-5	n.a.	6.61	--	5.56	n.a.	
MW-20R	12.17	3/16/2022	11:13	n.a.	DPE-5	n.a.	6.68	--	5.49	n.a.	
MW-20R	12.17	4/22/2022	10:01	0.0	DPE-5	n.a.	6.18	--	5.99	n.a.	
MW-20R	12.17	5/18/2022	10:40	n.m.	DPE-5	n.a.	6.39	--	5.78	n.a.	
MW-20R	12.17	6/22/2022	9:47	n.a.	DPE-5	n.a.	6.93	--	5.24	n.a.	
MW-20R	12.17	7/27/2022	11:05	0.1	DPE-5	n.a.	7.18	--	4.99	n.a.	
MW-20R	12.17	8/10/2022	12:52	0.0	DPE-5	n.a.	7.08	--	5.09	n.a.	
MW-20R	12.17	9/16/2022	13:57	0.1	DPE-5	n.a.	7.41	--	4.76	n.a.	
MW-20R	12.17	12/19/2022	14:17	0.0	DPE-5	n.a.	5.97	--	6.20	n.a.	
MW-101	14.99	1/12/2022	11:22	0.0	DPE-15	9	7.70	--	7.29	-1.33	
MW-101	14.99	2/16/2022	10:39	n.m.	DPE-15	9	8.96	--	6.03	-0.07	
MW-101	14.99	3/16/2022	11:09	n.a.	DPE-15	9	9.29	--	5.70	0.26	
MW-101	14.99	4/22/2022	9:56	0.0	DPE-15	9	8.66	--	6.33	-0.37	
MW-101	14.99	5/18/2022	10:20	n.m.	DPE-15	9	8.10	--	6.89	-0.93	
MW-101	14.99	6/22/2022	9:43	n.a.	DPE-15	9	8.91	--	6.08	-0.12	
MW-101	14.99	7/27/2022	11:02	4.8	DPE-15	9	9.10	--	5.89	0.07	
MW-101	14.99	8/10/2022	12:46	0.0	DPE-15	9	9.05	--	5.94	0.02	
MW-101	14.99	9/16/2022	13:48	3.4	DPE-15	9	9.30	--	5.69	0.27	
MW-101	14.99	12/19/2022	14:12	0.0	DPE-15	9	8.33	--	6.66	-0.7	
MW-104	14.08	1/12/2022	11:25	0.0	DPE-3	n.a.	6.91	--	7.17	n.a.	
MW-104	14.08	2/16/2022	10:45	n.m.	DPE-3	n.a.	8.24	--	5.84	n.a.	
MW-104	14.08	3/16/2022	11:11	n.a.	DPE-3	n.a.	8.27	--	5.81	n.a.	
MW-104	14.08	4/22/2022	9:58	0.0	DPE-3	n.a.	7.85	--	6.23	n.a.	
MW-104	14.08	5/18/2022	10:23	n.m.	DPE-3	n.a.	7.94	--	6.14	n.a.	
MW-104	14.08	6/22/2022	9:45	n.a.	DPE-3	n.a.	8.35	--	5.73	n.a.	
MW-104	14.08	7/27/2022	11:03	0.0	DPE-3	n.a.	8.63	--	5.45	n.a.	
MW-104	14.08	8/10/2022	12:50	0.0	DPE-3	n.a.	8.54	--	5.54	n.a.	
MW-104	14.08	9/16/2022	13:52	0.0	DPE-3	n.a.	8.78	--	5.30	n.a.	
MW-104	14.08	12/19/2022	14:08	0.0	DPE-3	n.a.	7.64	--	6.44	n.a.	
MW-126	12.40	1/12/2022	11:29	0.0	DPE-6	45	3.55	--	8.85	n.a.	
MW-126	12.40	2/16/2022	10:51	n.m.	DPE-6	45	5.01	--	7.39	n.a.	
MW-126	12.40	3/16/2022	11:25	n.a.	DPE-6	45	4.67	--	7.73	n.a.	
MW-126	12.40	4/22/2022	10:14	0.0	DPE-6	45	4.73	--	7.67	n.a.	
MW-126	12.40	5/18/2022	10:52	n.m.	DPE-6	45	4.43	--	7.97	n.a.	
MW-126	12.40	6/22/2022	9:53	n.a.	DPE-6	45	5.12	--	7.28	n.a.	
MW-126	12.40	7/27/2022	11:13	0.0	DPE-6	45	5.55	--	6.85	n.a.	
MW-126	12.40	8/10/2022	13:08	0.0	DPE-6	45	5.55	--	6.85	n.a.	
MW-126	12.40	9/16/2022	14:11	0.0	DPE-6	45	5.73	--	6.67	n.a.	
MW-126	12.40	12/19/2022	14:37	0.0	DPE-6	45	4.39	--	8.01	n.a.	

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
MW-129-R	12.92	1/5/2022	12:45	n.m.	DPE-18	8	5.78	--	7.14	0.03	No evidence of LNAPL.
MW-129-R	12.92	1/10/2022	12:55	n.m.	DPE-18	8	5.70	--	7.22	-0.05	No evidence of LNAPL.
MW-129-R	12.92	1/12/2022	11:40	0.0	DPE-18	8	6.36	--	6.56	0.61	No evidence of LNAPL.
MW-129-R	12.92	1/18/2022	13:20	n.m.	DPE-18	8	5.49	--	7.43	-0.26	No evidence of LNAPL.
MW-129-R	12.92	1/24/2022	15:20	n.m.	DPE-18	8	6.19	--	6.73	0.44	No evidence of LNAPL.
MW-129-R	12.92	1/31/2022	11:15	n.m.	DPE-18	8	6.26	--	6.66	0.51	No evidence of LNAPL.
MW-129-R	12.92	2/3/2022	11:45	n.m.	DPE-18	8	--	--	n.g.	n.g.	No interface probe available. No evidence of LNAPL.
MW-129-R	12.92	2/7/2022	12:11	n.m.	DPE-18	8	6.53	--	6.39	0.78	No evidence of LNAPL.
MW-129-R	12.92	2/10/2022	15:20	n.m.	DPE-18	8	6.29	--	6.63	0.54	No evidence of LNAPL.
MW-129-R	12.92	2/16/2022	10:57	n.m.	DPE-18	8	6.51	--	6.41	0.76	No evidence of LNAPL.
MW-129-R	12.92	3/16/2022	10:57	n.a.	DPE-18	8	6.41	--	6.51	0.66	No evidence of LNAPL.
MW-129-R	12.92	3/21/2022	14:04	n.m.	DPE-18	8	4.98	--	7.94	-0.77	No evidence of LNAPL.
MW-129-R	12.92	4/22/2022	9:45	0.0	DPE-18	8	6.49	--	6.43	0.74	No evidence of LNAPL.
MW-129-R	12.92	5/18/2022	10:05	n.m.	DPE-18	8	6.29	--	6.63	0.54	No Evidence of LNAPL. PID=1.5
MW-129-R	12.92	6/22/2022	9:11	n.a.	DPE-18	8	6.36	--	6.56	0.61	No measurable LNAPL. Trace LNAPL observed on probe, bailer tip, and sock. Sock left in well.
MW-129-R	12.92	7/1/2022	12:55	n.m.	DPE-18	8	5.85	--	7.07	0.1	No measurable LNAPL. Trace LNAPL observed on bailer, and sock.
MW-129-R	12.92	7/5/2022	13:20	n.m.	DPE-18	8	6.26	--	6.66	0.51	No measurable LNAPL. LNAPL observed on absorbent sock only.
MW-129-R	12.92	7/11/2022	11:36	n.m.	DPE-18	8	5.41	--	7.51	-0.34	No measurable LNAPL. Trace LNAPL observed on probe tip, bailer, and sock. Sock replaced.
MW-129-R	12.92	7/21/2022	13:15	n.m.	DPE-18	8	6.59	--	6.33	0.84	No evidence of LNAPL. Sock removed.
MW-129-R	12.92	7/27/2022	12:00	0.7	DPE-18	8	7.05	--	5.87	1.3	No evidence of LNAPL.
MW-129-R	12.92	8/10/2022	12:20	0.0	DPE-18	8	6.80	--	6.12	1.05	No evidence of LNAPL.
MW-129-R	12.92	8/23/2022	12:30	6.29	DPE-18	8	5.60	--	7.32	-0.15	No evidence of LNAPL.
MW-129-R	12.92	9/8/2022	14:10	n.m.	DPE-18	8	4.98	--	n.g.	n.g.	No evidence of LNAPL.
MW-129-R	12.92	9/16/2022	13:00	0.3	DPE-18	8	7.14	--	5.78	1.39	No evidence of LNAPL.
MW-129-R	12.92	9/19/2022	12:30	n.m.	DPE-18	8	7.00	--	5.92	1.25	No evidence of LNAPL.
MW-129-R	12.92	9/27/2022	10:56	n.m.	DPE-18	8	5.74	--	7.18	-0.01	No evidence of LNAPL.
MW-129-R	12.92	10/5/2022	10:50	n.m.	DPE-18	8	5.75	--	7.17	0	No evidence of LNAPL.
MW-129-R	12.92	10/24/2022	12:30	n.m.	DPE-18	8	5.77	--	7.15	0.02	No evidence of LNAPL.
MW-129-R	12.92	11/8/2022	15:15	n.m.	DPE-18	8	4.87	--	8.05	-0.88	No evidence of LNAPL.
MW-129-R	12.92	11/16/2022	13:06	n.m.	DPE-18	8	5.29	--	7.63	-0.46	No measurable LNAPL. LNAPL observed on absorbent sock only.
MW-129-R	12.92	12/2/2022	13:35	n.m.	DPE-18	8	5.00	--	7.92	-0.75	No measurable LNAPL. LNAPL observed on absorbent sock only.
MW-129-R	12.92	12/12/2022	10 <sup>05</sup>	n.m.	DPE-18	8	4.58	--	8.34	-1.17	No measurable LNAPL. LNAPL observed on absorbent sock only.
MW-129-R	12.92	12/19/2022	15:01	0.1	DPE-18	8	6.55	--	6.37	0.8	No evidence of LNAPL.
MW-143	11.94	1/12/2022	10:59	0.0	DPE-6	30	3.83	--	8.11	n.a.	
MW-143	11.94	2/16/2022	11:03	n.m.	DPE-6	30	4.81	--	7.13	n.a.	
MW-143	11.94	3/16/2022	11:22	n.a.	DPE-6	30	4.66	--	7.28	n.a.	
MW-143	11.94	4/22/2022	10:12	0.0	DPE-6	30	4.58	--	7.36	n.a.	
MW-143	11.94	5/18/2022	10:49	n.m.	DPE-6	30	4.40	--	7.54	n.a.	PID=1.7
MW-143	11.94	6/22/2022	9:56	n.a.	DPE-6	30	4.85	--	7.09	n.a.	
MW-143	11.94	7/27/2022	11:12	0.4	DPE-6	30	5.19	--	6.75	n.a.	
MW-143	11.94	8/10/2022	13:04	0.0	DPE-6	30	5.25	--	6.69	n.a.	
MW-143	11.94	9/16/2022	14:19	0.0	DPE-6	30	5.52	--	6.42	n.a.	
MW-143	11.94	12/19/2022	14:43	0.1	DPE-6	30	3.88	--	8.06	n.a.	
MW-502	13.00	1/12/2022	10:20	0.0	DPE-14	n.a.	4.20	--	8.80	n.a.	
MW-502	13.00	2/16/2022	11:09	n.m.	DPE-14	n.a.	5.21	--	7.79	n.a.	
MW-502	13.00	3/16/2022	10:50	n.a.	DPE-14	n.a.	5.03	--	7.97	n.a.	
MW-502	13.00	4/22/2022	9:37	0.0	DPE-14	n.a.	5.01	--	7.99	n.a.	
MW-502	13.00	5/18/2022	9:55	n.m.	DPE-14	n.a.	4.88	--	8.12	n.a.	



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 OM&M Observation Well Data  
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 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
MW-502	13.00	6/22/2022	9:22	n.a.	DPE-14	n.a.	5.04	--	7.96	n.a.	
MW-502	13.00	7/27/2022	10:45	0.0	DPE-14	n.a.	5.27	--	7.73	n.a.	
MW-502	13.00	8/10/2022	12:12	0.0	DPE-14	n.a.	5.31	--	7.69	n.a.	
MW-502	13.00	9/16/2022	13:14	0.0	DPE-14	n.a.	5.41	--	7.59	n.a.	
MW-502	13.00	12/19/2022	15:53	0.0	DPE-14	n.a.	4.74	--	8.26	n.a.	
MW-503	12.22	1/12/2022	10:08	0.0	DPE-14	n.a.	4.23	--	7.99	n.a.	
MW-503	12.22	2/16/2022	11:15	n.m.	DPE-14	n.a.	5.22	--	7.00	n.a.	
MW-503	12.22	3/16/2022	10:53	n.a.	DPE-14	n.a.	5.08	--	7.14	n.a.	
MW-503	12.22	4/22/2022	9:41	0.0	DPE-14	n.a.	4.93	--	7.29	n.a.	
MW-503	12.22	5/18/2022	10:00	n.m.	DPE-14	n.a.	4.78	--	7.44	n.a.	
MW-503	12.22	6/22/2022	9:20	n.a.	DPE-14	n.a.	4.97	--	7.25	n.a.	
MW-503	12.22	7/27/2022	10:47	0.0	DPE-14	n.a.	5.20	--	7.02	n.a.	
MW-503	12.22	9/16/2022	13:10	0.0	DPE-14	n.a.	5.34	--	6.88	n.a.	
MW-503	12.22	12/19/2022	14:00	0.0	DPE-14	n.a.	4.63	--	7.59	n.a.	
MW-511	15.20	1/12/2022	10:36	0.0	DPE-11	52	6.81	--	8.39	n.a.	
MW-511	15.20	2/16/2022	11:21	0.0	DPE-11	52	7.92	--	7.28	n.a.	
MW-511	15.20	3/16/2022	11:49	n.a.	DPE-11	52	7.70	--	7.50	n.a.	
MW-511	15.20	4/22/2022	10:42	0.0	DPE-11	52	7.67	--	7.53	n.a.	
MW-511	15.20	5/18/2022	9:53	n.m.	DPE-11	52	7.50	--	7.70	n.a.	
MW-511	15.20	6/22/2022	9:31	n.a.	DPE-11	52	7.70	--	7.50	n.a.	
MW-511	15.20	7/27/2022	10:42	0.3	DPE-11	52	7.91	--	7.29	n.a.	
MW-511	15.20	8/10/2022	12:00	0.0	DPE-11	52	7.92	--	7.28	n.a.	
MW-511	15.20	9/16/2022	13:25	0.0	DPE-11	52	8.03	--	7.17	n.a.	
MW-511	15.20	12/19/2022	13:39	0.0	DPE-11	52	7.21	--	7.99	n.a.	
MW-512	13.19	1/12/2022	10:32	0.0	DPE-11	38	5.53	--	7.66	-0.68	
MW-512	13.19	2/16/2022	11:27	n.m.	DPE-11	38	6.56	--	6.63	0.35	
MW-512	13.19	3/16/2022	10:43	n.a.	DPE-11	38	6.44	--	6.75	0.23	
MW-512	13.19	4/22/2022	9:24	0.0	DPE-11	38	6.26	--	6.93	0.05	
MW-512	13.19	5/18/2022	9:49	n.m.	DPE-11	38	6.10	--	7.09	-0.11	
MW-512	13.19	6/22/2022	9:35	n.a.	DPE-11	38	6.28	--	6.91	0.07	
MW-512	13.19	7/27/2022	10:54	0.1	DPE-11	38	6.52	--	6.67	0.31	
MW-512	13.19	8/10/2022	12:34	0.0	DPE-11	38	6.48	--	6.71	0.27	
MW-512	13.19	9/16/2022	13:33	0.0	DPE-11	38	6.66	--	6.53	0.45	
MW-512	13.19	12/19/2022	13:27	0.0	DPE-11	38	6.16	--	7.03	-0.05	
MW-514	11.39	1/12/2022	10:34	0.0	DPE-11	n.a.	3.68	--	7.71	n.a.	
MW-514	11.39	2/16/2022	11:33	n.m.	DPE-11	n.a.	4.73	--	6.66	n.a.	
MW-514	11.39	3/16/2022	11:52	n.a.	DPE-11	n.a.	4.59	--	6.80	n.a.	
MW-514	11.39	4/22/2022	9:17	0.0	DPE-11	n.a.	4.41	--	6.98	n.a.	
MW-514	11.39	5/18/2022	10:15	n.m.	DPE-11	n.a.	4.25	--	7.14	n.a.	
MW-514	11.39	6/22/2022	9:39	n.a.	DPE-11	n.a.	4.42	--	6.97	n.a.	
MW-514	11.39	7/27/2022	10:56	0.1	DPE-11	n.a.	4.67	--	6.72	n.a.	
MW-514	11.39	8/10/2022	12:36	0.0	DPE-11	n.a.	4.69	--	6.70	n.a.	
MW-514	11.39	9/16/2022	13:40	0.0	DPE-11	n.a.	4.85	--	6.54	n.a.	
MW-514	11.39	12/19/2022	13:34	0.0	DPE-11	n.a.	4.31	--	7.08	n.a.	
MW-518	14.60	1/12/2022	11:20	1.5	DPE-16	8	7.22	--	7.38	-1.37	
MW-518	14.60	2/16/2022	11:39	n.m.	DPE-16	8	9.19	--	5.41	0.6	
MW-518	14.60	3/16/2022	11:07	n.a.	DPE-16	8	9.14	--	5.46	0.55	
MW-518	14.60	4/22/2022	9:54	0.0	DPE-16	8	8.81	--	5.79	0.22	
MW-518	14.60	5/18/2022	10:18	n.m.	DPE-16	8	8.71	--	5.89	0.12	
MW-518	14.60	6/22/2022	9:41	n.a.	DPE-16	8	9.11	--	5.49	0.52	

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
MW-518	14.60	7/27/2022	11:00	1.5	DPE-16	8	9.24	--	5.36	0.65	
MW-518	14.60	8/10/2022	12:40	-1.1	DPE-16	8	9.29	--	5.31	0.7	
MW-518	14.60	9/16/2022	13:45	3.1	DPE-16	8	9.44	--	5.16	0.85	
MW-518	14.60	12/19/2022	15:24	1.8	DPE-16	8	8.49	--	6.11	-0.1	
MW-519	12.60	1/12/2022	11:02	0.0	DPE-6	62	5.82	--	6.78	n.a.	
MW-519	12.60	2/16/2022	11:45	n.m.	DPE-6	62	7.17	--	5.43	n.a.	
MW-519	12.60	3/16/2022	11:17	n.a.	DPE-6	62	7.02	--	5.58	n.a.	
MW-519	12.60	4/22/2022	10:08	0.0	DPE-6	62	6.87	--	5.73	n.a.	
MW-519	12.60	5/18/2022	10:46	n.m.	DPE-6	62	6.79	--	5.81	n.a.	
MW-519	12.60	6/22/2022	9:52	n.a.	DPE-6	62	7.10	--	5.50	n.a.	
MW-519	12.60	7/27/2022	11:10	1.5	DPE-6	62	7.22	--	5.38	n.a.	
MW-519	12.60	8/10/2022	13:02	0.0	DPE-6	62	7.08	--	5.52	n.a.	
MW-519	12.60	9/16/2022	14:15	0.9	DPE-6	62	7.51	--	5.09	n.a.	
MW-519	12.60	12/19/2022	13:01	0.0	DPE-6	62	6.63	--	5.97	n.a.	
MW-520	13.31	1/12/2022	11:06	0.0	DPE-5	n.a.	6.49	--	6.82	n.a.	
MW-520	13.31	2/16/2022	11:50	n.m.	DPE-5	n.a.	7.86	--	5.45	n.a.	
MW-520	13.31	3/16/2022	11:15	n.a.	DPE-5	n.a.	7.70	--	5.61	n.a.	
MW-520	13.31	4/22/2022	10:04	0.0	DPE-5	n.a.	7.55	--	5.76	n.a.	
MW-520	13.31	5/18/2022	10:42	n.m.	DPE-5	n.a.	7.45	--	5.86	n.a.	
MW-520	13.31	6/22/2022	9:49	n.a.	DPE-5	n.a.	7.79	--	5.52	n.a.	
MW-520	13.31	7/27/2022	11:09	0.7	DPE-5	n.a.	7.89	--	5.42	n.a.	
MW-520	13.31	8/10/2022	12:56	0.0	DPE-5	n.a.	7.74	--	5.57	n.a.	
MW-520	13.31	9/16/2022	14:01	0.6	DPE-5	n.a.	8.00	--	5.31	n.a.	
MW-520	13.31	12/19/2022	13:11	0.0	DPE-5	n.a.	7.34	--	5.97	n.a.	
MW-521	12.18	1/12/2022	11:05	0.0	DPE-5	n.a.	5.40	--	6.78	n.a.	
MW-521	12.18	2/16/2022	11:53	n.m.	DPE-5	n.a.	6.77	--	5.41	n.a.	
MW-521	12.18	3/16/2022	11:19	n.a.	DPE-5	n.a.	6.61	--	5.57	n.a.	
MW-521	12.18	4/22/2022	10:05	0.0	DPE-5	n.a.	6.44	--	5.74	n.a.	
MW-521	12.18	5/18/2022	10:44	n.m.	DPE-5	n.a.	6.36	--	5.82	n.a.	
MW-521	12.18	6/22/2022	9:51	n.a.	DPE-5	n.a.	6.70	--	5.48	n.a.	
MW-521	12.18	7/27/2022	11:07	0.8	DPE-5	n.a.	6.81	--	5.37	n.a.	
MW-521	12.18	8/10/2022	13:00	0.0	DPE-5	n.a.	6.66	--	5.52	n.a.	
MW-521	12.18	9/16/2022	14:06	0.9	DPE-5	n.a.	6.99	--	5.19	n.a.	
MW-521	12.18	12/19/2022	13:05	0.3	DPE-5	n.a.	6.24	--	5.94	n.a.	
MW-525	12.62	1/12/2022	11:16	0.0	DPE-4	5	6.01	--	6.61	0.26	
MW-525	12.62	2/16/2022	11:56	n.m.	DPE-4	5	8.01	--	4.61	2.26	
MW-525	12.62	3/16/2022	11:39	n.a.	DPE-4	5	9.12	--	3.50	3.37	
MW-525	12.62	4/22/2022	10:32	0.0	DPE-4	5	8.52	--	4.10	2.77	
MW-525	12.62	5/18/2022	10:58	n.m.	DPE-4	5	8.89	--	3.73	3.14	
MW-525	12.62	6/22/2022	10:11	n.a.	DPE-4	5	9.14	--	3.48	3.39	
MW-525	12.62	7/27/2022	11:42	0.7	DPE-4	5	9.22	--	3.40	3.47	
MW-525	12.62	8/10/2022	13:18	0.0	DPE-4	5	8.95	--	3.67	3.20	
MW-525	12.62	9/16/2022	14:23	0.7	DPE-4	5	9.53	--	3.09	3.78	
MW-525	12.62	12/19/2022	12:31	0.1	DPE-4	5	8.61	--	4.01	2.86	
MW-526	12.90	1/12/2022	10:28	n.m.	DPE-11	10	4.31	--	8.59	-0.72	
MW-526	12.90	2/16/2022	11:59	n.m.	DPE-11	10	5.35	--	7.55	0.32	
MW-526	12.90	3/16/2022	10:33	n.a.	DPE-11	10	5.02	--	7.88	-0.01	
MW-526	12.90	4/22/2022	9:30	0.0	DPE-11	10	5.11	--	7.79	0.08	
MW-526	12.90	5/18/2022	9:51	n.m.	DPE-11	10	4.93	--	7.97	-0.10	
MW-526	12.90	6/22/2022	9:29	n.a.	DPE-11	10	5.14	--	7.76	0.11	

Table 4-6  
 OM&M Observation Well Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Well ID	Casing Elevation	Date	Time	Induced Vacuum	Closest DPE Well	Distance to DPE Well	Depth to Water	Depth to LNAPL <sup>1</sup>	Groundwater Elevation	Drawdown <sup>2,3</sup>	Comments
MW-526	12.90	7/27/2022	10:52	1.1	DPE-11	10	5.51	--	7.39	0.48	
MW-526	12.90	8/10/2022	12:08	0.0	DPE-11	10	5.55	--	7.35	0.52	
MW-526	12.90	9/16/2022	13:22	1.5	DPE-11	10	5.75	--	7.15	0.72	
MW-526	12.90	12/19/2022	13:18	0.0	DPE-11	10	5.66	--	7.24	0.63	
MW-531	13.26	1/12/2022	11:08	0.0	DPE-5	30	6.44	--	6.82	-0.30	
MW-531	13.26	2/16/2022	12:01	n.m.	DPE-5	30	7.81	--	5.45	1.07	
MW-531	13.26	3/16/2022	11:29	n.a.	DPE-5	30	7.65	--	5.61	0.91	
MW-531	13.26	4/22/2022	10:21	0.0	DPE-5	30	7.53	--	5.73	0.79	
MW-531	13.26	5/18/2022	11:03	n.m.	DPE-5	30	7.42	--	5.84	0.68	PID=0.2
MW-531	13.26	6/22/2022	10:07	n.a.	DPE-5	30	7.74	--	5.52	1.00	
MW-531	13.26	7/27/2022	n.a.	n.a.	DPE-5	30	n.g.	--	n.g.	n.g.	Wasp nest in well vault.
MW-531	13.26	8/10/2022	13:14	-0.2	DPE-5	30	7.71	--	5.55	0.97	
MW-531	13.26	9/16/2022	14:33	0.2	DPE-5	30	8.06	--	5.20	1.32	
MW-531	13.26	12/19/2022	12:48	0.3	DPE-5	30	7.31	--	5.95	0.57	
MW-532	13.38	1/12/2022	10:50	0.0	DPE-2	8	7.38	--	6.00	0.93	
MW-532	13.38	2/16/2022	12:09	n.m.	DPE-2	8	8.11	--	5.27	1.66	
MW-532	13.38	3/16/2022	11:35	n.a.	DPE-2	8	8.69	--	4.69	2.24	
MW-532	13.38	4/22/2022	10:30	0.0	DPE-2	8	8.47	--	4.91	2.02	
MW-532	13.38	5/18/2022	10:55	n.m.	DPE-2	8	8.43	--	4.95	1.98	
MW-532	13.38	6/22/2022	10:05	n.a.	DPE-2	8	8.83	--	4.55	2.38	
MW-532	13.38	7/27/2022	11:44	0.1	DPE-2	8	8.92	--	4.46	2.47	
MW-532	13.38	8/10/2022	13:22	0.0	DPE-2	8	8.72	--	4.66	2.27	
MW-532	13.38	9/16/2022	14:27	0.1	DPE-2	8	9.11	--	4.27	2.66	
MW-532	13.38	12/19/2022	12:40	0.0	DPE-2	8	7.51	--	5.87	1.06	
MW-E-R	14.30	1/12/2022	10:14	4.5	DPE-17	9	7.92	--	6.38	0.79	
MW-E-R	14.30	2/16/2022	12:06	n.m.	DPE-17	9	9.08	--	5.22	1.95	
MW-E-R	14.30	3/16/2022	10:59	n.a.	DPE-17	9	9.14	--	5.16	2.01	
MW-E-R	14.30	4/22/2022	9:48	0.0	DPE-17	9	9.04	--	5.26	1.91	
MW-E-R	14.30	5/18/2022	10:10	n.m.	DPE-17	9	8.93	--	5.37	1.8	PID=0.9
MW-E-R	14.30	6/13/2022	12:45	n.m.	DPE-17	9		--			No measurable LNAPL. Trace LNAPL observed on probe and bailer tip. Sock added.
MW-E-R	14.30	6/22/2022	9:14	n.a.	DPE-17	9	8.97	--	5.33	1.84	No measurable LNAPL. Trace LNAPL observed on probe, bailer tip, and sock. Oil absorbent sock left in well.
MW-E-R	14.30	7/1/2022	13:08	n.m.	DPE-17	9	7.72	--	6.58	0.59	No evidence of LNAPL. Sock removed
MW-E-R	14.30	7/5/2022	13:20	n.m.	DPE-17	9	8.62	--	5.68	1.49	No evidence of LNAPL.
MW-E-R	14.30	7/11/2022	11:56	n.m.	DPE-17	9	6.86	--	7.44	-0.27	No measurable LNAPL. Trace LNAPL observed on probe tip, and bailer. Sock added.
MW-E-R	14.30	7/21/2022	13:30	n.m.	DPE-17	9	8.59	--	5.71	1.46	No evidence of LNAPL. Sock removed
MW-E-R	14.30	7/27/2022	12:03	n.a.	DPE-17	9	9.28	--	5.02	2.15	No evidence of LNAPL
MW-E-R	14.30	8/10/2022	12:18	0.0	DPE-17	9	8.91	--	5.39	1.78	No evidence of LNAPL
MW-E-R	14.30	8/23/2022	8:49	n.m.	DPE-17	9	7.10	--	7.20	-0.03	No evidence of LNAPL. PID=2.6
MW-E-R	14.30	8/26/2022	12:30	8.4	DPE-17	9		--	n.g.	n.g.	No evidence of LNAPL
MW-E-R	14.30	9/8/2022	14:10	n.m.	DPE-17	9	7.1	--	7.18	-0.01	No evidence of LNAPL
MW-E-R	14.30	9/16/2022	13:06	n.m.	DPE-17	9	9.45	--	4.85	2.32	No evidence of LNAPL
MW-E-R	14.30	12/19/2022	15:11	5.3	DPE-17	9	8.90	--	5.40	1.77	No evidence of LNAPL

**Table 4-6**  
**OM&M Observation Well Data**  
**Former Unocal Edmonds Bulk Fuel Terminal**  
**11720 Unoco Road**  
**Edmonds, Washington**

**Notes**

<sup>1</sup> LNAPL is assessed using an LNAPL-water interface probe. The electronic interface probe is placed at the depth where the instrument produces a signal indicating a fluid interface (LNAPL and groundwater interfaces produce distinct signals). The interface probe is then brought back to the surface of the well and the tip of the interface probe is inspected for any indication of LNAPL. If a LNAPL signal is produced or LNAPL is observed on the tip of the probe, a bailer is used to confirm the

<sup>2</sup> Drawdown calculation based on groundwater elevation measured during the DPE system baseline event before system startup on 11/28/17.

Drawdown = groundwater elevation - baseline groundwater elevation

<sup>3</sup> Drawdown calculation based on average groundwater elevation measured from 10/20/08 to 07/24/17 for MW-519.

Drawdown = groundwater elevation - average groundwater elevation

**Acronyms and Abbreviations:**

-- = no LNAPL signal detected by the electronic interface probe; further details provided in the comments in column as needed per note 1.

DPE well = dual phase extraction well; remediation well used for both groundwater and soil vapor extraction

LNAPL = light nonaqueous phase liquid

n.a. = not applicable

n.g. = not gauged

n.m. = not measured (for induced vacuum measurement only)

OM&M = operation, maintenance, and monitoring

PID = photo ionization detector

Unocal = Union Oil Company of California

Table 4-7  
 OM&M Catalytic Oxidizer Data  
 Former Unocal Edmonds Bulk Fuel Terminal  
 11720 Unoco Road  
 Edmonds, Washington



Date	Time	CatOx Total Operating Hours	VCV Valve Opening	CatOx Inlet Temperature (Meter TT-1901)	Heater Settings CatOx Inlet Set Temperature	CatOx Outlet Temperature (Meter TT-1902)	VOCs Inlet Concentration	VOC Outlet Concentration	Destruction Efficiency	Discharge Vapor Laboratory Sample Collected
PSCAA Permit 29892 Effluent Limitations	--	--	--	> 600 °F	--	< 1,200 °F	--	--	• 98.5% if > 2,000 ppm • 97% if > 200 ppm • 90% if ≥ 100 ppm • < 10 ppm for influent < 100 ppm	--
mm/dd/yy	hh:mm	Hours	% Open to Process	°F	°F	°F	ppmv	ppmv	%	Y/N
1/5/2022	11:40	7,645	100	631	630	613	0.1	0.0	100.0	N
1/12/2022	10:27	7,815	100	630	627	616	0.1	0.0	100.0	N
7/21/2022	12:00	129	100	630	627	617	0.8	0.0	100.0	N
7/27/2022	12:30	211	100	630	619	600	0.7	0.0	100.0	N
8/5/2022	11:15	377	--	--	--	--	--	--	--	N
8/10/2022	14:20	427	100	630	629	600	1.2	0.0	100.0	N
8/15/2022	13:40	--	--	--	--	--	--	--	--	N
8/26/2022	13:48	565	100	630	629	614	0.0	1.1	--	N
9/1/2022	15:00	612	100	629	629	617	0.0	1.0	--	N
9/8/2022	16:10	782	100	629	629	618	0.0	1.0	--	N
9/16/2022	12:45	856	100	630	629	616	0.0	0.9	--	N
9/19/2022	13:28	924	100	629	629	615	0.0	0.6	--	N
10/14/2022	15:29	1,095	100	630	630	615	0.0	0.0	--	N
10/17/2022	13:00	1,165	100	631	631	612	0.5	0.0	100.0	N
12/19/2022	12:00	1,340	100	629	631	610	0.1	0.0	100.0	N

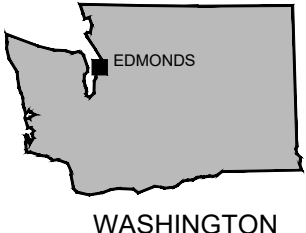
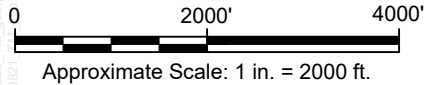
**Acronyms and Abbreviations:**

- = Data not collected
- > = greater than
- ≥ = greater than or equal to
- < = less than
- % = percent
- °F = degree Fahrenheit
- CatOx = catalytic oxidizer
- hh:mm = Time in hours and minutes
- mm/dd/yy = month/day/year
- N = no
- OM&M = operation, maintenance, and monitoring
- ppm = part per million
- ppmv = part per million by volume
- PSCAA = Puget Sound Clean Air Agency
- Unocal = Union Oil Company of California
- VCV = Vapor Control Valve
- VOC = volatile organic compound

# Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., EDMONDS EAST AND WEST, WASHINGTON, 2023.



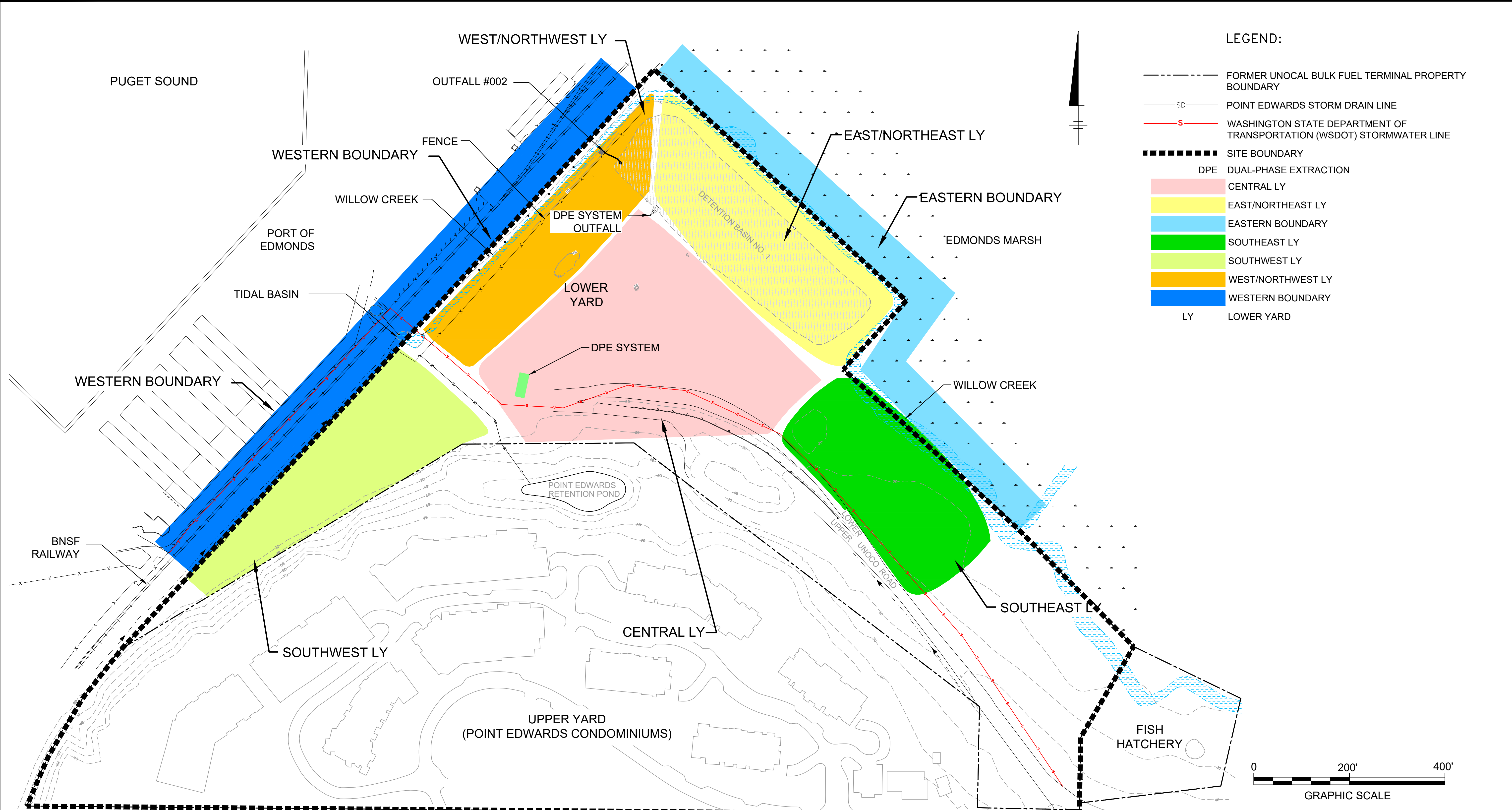
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNION OIL COMPANY OF CALIFORNIA BULK FUEL TERMINAL  
 11720 UNOCO ROAD, EDMONDS, WASHINGTON  
**2022 GROUNDWATER MONITORING AND  
 DUAL-PHASE EXTRACTION SYSTEM OPERATION REPORT**

**SITE LOCATION MAP**



FIGURE  
**1-1**

C:\Users\jharris\OneDrive\Arcadis\ALUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS\Washington\Project Files\2023\01-1in Progress\01-DWG\2022 GWM DPE-F02-1-SI.dwg LAYOUT: 2-1, SAVED: 9/6/2023 12:46 PM ACADVER: 24.2S (LMS TECH) PAGES: 1 OF 1  
 PLOT STYLE TABLE: --- PLOTTED: 9/6/2023 12:46 PM BY: HARRIS, JESS  
 XREFS: IMAGES: PROJECTNAME: ---  
 45362X02 Arcadis Logo.PNG  
 45362X03 2022 GWM DPE-X-D-TITLE  
 RECORD-INT-ACT-X-RECORDTOPO



**LEGEND:**

	FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
	POINT EDWARDS STORM DRAIN LINE
	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE
	SITE BOUNDARY
	DPE DUAL-PHASE EXTRACTION CENTRAL LY
	EAST/NORTHEAST LY
	EASTERN BOUNDARY
	SOUTHEAST LY
	SOUTHWEST LY
	WEST/NORTHWEST LY
	WESTERN BOUNDARY
	LY LOWER YARD

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNION OIL COMPANY OF CALIFORNIA BULK FUEL TERMINAL  
 11720 UNOCO ROAD, EDMONDS, WASHINGTON  
**2022 GROUNDWATER MONITORING AND  
 DUAL-PHASE EXTRACTION SYSTEM OPERATION REPORT**

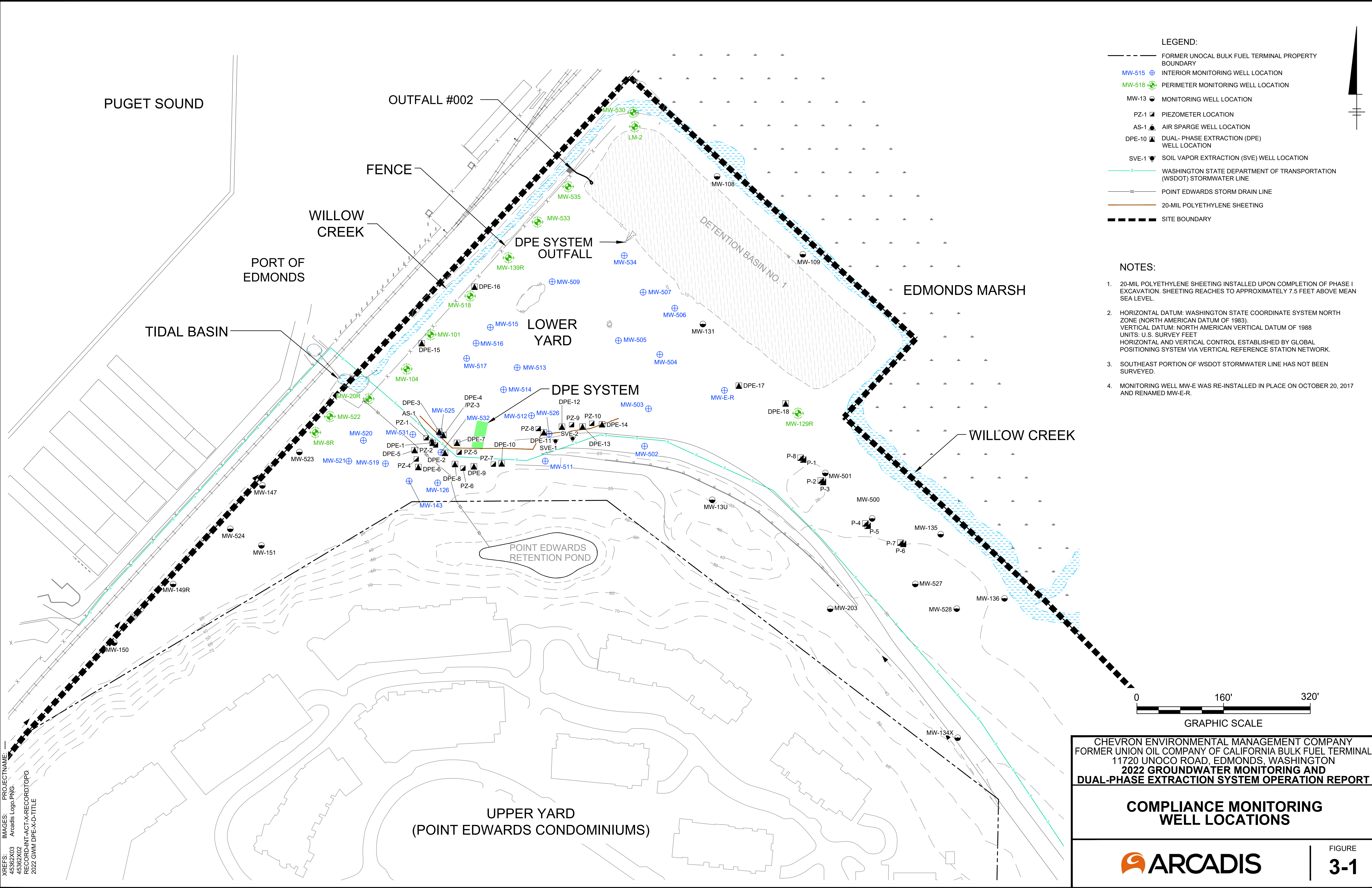
**SITE LAYOUT**



FIGURE  
**2-1**

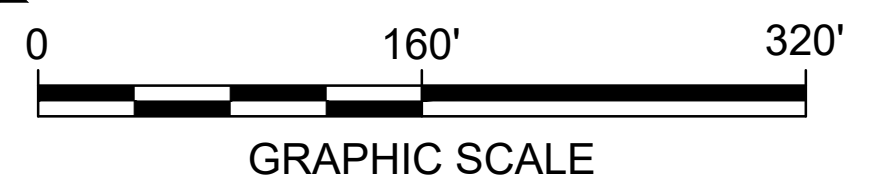


C:\Users\jhamis\OneDrive\Arcadis\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS\Washington\Project Files\2023\01-1\In Progress\01-DWG\2022 GWM DPE-F03-1-CMW.dwg LAYOUT: 3-1, SAVED: 9/6/2023 12:36 PM, ACADVER: 24.2S (LMS TECH), PAGESETUP: ---  
 PLOT STYLE TABLE: ---, PLOTTED: 9/6/2023 12:55 PM, BY: HARRIS, JESS  
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 45362X03 Arcadis Logo.PNG  
 45362X02 RECORD-INT-ACT-X-RECORD\TOPO  
 2022 GWM DPE-F03-1-TITLE



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▴ PIEZOMETER LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL-PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY

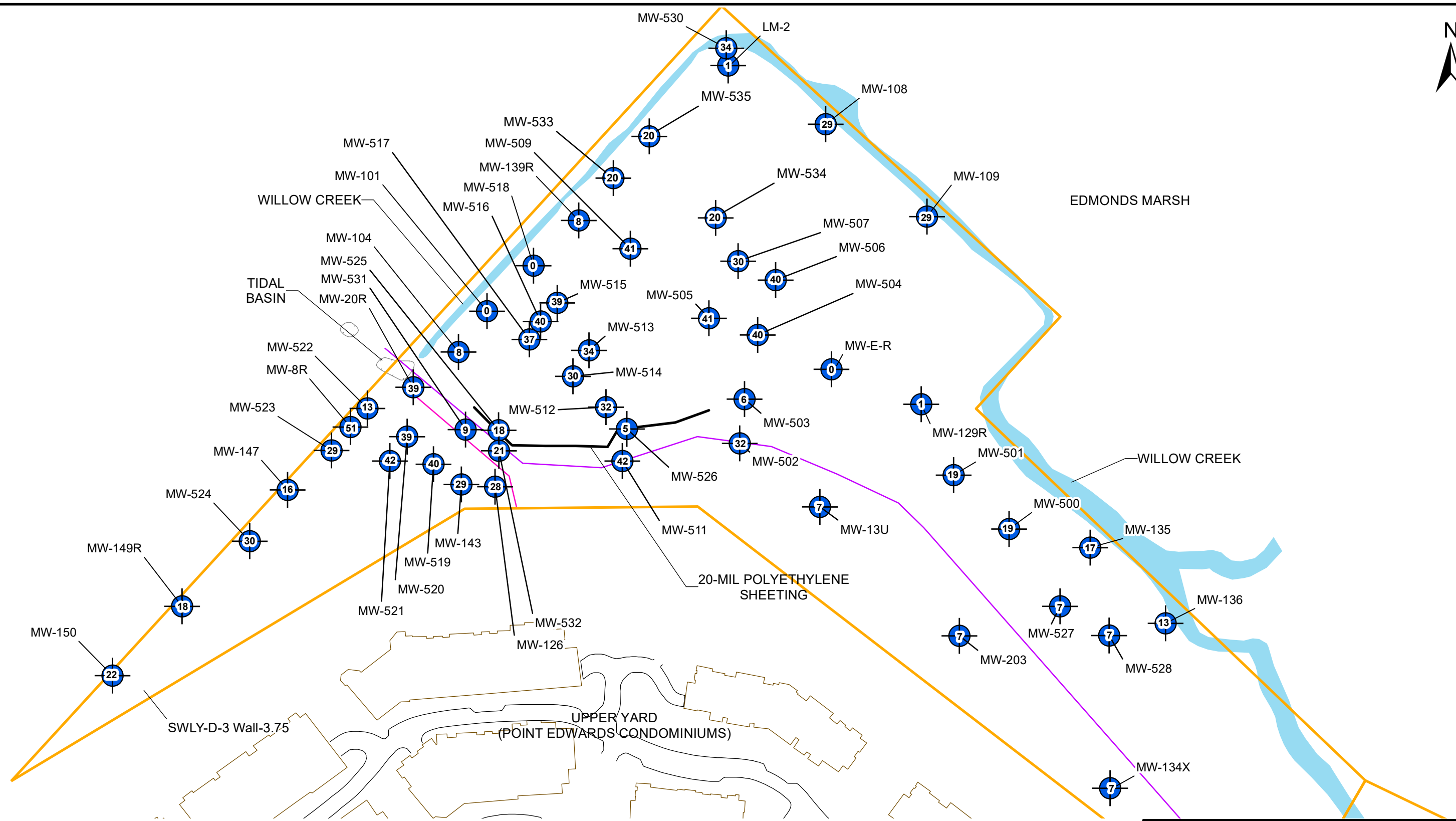
- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NORTH AMERICAN DATUM OF 1983). VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GLOBAL POSITIONING SYSTEM VIA VERTICAL REFERENCE STATION NETWORK.
  3. SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20, 2017 AND RENAMED MW-E-R.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
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**2022 GROUNDWATER MONITORING AND  
 DUAL-PHASE EXTRACTION SYSTEM OPERATION REPORT**

**COMPLIANCE MONITORING  
 WELL LOCATIONS**

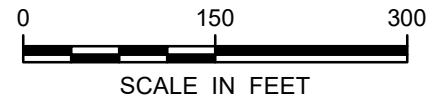
**ARCADIS** | **FIGURE 3-1**



**LEGEND**

- WELL AND NUMBER OF CONSECUTIVE SAMPLING ROUNDS SHOWING CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS LESS THAN PROPOSED GROUNDWATER (GW) CLEANUP LEVELS (CULs)
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- LOWER YARD PROPERTY BOUNDARY

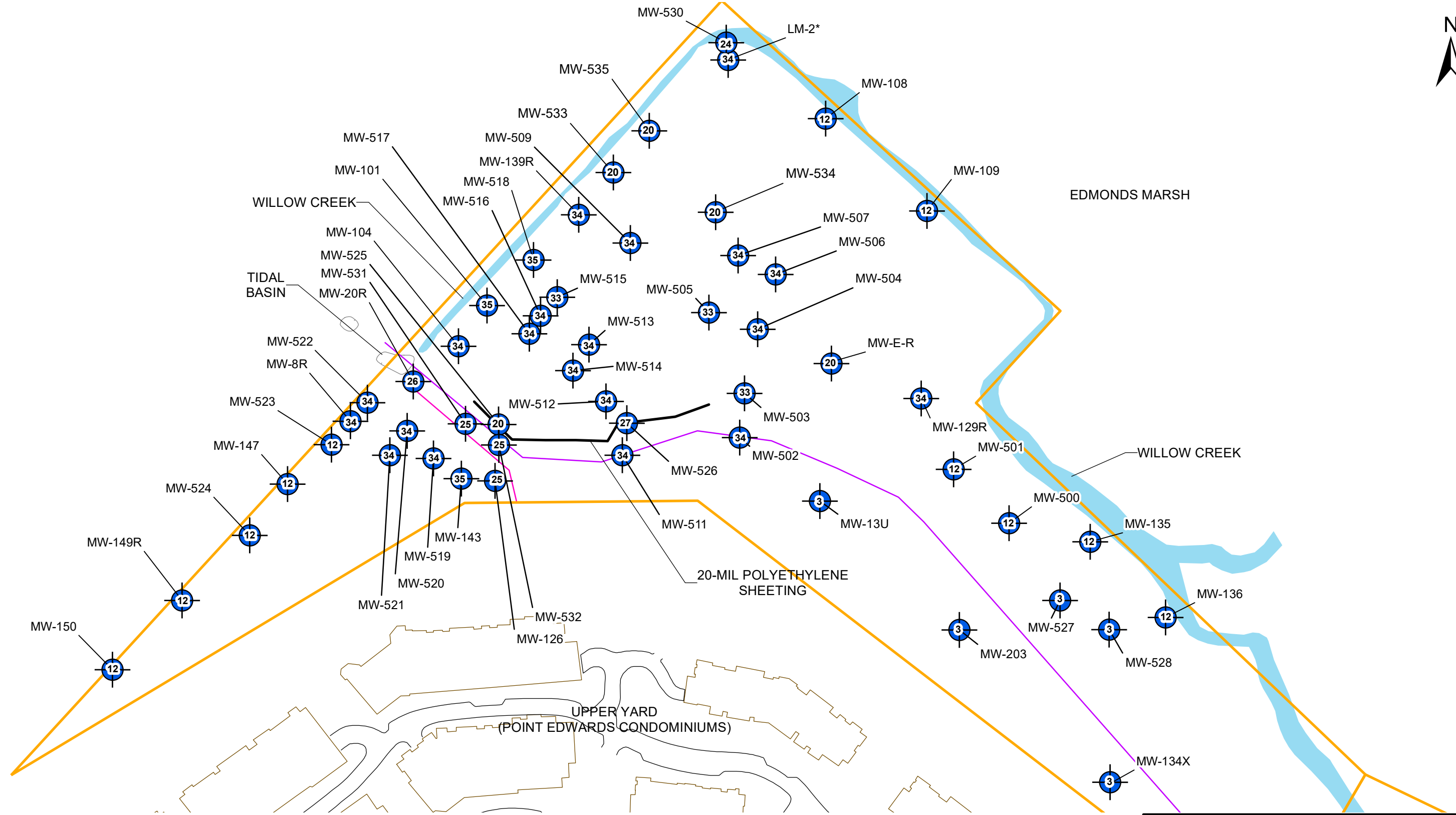
- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
  3. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20<sup>TH</sup>, 2017 AND RENAMED MW-E-R.
  4. MONITORING WELLS MW-508, MW-510 AND MW-529 WERE EXCAVATED IN THIRD QUARTER 2017. MONITORING WELLS MW-533, MW-534 AND MW-535 WERE INSTALLED POST-EXCAVATION ON OCTOBER 20<sup>TH</sup>, 2017.
  5. MONITORING WELLS MW-101, MW-129R, MW-518, MW-526 MW-E-R WERE SAMPLED TWICE ON FIRST QUARTER 2019.







WSDOT = WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY FORMER UNOCAL BULK FUEL TERMINAL EDMONDS, WASHINGTON <b>2022 GROUNDWATER AND OPERATION REPORT</b>
<b>SITE GROUNDWATER TPH REMEDIATION                  STATUS - FOURTH QUARTER 2022</b>
<span style="font-size: 24pt; font-weight: bold; vertical-align: middle;">3-2</span>

CITY: HIGHLANDS RANCH, CO DIV: GROUP: (ENV/GIS) DB: B.GRIFFITH  
 Path: T:\\_ENV\Chevron\_EdmundsMXD\2022\_4Q\Fig\_3-3\_Site\_Soil\_GW\_Benzene\_Remediation\_Status\_Baseline\_Event\_Q4\_2022.mxd Date: 2/23/2023 Time: 4:06:34 PM

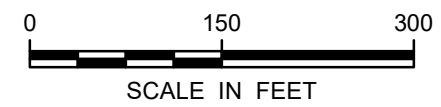



**LEGEND**

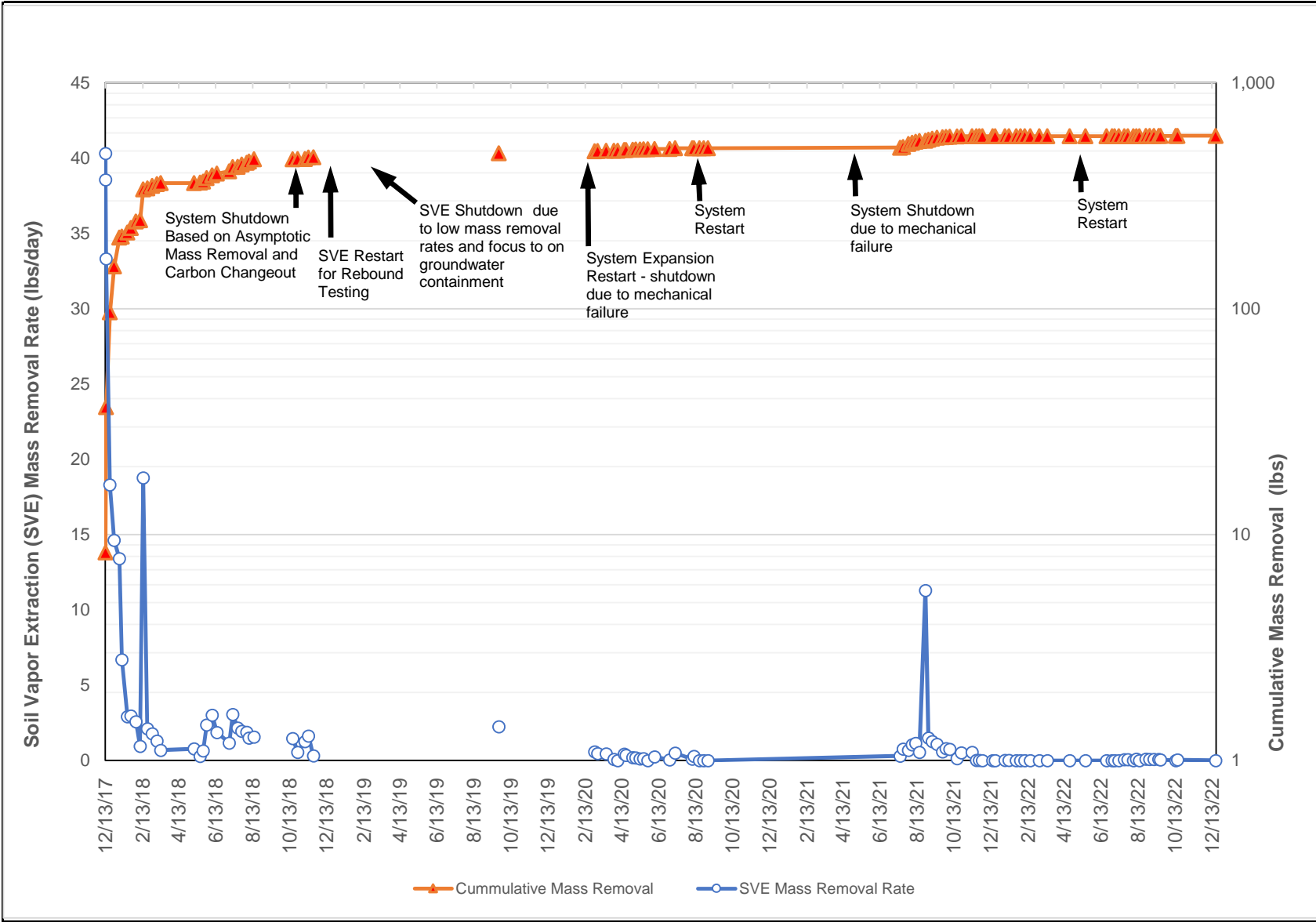
-  WELL AND NUMBER OF CONSECUTIVE SAMPLING ROUNDS SHOWING CONCENTRATIONS OF BENZENE LESS THAN OR EQUAL TO PROPOSED GROUNDWATER CUL (16 µg/L)
-  WSDOT STORMWATER LINE
-  POINT EDWARDS STORM DRAIN LINE
-  LOWER YARD PROPERTY BOUNDARY

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. SOUTHEAST PORTION OF WSDOT STORMWATER LINE HAS NOT BEEN SURVEYED.
  3. BENZENE WAS ANALYZED DURING 22 EVENTS FOR MOST OF THE WELLS SINCE OCTOBER 2008.
  4. MONITORING WELLS MW-508, MW-510 AND MW-529 WERE EXCAVATED IN THIRD QUARTER 2017.
  5. MONITORING WELLS MW-533, MW-534 AND MW-535 WERE INSTALLED POST-EXCAVATION ON OCTOBER 20<sup>th</sup>, 2017.
  6. MONITORING WELLS MW-101, MW-129R, MW-518, MW-526, MW-E-R WERE SAMPLED TWICE ON FIRST QUARTER 2019.
  - \* - BENZENE WAS NOT DETECTED IN THE SAMPLE COLLECTED FROM THE MONITORING WELL HOWEVER THE DETECTION LIMIT WAS ABOVE THE CUL DUE TO A LABORATORY SAMPLE DILUTION.
  - µg/L - MICROGRAMS PER LITER, CUL - CLEANUP LEVEL

Move CUL and definition to a new line



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY FORMER UNOCAL BULK FUEL TERMINAL EDMONDS, WASHINGTON <b>2022 GROUNDWATER AND OPERATION REPORT</b>	
<b>GROUNDWATER BENZENE          REMEDIATION STATUS - FOURTH QUARTER 2022</b>	
	FIGURE <b>3-3</b>



**DPE SYSTEM VAPOR PHASE MASS REMOVAL**  
 Former Unocal Edmonds Bulk Fuel Terminal - Edmonds, Washington

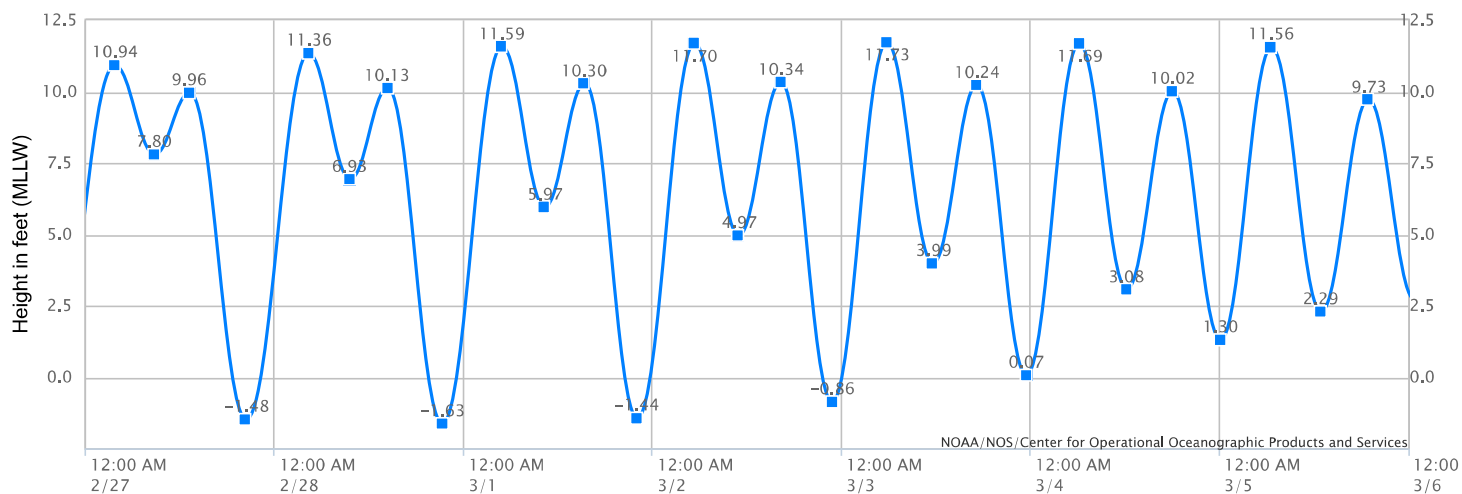
**Figure 4-1**

# Appendix A

**National Oceanic and Atmospheric Administration Edmonds  
Tide Charts**



**NOAA/NOS/CO-OPS**  
**Tide Predictions at 9447427, EDMONDS WA**  
 From 2022/02/27 12:00 AM LST/LDT to 2022/03/05 11:59 PM LST/LDT  
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: \*0.96 ft. low: \*0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

**High/Low Tide Prediction Data Listing**

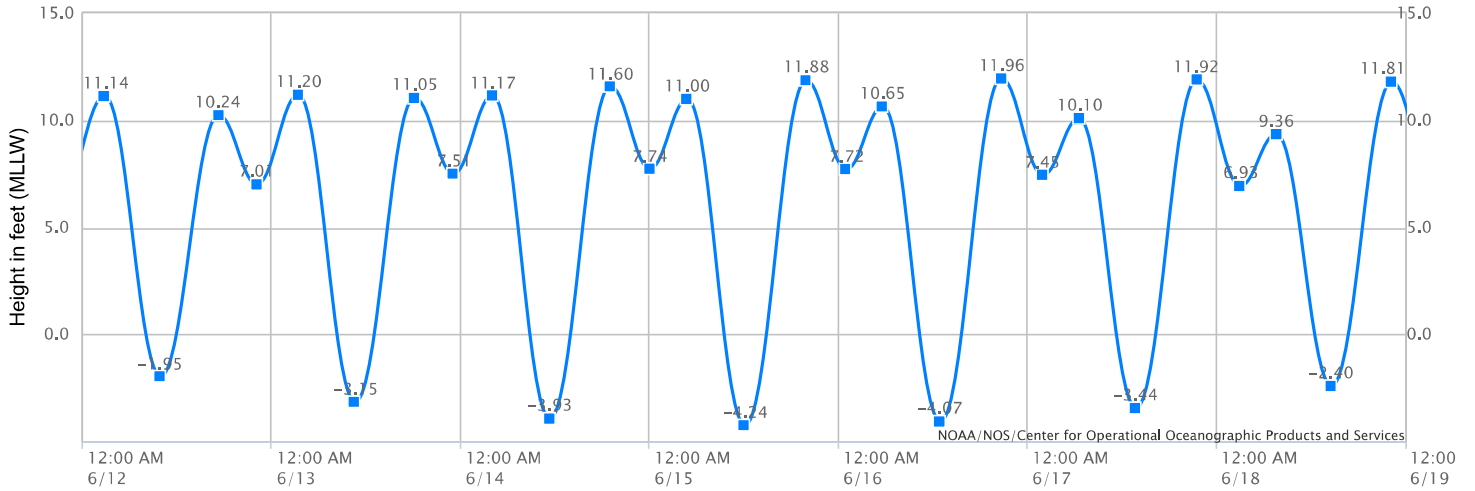
Station Name: EDMONDS, WA  
 Action: Daily  
 Product: Tide Predictions  
 Start Date & Time: 2022/2/27 12:00 AM  
 End Date & Time: 2022/3/5 11:59 PM

Source: NOAA/NOS/CO-OPS  
 Prediction Type: Subordinate  
 Datum: MLLW  
 Height Units: Feet  
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2022/02/27	Sun	03:37 AM	10.94 H	08:43 AM	7.80 L	1:12 PM	9.96 H	8:21 PM	-1.48 L
2022/02/28	Mon	04:16 AM	11.36 H	09:34 AM	6.93 L	2:20 PM	10.13 H	9:14 PM	-1.63 L
2022/03/01	Tue	04:49 AM	11.59 H	10:16 AM	5.97 L	3:21 PM	10.30 H	10:01 PM	-1.44 L
2022/03/02	Wed	05:18 AM	11.70 H	10:56 AM	4.97 L	4:16 PM	10.34 H	10:45 PM	-0.86 L
2022/03/03	Thu	05:44 AM	11.73 H	11:35 AM	3.99 L	5:09 PM	10.24 H	11:27 PM	0.07 L
2022/03/04	Fri	06:11 AM	11.69 H	12:13 PM	3.08 L	6:01 PM	10.02 H		
2022/03/05	Sat	12:07 AM	1.30 L	06:37 AM	11.56 H	12:52 PM	2.29 L	6:55 PM	9.73 H



**NOAA/NOS/CO-OPS**  
**Tide Predictions at 9447427, EDMONDS WA**  
 From 2022/06/12 12:00 AM LST/LDT to 2022/06/18 11:59 PM LST/LDT  
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: \*0.96 ft. low: \*0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

**High/Low Tide Prediction Data Listing**

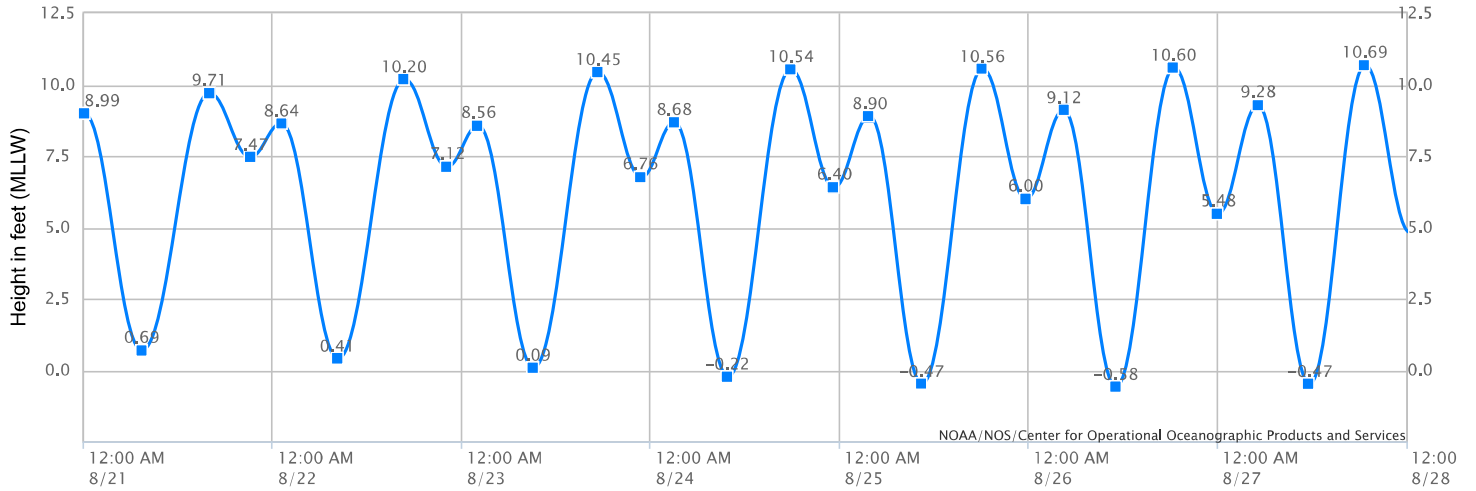
Station Name: EDMONDS, WA  
 Action: Daily  
 Product: Tide Predictions  
 Start Date & Time: 2022/6/12 12:00 AM  
 End Date & Time: 2022/6/18 11:59 PM

Source: NOAA/NOS/CO-OPS  
 Prediction Type: Subordinate  
 Datum: MLLW  
 Height Units: Feet  
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2022/06/12	Sun	02:43 AM	11.14 H	09:51 AM	-1.95 L	5:13 PM	10.24 H	10:06 PM	7.01 L
2022/06/13	Mon	03:20 AM	11.20 H	10:34 AM	-3.15 L	6:07 PM	11.05 H	11:03 PM	7.51 L
2022/06/14	Tue	04:01 AM	11.17 H	11:18 AM	-3.93 L	6:58 PM	11.60 H		
2022/06/15	Wed	12:00 AM	7.74 L	04:47 AM	11.00 H	12:05 PM	-4.24 L	7:49 PM	11.88 H
2022/06/16	Thu	12:57 AM	7.72 L	05:37 AM	10.65 H	12:54 PM	-4.07 L	8:39 PM	11.96 H
2022/06/17	Fri	01:57 AM	7.45 L	06:33 AM	10.10 H	1:44 PM	-3.44 L	9:28 PM	11.92 H
2022/06/18	Sat	03:01 AM	6.93 L	07:36 AM	9.36 H	2:36 PM	-2.40 L	10:15 PM	11.81 H



**NOAA/NOS/CO-OPS**  
**Tide Predictions at 9447427, EDMONDS WA**  
 From 2022/08/21 12:00 AM LST/LDT to 2022/08/27 11:59 PM LST/LDT  
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: \*0.96 ft. low: \*0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

**High/Low Tide Prediction Data Listing**

Station Name: EDMONDS, WA  
 Action: Daily  
 Product: Tide Predictions  
 Start Date & Time: 2022/8/21 12:00 AM  
 End Date & Time: 2022/8/27 11:59 PM

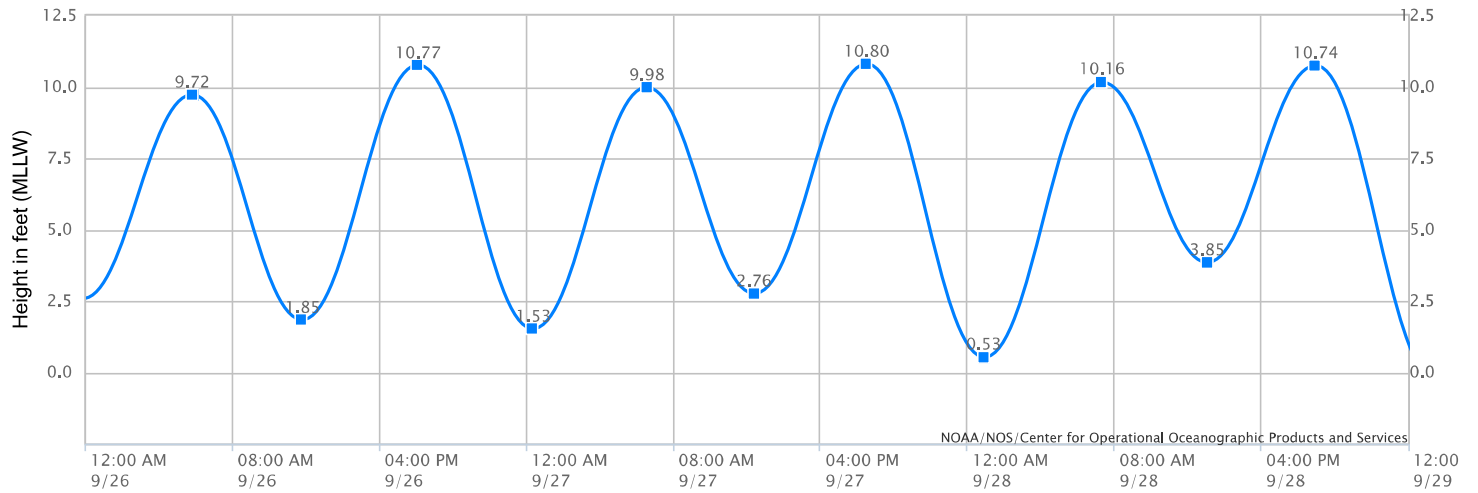
Source: NOAA/NOS/CO-OPS  
 Prediction Type: Subordinate  
 Datum: MLLW  
 Height Units: Feet  
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2022/08/21	Sun	12:01 AM	8.99 H	07:20 AM	0.69 L	3:55 PM	9.71 H	9:09 PM	7.47 L
2022/08/22	Mon	01:03 AM	8.64 H	08:16 AM	0.41 L	4:42 PM	10.20 H	10:07 PM	7.12 L
2022/08/23	Tue	02:04 AM	8.56 H	09:06 AM	0.09 L	5:17 PM	10.45 H	10:46 PM	6.76 L
2022/08/24	Wed	02:59 AM	8.68 H	09:49 AM	-0.22 L	5:45 PM	10.54 H	11:15 PM	6.40 L
2022/08/25	Thu	03:46 AM	8.90 H	10:28 AM	-0.47 L	6:08 PM	10.56 H	11:39 PM	6.00 L
2022/08/26	Fri	04:28 AM	9.12 H	11:04 AM	-0.58 L	6:27 PM	10.60 H		
2022/08/27	Sat	12:02 AM	5.48 L	05:08 AM	9.28 H	11:39 AM	-0.47 L	6:45 PM	10.69 H





**NOAA/NOS/CO-OPS**  
**Tide Predictions at 9447427, EDMONDS WA**  
 From 2022/09/26 12:00 AM LST/LDT to 2022/09/28 11:59 PM LST/LDT  
 Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: \*0.96 ft. low: \*0.99 ft.)



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

**High/Low Tide Prediction Data Listing**

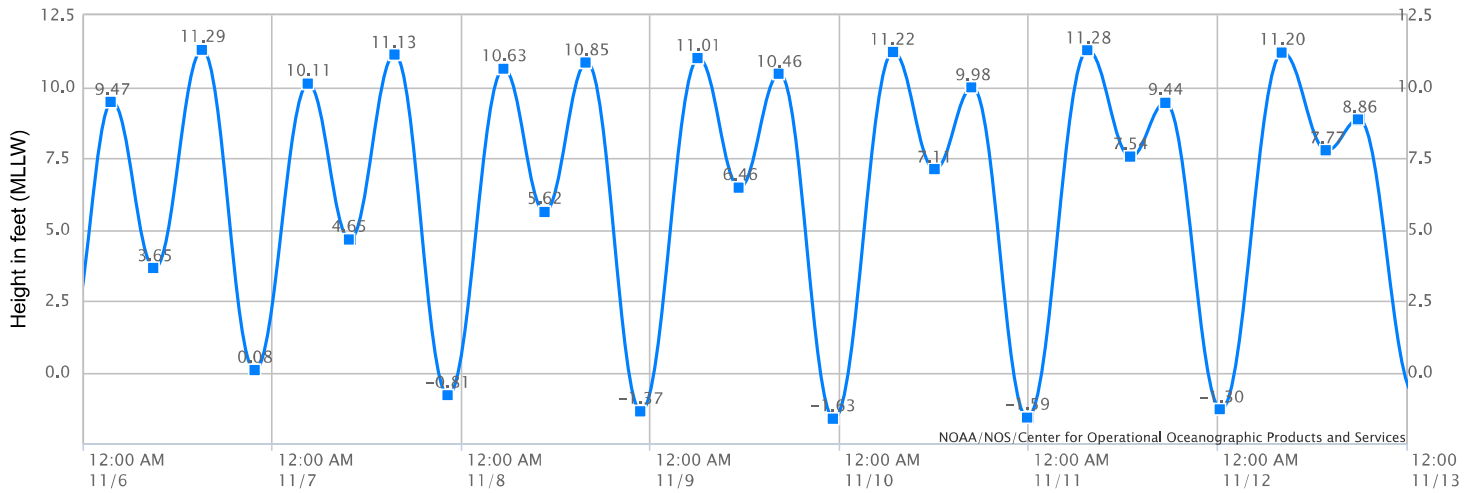
Station Name: EDMONDS, WA  
 Action: Daily  
 Product: Tide Predictions  
 Start Date & Time: 2022/9/26 12:00 AM  
 End Date & Time: 2022/9/28 11:59 PM

Source: NOAA/NOS/CO-OPS  
 Prediction Type: Subordinate  
 Datum: MLLW  
 Height Units: Feet  
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2022/09/26	Mon	05:46 AM	9.72 H	11:46 AM	1.85 L	06:05 PM	10.77 H		
2022/09/27	Tue	12:20 AM	1.53 L	06:31 AM	9.98 H	12:23 PM	2.76 L	06:30 PM	10.80 H
2022/09/28	Wed	12:54 AM	0.53 L	07:19 AM	10.16 H	01:02 PM	3.85 L	06:56 PM	10.74 H



**NOAA/NOS/CO-OPS**  
**Tide Predictions at 9447427, EDMONDS WA**  
**From 2022/11/06 12:00 AM LST/LDT to 2022/11/12 11:59 PM LST/LDT**  
**Subordinate Station | Ref. Station (Seattle 9447130) | Time offsets (high: 0 min. low: -4 min.) | Height offsets (high: \*0.96 ft. low: \*0.99 ft.)**



Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.  
 Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

**High/Low Tide Prediction Data Listing**

Station Name: EDMONDS, WA  
 Action: Daily  
 Product: Tide Predictions  
 Start Date & Time: 2022/11/6 12:00 AM  
 End Date & Time: 2022/11/12 11:59 PM

Source: NOAA/NOS/CO-OPS  
 Prediction Type: Subordinate  
 Datum: MLLW  
 Height Units: Feet  
 Time Zone: LST/LDT

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2022/11/06	Sun	03:32 AM	9.47 H	08:57 AM	3.65 L	3:01 PM	11.29 H	9:41 PM	0.08 L
2022/11/07	Mon	04:28 AM	10.11 H	09:45 AM	4.65 L	3:27 PM	11.13 H	10:13 PM	-0.81 L
2022/11/08	Tue	05:18 AM	10.63 H	10:32 AM	5.62 L	3:54 PM	10.85 H	10:44 PM	-1.37 L
2022/11/09	Wed	06:04 AM	11.01 H	11:18 AM	6.46 L	4:21 PM	10.46 H	11:16 PM	-1.63 L
2022/11/10	Thu	06:47 AM	11.22 H	12:06 PM	7.11 L	4:51 PM	9.98 H	11:50 PM	-1.59 L
2022/11/11	Fri	07:30 AM	11.28 H	12:56 PM	7.54 L	5:23 PM	9.44 H		
2022/11/12	Sat	12:27 AM	-1.30 L	08:13 AM	11.20 H	1:52 PM	7.77 L	5:59 PM	8.86 H

# Appendix B

## Groundwater Sampling Event Field Notes

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 11:04:24 AM

Project: Edmonds Terminal 1Q22 (9)

Operator Name: JMS

<b>Location Name: LM-2</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5.5 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 1.06 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 6 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.32 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
---	--	---

## Test Notes:

Pump on at 1103

## Weather Conditions:

46F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 11:04 AM	00:00	5.61 pH	53.41 °F	0.07 µS/cm	9.88 mg/L	61.3 mV	1.06 ft	150.00 ml/min
3/2/2022 11:07 AM	03:00	5.79 pH	50.49 °F	14,107 µS/cm	0.39 mg/L	-58.5 mV	1.06 ft	150.00 ml/min
3/2/2022 11:10 AM	06:00	5.81 pH	50.38 °F	14,119 µS/cm	0.22 mg/L	-81.0 mV	1.06 ft	150.00 ml/min
3/2/2022 11:13 AM	09:00	5.83 pH	50.33 °F	14,107 µS/cm	0.17 mg/L	-94.0 mV	1.06 ft	150.00 ml/min
3/2/2022 11:16 AM	12:00	5.84 pH	50.32 °F	14,084 µS/cm	0.14 mg/L	-101.7 mV	1.06 ft	150.00 ml/min
3/2/2022 11:19 AM	15:00	5.84 pH	50.20 °F	14,024 µS/cm	0.12 mg/L	-108.3 mV	1.06 ft	150.00 ml/min
3/2/2022 11:22 AM	18:00	5.85 pH	50.12 °F	13,948 µS/cm	0.10 mg/L	-114.7 mV	1.06 ft	150.00 ml/min
3/2/2022 11:25 AM	21:00	5.86 pH	50.06 °F	13,858 µS/cm	0.08 mg/L	-119.0 mV	1.06 ft	150.00 ml/min
3/2/2022 11:28 AM	24:00	5.87 pH	50.02 °F	13,717 µS/cm	0.07 mg/L	-123.0 mV	1.06 ft	150.00 ml/min
3/2/2022 11:31 AM	27:00	5.88 pH	49.95 °F	13,565 µS/cm	0.06 mg/L	-126.1 mV	1.06 ft	150.00 ml/min
3/2/2022 11:34 AM	30:00	5.89 pH	49.89 °F	13,352 µS/cm	0.06 mg/L	-129.0 mV	1.06 ft	150.00 ml/min
3/2/2022 11:37 AM	33:00	5.89 pH	49.83 °F	13,088 µS/cm	0.05 mg/L	-129.6 mV	1.06 ft	150.00 ml/min

3/2/2022 11:40 AM	36:00	5.90 pH	49.83 °F	12,838 µS/cm	0.07 mg/L	-125.8 mV	1.06 ft	150.00 ml/min
3/2/2022 11:43 AM	39:00	5.90 pH	49.79 °F	12,587 µS/cm	0.09 mg/L	-120.9 mV	1.06 ft	150.00 ml/min
3/2/2022 11:46 AM	42:00	5.89 pH	49.78 °F	12,352 µS/cm	0.11 mg/L	-115.7 mV	1.06 ft	150.00 ml/min
3/2/2022 11:49 AM	45:00	5.90 pH	49.73 °F	12,124 µS/cm	0.12 mg/L	-112.6 mV	1.06 ft	150.00 ml/min

## Samples

Sample ID:	Description:
LM-2	Sample Time: 1154 Final DTW: 2.38 ft Final RDO: 0.12 RDO and ORP did not stabilize

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 11:53:05 AM

Project: Edmonds Terminal 1Q22

Operator Name: PRB

<b>Location Name: MW-20R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 m</b> <b>Top of Screen: 4 ft</b> <b>Total Depth: 14.5 ft</b> <b>Initial Depth to Water: 5.71 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 7567.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.13 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/1/2022 11:53 AM	00:00	5.62 pH	54.77 °F	7,462.5 µS/cm	9.07 mg/L	12.17 NTU	227.5 mV	5.71 ft	150.00 ml/min
3/1/2022 11:56 AM	03:00	5.67 pH	53.26 °F	7,288.0 µS/cm	9.37 mg/L	12.08 NTU	224.4 mV	5.71 ft	150.00 ml/min
3/1/2022 11:59 AM	06:00	5.70 pH	53.29 °F	6,963.7 µS/cm	9.39 mg/L	17.23 NTU	229.9 mV	5.71 ft	150.00 ml/min
3/1/2022 12:02 PM	09:00	5.72 pH	52.79 °F	6,617.7 µS/cm	9.44 mg/L	28.96 NTU	232.3 mV	5.71 ft	150.00 ml/min
3/1/2022 12:05 PM	12:00	5.71 pH	52.50 °F	6,528.2 µS/cm	9.46 mg/L	14.20 NTU	236.0 mV	5.71 ft	150.00 ml/min
3/1/2022 12:08 PM	15:00	5.71 pH	52.22 °F	6,523.4 µS/cm	9.34 mg/L	10.63 NTU	239.7 mV	5.71 ft	150.00 ml/min
3/1/2022 12:11 PM	18:00	5.71 pH	52.31 °F	6,554.3 µS/cm	9.25 mg/L	12.88 NTU	245.2 mV	5.71 ft	150.00 ml/min
3/1/2022 12:14 PM	21:00	5.71 pH	52.26 °F	6,633.0 µS/cm	9.14 mg/L	14.37 NTU	248.5 mV	5.71 ft	150.00 ml/min
3/1/2022 12:17 PM	24:00	5.71 pH	52.17 °F	6,744.3 µS/cm	8.97 mg/L	5.83 NTU	250.5 mV	5.71 ft	150.00 ml/min
3/1/2022 12:20 PM	27:00	5.71 pH	52.23 °F	6,903.3 µS/cm	8.90 mg/L	5.21 NTU	252.1 mV	5.71 ft	150.00 ml/min
3/1/2022 12:23 PM	30:00	5.72 pH	52.12 °F	7,108.3 µS/cm	8.80 mg/L	2.41 NTU	249.9 mV	5.71 ft	150.00 ml/min
3/1/2022 12:26 PM	33:00	5.71 pH	52.11 °F	7,363.8 µS/cm	8.68 mg/L	4.74 NTU	248.8 mV	5.71 ft	150.00 ml/min

3/1/2022 12:29 PM	36:00	5.72 pH	52.03 °F	7,612.1 μS/cm	8.53 mg/L	6.49 NTU	249.1 mV	5.71 ft	150.00 ml/min
3/1/2022 12:32 PM	39:00	5.72 pH	51.73 °F	7,931.7 μS/cm	8.32 mg/L	3.65 NTU	248.2 mV	5.71 ft	150.00 ml/min
3/1/2022 12:35 PM	42:00	5.72 pH	51.93 °F	8,320.6 μS/cm	8.12 mg/L	0.81 NTU	247.3 mV	5.71 ft	150.00 ml/min
3/1/2022 12:38 PM	45:00	5.72 pH	51.74 °F	8,743.9 μS/cm	7.94 mg/L	1.79 NTU	246.3 mV	5.71 ft	150.00 ml/min
3/1/2022 12:43 PM	50:27	5.72 pH	51.63 °F	9,545.8 μS/cm	7.42 mg/L	1.59 NTU	255.4 mV	5.71 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-20R	Sample Time: 1245 Final DTW: 5.84 Final RDO: 14.72

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 11:39:18 AM

Project: Edmonds Terminal 1Q22 (6)

Operator Name: JMS

<b>Location Name: MW-101</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 8.15 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 12 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.012 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1137

## Weather Conditions:

54 F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 11:39 AM	00:00	6.36 pH	57.57 °F	539.00 µS/cm	3.94 mg/L	276.6 mV	8.15 ft	150.00 ml/min
3/1/2022 11:42 AM	03:00	6.29 pH	56.58 °F	546.43 µS/cm	0.64 mg/L	232.6 mV	8.15 ft	150.00 ml/min
3/1/2022 11:45 AM	06:00	6.27 pH	56.21 °F	548.44 µS/cm	0.57 mg/L	222.1 mV	8.15 ft	150.00 ml/min
3/1/2022 11:48 AM	09:00	6.28 pH	56.11 °F	547.63 µS/cm	0.40 mg/L	217.5 mV	8.15 ft	150.00 ml/min
3/1/2022 11:51 AM	12:00	6.28 pH	56.22 °F	548.22 µS/cm	0.52 mg/L	212.5 mV	8.15 ft	150.00 ml/min
3/1/2022 11:54 AM	15:00	6.29 pH	57.52 °F	548.53 µS/cm	0.45 mg/L	210.3 mV	8.15 ft	150.00 ml/min
3/1/2022 11:57 AM	18:00	6.27 pH	59.12 °F	548.69 µS/cm	0.53 mg/L	208.4 mV	8.15 ft	150.00 ml/min
3/1/2022 12:00 PM	21:00	6.31 pH	56.26 °F	543.92 µS/cm	0.55 mg/L	210.8 mV	8.15 ft	150.00 ml/min
3/1/2022 12:03 PM	24:00	6.28 pH	55.90 °F	542.99 µS/cm	0.57 mg/L	207.2 mV	8.15 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-101

Sample time: 1214  
Final DTW: 8.24  
Final RDO: 0.57  
DUP-2 collected

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 1:21:36 PM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-104</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.38 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.18 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 50 F, light wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 1:21 PM	00:00	7.26 pH	57.05 °F	71.95 µS/cm	9.85 mg/L	-60.6 mV	7.38 ft	150.00 ml/min
3/2/2022 1:24 PM	03:00	6.66 pH	53.27 °F	16,610 µS/cm	2.45 mg/L	10.3 mV	7.38 ft	150.00 ml/min
3/2/2022 1:27 PM	06:00	6.49 pH	52.84 °F	17,201 µS/cm	2.34 mg/L	30.4 mV	7.38 ft	150.00 ml/min
3/2/2022 1:30 PM	09:00	6.45 pH	52.81 °F	11,983 µS/cm	2.29 mg/L	39.8 mV	7.38 ft	150.00 ml/min
3/2/2022 1:33 PM	12:00	6.45 pH	52.60 °F	17,734 µS/cm	2.07 mg/L	44.0 mV	7.38 ft	150.00 ml/min
3/2/2022 1:36 PM	15:00	6.43 pH	52.57 °F	20,304 µS/cm	1.84 mg/L	46.8 mV	7.38 ft	150.00 ml/min
3/2/2022 1:39 PM	18:00	6.43 pH	52.56 °F	19,813 µS/cm	1.85 mg/L	47.8 mV	7.38 ft	150.00 ml/min
3/2/2022 1:42 PM	21:00	6.42 pH	52.31 °F	24,787 µS/cm	1.75 mg/L	48.9 mV	7.38 ft	150.00 ml/min
3/2/2022 1:45 PM	24:00	6.42 pH	52.35 °F	6,578.1 µS/cm	1.65 mg/L	49.2 mV	7.38 ft	150.00 ml/min
3/2/2022 1:48 PM	27:00	6.42 pH	52.27 °F	16,670 µS/cm	1.51 mg/L	49.9 mV	7.38 ft	150.00 ml/min
3/2/2022 1:51 PM	30:00	6.41 pH	52.20 °F	11,102 µS/cm	1.45 mg/L	50.4 mV	7.38 ft	150.00 ml/min
3/2/2022 1:54 PM	33:00	6.40 pH	52.05 °F	20,700 µS/cm	1.40 mg/L	51.5 mV	7.38 ft	150.00 ml/min

3/2/2022 1:57 PM	36:00	6.42 pH	52.09 °F	8,693.6 µS/cm	1.32 mg/L	49.9 mV	7.38 ft	150.00 ml/min
3/2/2022 2:00 PM	39:00	6.42 pH	51.95 °F	23,293 µS/cm	1.19 mg/L	47.9 mV	7.38 ft	150.00 ml/min
3/2/2022 2:03 PM	42:00	6.42 pH	52.11 °F	30,743 µS/cm	1.13 mg/L	46.5 mV	7.38 ft	150.00 ml/min
3/2/2022 2:06 PM	45:00	6.41 pH	52.08 °F	31,181 µS/cm	1.12 mg/L	45.7 mV	7.38 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-104	Sample Time: 14:06 Final DTW: 7.56 ft btoc Final RDO: 1.12 mg/L Ferrous Iron: NA Parameters not stabilized: Specific Conductivity

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 10:02:52 AM

Project: Edmonds Terminal 1Q22

Operator Name: JMS

<b>Location Name: MW-126</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 3.7 ft</b> <b>Total Depth: 14.2 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.08 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1001

## Weather Conditions:

40 F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %	
2/28/2022 10:02 AM	00:00	6.65 pH	50.43 °F	516.09 µS/cm	6.31 mg/L	230.0 mV	150.00 ml/min
2/28/2022 10:05 AM	03:00	6.63 pH	48.27 °F	505.57 µS/cm	3.06 mg/L	233.9 mV	150.00 ml/min
2/28/2022 10:08 AM	06:00	6.59 pH	47.90 °F	493.51 µS/cm	2.86 mg/L	231.6 mV	150.00 ml/min
2/28/2022 10:11 AM	09:00	6.58 pH	47.72 °F	494.27 µS/cm	2.87 mg/L	235.5 mV	150.00 ml/min

## Samples

Sample ID:	Description:
MW-126	Sample time: 1015 Final DTW: 4.09 ft Final RDO: 2.87

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 9:44:20 AM

Project: Edmonds Terminal 1Q22 (8)

Operator Name: JMS

<b>Location Name: MW-129R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.97 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.3 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 0941

## Weather Conditions:

54F light rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 9:44 AM	00:00	5.76 pH	52.92 °F	951.99 µS/cm	4.00 mg/L	61.5 mV	4.97 ft	150.00 ml/min
3/2/2022 9:47 AM	03:00	5.60 pH	50.58 °F	976.27 µS/cm	0.52 mg/L	22.9 mV	4.97 ft	150.00 ml/min
3/2/2022 9:50 AM	06:00	5.59 pH	50.24 °F	967.88 µS/cm	0.38 mg/L	10.4 mV	4.97 ft	150.00 ml/min
3/2/2022 9:53 AM	09:00	5.59 pH	49.91 °F	973.62 µS/cm	0.32 mg/L	3.2 mV	4.97 ft	150.00 ml/min
3/2/2022 9:56 AM	12:00	5.58 pH	49.88 °F	979.56 µS/cm	0.27 mg/L	-2.1 mV	4.97 ft	150.00 ml/min
3/2/2022 9:59 AM	15:00	5.57 pH	49.81 °F	992.82 µS/cm	0.23 mg/L	-7.8 mV	4.97 ft	150.00 ml/min
3/2/2022 10:02 AM	18:00	5.57 pH	50.08 °F	994.17 µS/cm	0.24 mg/L	-15.3 mV	4.97 ft	150.00 ml/min
3/2/2022 10:05 AM	21:00	5.58 pH	49.90 °F	1,003.4 µS/cm	0.20 mg/L	-26.3 mV	4.97 ft	150.00 ml/min
3/2/2022 10:08 AM	24:00	5.59 pH	50.02 °F	1,002.2 µS/cm	0.17 mg/L	-34.8 mV	4.97 ft	150.00 ml/min
3/2/2022 10:11 AM	27:00	5.60 pH	50.04 °F	1,006.4 µS/cm	0.15 mg/L	-45.6 mV	4.97 ft	150.00 ml/min
3/2/2022 10:14 AM	30:00	5.61 pH	50.02 °F	1,011.1 µS/cm	0.14 mg/L	-55.6 mV	4.97 ft	150.00 ml/min
3/2/2022 10:17 AM	33:00	5.61 pH	50.11 °F	1,010.9 µS/cm	0.13 mg/L	-63.7 mV	4.97 ft	150.00 ml/min

3/2/2022 10:20 AM	36:00	5.62 pH	50.09 °F	1,017.1 µS/cm	0.12 mg/L	-72.5 mV	4.97 ft	150.00 ml/min
3/2/2022 10:23 AM	39:00	5.62 pH	50.19 °F	1,015.9 µS/cm	0.14 mg/L	-79.0 mV	4.97 ft	150.00 ml/min
3/2/2022 10:26 AM	42:00	5.62 pH	50.66 °F	1,014.2 µS/cm	0.17 mg/L	-82.2 mV	4.97 ft	150.00 ml/min
3/2/2022 10:29 AM	45:00	5.63 pH	50.28 °F	1,017.9 µS/cm	0.21 mg/L	-84.9 mV	4.97 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-129R	Sample time: 1034 Final DTW: 6.27 ft Final RDO: 0.21 ORP and DO did not stabilize

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 10:58:41 AM

Project: Edmonds Terminal 1Q22

Operator Name: DSG

<b>Location Name: MW-139R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.6 ft</b> <b>Top of Screen: 4.4 ft</b> <b>Total Depth: 14.9 ft</b> <b>Initial Depth to Water: 6.65 ft</b>	<b>Pump Type: Geopump series 2</b> <b>Tubing Type: Polyethylene</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Weather Conditions:

Rainy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 10:58 AM	00:00	6.18 pH	52.91 °F	21,896 µS/cm	9.95 mg/L	0.76 NTU	206.1 mV	6.65 ft	150.00 ml/min
2/28/2022 11:01 AM	03:00	6.49 pH	48.03 °F	25,232 µS/cm	8.28 mg/L	0.61 NTU	207.8 mV	6.65 ft	150.00 ml/min
2/28/2022 11:04 AM	06:00	6.52 pH	47.71 °F	24,600 µS/cm	8.66 mg/L	0.00 NTU	207.8 mV	6.65 ft	150.00 ml/min
2/28/2022 11:07 AM	09:00	6.53 pH	47.57 °F	24,369 µS/cm	8.69 mg/L	0.13 NTU	207.5 mV	6.65 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-139	Sample Time:11:22 Final DTW: 6.65

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 1:16:00 PM

Project: Edmonds Terminal 1Q22 (7)

Operator Name: JMS

<b>Location Name: MW-143</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.6 ft</b> <b>Top of Screen: 3.5 ft</b> <b>Total Depth: 14.1 ft</b> <b>Initial Depth to Water: 4.06 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 2.14 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1314

## Weather Conditions:

52 F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 1:16 PM	00:00	6.24 pH	60.23 °F	552.51 µS/cm	4.22 mg/L	-1.9 mV	4.06 ft	150.00 ml/min
3/1/2022 1:19 PM	03:00	6.19 pH	52.95 °F	565.87 µS/cm	0.46 mg/L	-69.5 mV	4.06 ft	150.00 ml/min
3/1/2022 1:22 PM	06:00	6.12 pH	52.26 °F	568.94 µS/cm	0.35 mg/L	-91.4 mV	4.06 ft	150.00 ml/min
3/1/2022 1:25 PM	09:00	6.10 pH	52.01 °F	571.32 µS/cm	0.26 mg/L	-108.2 mV	4.06 ft	150.00 ml/min
3/1/2022 1:28 PM	12:00	6.09 pH	51.50 °F	570.52 µS/cm	0.19 mg/L	-118.6 mV	4.06 ft	150.00 ml/min
3/1/2022 1:31 PM	15:00	6.08 pH	51.45 °F	571.92 µS/cm	0.18 mg/L	-124.8 mV	4.06 ft	150.00 ml/min
3/1/2022 1:34 PM	18:00	6.08 pH	51.07 °F	569.00 µS/cm	0.16 mg/L	-130.7 mV	4.06 ft	150.00 ml/min
3/1/2022 1:37 PM	21:00	6.09 pH	51.23 °F	570.16 µS/cm	0.14 mg/L	-131.6 mV	4.06 ft	150.00 ml/min
3/1/2022 1:40 PM	24:00	6.09 pH	51.12 °F	568.73 µS/cm	0.12 mg/L	-135.2 mV	4.06 ft	150.00 ml/min
3/1/2022 1:43 PM	27:00	6.10 pH	51.07 °F	567.49 µS/cm	0.12 mg/L	-137.4 mV	4.06 ft	150.00 ml/min
3/1/2022 1:46 PM	30:00	6.12 pH	50.85 °F	570.25 µS/cm	0.22 mg/L	-130.7 mV	4.06 ft	150.00 ml/min
3/1/2022 1:49 PM	33:00	6.12 pH	51.10 °F	570.72 µS/cm	0.22 mg/L	-131.4 mV	4.06 ft	150.00 ml/min



3/1/2022 1:52 PM	36:00	6.14 pH	51.15 °F	571.48 µS/cm	0.22 mg/L	-131.2 mV	4.06 ft	150.00 ml/min
3/1/2022 1:55 PM	39:00	6.15 pH	51.46 °F	571.16 µS/cm	0.24 mg/L	-130.5 mV	4.06 ft	150.00 ml/min
3/1/2022 1:58 PM	42:00	6.16 pH	51.50 °F	572.93 µS/cm	0.20 mg/L	-129.9 mV	4.06 ft	150.00 ml/min
3/1/2022 2:01 PM	45:00	6.17 pH	51.71 °F	572.67 µS/cm	0.17 mg/L	-134.8 mV	4.06 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-143	Sample time: 1414 Final DTW: 6.22 ft Final RDO: 0.17

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 10:45:39 AM

Project: Edmonds Terminal 1Q22 (5)

Operator Name: JMS

<b>Location Name: MW-502</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.62 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.019 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1043

## Weather Conditions:

54 F cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 10:45 AM	00:00	6.73 pH	53.56 °F	247.42 µS/cm	6.32 mg/L	216.3 mV	4.62 ft	150.00 ml/min
3/1/2022 10:48 AM	03:00	6.09 pH	50.75 °F	245.16 µS/cm	0.39 mg/L	222.0 mV	4.62 ft	150.00 ml/min
3/1/2022 10:51 AM	06:00	6.08 pH	50.51 °F	246.16 µS/cm	0.22 mg/L	221.2 mV	4.62 ft	150.00 ml/min
3/1/2022 10:54 AM	09:00	6.06 pH	50.11 °F	246.17 µS/cm	0.21 mg/L	216.5 mV	4.62 ft	150.00 ml/min
3/1/2022 10:57 AM	12:00	6.08 pH	50.20 °F	245.84 µS/cm	0.19 mg/L	215.1 mV	4.62 ft	150.00 ml/min
3/1/2022 11:00 AM	15:00	6.07 pH	50.10 °F	244.94 µS/cm	0.23 mg/L	210.0 mV	4.62 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-502	Sample time: 1104 Final DTW: 4.81 ft Final RDO: 0.22



# Low-Flow Test Report:

Test Date / Time: 3/1/2022 11:54:37 AM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-503</b> <b>Latitude: 47.8059371277072</b> <b>Longitude: -122.388801053166</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.46 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

55 sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/1/2022 11:54 AM	00:00	6.31 pH	65.78 °F	376.78 µS/cm	0.68 mg/L	203.95 NTU	3.9 mV	4.46 ft	150.00 ml/min
3/1/2022 11:57 AM	03:00	6.32 pH	65.37 °F	376.75 µS/cm	0.19 mg/L	3.02 NTU	-12.2 mV	4.46 ft	150.00 ml/min
3/1/2022 12:00 PM	06:00	6.27 pH	65.33 °F	375.77 µS/cm	0.20 mg/L	0.22 NTU	-17.1 mV	4.46 ft	150.00 ml/min
3/1/2022 12:03 PM	09:00	6.28 pH	65.29 °F	373.45 µS/cm	0.16 mg/L	33.01 NTU	-21.7 mV	4.46 ft	150.00 ml/min
3/1/2022 12:06 PM	12:00	6.32 pH	65.30 °F	372.03 µS/cm	0.21 mg/L	0.35 NTU	-30.1 mV	4.46 ft	150.00 ml/min
3/1/2022 12:09 PM	15:00	6.28 pH	65.27 °F	375.11 µS/cm	0.11 mg/L	1.26 NTU	-30.4 mV	4.46 ft	150.00 ml/min
3/1/2022 12:12 PM	18:00	6.30 pH	65.33 °F	370.76 µS/cm	0.13 mg/L	1.07 NTU	-33.4 mV	4.46 ft	150.00 ml/min
3/1/2022 12:15 PM	21:00	6.32 pH	65.55 °F	373.58 µS/cm	0.15 mg/L	0.80 NTU	-37.0 mV	4.46 ft	150.00 ml/min
3/1/2022 12:18 PM	24:00	6.31 pH	65.65 °F	375.06 µS/cm	0.14 mg/L	2.48 NTU	-36.1 mV	4.46 ft	150.00 ml/min
3/1/2022 12:21 PM	27:00	6.30 pH	65.66 °F	377.65 µS/cm	0.16 mg/L	1.22 NTU	-34.6 mV	4.46 ft	150.00 ml/min
3/1/2022 12:24 PM	30:00	6.25 pH	65.64 °F	376.07 µS/cm	0.16 mg/L	6.67 NTU	-32.2 mV	4.46 ft	150.00 ml/min
3/1/2022 12:27 PM	33:00	6.29 pH	65.72 °F	374.46 µS/cm	0.13 mg/L	1.35 NTU	-36.5 mV	4.46 ft	150.00 ml/min

3/1/2022 12:30 PM	36:00	6.27 pH	65.65 °F	373.53 µS/cm	0.16 mg/L	3.19 NTU	-35.0 mV	4.46 ft	150.00 ml/min
3/1/2022 12:33 PM	39:00	6.28 pH	65.73 °F	374.33 µS/cm	0.14 mg/L	0.52 NTU	-37.5 mV	4.46 ft	150.00 ml/min
3/1/2022 12:36 PM	42:00	6.32 pH	65.69 °F	372.68 µS/cm	0.14 mg/L	1.26 NTU	-40.3 mV	4.46 ft	150.00 ml/min
3/1/2022 12:39 PM	45:00	6.24 pH	65.64 °F	375.43 µS/cm	0.13 mg/L	0.45 NTU	-34.1 mV	4.46 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-503	<p>Sample Time: 1240  Final RDO: 0.13 mg/L  Final DTW: 4.45 ft btoc</p> <p>Turbidity and ORP did not stabilize after 45 minutes.</p>

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 12:08:39 PM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-504</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.71 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.04 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny, 50 F, wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 12:08 PM	00:00	7.16 pH	62.78 °F	0.06 µS/cm		145.2 mV	5.71 ft	150.00 ml/min
3/1/2022 12:11 PM	03:00	6.93 pH	53.26 °F	22,178 µS/cm	8.08 mg/L	137.3 mV	5.71 ft	150.00 ml/min
3/1/2022 12:14 PM	06:00	6.88 pH	54.03 °F	22,397 µS/cm	7.95 mg/L	142.2 mV	5.71 ft	150.00 ml/min
3/1/2022 12:17 PM	09:00	6.86 pH	54.17 °F	22,723 µS/cm	7.87 mg/L	145.0 mV	5.71 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-504	Sample Time: 12:16 Final DTW: 5.75 ft btoc Final RDO: 7.87 mg/L Ferrous Iron: NA

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 12:51:03 PM

Project: Edmonds Terminal #Q122 (7)

Operator Name: MA

<b>Location Name: MW-505</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.8 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.1 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny, 50 F, wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 12:51 PM	00:00	7.27 pH	61.50 °F	0.07 µS/cm	9.89 mg/L	148.2 mV	3.80 ft	150.00 ml/min
3/1/2022 12:54 PM	03:00	6.47 pH	56.72 °F	124,353 µS/cm	1.84 mg/L	6.0 mV	3.80 ft	150.00 ml/min
3/1/2022 12:57 PM	06:00	6.50 pH	56.19 °F	223,643 µS/cm	0.99 mg/L	-1.4 mV	3.80 ft	150.00 ml/min
3/1/2022 1:00 PM	09:00	6.54 pH	55.87 °F	291,672 µS/cm	0.98 mg/L	-2.3 mV	3.80 ft	150.00 ml/min
3/1/2022 1:03 PM	12:00	6.57 pH	55.73 °F	322,225 µS/cm	0.17 mg/L	-7.8 mV	3.80 ft	150.00 ml/min
3/1/2022 1:06 PM	15:00	6.57 pH	55.93 °F	360,804 µS/cm	0.03 mg/L	-13.9 mV	3.80 ft	150.00 ml/min
3/1/2022 1:09 PM	18:00	6.61 pH	55.73 °F	389,529 µS/cm	0.02 mg/L	-15.4 mV	3.80 ft	150.00 ml/min
3/1/2022 1:12 PM	21:00	6.62 pH	55.66 °F	434,819 µS/cm	0.01 mg/L	-17.9 mV	3.80 ft	150.00 ml/min
3/1/2022 1:15 PM	24:00	6.63 pH	55.68 °F	422,265 µS/cm	0.01 mg/L	-20.4 mV	3.80 ft	150.00 ml/min
3/1/2022 1:18 PM	27:00	6.65 pH	55.50 °F	428,999 µS/cm	0.01 mg/L	-22.2 mV	3.80 ft	150.00 ml/min
3/1/2022 1:21 PM	30:00	6.67 pH	55.44 °F	445,687 µS/cm	0.01 mg/L	-22.0 mV	3.80 ft	150.00 ml/min
3/1/2022 1:24 PM	33:00	6.67 pH	55.38 °F	455,868 µS/cm	0.01 mg/L	-22.8 mV	3.80 ft	150.00 ml/min

3/1/2022 1:27 PM	36:00	6.68 pH	55.35 °F	452,318 µS/cm	0.01 mg/L	-23.0 mV	3.80 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-505	Sample Time: 13:26 Final DTW: 3.90 ft btoc Final RDO: 0.01 mg/L Ferrous Iron: NA



# Low-Flow Test Report:

Test Date / Time: 2/28/2022 1:52:05 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-506</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.15 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.06 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 1:52 PM	00:00	6.63 pH	62.80 °F	7,157.2 µS/cm	0.91 mg/L	0.82 NTU	41.2 mV	6.15 ft	150.00 ml/min
2/28/2022 1:55 PM	03:00	6.66 pH	62.74 °F	7,014.4 µS/cm	0.66 mg/L	0.00 NTU	-9.2 mV	6.15 ft	150.00 ml/min
2/28/2022 1:58 PM	06:00	6.68 pH	62.79 °F	6,854.4 µS/cm	0.60 mg/L	0.00 NTU	-50.7 mV	6.15 ft	150.00 ml/min
2/28/2022 2:01 PM	09:00	6.69 pH	62.85 °F	6,752.7 µS/cm	0.21 mg/L	0.00 NTU	-67.5 mV	6.15 ft	150.00 ml/min
2/28/2022 2:04 PM	12:00	6.69 pH	62.82 °F	6,611.5 µS/cm	0.22 mg/L	0.00 NTU	-83.2 mV	6.15 ft	150.00 ml/min
2/28/2022 2:07 PM	15:00	6.69 pH	62.79 °F	6,695.3 µS/cm	0.47 mg/L	0.00 NTU	-97.2 mV	6.15 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-506	Sample Time: 1400 Final RDO: 0.47 mg/L Final DTW: 6.21 ft btoc



# Low-Flow Test Report:

Test Date / Time: 3/1/2022 10:34:17 AM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-507</b> <b>Latitude: 47.8064789227323</b> <b>Longitude: -122.3887514323</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.54 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.8 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

52F mostly sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/1/2022 10:34 AM	00:00	7.11 pH	63.96 °F	502.12 µS/cm	6.10 mg/L	15.50 NTU	114.2 mV	5.54 ft	150.00 ml/min
3/1/2022 10:37 AM	03:00	6.70 pH	62.48 °F	454.01 µS/cm	4.63 mg/L	1.66 NTU	149.3 mV	5.54 ft	150.00 ml/min
3/1/2022 10:40 AM	06:00	6.64 pH	62.33 °F	452.92 µS/cm	4.68 mg/L	1.38 NTU	168.3 mV	5.54 ft	150.00 ml/min
3/1/2022 10:43 AM	09:00	6.64 pH	62.18 °F	453.16 µS/cm	4.53 mg/L	0.72 NTU	171.3 mV	5.54 ft	150.00 ml/min
3/1/2022 10:46 AM	12:00	6.65 pH	62.02 °F	456.61 µS/cm	4.29 mg/L	0.14 NTU	184.3 mV	5.54 ft	150.00 ml/min
3/1/2022 10:49 AM	15:00	6.60 pH	61.88 °F	463.79 µS/cm	4.09 mg/L	0.57 NTU	186.7 mV	5.54 ft	150.00 ml/min
3/1/2022 10:52 AM	18:00	6.66 pH	61.90 °F	463.92 µS/cm	3.89 mg/L	0.45 NTU	188.8 mV	5.54 ft	150.00 ml/min
3/1/2022 10:55 AM	21:00	6.66 pH	61.79 °F	470.74 µS/cm	3.69 mg/L	0.25 NTU	197.5 mV	5.54 ft	150.00 ml/min
3/1/2022 10:58 AM	24:00	6.67 pH	61.82 °F	479.97 µS/cm	3.33 mg/L	0.44 NTU	205.9 mV	5.54 ft	150.00 ml/min
3/1/2022 11:01 AM	27:00	6.66 pH	61.76 °F	480.46 µS/cm	3.08 mg/L	0.55 NTU	204.8 mV	5.54 ft	150.00 ml/min
3/1/2022 11:04 AM	30:00	6.62 pH	61.68 °F	488.10 µS/cm	2.83 mg/L	1.43 NTU	203.3 mV	5.54 ft	150.00 ml/min
3/1/2022 11:07 AM	33:00	6.67 pH	61.78 °F	486.92 µS/cm	2.65 mg/L	1.28 NTU	206.9 mV	5.54 ft	150.00 ml/min

3/1/2022 11:10 AM	36:00	6.68 pH	61.80 °F	493.60 µS/cm	2.63 mg/L	0.47 NTU	206.7 mV	5.54 ft	150.00 ml/min
3/1/2022 11:13 AM	39:00	6.66 pH	61.87 °F	492.83 µS/cm	2.63 mg/L	0.55 NTU	209.1 mV	5.54 ft	150.00 ml/min
3/1/2022 11:16 AM	42:00	6.68 pH	61.98 °F	488.55 µS/cm	2.57 mg/L	0.40 NTU	209.1 mV	5.54 ft	150.00 ml/min
3/1/2022 11:19 AM	45:00	6.65 pH	61.99 °F	495.80 µS/cm	2.63 mg/L	0.67 NTU	207.0 mV	5.54 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-507	<p>Sample Time: 1120            Final RDO: 2.63 mg/L            Final DTW: 6.34 ft btoc</p> <p>Turbidity did not stabilize after 45 minutes.</p>

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 9:55:52 AM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-509</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.06 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45F, rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 9:55 AM	00:00	6.19 pH	63.36 °F	11,928 µS/cm	5.66 mg/L	0.69 NTU	198.9 mV	3.06 ft	150.00 ml/min
2/28/2022 9:58 AM	03:00	6.84 pH	61.66 °F	13,082 µS/cm	3.59 mg/L	0.00 NTU	197.7 mV	3.06 ft	150.00 ml/min
2/28/2022 10:01 AM	06:00	6.95 pH	61.12 °F	10,101 µS/cm	1.86 mg/L	0.00 NTU	192.7 mV	3.06 ft	150.00 ml/min
2/28/2022 10:04 AM	09:00	6.96 pH	60.83 °F	9,543.2 µS/cm	1.32 mg/L	0.00 NTU	189.3 mV	3.06 ft	150.00 ml/min
2/28/2022 10:07 AM	12:00	6.96 pH	60.65 °F	9,569.3 µS/cm	1.26 mg/L	0.00 NTU	182.7 mV	3.06 ft	150.00 ml/min
2/28/2022 10:10 AM	15:00	6.95 pH	60.42 °F	9,564.6 µS/cm	1.40 mg/L	0.00 NTU	194.1 mV	3.06 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-509	Sample Time: 1015 Final DTW = 3.14 ft bgs Final RDO = 1.43 mg/L



# Low-Flow Test Report:

Test Date / Time: 2/28/2022 10:11:03 AM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-511</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.54 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 2400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 200 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rainy, 45 F, no wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 10:11 AM	00:00	7.18 pH	54.95 °F	24,048 µS/cm	8.90 mg/L	129.5 mV	7.54 ft	3.00 ml/min
2/28/2022 10:14 AM	03:00	6.29 pH	51.15 °F	31,971 µS/cm	5.44 mg/L	140.5 mV	7.54 ft	3.00 ml/min
2/28/2022 10:17 AM	06:00	6.24 pH	51.23 °F	31,983 µS/cm	5.34 mg/L	147.3 mV	7.54 ft	3.00 ml/min
2/28/2022 10:20 AM	09:00	6.22 pH	51.19 °F	32,030 µS/cm	5.21 mg/L	151.4 mV	7.54 ft	3.00 ml/min

## Samples

Sample ID:	Description:
MW-511	Sample Time: 10:21 Final DTW: 7.57 ft btoc Final RDO: 5.21 mg/L Ferrous Iron: NA

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 11:07:14 AM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-512</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.12 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 9000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 200 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 50 F, no wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 11:07 AM	00:00	6.93 pH	55.10 °F	0.07 µS/cm	0.97 mg/L	36.9 mV	6.12 ft	200.00 ml/min
2/28/2022 11:10 AM	03:00	7.15 pH	52.01 °F	133,801 µS/cm	0.10 mg/L	-81.8 mV	6.12 ft	200.00 ml/min
2/28/2022 11:13 AM	06:00	7.19 pH	52.10 °F	131,403 µS/cm	0.19 mg/L	-97.7 mV	6.12 ft	200.00 ml/min
2/28/2022 11:16 AM	09:00	7.21 pH	51.81 °F	107,555 µS/cm	1.14 mg/L	-97.0 mV	6.12 ft	200.00 ml/min
2/28/2022 11:19 AM	12:00	7.15 pH	51.44 °F	55,999 µS/cm	2.76 mg/L	-73.4 mV	6.12 ft	200.00 ml/min
2/28/2022 11:22 AM	15:00	7.04 pH	51.40 °F	45,595 µS/cm	2.46 mg/L	-51.4 mV	6.12 ft	200.00 ml/min
2/28/2022 11:25 AM	18:00	6.98 pH	51.11 °F	40,833 µS/cm	2.47 mg/L	-39.5 mV	6.12 ft	200.00 ml/min
2/28/2022 11:28 AM	21:00	6.93 pH	51.13 °F	39,242 µS/cm	2.38 mg/L	-30.8 mV	6.12 ft	200.00 ml/min
2/28/2022 11:31 AM	24:00	6.89 pH	51.22 °F	38,804 µS/cm	2.03 mg/L	-26.1 mV	6.12 ft	200.00 ml/min
2/28/2022 11:34 AM	27:00	6.88 pH	51.29 °F	37,522 µS/cm	2.01 mg/L	-22.8 mV	6.12 ft	200.00 ml/min
2/28/2022 11:37 AM	30:00	6.87 pH	51.10 °F	36,988 µS/cm	2.04 mg/L	-20.5 mV	6.12 ft	200.00 ml/min
2/28/2022 11:40 AM	33:00	6.85 pH	50.98 °F	36,225 µS/cm	2.04 mg/L	-17.9 mV	6.12 ft	200.00 ml/min



2/28/2022 11:43 AM	36:00	6.84 pH	51.21 °F	36,452 µS/cm	1.81 mg/L	-16.5 mV	6.12 ft	200.00 ml/min
2/28/2022 11:46 AM	39:00	6.83 pH	50.95 °F	37,090 µS/cm	1.56 mg/L	-16.3 mV	6.12 ft	200.00 ml/min
2/28/2022 11:49 AM	42:00	6.81 pH	51.06 °F	36,461 µS/cm	1.52 mg/L	-16.1 mV	6.12 ft	200.00 ml/min
2/28/2022 11:52 AM	45:00	6.85 pH	51.50 °F	34,063 µS/cm	2.08 mg/L	-17.6 mV	6.12 ft	200.00 ml/min

## Samples

Sample ID:	Description:
MW-512	<p>Sample Time: 11:56  Final DTW: 6.12 ft btoc  Final RDO: 2.08 mg/L  Ferrous Iron: NA  Parameters not stabilize: RDO, ORP</p>

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 10:43:43 AM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-513</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.51 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6817.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.01 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny, 45 F, light wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/1/2022 10:43 AM	00:00	7.23 pH	50.92 °F	17,543 µS/cm	8.25 mg/L	132.4 mV	3.51 ft	150.00 ml/min
3/1/2022 10:44 AM	00:27	7.15 pH	51.34 °F	20,644 µS/cm	8.12 mg/L	133.7 mV	3.51 ft	150.00 ml/min
3/1/2022 10:47 AM	03:27	6.91 pH	51.38 °F	24,849 µS/cm	6.87 mg/L	143.1 mV	3.51 ft	150.00 ml/min
3/1/2022 10:50 AM	06:27	6.85 pH	51.42 °F	20,587 µS/cm	6.25 mg/L	147.4 mV	3.51 ft	150.00 ml/min
3/1/2022 10:53 AM	09:27	6.83 pH	51.38 °F	7,693.3 µS/cm	6.24 mg/L	151.0 mV	3.51 ft	150.00 ml/min
3/1/2022 10:56 AM	12:27	6.83 pH	51.11 °F	27,561 µS/cm	5.59 mg/L	152.3 mV	3.51 ft	150.00 ml/min
3/1/2022 10:59 AM	15:27	6.82 pH	51.40 °F	19,985 µS/cm	5.86 mg/L	153.8 mV	3.51 ft	150.00 ml/min
3/1/2022 11:02 AM	18:27	6.82 pH	52.43 °F	28,806 µS/cm	5.52 mg/L	154.4 mV	3.51 ft	150.00 ml/min
3/1/2022 11:05 AM	21:27	6.82 pH	53.08 °F	22,896 µS/cm	5.77 mg/L	154.7 mV	3.51 ft	150.00 ml/min
3/1/2022 11:08 AM	24:27	6.82 pH	53.04 °F	8,802.6 µS/cm	6.07 mg/L	155.3 mV	3.51 ft	150.00 ml/min
3/1/2022 11:11 AM	27:27	6.82 pH	52.97 °F	26,563 µS/cm	5.55 mg/L	154.6 mV	3.51 ft	150.00 ml/min
3/1/2022 11:14 AM	30:27	6.81 pH	53.16 °F	23,997 µS/cm	5.60 mg/L	154.3 mV	3.51 ft	150.00 ml/min

3/1/2022 11:17 AM	33:27	6.82 pH	53.18 °F	21,949 µS/cm	5.66 mg/L	153.5 mV	3.51 ft	150.00 ml/min
3/1/2022 11:20 AM	36:27	6.82 pH	52.84 °F	29,386 µS/cm	5.58 mg/L	153.5 mV	3.51 ft	150.00 ml/min
3/1/2022 11:23 AM	39:27	6.82 pH	52.61 °F	24,734 µS/cm	5.70 mg/L	153.2 mV	3.51 ft	150.00 ml/min
3/1/2022 11:26 AM	42:27	6.82 pH	52.69 °F	21,526 µS/cm	5.69 mg/L	153.7 mV	3.51 ft	150.00 ml/min
3/1/2022 11:29 AM	45:27	6.83 pH	52.70 °F	28,180 µS/cm	5.55 mg/L	153.8 mV	3.51 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-513	Sample Time: 11:36 Final DTW: 3.52 ft btoc Final RDO: 5.55 Ferrous Iron: NA Parameters not stabilized: Specific Conductivity

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 12:45:24 PM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-514</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.26 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 9000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.05 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 45 F, no wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 12:45 PM	00:00	6.46 pH	52.61 °F	229,579 µS/cm	0.09 mg/L	31.9 mV	4.26 ft	3.00 ml/min
2/28/2022 12:48 PM	03:00	6.50 pH	52.32 °F	221,018 µS/cm	0.07 mg/L	21.3 mV	4.26 ft	3.00 ml/min
2/28/2022 12:51 PM	06:00	6.51 pH	52.44 °F	216,985 µS/cm	0.12 mg/L	16.3 mV	4.26 ft	3.00 ml/min
2/28/2022 12:54 PM	09:00	6.53 pH	52.76 °F	185,355 µS/cm	0.20 mg/L	12.4 mV	4.26 ft	3.00 ml/min
2/28/2022 12:57 PM	12:00	6.53 pH	53.39 °F	7,469.9 µS/cm	0.55 mg/L	12.1 mV	4.26 ft	3.00 ml/min
2/28/2022 1:00 PM	15:00	6.51 pH	53.76 °F	1,142.2 µS/cm	0.57 mg/L	14.2 mV	4.26 ft	3.00 ml/min
2/28/2022 1:03 PM	18:00	6.48 pH	53.95 °F	213.58 µS/cm	0.81 mg/L	15.3 mV	4.26 ft	3.00 ml/min
2/28/2022 1:06 PM	21:00	6.44 pH	54.01 °F	210.66 µS/cm	1.09 mg/L	16.3 mV	4.26 ft	3.00 ml/min
2/28/2022 1:09 PM	24:00	6.39 pH	54.07 °F	205.55 µS/cm	1.28 mg/L	17.2 mV	4.26 ft	3.00 ml/min
2/28/2022 1:12 PM	27:00	6.29 pH	54.30 °F	188.71 µS/cm	0.96 mg/L	17.3 mV	4.26 ft	3.00 ml/min
2/28/2022 1:15 PM	30:00	6.57 pH	52.86 °F	192,823 µS/cm	0.33 mg/L	8.9 mV	4.26 ft	3.00 ml/min
2/28/2022 1:18 PM	33:00	6.56 pH	53.13 °F	195,031 µS/cm	0.22 mg/L	2.6 mV	4.26 ft	3.00 ml/min

2/28/2022 1:21 PM	36:00	6.55 pH	53.15 °F	195,351 µS/cm	0.18 mg/L	-0.7 mV	4.26 ft	3.00 ml/min
2/28/2022 1:24 PM	39:00	6.55 pH	53.40 °F	198,260 µS/cm	0.22 mg/L	-3.2 mV	4.26 ft	3.00 ml/min
2/28/2022 1:27 PM	42:00	6.58 pH	53.02 °F	174,870 µS/cm	0.32 mg/L	-6.1 mV	4.26 ft	3.00 ml/min
2/28/2022 1:30 PM	45:00	6.60 pH	52.93 °F	161,589 µS/cm	0.44 mg/L	-6.9 mV	4.26 ft	3.00 ml/min

## Samples

Sample ID:	Description:
MW-514	<p>Sample Time: 13:36  Final DTW: 4.21 ft btoc  Final RDO: 0.44 mg/L  Ferrous Iron: NA  Parameters not stabilized: ORP, RDO, Specific Conductivity</p>

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 10:46:40 AM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-515</b> <b>Latitude: 47.80654805411</b> <b>Longitude: -122.389940991998</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.5 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 3150 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 10:46 AM	00:00	7.22 pH	61.21 °F	333.47 µS/cm	3.92 mg/L	0.00 NTU	169.5 mV	4.50 ft	150.00 ml/min
2/28/2022 10:49 AM	03:00	7.22 pH	61.21 °F	328.80 µS/cm	3.91 mg/L	0.00 NTU	176.8 mV	4.50 ft	150.00 ml/min
2/28/2022 10:52 AM	06:00	7.21 pH	61.06 °F	334.36 µS/cm	3.86 mg/L	0.00 NTU	179.8 mV	4.50 ft	150.00 ml/min
2/28/2022 10:55 AM	09:00	7.20 pH	61.11 °F	323.78 µS/cm	4.00 mg/L	0.00 NTU	184.7 mV	4.50 ft	150.00 ml/min
2/28/2022 10:58 AM	12:00	7.21 pH	61.04 °F	326.20 µS/cm	4.13 mg/L	0.00 NTU	187.0 mV	4.50 ft	150.00 ml/min
2/28/2022 11:01 AM	15:00	7.16 pH	61.03 °F	339.32 µS/cm	4.13 mg/L	0.00 NTU	189.2 mV	4.50 ft	150.00 ml/min
2/28/2022 11:04 AM	18:00	7.18 pH	61.07 °F	344.65 µS/cm	4.10 mg/L	0.00 NTU	194.6 mV	4.50 ft	150.00 ml/min
2/28/2022 11:07 AM	21:00	7.19 pH	61.02 °F	339.31 µS/cm	4.22 mg/L	0.00 NTU	194.9 mV	4.50 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-515	Sample Time: 1110 Final RDO = 4.22 mg/L Final DTW = 4.50 ft btoc
MW-515-MS	Sample Time: 1111
MW-515-MSD	Sample Time: 1113

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# Low-Flow Test Report:

Test Date / Time: 2/28/2022 12:09:18 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-516</b> <b>Latitude: 47.8062985502031</b> <b>Longitude: -122.390109971166</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.09 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 12:09 PM	00:00	7.12 pH	61.06 °F	173.31 µS/cm	7.48 mg/L	3.34 NTU	171.7 mV	4.09 ft	150.00 ml/min
2/28/2022 12:12 PM	03:00	7.07 pH	60.21 °F	158.96 µS/cm	7.13 mg/L	1.85 NTU	191.1 mV	4.09 ft	150.00 ml/min
2/28/2022 12:15 PM	06:00	7.05 pH	59.93 °F	165.82 µS/cm	7.38 mg/L	2.06 NTU	206.1 mV	4.09 ft	150.00 ml/min
2/28/2022 12:18 PM	09:00	7.03 pH	59.64 °F	171.84 µS/cm	7.15 mg/L	1.10 NTU	221.4 mV	4.09 ft	150.00 ml/min
2/28/2022 12:21 PM	12:00	7.02 pH	59.38 °F	165.64 µS/cm	7.15 mg/L	1.26 NTU	225.3 mV	4.09 ft	150.00 ml/min
2/28/2022 12:24 PM	15:00	6.98 pH	59.46 °F	171.22 µS/cm	7.24 mg/L	1.54 NTU	232.3 mV	4.09 ft	150.00 ml/min
2/28/2022 12:27 PM	18:00	7.04 pH	59.53 °F	172.32 µS/cm	7.00 mg/L	1.04 NTU	238.2 mV	4.09 ft	150.00 ml/min
2/28/2022 12:30 PM	21:00	7.02 pH	59.45 °F	169.70 µS/cm	6.70 mg/L	0.87 NTU	239.6 mV	4.09 ft	150.00 ml/min
2/28/2022 12:33 PM	24:00	7.01 pH	59.35 °F	170.91 µS/cm	6.90 mg/L	0.84 NTU	244.3 mV	4.09 ft	150.00 ml/min
2/28/2022 12:36 PM	27:00	7.04 pH	59.33 °F	171.87 µS/cm	7.06 mg/L	0.79 NTU	244.3 mV	4.09 ft	150.00 ml/min

## Samples



Sample ID:	Description:
MW-516	Sample Time: 1240 Final RDO: 7.06 mg/L Final DTW: 4.06 ft btoc

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# Low-Flow Test Report:

Test Date / Time: 2/28/2022 1:08:42 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-517</b> <b>Latitude: 47.8060938570236</b> <b>Longitude: -122.3902316764</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.82 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45F, rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 1:08 PM	00:00	7.09 pH	60.68 °F	170.58 µS/cm	8.00 mg/L	3.90 NTU	235.4 mV	4.82 ft	150.00 ml/min
2/28/2022 1:11 PM	03:00	7.06 pH	60.25 °F	177.29 µS/cm	7.28 mg/L	1.89 NTU	238.5 mV	4.82 ft	150.00 ml/min
2/28/2022 1:14 PM	06:00	7.05 pH	60.08 °F	184.90 µS/cm	6.70 mg/L	1.15 NTU	239.4 mV	4.82 ft	150.00 ml/min
2/28/2022 1:17 PM	09:00	7.04 pH	60.07 °F	189.60 µS/cm	6.37 mg/L	0.00 NTU	246.3 mV	4.82 ft	150.00 ml/min
2/28/2022 1:20 PM	12:00	7.02 pH	59.98 °F	193.20 µS/cm	6.20 mg/L	0.00 NTU	243.8 mV	4.82 ft	150.00 ml/min
2/28/2022 1:23 PM	15:00	6.97 pH	60.21 °F	194.67 µS/cm	6.03 mg/L	0.00 NTU	246.8 mV	4.82 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-517	Sample Time: 1330 Final RDO = 6.07 mg/L Final DTW = 4.82 ft btoc



# Low-Flow Test Report:

Test Date / Time: 2/28/2022 11:47:31 AM

Project: Edmonds Terminal 1Q22 (2)

Operator Name: DSG

<b>Location Name: MW-518</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 12.5 ft</b> <b>Initial Depth to Water: 7.9 ft</b>	<b>Pump Type: Geopump series 2</b> <b>Tubing Type: Polyethylene</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Weather Conditions:

Rainy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
2/28/2022 11:47 AM	00:00	7.33 pH	52.02 °F	1,041.3 µS/cm	1.76 mg/L	5.63 NTU	112.2 mV	7.90 ft	150.00 ml/min
2/28/2022 11:50 AM	03:00	7.40 pH	51.04 °F	361.38 µS/cm	0.38 mg/L	0.25 NTU	94.9 mV	7.90 ft	150.00 ml/min
2/28/2022 11:53 AM	06:00	7.35 pH	50.89 °F	353.69 µS/cm	0.37 mg/L	1.19 NTU	82.3 mV	7.90 ft	150.00 ml/min
2/28/2022 11:56 AM	09:00	7.32 pH	50.96 °F	349.39 µS/cm	0.45 mg/L	0.39 NTU	70.7 mV	7.90 ft	150.00 ml/min
2/28/2022 11:59 AM	12:00	7.32 pH	51.02 °F	347.59 µS/cm	0.43 mg/L	0.00 NTU	60.5 mV	7.90 ft	150.00 ml/min
2/28/2022 12:02 PM	15:00	7.31 pH	51.10 °F	343.10 µS/cm	0.50 mg/L	0.00 NTU	52.1 mV	7.90 ft	150.00 ml/min
2/28/2022 12:05 PM	18:00	7.30 pH	51.05 °F	344.00 µS/cm	0.46 mg/L	0.00 NTU	43.6 mV	7.90 ft	150.00 ml/min
2/28/2022 12:08 PM	21:00	7.29 pH	51.08 °F	345.31 µS/cm	0.42 mg/L	0.00 NTU	36.3 mV	7.90 ft	150.00 ml/min
2/28/2022 12:11 PM	24:00	7.28 pH	50.98 °F	334.09 µS/cm	0.68 mg/L	0.00 NTU	29.5 mV	7.90 ft	150.00 ml/min
2/28/2022 12:14 PM	27:00	7.26 pH	50.91 °F	339.39 µS/cm	0.93 mg/L	0.00 NTU	23.4 mV	7.90 ft	150.00 ml/min
2/28/2022 12:17 PM	30:00	7.24 pH	50.90 °F	342.43 µS/cm	0.77 mg/L	0.00 NTU	18.4 mV	7.90 ft	150.00 ml/min
2/28/2022 12:20 PM	33:00	7.23 pH	50.94 °F	335.22 µS/cm	1.12 mg/L	2.04 NTU	13.4 mV	7.90 ft	150.00 ml/min
2/28/2022 12:23 PM	36:00	7.21 pH	51.07 °F	327.32 µS/cm	1.22 mg/L	2.10 NTU	9.1 mV	7.90 ft	150.00 ml/min

2/28/2022 12:26 PM	39:00	7.20 pH	51.00 °F	338.29 µS/cm	1.13 mg/L	2.52 NTU	5.6 mV	7.90 ft	150.00 ml/min
2/28/2022 12:29 PM	42:00	7.21 pH	51.05 °F	334.38 µS/cm	1.03 mg/L	3.07 NTU	1.7 mV	7.90 ft	150.00 ml/min
2/28/2022 12:32 PM	45:00	7.20 pH	51.19 °F	336.39 µS/cm	1.19 mg/L	2.67 NTU	-1.9 mV	7.90 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-518	<p>Sample Time 12:42 Finally RDO 1.19 mg/L</p> <p>Dup-1 collected</p>

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 10:43:27 AM

Project: Edmonds Terminal 1Q22 (2)

Operator Name: JMS

<b>Location Name: MW-519</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.85 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: -0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1042

## Weather Conditions:

40 F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 10:43 AM	00:00	6.90 pH	52.02 °F	0.07 µS/cm	11.27 mg/L	229.3 mV	6.85 ft	150.00 ml/min
2/28/2022 10:46 AM	03:00	6.63 pH	50.44 °F	494.71 µS/cm	0.42 mg/L	208.7 mV	6.85 ft	150.00 ml/min
2/28/2022 10:49 AM	06:00	6.63 pH	50.34 °F	485.97 µS/cm	0.21 mg/L	199.2 mV	6.85 ft	150.00 ml/min
2/28/2022 10:52 AM	09:00	6.63 pH	50.22 °F	484.43 µS/cm	0.19 mg/L	188.7 mV	6.85 ft	150.00 ml/min
2/28/2022 10:55 AM	12:00	6.63 pH	50.29 °F	490.31 µS/cm	0.13 mg/L	180.1 mV	6.85 ft	150.00 ml/min
2/28/2022 10:58 AM	15:00	6.63 pH	50.16 °F	472.53 µS/cm	0.19 mg/L	178.1 mV	6.85 ft	150.00 ml/min
2/28/2022 11:01 AM	18:00	6.63 pH	50.09 °F	468.11 µS/cm	0.18 mg/L	171.8 mV	6.85 ft	150.00 ml/min
2/28/2022 11:04 AM	21:00	6.63 pH	50.07 °F	468.79 µS/cm	0.17 mg/L	171.9 mV	6.85 ft	150.00 ml/min
2/28/2022 11:07 AM	24:00	6.64 pH	50.02 °F	463.75 µS/cm	0.15 mg/L	167.2 mV	6.85 ft	150.00 ml/min
2/28/2022 11:10 AM	27:00	6.64 pH	50.00 °F	464.18 µS/cm	0.21 mg/L	167.6 mV	6.85 ft	150.00 ml/min
2/28/2022 11:13 AM	30:00	6.64 pH	50.01 °F	462.19 µS/cm	0.15 mg/L	163.6 mV	6.85 ft	150.00 ml/min
2/28/2022 11:16 AM	33:00	6.65 pH	49.91 °F	457.93 µS/cm	0.21 mg/L	166.4 mV	6.85 ft	150.00 ml/min

2/28/2022 11:19 AM	36:00	6.65 pH	49.91 °F	465.66 µS/cm	0.10 mg/L	156.8 mV	6.85 ft	150.00 ml/min
2/28/2022 11:22 AM	39:00	6.65 pH	49.88 °F	454.23 µS/cm	0.12 mg/L	158.8 mV	6.85 ft	150.00 ml/min
2/28/2022 11:25 AM	42:00	6.65 pH	49.92 °F	444.86 µS/cm	0.10 mg/L	152.3 mV	6.85 ft	150.00 ml/min
2/28/2022 11:28 AM	45:00	6.67 pH	49.96 °F	421.25 µS/cm	0.50 mg/L	176.1 mV	6.85 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-519	Sample time: 1134 Final DTW: 6.83 ft Final RDO: 0.50 RDO did not stabilize

# Low-Flow Test Report:

Test Date / Time: 2/28/2022 12:00:28 PM

Project: Edmonds Terminal 1Q22 (3)

Operator Name: JMS

<b>Location Name: MW-520</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.5 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10.5 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1200

## Weather Conditions:

40 F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 12:00 PM	00:00	5.41 pH	53.18 °F	0.07 µS/cm	11.42 mg/L	329.4 mV	7.50 ft	150.00 ml/min
2/28/2022 12:03 PM	03:00	6.80 pH	47.94 °F	284.99 µS/cm	10.82 mg/L	297.7 mV	7.50 ft	150.00 ml/min
2/28/2022 12:06 PM	06:00	6.80 pH	47.66 °F	290.88 µS/cm	10.78 mg/L	298.4 mV	7.50 ft	150.00 ml/min
2/28/2022 12:09 PM	09:00	6.79 pH	47.67 °F	288.90 µS/cm	10.77 mg/L	299.1 mV	7.50 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-520	Sample Time: 1214 Final DTW: 7.50 ft Final RDO: 10.73



# Low-Flow Test Report:

Test Date / Time: 2/28/2022 12:40:37 PM

Project: Edmonds Terminal 1Q22 (4)

Operator Name: JMS

<b>Location Name: MW-521</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.37 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: -0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1239

## Weather Conditions:

40 F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
2/28/2022 12:40 PM	00:00	6.86 pH	51.83 °F	380.97 µS/cm	9.00 mg/L	310.1 mV	6.37 ft	150.00 ml/min
2/28/2022 12:43 PM	03:00	6.73 pH	50.81 °F	387.32 µS/cm	0.58 mg/L	263.5 mV	6.37 ft	150.00 ml/min
2/28/2022 12:46 PM	06:00	6.72 pH	50.74 °F	388.52 µS/cm	0.32 mg/L	236.6 mV	6.37 ft	150.00 ml/min
2/28/2022 12:49 PM	09:00	6.72 pH	51.12 °F	385.35 µS/cm	0.44 mg/L	227.4 mV	6.37 ft	150.00 ml/min
2/28/2022 12:52 PM	12:00	6.71 pH	51.11 °F	389.47 µS/cm	0.57 mg/L	214.2 mV	6.37 ft	150.00 ml/min
2/28/2022 12:55 PM	15:00	6.71 pH	51.04 °F	386.96 µS/cm	0.33 mg/L	206.5 mV	6.37 ft	150.00 ml/min
2/28/2022 12:58 PM	18:00	6.71 pH	50.93 °F	391.79 µS/cm	0.38 mg/L	201.0 mV	6.37 ft	150.00 ml/min
2/28/2022 1:01 PM	21:00	6.71 pH	50.91 °F	394.60 µS/cm	0.31 mg/L	196.4 mV	6.37 ft	150.00 ml/min
2/28/2022 1:04 PM	24:00	6.71 pH	50.91 °F	398.00 µS/cm	0.28 mg/L	192.8 mV	6.37 ft	150.00 ml/min
2/28/2022 1:07 PM	27:00	6.71 pH	51.07 °F	398.56 µS/cm	0.25 mg/L	189.7 mV	6.37 ft	150.00 ml/min
2/28/2022 1:10 PM	30:00	6.71 pH	51.06 °F	400.20 µS/cm	0.31 mg/L	187.2 mV	6.37 ft	150.00 ml/min
2/28/2022 1:13 PM	33:00	6.70 pH	51.31 °F	402.50 µS/cm	0.24 mg/L	185.0 mV	6.37 ft	150.00 ml/min

2/28/2022 1:16 PM	36:00	6.70 pH	51.24 °F	406.04 µS/cm	0.28 mg/L	182.0 mV	6.37 ft	150.00 ml/min
2/28/2022 1:19 PM	39:00	6.70 pH	51.25 °F	407.67 µS/cm	0.19 mg/L	178.6 mV	6.37 ft	150.00 ml/min
2/28/2022 1:22 PM	42:00	6.70 pH	51.38 °F	408.20 µS/cm	0.29 mg/L	177.0 mV	6.37 ft	150.00 ml/min
2/28/2022 1:25 PM	45:00	6.70 pH	51.52 °F	411.20 µS/cm	0.22 mg/L	172.9 mV	6.37 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-521	Sample time: 1334 Final DTW: 6.35 ft Final RDO: 0.32 RDO did not stabilize

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 1:12:39 PM

Project: Edmonds Terminal 1Q22

Operator Name: PRB

<b>Location Name: MW-522</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.38 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4607.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/1/2022 1:12 PM	00:00	6.38 pH	55.99 °F	2,579.7 µS/cm	8.03 mg/L	17.15 NTU	220.4 mV	7.38 ft	150.00 ml/min
3/1/2022 1:15 PM	03:00	7.21 pH	51.56 °F	745.48 µS/cm	9.13 mg/L	0.67 NTU	200.0 mV	7.38 ft	150.00 ml/min
3/1/2022 1:18 PM	06:00	7.32 pH	50.79 °F	474.19 µS/cm	9.19 mg/L	0.00 NTU	208.4 mV	7.38 ft	150.00 ml/min
3/1/2022 1:21 PM	09:00	7.29 pH	50.41 °F	445.63 µS/cm	9.16 mg/L	0.00 NTU	215.1 mV	7.38 ft	150.00 ml/min
3/1/2022 1:24 PM	12:00	7.22 pH	50.62 °F	423.68 µS/cm	9.18 mg/L	0.00 NTU	221.6 mV	7.38 ft	150.00 ml/min
3/1/2022 1:27 PM	15:00	7.18 pH	50.46 °F	424.73 µS/cm	9.10 mg/L	0.00 NTU	222.9 mV	7.38 ft	150.00 ml/min
3/1/2022 1:30 PM	18:00	7.16 pH	50.43 °F	409.67 µS/cm	9.09 mg/L	0.00 NTU	230.6 mV	7.38 ft	150.00 ml/min
3/1/2022 1:33 PM	21:00	7.15 pH	50.32 °F	409.33 µS/cm	9.07 mg/L	0.00 NTU	234.4 mV	7.38 ft	150.00 ml/min
3/1/2022 1:36 PM	24:00	7.15 pH	50.09 °F	406.15 µS/cm	8.96 mg/L	0.00 NTU	238.4 mV	7.38 ft	150.00 ml/min
3/1/2022 1:40 PM	27:38	7.13 pH	50.12 °F	406.03 µS/cm	9.13 mg/L	0.00 NTU	244.8 mV	7.38 ft	150.00 ml/min
3/1/2022 1:40 PM	28:02	7.15 pH	50.05 °F	405.28 µS/cm	9.11 mg/L	0.00 NTU	243.4 mV	7.38 ft	150.00 ml/min
3/1/2022 1:43 PM	30:43	7.14 pH	49.95 °F	405.77 µS/cm	8.99 mg/L	0.92 NTU	249.2 mV	7.38 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-522	Sample time: 1345 Final DTW: 7.39 Final RDO: 9.13

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 9:38:11 AM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: MW-525</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.55 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.49 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 45 F, no wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 9:38 AM	00:00	6.75 pH	52.78 °F	40,490 µS/cm	3.16 mg/L	172.0 mV	5.55 ft	150.00 ml/min
3/2/2022 9:41 AM	03:00	6.54 pH	49.06 °F	36,842 µS/cm	2.69 mg/L	178.0 mV	5.55 ft	150.00 ml/min
3/2/2022 9:44 AM	06:00	6.44 pH	48.42 °F	38,452 µS/cm	2.36 mg/L	183.7 mV	5.55 ft	150.00 ml/min
3/2/2022 9:47 AM	09:00	6.39 pH	48.77 °F	38,615 µS/cm	2.15 mg/L	186.9 mV	5.55 ft	150.00 ml/min
3/2/2022 9:50 AM	12:00	6.35 pH	48.93 °F	39,292 µS/cm	1.84 mg/L	188.0 mV	5.55 ft	150.00 ml/min
3/2/2022 9:53 AM	15:00	6.32 pH	48.94 °F	40,611 µS/cm	1.83 mg/L	188.0 mV	5.55 ft	150.00 ml/min
3/2/2022 9:56 AM	18:00	6.33 pH	49.02 °F	38,548 µS/cm	1.63 mg/L	185.7 mV	5.55 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-525

Sample Time: 09:56  
Final DTW: 7.04 ft btoc  
Final RDO: 1.63 mg/L  
Ferrous Iron: NA

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 12:35:38 PM

Project: Edmonds Terminal 1Q22 (10)

Operator Name: JMS

<b>Location Name: MW-526</b> <b>Well Diameter: 2 cm</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 m</b> <b>Top of Screen: 3 m</b> <b>Total Depth: 13 m</b> <b>Initial Depth to Water: 4.6 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.3 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1134

## Weather Conditions:

45 F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 12:35 PM	00:00	6.83 pH	50.77 °F	181.21 µS/cm	9.33 mg/L	9.2 mV	4.60 ft	150.00 ml/min
3/2/2022 12:38 PM	03:00	5.84 pH	50.11 °F	91.15 µS/cm	3.54 mg/L	95.6 mV	4.60 ft	150.00 ml/min
3/2/2022 12:41 PM	06:00	5.84 pH	49.99 °F	89.26 µS/cm	3.40 mg/L	123.7 mV	4.60 ft	150.00 ml/min
3/2/2022 12:44 PM	09:00	5.77 pH	50.30 °F	95.36 µS/cm	3.47 mg/L	143.8 mV	4.60 ft	150.00 ml/min
3/2/2022 12:47 PM	12:00	5.75 pH	50.25 °F	85.24 µS/cm	3.37 mg/L	159.4 mV	4.60 ft	150.00 ml/min
3/2/2022 12:50 PM	15:00	5.72 pH	49.96 °F	84.52 µS/cm	3.34 mg/L	174.6 mV	4.60 ft	150.00 ml/min
3/2/2022 12:53 PM	18:00	5.72 pH	49.93 °F	83.81 µS/cm	3.28 mg/L	183.5 mV	4.60 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-531	Sample Time: 1304 Final DTW: 4.90 ft Final RDO: 3.28 DUP-3 collected
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# Low-Flow Test Report:

Test Date / Time: 3/2/2022 10:39:57 AM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-530</b> <b>Well Diameter: 1 in</b> <b>Casing Type: PVC</b> <b>Initial Depth to Water: 5.99 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.13 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

48F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/2/2022 10:39 AM	00:00	6.58 pH	61.63 °F	27,662 µS/cm	0.50 mg/L	60.35 NTU	-188.6 mV	5.99 ft	150.00 ml/min
3/2/2022 10:42 AM	03:00	6.61 pH	61.72 °F	28,091 µS/cm	0.27 mg/L	20.64 NTU	-212.2 mV	5.99 ft	150.00 ml/min
3/2/2022 10:45 AM	06:00	6.62 pH	61.79 °F	28,027 µS/cm	0.22 mg/L	11.98 NTU	-224.1 mV	5.99 ft	150.00 ml/min
3/2/2022 10:48 AM	09:00	6.64 pH	61.79 °F	27,808 µS/cm	0.17 mg/L	5.70 NTU	-228.5 mV	5.99 ft	150.00 ml/min
3/2/2022 10:51 AM	12:00	6.65 pH	62.08 °F	27,437 µS/cm	0.20 mg/L	3.89 NTU	-240.9 mV	5.99 ft	150.00 ml/min
3/2/2022 10:54 AM	15:00	6.66 pH	62.00 °F	27,720 µS/cm	0.22 mg/L	2.75 NTU	-242.1 mV	5.99 ft	150.00 ml/min
3/2/2022 10:57 AM	18:00	6.66 pH	62.04 °F	27,526 µS/cm	0.22 mg/L	1.44 NTU	-249.9 mV	5.99 ft	150.00 ml/min
3/2/2022 11:00 AM	21:00	6.66 pH	62.08 °F	27,501 µS/cm	0.28 mg/L	0.67 NTU	-254.6 mV	5.99 ft	150.00 ml/min
3/2/2022 11:03 AM	24:00	6.66 pH	62.11 °F	27,614 µS/cm	0.17 mg/L	0.06 NTU	-255.7 mV	5.99 ft	150.00 ml/min
3/2/2022 11:06 AM	27:00	6.66 pH	62.11 °F	27,517 µS/cm	0.21 mg/L	0.00 NTU	-257.0 mV	5.99 ft	150.00 ml/min
3/2/2022 11:09 AM	30:00	6.67 pH	62.08 °F	27,442 µS/cm	0.24 mg/L	0.33 NTU	-260.2 mV	5.99 ft	150.00 ml/min
3/2/2022 11:12 AM	33:00	6.67 pH	62.14 °F	27,106 µS/cm	0.18 mg/L	0.68 NTU	-262.8 mV	5.99 ft	150.00 ml/min

3/2/2022 11:15 AM	36:00	6.67 pH	62.25 °F	27,186 µS/cm	0.20 mg/L	0.00 NTU	-260.2 mV	5.99 ft	150.00 ml/min
3/2/2022 11:18 AM	39:00	6.67 pH	62.72 °F	27,221 µS/cm	0.16 mg/L	0.00 NTU	-260.6 mV	5.99 ft	150.00 ml/min
3/2/2022 11:21 AM	42:00	6.68 pH	62.53 °F	27,303 µS/cm	0.24 mg/L	0.00 NTU	-264.8 mV	5.99 ft	150.00 ml/min
3/2/2022 11:24 AM	45:00	6.68 pH	62.75 °F	27,345 µS/cm	0.21 mg/L	0.12 NTU	-262.6 mV	5.99 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-530	<p>Sample Time:1130  Final RDO: 0.20 mg/L  Final DTW:6.12 ft btoc</p> <p>Turbidity and RDO did not stabilize after 45 minutes</p>

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 1:53:28 PM

Project: Edmonds Terminal 1Q22 (11)

Operator Name: JMS

<b>Location Name: MW-531</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.81 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: -0.01 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 1351

## Weather Conditions:

51F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 1:53 PM	00:00	5.92 pH	51.73 °F	5,102.9 µS/cm	8.15 mg/L	141.1 mV	6.81 ft	150.00 ml/min
3/2/2022 1:56 PM	03:00	6.30 pH	49.85 °F	4,927.2 µS/cm	0.58 mg/L	123.9 mV	6.81 ft	150.00 ml/min
3/2/2022 1:59 PM	06:00	6.38 pH	49.37 °F	4,199.2 µS/cm	0.72 mg/L	117.8 mV	6.81 ft	150.00 ml/min
3/2/2022 2:02 PM	09:00	6.49 pH	49.06 °F	3,228.0 µS/cm	1.26 mg/L	123.8 mV	6.81 ft	150.00 ml/min
3/2/2022 2:05 PM	12:00	6.59 pH	48.83 °F	2,380.4 µS/cm	1.80 mg/L	128.4 mV	6.81 ft	150.00 ml/min
3/2/2022 2:08 PM	15:00	6.68 pH	48.79 °F	1,772.6 µS/cm	2.29 mg/L	139.5 mV	6.81 ft	150.00 ml/min
3/2/2022 2:11 PM	18:00	6.76 pH	48.67 °F	1,313.9 µS/cm	2.55 mg/L	140.9 mV	6.81 ft	150.00 ml/min
3/2/2022 2:14 PM	21:00	6.83 pH	48.32 °F	968.57 µS/cm	2.78 mg/L	150.8 mV	6.81 ft	150.00 ml/min
3/2/2022 2:17 PM	24:00	6.83 pH	48.23 °F	900.59 µS/cm	2.83 mg/L	151.3 mV	6.81 ft	150.00 ml/min
3/2/2022 2:20 PM	27:00	6.80 pH	48.25 °F	909.05 µS/cm	2.83 mg/L	159.8 mV	6.81 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-531	Sample time: 1424 Final DTW: 6.80 ft Final RDO: 159.8

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# Low-Flow Test Report:

Test Date / Time: 3/2/2022 12:12:16 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-532</b> <b>Latitude: 47.8056576709567</b> <b>Longitude: -122.390307448804</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.35 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.5 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

45 F, rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/2/2022 12:12 PM	00:00	7.20 pH	60.62 °F	420.64 µS/cm	4.42 mg/L	7.38 NTU	-152.7 mV	6.35 ft	150.00 ml/min
3/2/2022 12:15 PM	03:00	6.74 pH	61.09 °F	167.74 µS/cm	4.14 mg/L	2.79 NTU	-137.5 mV	6.35 ft	150.00 ml/min
3/2/2022 12:18 PM	06:00	6.57 pH	61.29 °F	276.19 µS/cm	4.15 mg/L	3.50 NTU	-126.4 mV	6.35 ft	150.00 ml/min
3/2/2022 12:21 PM	09:00	6.51 pH	61.54 °F	281.27 µS/cm	4.12 mg/L	2.30 NTU	-115.3 mV	6.35 ft	150.00 ml/min
3/2/2022 12:24 PM	12:00	6.49 pH	61.73 °F	352.63 µS/cm	4.16 mg/L	2.47 NTU	-105.9 mV	6.35 ft	150.00 ml/min
3/2/2022 12:27 PM	15:00	6.41 pH	61.82 °F	405.26 µS/cm	4.17 mg/L	3.89 NTU	-106.6 mV	6.35 ft	150.00 ml/min
3/2/2022 12:30 PM	18:00	6.53 pH	62.83 °F	144.04 µS/cm	4.15 mg/L	3.28 NTU	-95.2 mV	6.35 ft	150.00 ml/min
3/2/2022 12:33 PM	21:00	6.51 pH	61.11 °F	92.91 µS/cm	4.00 mg/L	1.37 NTU	-82.3 mV	6.35 ft	150.00 ml/min
3/2/2022 12:36 PM	24:00	6.38 pH	60.61 °F	86.83 µS/cm	3.83 mg/L	0.86 NTU	-66.2 mV	6.35 ft	150.00 ml/min
3/2/2022 12:39 PM	27:00	6.31 pH	60.37 °F	83.80 µS/cm	3.65 mg/L	0.82 NTU	-58.6 mV	6.35 ft	150.00 ml/min
3/2/2022 12:42 PM	30:00	6.14 pH	60.20 °F	94.81 µS/cm	3.61 mg/L	1.56 NTU	-53.5 mV	6.35 ft	150.00 ml/min
3/2/2022 12:45 PM	33:00	6.20 pH	60.28 °F	83.40 µS/cm	3.44 mg/L	17.22 NTU	-42.0 mV	6.35 ft	150.00 ml/min

3/2/2022 12:48 PM	36:00	6.15 pH	60.63 °F	87.94 µS/cm	3.58 mg/L	0.90 NTU	-36.1 mV	6.35 ft	150.00 ml/min
3/2/2022 12:51 PM	39:00	6.19 pH	60.55 °F	89.38 µS/cm	3.55 mg/L	44.60 NTU	-33.4 mV	6.35 ft	150.00 ml/min
3/2/2022 12:54 PM	42:00	6.10 pH	60.74 °F	89.49 µS/cm	3.27 mg/L	0.59 NTU	-22.2 mV	6.35 ft	150.00 ml/min
3/2/2022 12:57 PM	45:00	6.12 pH	60.89 °F	92.16 µS/cm	3.33 mg/L	0.49 NTU	-18.7 mV	6.35 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-532	<p>Sample Time: 1300  Final RDO: 3.33 mg/L  Final DTW: 7.85 ft btoc</p> <p>Turbidity and ORP did not stabilize after 45 minutes</p>

# Low-Flow Test Report:

Test Date / Time: 3/1/2022 1:23:33 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-8R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.41 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 3150 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

## Weather Conditions:

55 F sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/1/2022 1:23 PM	00:00	6.76 pH	66.13 °F	400.93 µS/cm	6.97 mg/L	7.90 NTU	56.4 mV	7.41 ft	150.00 ml/min
3/1/2022 1:26 PM	03:00	6.94 pH	63.47 °F	406.46 µS/cm	6.75 mg/L	0.05 NTU	82.1 mV	7.41 ft	150.00 ml/min
3/1/2022 1:29 PM	06:00	6.96 pH	62.46 °F	409.70 µS/cm	6.80 mg/L	0.00 NTU	106.5 mV	7.41 ft	150.00 ml/min
3/1/2022 1:32 PM	09:00	6.96 pH	62.23 °F	408.23 µS/cm	6.82 mg/L	0.00 NTU	114.0 mV	7.41 ft	150.00 ml/min
3/1/2022 1:35 PM	12:00	7.00 pH	61.82 °F	406.67 µS/cm	6.81 mg/L	0.23 NTU	124.2 mV	7.41 ft	150.00 ml/min
3/1/2022 1:38 PM	15:00	6.97 pH	61.53 °F	410.01 µS/cm	6.77 mg/L	0.00 NTU	128.6 mV	7.41 ft	150.00 ml/min
3/1/2022 1:41 PM	18:00	7.02 pH	61.54 °F	409.20 µS/cm	6.80 mg/L	0.00 NTU	136.1 mV	7.41 ft	150.00 ml/min
3/1/2022 1:44 PM	21:00	7.02 pH	61.50 °F	409.93 µS/cm	6.68 mg/L	0.00 NTU	140.7 mV	7.41 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-8R	Sample Time: 1350 Final RDO: 6.68 mg/L Final DTW: 7.41 ft btoc
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# Low-Flow Test Report:

Test Date / Time: 3/2/2022 2:07:14 PM

Project: Edmonds Terminal 1Q22

Operator Name: RWB

<b>Location Name: MW-533</b> <b>Latitude: 47.806861508583</b> <b>Longitude: -122.389572188258</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.65 ft</b>	<b>Pump Type: Geotechnical Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 1735 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697401</b>
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## Test Notes:

Initial DTW was 4.65 not 6.65

## Weather Conditions:

48F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
3/2/2022 2:07 PM	00:00	7.34 pH	58.56 °F	11,353 µS/cm	6.07 mg/L	0.26 NTU	21.8 mV	6.65 ft	150.00 ml/min
3/2/2022 2:10 PM	03:00	7.36 pH	58.71 °F	11,352 µS/cm	5.98 mg/L	0.00 NTU	32.3 mV	6.65 ft	150.00 ml/min
3/2/2022 2:13 PM	06:00	7.35 pH	58.63 °F	11,344 µS/cm	6.08 mg/L	0.00 NTU	28.5 mV	6.65 ft	150.00 ml/min
3/2/2022 2:16 PM	09:00	7.36 pH	58.64 °F	11,390 µS/cm	6.04 mg/L	0.00 NTU	30.4 mV	6.65 ft	150.00 ml/min
3/2/2022 2:18 PM	11:34	7.36 pH	58.61 °F	11,411 µS/cm	6.00 mg/L	0.00 NTU	35.3 mV	6.65 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-533	Sample Time: 1420 Final RDO: 6.04 mg/L Final DTW: 4.65 ft btoc
MW-533-MS	Sample Time: 1421
MW-533-MSD	Sample Time: 1423



# Low-Flow Test Report:

Test Date / Time: 3/3/2022 9:41:57 AM

Project: Edmonds Terminal 1Q22 (12)

Operator Name: JMS

<b>Location Name: MW-534</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.1 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.05 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Pump on at 0939

## Weather Conditions:

50 F cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/3/2022 9:41 AM	00:00	6.66 pH	55.31 °F	1.08 µS/cm	4.30 mg/L	-12.6 mV	3.10 ft	150.00 ml/min
3/3/2022 9:44 AM	03:00	6.66 pH	52.73 °F	9.23 µS/cm	2.69 mg/L	-75.2 mV	3.10 ft	150.00 ml/min
3/3/2022 9:47 AM	06:00	6.66 pH	53.26 °F	8.98 µS/cm	3.51 mg/L	-84.0 mV	3.10 ft	150.00 ml/min
3/3/2022 9:50 AM	09:00	6.66 pH	51.28 °F	2,853.3 µS/cm	11.39 mg/L	-96.4 mV	3.10 ft	150.00 ml/min
3/3/2022 9:53 AM	12:00	6.65 pH	50.90 °F	2,387.3 µS/cm	11.47 mg/L	-80.5 mV	3.10 ft	150.00 ml/min
3/3/2022 9:56 AM	15:00	6.65 pH	50.84 °F	1,962.9 µS/cm	11.41 mg/L	-59.3 mV	3.10 ft	150.00 ml/min
3/3/2022 9:59 AM	18:00	6.60 pH	50.52 °F	1,481.9 µS/cm	11.42 mg/L	-41.1 mV	3.10 ft	150.00 ml/min
3/3/2022 10:02 AM	21:00	6.65 pH	50.62 °F	1,283.8 µS/cm	11.38 mg/L	-72.4 mV	3.10 ft	150.00 ml/min
3/3/2022 10:05 AM	24:00	6.64 pH	50.51 °F	1,186.8 µS/cm	11.32 mg/L	-58.8 mV	3.10 ft	150.00 ml/min
3/3/2022 10:08 AM	27:00	6.63 pH	50.55 °F	1,046.3 µS/cm	11.26 mg/L	-34.9 mV	3.10 ft	150.00 ml/min
3/3/2022 10:11 AM	30:00	6.64 pH	50.38 °F	828.68 µS/cm	11.26 mg/L	-21.5 mV	3.10 ft	150.00 ml/min
3/3/2022 10:14 AM	33:00	6.64 pH	50.09 °F	666.54 µS/cm	11.25 mg/L	-2.8 mV	3.10 ft	150.00 ml/min

3/3/2022 10:17 AM	36:00	6.64 pH	50.04 °F	645.15 µS/cm	11.21 mg/L	-3.0 mV	3.10 ft	150.00 ml/min
3/3/2022 10:20 AM	39:00	6.63 pH	49.99 °F	681.52 µS/cm	11.16 mg/L	-3.3 mV	3.10 ft	150.00 ml/min
3/3/2022 10:23 AM	42:00	6.63 pH	49.92 °F	713.45 µS/cm	11.14 mg/L	-5.8 mV	3.10 ft	150.00 ml/min
3/3/2022 10:26 AM	45:00	6.62 pH	49.98 °F	693.02 µS/cm	11.07 mg/L	3.8 mV	3.10 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-534	Sample time: 1034 Final DTW: 3.15 ft Final RDO: 11.07 ORP did not stabilize

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 10:42:55 AM

Project: Edmonds Terminal #Q122 (10)

Operator Name: MA

<b>Location Name: MW-535</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.18 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.07 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 50 F, no wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 10:42 AM	00:00	6.00 pH	53.94 °F	123,706 µS/cm	5.89 mg/L	228.2 mV	4.18 ft	150.00 ml/min
3/2/2022 10:45 AM	03:00	6.80 pH	47.68 °F	1.484e+06 µS/cm	8.24 mg/L	226.9 mV	4.18 ft	150.00 ml/min
3/2/2022 10:48 AM	06:00	7.03 pH	47.78 °F	1.442e+06 µS/cm	8.07 mg/L	220.0 mV	4.18 ft	150.00 ml/min
3/2/2022 10:51 AM	09:00	7.11 pH	47.99 °F	1.468e+06 µS/cm	8.05 mg/L	216.3 mV	4.18 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-535	Sample Time: 10:56 Final DTW: 4.25 ft btoc Final RDO: 8.05 mg/L Ferrous Iron: NA

# Low-Flow Test Report:

Test Date / Time: 3/2/2022 11:54:59 AM

Project: Edmonds Terminal #Q122

Operator Name: MA

<b>Location Name: mW-ER</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.42 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.175 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.41 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rain, 50 F, light wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
3/2/2022 11:54 AM	00:00	6.61 pH	54.00 °F	148,999 µS/cm	0.65 mg/L	-47.7 mV	6.42 ft	150.00 ml/min
3/2/2022 11:57 AM	03:00	6.53 pH	53.80 °F	141,598 µS/cm	0.26 mg/L	-68.8 mV	6.42 ft	150.00 ml/min
3/2/2022 12:00 PM	06:00	6.50 pH	53.68 °F	140,273 µS/cm	0.16 mg/L	-74.1 mV	6.42 ft	150.00 ml/min
3/2/2022 12:03 PM	09:00	6.48 pH	53.64 °F	139,224 µS/cm	0.15 mg/L	-77.5 mV	6.42 ft	150.00 ml/min
3/2/2022 12:06 PM	12:00	6.48 pH	53.51 °F	138,922 µS/cm	0.14 mg/L	-80.5 mV	6.42 ft	150.00 ml/min
3/2/2022 12:09 PM	15:00	6.47 pH	53.49 °F	139,603 µS/cm	0.13 mg/L	-82.4 mV	6.42 ft	150.00 ml/min
3/2/2022 12:12 PM	18:00	6.47 pH	53.42 °F	139,827 µS/cm	0.12 mg/L	-83.8 mV	6.42 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-ER	Sample Time: 12:16 Final DTW: 6.83 Final RDO 0.12 mg/L Ferrous Iron: NA DUP-4
DUP-4	Sample Time: 12:16

# Low-Flow Test Report:

**Test Date / Time:** 6/14/2022 11:03:17 AM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: LM-2</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 5.5 ft</b>  <b>Top of Screen: 2.5 ft</b>  <b>Total Depth: 8 ft</b>  <b>Initial Depth to Water: 1.27 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170" x 1/4"</b>  <b>Pump Intake From TOC: 3 ft</b>  <b>Estimated Total Volume Pumped: 7200 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/14/2022 11:03 AM	00:00	5.94 pH	60.49 °F	4.038e+06 µS/cm	0.34 mg/L	58.34 NTU	-2.4 mV	1.27 ft	150.00 ml/min
6/14/2022 11:06 AM	03:00	5.95 pH	60.16 °F	4.076e+06 µS/cm	0.20 mg/L	88.13 NTU	-34.1 mV	1.27 ft	150.00 ml/min
6/14/2022 11:09 AM	06:00	5.96 pH	60.00 °F	4.095e+06 µS/cm	0.12 mg/L	83.55 NTU	-45.4 mV	1.27 ft	150.00 ml/min
6/14/2022 11:12 AM	09:00	5.96 pH	60.00 °F	4.098e+06 µS/cm	0.09 mg/L	49.06 NTU	-59.0 mV	1.27 ft	150.00 ml/min
6/14/2022 11:15 AM	12:00	5.96 pH	60.27 °F	4.084e+06 µS/cm	0.07 mg/L	46.78 NTU	-63.9 mV	1.27 ft	150.00 ml/min
6/14/2022 11:18 AM	15:00	5.95 pH	60.45 °F	4.053e+06 µS/cm	0.04 mg/L	40.01 NTU	-69.8 mV	1.27 ft	150.00 ml/min
6/14/2022 11:21 AM	18:00	5.95 pH	60.64 °F	4.043e+06 µS/cm	0.04 mg/L	45.69 NTU	-71.2 mV	1.27 ft	150.00 ml/min
6/14/2022 11:24 AM	21:00	5.95 pH	60.75 °F	4.017e+06 µS/cm	0.03 mg/L	35.06 NTU	-76.9 mV	1.27 ft	150.00 ml/min
6/14/2022 11:27 AM	24:00	5.95 pH	60.79 °F	3.995e+06 µS/cm	0.03 mg/L	29.20 NTU	-78.8 mV	1.27 ft	150.00 ml/min
6/14/2022 11:30 AM	27:00	5.95 pH	60.93 °F	3.964e+06 µS/cm	0.03 mg/L	26.95 NTU	-83.6 mV	1.27 ft	150.00 ml/min
6/14/2022 11:33 AM	30:00	5.96 pH	60.70 °F	3.920e+06 µS/cm	0.03 mg/L	20.65 NTU	-83.2 mV	1.27 ft	150.00 ml/min
6/14/2022 11:36 AM	33:00	5.96 pH	60.82 °F	3.906e+06 µS/cm	0.03 mg/L	13.29 NTU	-86.1 mV	1.27 ft	150.00 ml/min
6/14/2022 11:39 AM	36:00	5.96 pH	60.97 °F	3.867e+06 µS/cm	0.03 mg/L	15.66 NTU	-87.7 mV	1.27 ft	150.00 ml/min
6/14/2022 11:42 AM	39:00	5.96 pH	61.07 °F	3.840e+06 µS/cm	0.03 mg/L	7.73 NTU	-95.0 mV	1.27 ft	150.00 ml/min



6/14/2022 11:45 AM	42:00	5.96 pH	60.80 °F	3.807e+06 μS/cm	0.03 mg/L	13.07 NTU	-97.3 mV	1.27 ft	150.00 ml/min
6/14/2022 11:48 AM	45:00	5.97 pH	60.59 °F	3.790e+06 μS/cm	0.05 mg/L	8.33 NTU	-102.5 mV	1.27 ft	150.00 ml/min
6/14/2022 11:51 AM	48:00	5.97 pH	60.44 °F	3.771e+06 μS/cm	0.04 mg/L	9.38 NTU	-102.3 mV	1.27 ft	150.00 ml/min

## Samples

Sample ID:	Description:
LM-2	Sample time: 1154 Final dtw: 2.4 Rdo: 0.05 Ferrous iron: 6.5 Rdo and orp did not stabilize

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 9:40:40 AM

Project: Edmonds Terminal 2Q22 (5)

Operator Name: DSG

<b>Location Name: MW-8R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.5 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.04 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/16/2022 9:40 AM	00:00	6.78 pH	57.35 °F	477.10 µS/cm	6.45 mg/L	0.49 NTU	174.0 mV	7.50 ft	150.00 ml/min
6/16/2022 9:43 AM	03:00	6.85 pH	54.80 °F	472.77 µS/cm	0.66 mg/L	0.66 NTU	171.1 mV	7.50 ft	150.00 ml/min
6/16/2022 9:46 AM	06:00	6.82 pH	55.03 °F	472.45 µS/cm	0.63 mg/L	0.17 NTU	171.5 mV	7.50 ft	150.00 ml/min
6/16/2022 9:49 AM	09:00	6.80 pH	55.11 °F	469.72 µS/cm	1.00 mg/L	0.19 NTU	171.5 mV	7.50 ft	150.00 ml/min
6/16/2022 9:52 AM	12:00	6.82 pH	55.09 °F	470.44 µS/cm	1.14 mg/L	0.17 NTU	170.3 mV	7.50 ft	150.00 ml/min
6/16/2022 9:55 AM	15:00	6.80 pH	55.19 °F	470.63 µS/cm	1.26 mg/L	0.42 NTU	172.0 mV	7.50 ft	150.00 ml/min
6/16/2022 9:58 AM	18:00	6.81 pH	55.32 °F	470.09 µS/cm	1.17 mg/L	0.11 NTU	171.4 mV	7.50 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-8R	Sample Time 10:10 Final DTW 7.54 ft btoc Final RDO 1.17 mg/L Ferrous Iron 0.0 mg /L
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# Low-Flow Test Report:

Test Date / Time: 6/15/2022 12:12:16 PM

Project: Edmonds Terminal 2Q22 (2)

Operator Name: DSG

<b>Location Name: MW-20R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 14.5 ft</b> <b>Total Depth: 4 ft</b> <b>Initial Depth to Water: 6.55 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 900 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/15/2022 12:12 PM	00:00	5.70 pH	54.67 °F	13,543 µS/cm	5.51 mg/L	1.00 NTU	215.5 mV	6.55 ft	150.00 ml/min
6/15/2022 12:15 PM	03:00	5.74 pH	55.08 °F	13,463 µS/cm	5.01 mg/L	0.32 NTU	224.4 mV	6.55 ft	150.00 ml/min
6/15/2022 12:18 PM	06:00	5.74 pH	55.20 °F	13,520 µS/cm	4.90 mg/L	1.07 NTU	228.4 mV	6.55 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-20R	Sample Time 1228 Final DTW 6.58 Final RDO 4.90 mg/L Ferrous iron 0.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 6/15/2022 9:47:50 AM

Project: Edmonds Terminal 2Q22

Operator Name: ES

<b>Location Name: MW-101</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 8.25 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.35 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/15/2022 9:47 AM	00:00	6.24 pH	56.12 °F	207.21 µS/cm	0.53 mg/L	0.30 NTU	173.2 mV	8.25 ft	150.00 ml/min
6/15/2022 9:50 AM	03:00	6.27 pH	56.22 °F	206.67 µS/cm	0.99 mg/L	0.67 NTU	175.8 mV	8.25 ft	150.00 ml/min
6/15/2022 9:53 AM	06:00	6.30 pH	56.31 °F	215.62 µS/cm	2.03 mg/L	0.00 NTU	174.9 mV	8.25 ft	150.00 ml/min
6/15/2022 9:56 AM	09:00	6.34 pH	56.16 °F	219.11 µS/cm	2.26 mg/L	0.87 NTU	171.2 mV	8.25 ft	150.00 ml/min
6/15/2022 9:59 AM	12:00	6.35 pH	56.16 °F	217.29 µS/cm	2.37 mg/L	2.66 NTU	172.9 mV	8.25 ft	150.00 ml/min
6/15/2022 10:02 AM	15:00	6.36 pH	56.14 °F	230.82 µS/cm	2.08 mg/L	1.65 NTU	170.0 mV	8.25 ft	150.00 ml/min
6/15/2022 10:05 AM	18:00	6.38 pH	56.16 °F	235.39 µS/cm	1.83 mg/L	1.81 NTU	158.3 mV	8.25 ft	150.00 ml/min
6/15/2022 10:08 AM	21:00	6.38 pH	56.09 °F	242.69 µS/cm	1.48 mg/L	1.97 NTU	146.2 mV	8.25 ft	150.00 ml/min
6/15/2022 10:11 AM	24:00	6.39 pH	55.97 °F	247.85 µS/cm	1.60 mg/L	3.01 NTU	138.0 mV	8.25 ft	150.00 ml/min
6/15/2022 10:14 AM	27:00	6.39 pH	56.10 °F	253.41 µS/cm	1.59 mg/L	3.90 NTU	135.0 mV	8.25 ft	150.00 ml/min
6/15/2022 10:17 AM	30:00	6.39 pH	55.94 °F	256.70 µS/cm	1.25 mg/L	4.88 NTU	121.8 mV	8.25 ft	150.00 ml/min
6/15/2022 10:20 AM	33:00	6.39 pH	56.02 °F	264.66 µS/cm	1.19 mg/L	5.75 NTU	119.2 mV	8.25 ft	150.00 ml/min

6/15/2022 10:23 AM	36:00	6.39 pH	55.97 °F	264.33 µS/cm	1.07 mg/L	8.87 NTU	111.9 mV	8.25 ft	150.00 ml/min
6/15/2022 10:26 AM	39:00	6.39 pH	55.87 °F	268.52 µS/cm	0.94 mg/L	18.29 NTU	103.0 mV	8.25 ft	150.00 ml/min
6/15/2022 10:29 AM	42:00	6.40 pH	55.87 °F	273.13 µS/cm	0.93 mg/L	18.00 NTU	97.5 mV	8.25 ft	150.00 ml/min
6/15/2022 10:32 AM	45:00	6.40 pH	55.84 °F	274.49 µS/cm	0.80 mg/L	13.50 NTU	94.2 mV	8.25 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-101	Sample time: 10:40 Final DTW: 8.6 ft Final RDO: 0.80 mg/L Ferrous Iron: 0.0 mg/L RDO did not stabilize after 45 minutes
DUP-4	

# Low-Flow Test Report:

Test Date / Time: 6/14/2022 12:45:49 PM

Project: Edmonds Terminal 2Q22

Operator Name: DSG

<b>Location Name: MW-104</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 8.11 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.35 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/14/2022 12:45 PM	00:00	6.10 pH	57.73 °F	437.94 µS/cm	0.26 mg/L	10.14 NTU	-6.6 mV	8.11 ft	150.00 ml/min
6/14/2022 12:48 PM	03:00	6.18 pH	57.76 °F	482.49 µS/cm	0.30 mg/L	4.40 NTU	-23.1 mV	8.11 ft	150.00 ml/min
6/14/2022 12:51 PM	06:00	6.22 pH	57.46 °F	515.77 µS/cm	0.28 mg/L	1.95 NTU	-33.0 mV	8.11 ft	150.00 ml/min
6/14/2022 12:54 PM	09:00	6.25 pH	57.23 °F	559.49 µS/cm	0.27 mg/L	0.47 NTU	-40.1 mV	8.11 ft	150.00 ml/min
6/14/2022 12:57 PM	12:00	6.28 pH	57.22 °F	591.83 µS/cm	0.27 mg/L	2.04 NTU	-45.5 mV	8.11 ft	150.00 ml/min
6/14/2022 1:00 PM	15:00	6.29 pH	56.98 °F	589.02 µS/cm	0.25 mg/L	0.17 NTU	-48.2 mV	8.11 ft	150.00 ml/min
6/14/2022 1:03 PM	18:00	6.31 pH	57.03 °F	611.18 µS/cm	0.23 mg/L	1.15 NTU	-51.0 mV	8.11 ft	150.00 ml/min
6/14/2022 1:06 PM	21:00	6.31 pH	56.96 °F	630.83 µS/cm	0.23 mg/L	0.00 NTU	-52.6 mV	8.11 ft	150.00 ml/min
6/14/2022 1:09 PM	24:00	6.32 pH	56.77 °F	649.56 µS/cm	0.23 mg/L	0.19 NTU	-54.7 mV	8.11 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-104

Sample Time: 13:38  
Final DTW: 8.46 ft btoc  
Ferrous Iron: 3.0 mg/L



# Low-Flow Test Report:

Test Date / Time: 6/15/2022 10:15:23 AM

Project: Edmonds Terminal 4Q21 (17)

Operator Name: JMS

<b>Location Name: MW-126</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 3.7 ft</b> <b>Total Depth: 14.2 ft</b> <b>Initial Depth to Water: 4.62 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1014

## Weather Conditions:

65F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/15/2022 10:15 AM	00:00	6.81 pH	55.35 °F	612.08 µS/cm	8.08 mg/L	127.2 mV	4.62 ft	150.00 ml/min
6/15/2022 10:18 AM	03:00	6.86 pH	52.37 °F	627.62 µS/cm	3.95 mg/L	116.0 mV	4.62 ft	150.00 ml/min
6/15/2022 10:21 AM	06:00	6.86 pH	52.24 °F	626.75 µS/cm	3.96 mg/L	128.5 mV	4.62 ft	150.00 ml/min
6/15/2022 10:24 AM	09:00	6.86 pH	52.31 °F	625.13 µS/cm	3.97 mg/L	137.1 mV	4.62 ft	150.00 ml/min
6/15/2022 10:27 AM	12:00	6.85 pH	52.34 °F	625.10 µS/cm	3.99 mg/L	140.2 mV	4.62 ft	150.00 ml/min
6/15/2022 10:30 AM	15:00	6.85 pH	52.42 °F	625.40 µS/cm	4.02 mg/L	142.6 mV	4.62 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-126	Sample time: 1032 Ferrous Iron: 0.0 mg/L Final RDO: 4.02 mg/L Final DTW: 5.31 ft



# Low-Flow Test Report:

**Test Date / Time:** 6/14/2022 12:58:06 PM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-129R</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 5.17 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170" x 1/4"</b>  <b>Pump Intake From TOC: 7 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/14/2022 12:58 PM	00:00	5.85 pH	57.41 °F	522,839 µS/cm	0.00 mg/L	7.01 NTU	41.8 mV	5.17 ft	150.00 ml/min
6/14/2022 1:01 PM	03:00	5.83 pH	57.30 °F	520,724 µS/cm	0.00 mg/L	0.00 NTU	24.1 mV	5.17 ft	150.00 ml/min
6/14/2022 1:04 PM	06:00	5.82 pH	57.37 °F	536,478 µS/cm	0.00 mg/L	0.00 NTU	11.7 mV	5.17 ft	150.00 ml/min
6/14/2022 1:07 PM	09:00	5.79 pH	56.99 °F	540,359 µS/cm	0.00 mg/L	0.00 NTU	1.3 mV	5.17 ft	150.00 ml/min
6/14/2022 1:10 PM	12:00	5.81 pH	56.90 °F	542,047 µS/cm	0.00 mg/L	0.00 NTU	-5.6 mV	5.17 ft	150.00 ml/min
6/14/2022 1:13 PM	15:00	5.80 pH	56.75 °F	541,834 µS/cm	0.00 mg/L	0.00 NTU	-10.7 mV	5.17 ft	150.00 ml/min
6/14/2022 1:16 PM	18:00	5.81 pH	56.39 °F	542,557 µS/cm	0.00 mg/L	0.11 NTU	-13.5 mV	5.17 ft	150.00 ml/min
6/14/2022 1:19 PM	21:00	5.81 pH	56.12 °F	541,115 µS/cm	0.00 mg/L	0.00 NTU	-19.5 mV	5.17 ft	150.00 ml/min
6/14/2022 1:22 PM	24:00	5.82 pH	55.98 °F	541,613 µS/cm	0.00 mg/L	0.00 NTU	-24.5 mV	5.17 ft	150.00 ml/min
6/14/2022 1:25 PM	27:00	5.82 pH	55.83 °F	541,601 µS/cm	0.00 mg/L	0.00 NTU	-32.2 mV	5.17 ft	150.00 ml/min
6/14/2022 1:28 PM	30:00	5.84 pH	55.67 °F	540,507 µS/cm	0.00 mg/L	0.00 NTU	-36.9 mV	5.17 ft	150.00 ml/min
6/14/2022 1:31 PM	33:00	5.84 pH	55.62 °F	539,159 µS/cm	0.00 mg/L	0.00 NTU	-41.0 mV	5.17 ft	150.00 ml/min
6/14/2022 1:34 PM	36:00	5.85 pH	55.42 °F	538,311 µS/cm	0.00 mg/L	0.00 NTU	-43.7 mV	5.17 ft	150.00 ml/min
6/14/2022 1:37 PM	39:00	5.86 pH	55.43 °F	544,398 µS/cm	0.00 mg/L	0.00 NTU	-48.6 mV	5.17 ft	150.00 ml/min

6/14/2022 1:40 PM	42:00	5.86 pH	55.26 °F	532,806 µS/cm	0.00 mg/L	0.00 NTU	-49.5 mV	5.17 ft	150.00 ml/min
6/14/2022 1:43 PM	45:00	5.86 pH	55.19 °F	536,811 µS/cm	0.00 mg/L	0.00 NTU	-53.1 mV	5.17 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-129R	Sample time: 1354 Final dtw:6.7 Final rdo: 0.0 Ferrous iron: 6.0 Orp did not stabilize

# Low-Flow Test Report:

Test Date / Time: 6/15/2022 11:24:00 AM

Project: Edmonds Terminal 4Q21 (18)

Operator Name: JMS

<b>Location Name: MW-143</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.6 ft</b> <b>Top of Screen: 3.5 ft</b> <b>Total Depth: 14.1 ft</b> <b>Initial Depth to Water: 4.37 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3587.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1122

## Weather Conditions:

70F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/15/2022 11:24 AM	00:00	6.51 pH	57.70 °F	654.42 µS/cm	6.22 mg/L	-39.2 mV	4.37 ft	150.00 ml/min
6/15/2022 11:26 AM	02:55	6.44 pH	54.88 °F	659.48 µS/cm	0.56 mg/L	-54.1 mV	4.37 ft	150.00 ml/min
6/15/2022 11:29 AM	05:55	6.43 pH	54.65 °F	659.32 µS/cm	0.37 mg/L	-61.9 mV	4.37 ft	150.00 ml/min
6/15/2022 11:32 AM	08:55	6.43 pH	54.85 °F	659.69 µS/cm	0.33 mg/L	-66.4 mV	4.37 ft	150.00 ml/min
6/15/2022 11:35 AM	11:55	6.42 pH	54.78 °F	658.52 µS/cm	0.34 mg/L	-69.8 mV	4.37 ft	150.00 ml/min
6/15/2022 11:38 AM	14:55	6.42 pH	54.86 °F	657.64 µS/cm	0.28 mg/L	-72.4 mV	4.37 ft	150.00 ml/min
6/15/2022 11:41 AM	17:55	6.42 pH	54.98 °F	655.86 µS/cm	0.29 mg/L	-74.2 mV	4.37 ft	150.00 ml/min
6/15/2022 11:44 AM	20:55	6.41 pH	55.10 °F	653.78 µS/cm	0.26 mg/L	-75.5 mV	4.37 ft	150.00 ml/min
6/15/2022 11:47 AM	23:55	6.41 pH	55.16 °F	653.51 µS/cm	0.29 mg/L	-76.1 mV	4.37 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-143	Sample Time: 1202 Final DTW: 6.00 ft Final RDO: 0.29 mg/L Ferrous Iron: 4.5 mg/L MS / MSD collected
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# Low-Flow Test Report:

**Test Date / Time:** 6/15/2022 12:36:29 PM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-139R</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10.5 ft</b>  <b>Top of Screen: 4.4 ft</b>  <b>Total Depth: 14.9 ft</b>  <b>Initial Depth to Water: 6.76 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170" x 1/4"</b>  <b>Pump Intake From TOC: 10 ft</b>  <b>Estimated Total Volume Pumped: 4817.5 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/15/2022 12:36 PM	00:00	6.83 pH	59.63 °F	2.697e+06 µS/cm	2.13 mg/L	0.00 NTU	154.4 mV	6.76 ft	150.00 ml/min
6/15/2022 12:37 PM	01:18	6.85 pH	59.52 °F	2.730e+06 µS/cm	1.96 mg/L	0.14 NTU	151.9 mV	6.76 ft	150.00 ml/min
6/15/2022 12:40 PM	04:18	6.86 pH	59.15 °F	2.789e+06 µS/cm	1.74 mg/L	0.00 NTU	136.6 mV	6.76 ft	150.00 ml/min
6/15/2022 12:43 PM	07:18	6.87 pH	59.07 °F	2.825e+06 µS/cm	1.39 mg/L	0.00 NTU	129.7 mV	6.76 ft	150.00 ml/min
6/15/2022 12:46 PM	10:18	6.88 pH	58.98 °F	2.843e+06 µS/cm	1.34 mg/L	0.00 NTU	122.3 mV	6.76 ft	150.00 ml/min
6/15/2022 12:49 PM	13:18	6.88 pH	58.90 °F	2.860e+06 µS/cm	1.12 mg/L	0.00 NTU	118.6 mV	6.76 ft	150.00 ml/min
6/15/2022 12:52 PM	16:18	6.89 pH	58.88 °F	2.869e+06 µS/cm	1.19 mg/L	0.00 NTU	113.6 mV	6.76 ft	150.00 ml/min
6/15/2022 12:55 PM	19:18	6.89 pH	58.83 °F	2.873e+06 µS/cm	0.99 mg/L	0.00 NTU	111.9 mV	6.76 ft	150.00 ml/min
6/15/2022 12:58 PM	22:18	6.89 pH	58.84 °F	2.866e+06 µS/cm	0.95 mg/L	0.00 NTU	108.7 mV	6.76 ft	150.00 ml/min
6/15/2022 1:01 PM	25:18	6.89 pH	58.76 °F	2.879e+06 µS/cm	0.90 mg/L	0.00 NTU	109.1 mV	6.76 ft	150.00 ml/min
6/15/2022 1:04 PM	28:18	6.89 pH	58.77 °F	2.888e+06 µS/cm	0.87 mg/L	0.00 NTU	106.1 mV	6.76 ft	150.00 ml/min
6/15/2022 1:07 PM	31:18	6.90 pH	58.75 °F	2.880e+06 µS/cm	0.84 mg/L	0.00 NTU	107.7 mV	6.76 ft	150.00 ml/min
6/15/2022 1:08 PM	32:07	6.90 pH	58.75 °F	2.883e+06 µS/cm	0.82 mg/L	0.00 NTU	108.5 mV	6.76 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
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# Low-Flow Test Report:

Test Date / Time: 6/15/2022 9:09:38 AM

Project: Edmonds Terminal 4Q21 (16)

Operator Name: JMS

<b>Location Name: MW-502</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.8 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3150 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 0908

## Weather Conditions:

60 F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/15/2022 9:09 AM	00:00	6.55 pH	54.96 °F	293.02 µS/cm	1.93 mg/L	118.3 mV	4.80 ft	150.00 ml/min
6/15/2022 9:12 AM	03:00	6.42 pH	53.87 °F	290.44 µS/cm	0.55 mg/L	117.4 mV	4.80 ft	150.00 ml/min
6/15/2022 9:15 AM	06:00	6.41 pH	53.53 °F	290.79 µS/cm	0.35 mg/L	114.2 mV	4.80 ft	150.00 ml/min
6/15/2022 9:18 AM	09:00	6.40 pH	53.39 °F	290.54 µS/cm	0.28 mg/L	114.4 mV	4.80 ft	150.00 ml/min
6/15/2022 9:21 AM	12:00	6.40 pH	53.34 °F	290.43 µS/cm	0.24 mg/L	114.0 mV	4.80 ft	150.00 ml/min
6/15/2022 9:24 AM	15:00	6.39 pH	53.30 °F	290.51 µS/cm	0.20 mg/L	113.7 mV	4.80 ft	150.00 ml/min
6/15/2022 9:27 AM	18:00	6.39 pH	53.37 °F	290.43 µS/cm	0.20 mg/L	112.8 mV	4.80 ft	150.00 ml/min
6/15/2022 9:30 AM	21:00	6.39 pH	53.36 °F	290.46 µS/cm	0.18 mg/L	112.0 mV	4.80 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-502	Sample Time: 0932 Final DTW: 5.52 ft Final RDO: 0.18 mg/L Ferrous Iron: 0.0 mg/L
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# Low-Flow Test Report:

Test Date / Time: 6/14/2022 12:04:01 PM

Project: Edmonds Terminal #Q222 (3)

Operator Name: MA

<b>Location Name: MW-503</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.76 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.1 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy, 55 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %		
6/14/2022 12:04 PM	00:00	7.12 pH	66.27 °F	6,969.4 µS/cm	4.21 mg/L	94.5 mV	4.76 ft	150.00 ml/min
6/14/2022 12:07 PM	03:00	6.51 pH	58.28 °F	704.46 µS/cm	0.84 mg/L	1.7 mV	4.76 ft	150.00 ml/min
6/14/2022 12:10 PM	06:00	6.47 pH	58.01 °F	412.94 µS/cm	0.29 mg/L	-6.2 mV	4.76 ft	150.00 ml/min
6/14/2022 12:13 PM	09:00	6.48 pH	58.25 °F	350.45 µS/cm	0.19 mg/L	-7.7 mV	4.76 ft	150.00 ml/min
6/14/2022 12:16 PM	12:00	6.49 pH	58.06 °F	340.55 µS/cm	0.18 mg/L	-17.3 mV	4.76 ft	150.00 ml/min
6/14/2022 12:19 PM	15:00	6.44 pH	57.79 °F	341.90 µS/cm	0.16 mg/L	-18.8 mV	4.76 ft	150.00 ml/min
6/14/2022 12:22 PM	18:00	6.46 pH	58.85 °F	339.23 µS/cm	0.13 mg/L	-18.8 mV	4.76 ft	150.00 ml/min
6/14/2022 12:25 PM	21:00	6.48 pH	58.24 °F	335.18 µS/cm	0.15 mg/L	-22.4 mV	4.76 ft	150.00 ml/min
6/14/2022 12:28 PM	24:00	6.47 pH	57.67 °F	335.09 µS/cm	0.13 mg/L	-24.5 mV	4.76 ft	150.00 ml/min
6/14/2022 12:31 PM	27:00	6.45 pH	59.17 °F	336.47 µS/cm	0.11 mg/L	-23.5 mV	4.76 ft	150.00 ml/min
6/14/2022 12:34 PM	30:00	6.41 pH	58.23 °F	338.18 µS/cm	0.13 mg/L	-16.4 mV	4.76 ft	150.00 ml/min
6/14/2022 12:37 PM	33:00	6.46 pH	58.52 °F	335.08 µS/cm	0.11 mg/L	-26.4 mV	4.76 ft	150.00 ml/min

6/14/2022 12:40 PM	36:00	6.46 pH	59.40 °F	337.77 µS/cm	0.12 mg/L	-27.4 mV	4.76 ft	150.00 ml/min
6/14/2022 12:43 PM	39:00	6.46 pH	59.45 °F	335.13 µS/cm	0.11 mg/L	-23.2 mV	4.76 ft	150.00 ml/min
6/14/2022 12:46 PM	42:00	6.46 pH	58.77 °F	335.31 µS/cm	0.12 mg/L	-27.4 mV	4.76 ft	150.00 ml/min
6/14/2022 12:49 PM	45:00	6.39 pH	58.91 °F	335.86 µS/cm	0.12 mg/L	-25.4 mV	4.76 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-503	Sample Time: 12:56 Final DTW: 4.86 Final RDO: 0.12 mg/L Ferrous Iron: 3.0 mg/L Parameters Not Stabilized: ORP

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 9:48:49 AM

Project: Edmonds Terminal 4Q21 (22)

Operator Name: JMS

<b>Location Name: MW-504</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.05 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 0948

## Weather Conditions:

70F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/16/2022 9:48 AM	00:00	7.01 pH	62.05 °F	333.29 µS/cm	6.73 mg/L	123.3 mV	6.05 ft	150.00 ml/min
6/16/2022 9:51 AM	03:00	6.67 pH	59.94 °F	6,567.0 µS/cm	0.52 mg/L	37.8 mV	6.05 ft	150.00 ml/min
6/16/2022 9:54 AM	06:00	6.67 pH	59.81 °F	6,321.5 µS/cm	0.35 mg/L	29.9 mV	6.05 ft	150.00 ml/min
6/16/2022 9:57 AM	09:00	6.69 pH	59.60 °F	6,286.1 µS/cm	0.27 mg/L	26.3 mV	6.05 ft	150.00 ml/min
6/16/2022 10:00 AM	12:00	6.70 pH	59.65 °F	6,294.5 µS/cm	0.27 mg/L	24.3 mV	6.05 ft	150.00 ml/min
6/16/2022 10:03 AM	15:00	6.69 pH	59.80 °F	6,243.6 µS/cm	0.22 mg/L	24.1 mV	6.05 ft	150.00 ml/min
6/16/2022 10:06 AM	18:00	6.70 pH	60.00 °F	5,815.5 µS/cm	0.24 mg/L	24.8 mV	6.05 ft	150.00 ml/min
6/16/2022 10:09 AM	21:00	6.73 pH	59.68 °F	4,255.9 µS/cm	0.19 mg/L	32.2 mV	6.05 ft	150.00 ml/min
6/16/2022 10:12 AM	24:00	6.74 pH	59.92 °F	3,616.1 µS/cm	0.26 mg/L	37.5 mV	6.05 ft	150.00 ml/min
6/16/2022 10:15 AM	27:00	6.72 pH	59.81 °F	3,451.0 µS/cm	0.22 mg/L	40.7 mV	6.05 ft	150.00 ml/min
6/16/2022 10:18 AM	30:00	6.72 pH	60.02 °F	3,336.1 µS/cm	0.22 mg/L	41.8 mV	6.05 ft	150.00 ml/min
6/16/2022 10:21 AM	33:00	6.73 pH	59.58 °F	3,282.6 µS/cm	0.24 mg/L	42.4 mV	6.05 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-504	Sample time: 1032 Final DTW: 6.06 ft Final RDO: 0.24 mg/L Ferrous Iron: 1.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 10:49:50 AM

Project: Edmonds Terminal 4Q21 (23)

Operator Name: JMS

<b>Location Name: MW-505</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.13 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1048

## Weather Conditions:

65F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/16/2022 10:49 AM	00:00	6.86 pH	62.79 °F	553.54 µS/cm	2.09 mg/L	-19.6 mV	4.13 ft	150.00 ml/min
6/16/2022 10:52 AM	03:00	6.71 pH	61.20 °F	512.29 µS/cm	0.47 mg/L	-30.9 mV	4.13 ft	150.00 ml/min
6/16/2022 10:55 AM	06:00	6.70 pH	60.73 °F	508.41 µS/cm	0.36 mg/L	-31.9 mV	4.13 ft	150.00 ml/min
6/16/2022 10:58 AM	09:00	6.69 pH	60.15 °F	615.59 µS/cm	0.32 mg/L	-30.8 mV	4.13 ft	150.00 ml/min
6/16/2022 11:01 AM	12:00	6.67 pH	61.04 °F	761.02 µS/cm	0.26 mg/L	-29.7 mV	4.13 ft	150.00 ml/min
6/16/2022 11:04 AM	15:00	6.66 pH	61.57 °F	908.71 µS/cm	0.28 mg/L	-28.6 mV	4.13 ft	150.00 ml/min
6/16/2022 11:07 AM	18:00	6.65 pH	61.89 °F	1,028.6 µS/cm	0.28 mg/L	-29.2 mV	4.13 ft	150.00 ml/min
6/16/2022 11:10 AM	21:00	6.65 pH	62.06 °F	1,432.0 µS/cm	0.20 mg/L	-28.2 mV	4.13 ft	150.00 ml/min
6/16/2022 11:13 AM	24:00	6.65 pH	61.88 °F	1,652.6 µS/cm	0.25 mg/L	-28.8 mV	4.13 ft	150.00 ml/min
6/16/2022 11:16 AM	27:00	6.66 pH	62.22 °F	1,835.9 µS/cm	0.20 mg/L	-29.4 mV	4.13 ft	150.00 ml/min
6/16/2022 11:19 AM	30:00	6.65 pH	62.57 °F	2,208.5 µS/cm	0.25 mg/L	-30.3 mV	4.13 ft	150.00 ml/min
6/16/2022 11:22 AM	33:00	6.67 pH	62.73 °F	2,160.7 µS/cm	0.19 mg/L	-31.6 mV	4.13 ft	150.00 ml/min

6/16/2022 11:25 AM	36:00	6.67 pH	62.82 °F	2,613.7 µS/cm	0.18 mg/L	-32.5 mV	4.13 ft	150.00 ml/min
6/16/2022 11:28 AM	39:00	6.69 pH	62.97 °F	2,708.4 µS/cm	0.20 mg/L	-33.9 mV	4.13 ft	150.00 ml/min
6/16/2022 11:31 AM	42:00	6.70 pH	62.81 °F	2,816.6 µS/cm	0.26 mg/L	-35.1 mV	4.13 ft	150.00 ml/min
6/16/2022 11:34 AM	45:00	6.71 pH	62.69 °F	3,033.2 µS/cm	0.33 mg/L	-35.6 mV	4.13 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-505	Sample Time: 1142 Final DTW: 4.20 ft Final RDO: 0.33 mg/L Ferrous Iron: 2.0 mg/L Conductivity, RDO, ORP not stabilized. Purged for 45 min



# Low-Flow Test Report:

Test Date / Time: 6/16/2022 10:49:13 AM

Project: Edmonds Terminal 2Q22 (6)

Operator Name: DSG

<b>Location Name: MW-506</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.12 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.08 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/16/2022 10:49 AM	00:00	6.59 pH	67.51 °F	5,423.5 µS/cm	7.71 mg/L	8.03 NTU	57.9 mV	6.12 ft	150.00 ml/min
6/16/2022 10:52 AM	03:00	6.66 pH	58.81 °F	6,576.9 µS/cm	0.40 mg/L	11.59 NTU	-16.9 mV	6.12 ft	150.00 ml/min
6/16/2022 10:55 AM	06:00	6.67 pH	57.65 °F	6,300.1 µS/cm	0.25 mg/L	12.05 NTU	-51.4 mV	6.12 ft	150.00 ml/min
6/16/2022 10:58 AM	09:00	6.67 pH	57.56 °F	5,979.3 µS/cm	0.19 mg/L	19.16 NTU	-85.3 mV	6.12 ft	150.00 ml/min
6/16/2022 11:01 AM	12:00	6.65 pH	57.93 °F	5,527.7 µS/cm	0.18 mg/L	3.59 NTU	-101.3 mV	6.12 ft	150.00 ml/min
6/16/2022 11:04 AM	15:00	6.64 pH	58.16 °F	5,235.0 µS/cm	0.18 mg/L	3.64 NTU	-111.3 mV	6.12 ft	150.00 ml/min
6/16/2022 11:07 AM	18:00	6.65 pH	58.31 °F	5,077.9 µS/cm	0.16 mg/L	0.73 NTU	-119.5 mV	6.12 ft	150.00 ml/min
6/16/2022 11:10 AM	21:00	6.64 pH	58.48 °F	5,005.2 µS/cm	0.16 mg/L	0.40 NTU	-124.6 mV	6.12 ft	150.00 ml/min
6/16/2022 11:13 AM	24:00	6.65 pH	58.41 °F	4,971.3 µS/cm	0.14 mg/L	0.26 NTU	-124.0 mV	6.12 ft	150.00 ml/min
6/16/2022 11:16 AM	27:00	6.66 pH	58.49 °F	4,928.0 µS/cm	0.14 mg/L	0.28 NTU	-130.2 mV	6.12 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-506	Sample Time 11:30 Final DTW 6.20 ft btoc Final RDO 0.14 mg/L Ferrous Iron 0.0 mg/L

Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 12:08:14 PM

Project: Edmonds Terminal 2Q22 (7)

Operator Name: DSG

<b>Location Name: MW-507</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.3 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.32 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/16/2022 12:08 PM	00:00	6.60 pH	67.57 °F	590.85 µS/cm	5.02 mg/L	40.47 NTU	63.8 mV	6.30 ft	150.00 ml/min
6/16/2022 12:11 PM	03:00	6.40 pH	60.83 °F	540.17 µS/cm	1.68 mg/L	19.02 NTU	84.6 mV	6.30 ft	150.00 ml/min
6/16/2022 12:14 PM	06:00	6.37 pH	59.23 °F	559.02 µS/cm	0.99 mg/L	3.07 NTU	95.3 mV	6.30 ft	150.00 ml/min
6/16/2022 12:17 PM	09:00	6.33 pH	64.02 °F	2,965.5 µS/cm	1.99 mg/L	4.05 NTU	34.6 mV	6.30 ft	150.00 ml/min
6/16/2022 12:20 PM	12:00	6.48 pH	61.09 °F	756.65 µS/cm	1.19 mg/L	4.19 NTU	2.4 mV	6.30 ft	150.00 ml/min
6/16/2022 12:23 PM	15:00	6.50 pH	59.39 °F	623.68 µS/cm	0.73 mg/L	3.35 NTU	24.3 mV	6.30 ft	150.00 ml/min
6/16/2022 12:26 PM	18:00	6.50 pH	59.36 °F	559.35 µS/cm	0.55 mg/L	1.65 NTU	39.0 mV	6.30 ft	150.00 ml/min
6/16/2022 12:29 PM	21:00	6.49 pH	59.28 °F	568.86 µS/cm	0.47 mg/L	3.49 NTU	49.6 mV	6.30 ft	150.00 ml/min
6/16/2022 12:32 PM	24:00	6.48 pH	59.31 °F	558.99 µS/cm	0.38 mg/L	0.70 NTU	68.2 mV	6.30 ft	150.00 ml/min
6/16/2022 12:35 PM	27:00	6.48 pH	58.99 °F	576.51 µS/cm	0.36 mg/L	0.85 NTU	74.9 mV	6.30 ft	150.00 ml/min
6/16/2022 12:38 PM	30:00	6.48 pH	58.71 °F	572.97 µS/cm	0.32 mg/L	0.62 NTU	75.8 mV	6.30 ft	150.00 ml/min
6/16/2022 12:41 PM	33:00	6.49 pH	58.60 °F	570.48 µS/cm	0.29 mg/L	1.20 NTU	79.4 mV	6.30 ft	150.00 ml/min

6/16/2022 12:44 PM	36:00	6.49 pH	58.31 °F	580.78 µS/cm	0.28 mg/L	3.13 NTU	80.6 mV	6.30 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-507	Sample Time 1300 Final DTW 6.62 ft btoc Final RDO 0.28 mg/L Ferrous Iron 0.0 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 6/16/2022 8:06:27 AM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-509</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 2.99 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170" x 1/4"</b>  <b>Pump Intake From TOC: 6 ft</b>  <b>Estimated Total Volume Pumped: 3150 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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**Test Notes:**

**Low-Flow Readings:**

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/16/2022 8:06 AM	00:00	6.81 pH	58.12 °F	8.737e+06 µS/cm	0.73 mg/L	0.00 NTU	261.0 mV	2.99 ft	150.00 ml/min
6/16/2022 8:09 AM	03:00	6.83 pH	58.64 °F	7.524e+06 µS/cm	0.42 mg/L	0.12 NTU	238.1 mV	2.99 ft	150.00 ml/min
6/16/2022 8:12 AM	06:00	6.82 pH	58.93 °F	7.433e+06 µS/cm	0.44 mg/L	0.00 NTU	217.1 mV	2.99 ft	150.00 ml/min
6/16/2022 8:15 AM	09:00	6.83 pH	58.94 °F	7.407e+06 µS/cm	0.42 mg/L	0.00 NTU	202.9 mV	2.99 ft	150.00 ml/min
6/16/2022 8:18 AM	12:00	6.82 pH	59.01 °F	7.427e+06 µS/cm	0.40 mg/L	0.00 NTU	187.7 mV	2.99 ft	150.00 ml/min
6/16/2022 8:21 AM	15:00	6.83 pH	59.10 °F	7.403e+06 µS/cm	0.39 mg/L	0.00 NTU	181.7 mV	2.99 ft	150.00 ml/min
6/16/2022 8:24 AM	18:00	6.83 pH	59.42 °F	7.424e+06 µS/cm	0.38 mg/L	0.00 NTU	170.7 mV	2.99 ft	150.00 ml/min
6/16/2022 8:27 AM	21:00	6.82 pH	59.74 °F	7.403e+06 µS/cm	0.38 mg/L	0.00 NTU	164.1 mV	2.99 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-509	Sample time: 0834 Final dtw: 2.99 Final rdo: 0.8 Ferrous iron: 1



# Low-Flow Test Report:

Test Date / Time: 6/15/2022 1:33:08 PM

Project: Edmonds Terminal 2Q22 (3)

Operator Name: DSG

<b>Location Name: MW-511</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.42 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 1800 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.06 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/15/2022 1:33 PM	00:00	6.76 pH	56.32 °F	1,173.8 µS/cm	9.14 mg/L	1.29 NTU	151.4 mV	7.42 ft	150.00 ml/min
6/15/2022 1:36 PM	03:00	6.52 pH	53.06 °F	325.88 µS/cm	7.20 mg/L	0.22 NTU	159.9 mV	7.42 ft	150.00 ml/min
6/15/2022 1:39 PM	06:00	6.50 pH	52.60 °F	296.61 µS/cm	7.16 mg/L	0.25 NTU	168.0 mV	7.42 ft	150.00 ml/min
6/15/2022 1:42 PM	09:00	6.49 pH	52.38 °F	276.41 µS/cm	7.08 mg/L	2.00 NTU	172.7 mV	7.42 ft	150.00 ml/min
6/15/2022 1:45 PM	12:00	6.47 pH	52.14 °F	270.54 µS/cm	7.06 mg/L	5.12 NTU	180.8 mV	7.42 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-511	Sample Time 1358 Final DTW 7.48 Ferrous Iron 0.0 mg/L

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 12:22:19 PM

Project: Edmonds Terminal 4Q21 (24)

Operator Name: JMS

<b>Location Name: MW-512</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6300 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1220

## Weather Conditions:

75F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/16/2022 12:22 PM	00:00	7.36 pH	64.08 °F	1,316.5 µS/cm	3.01 mg/L	-67.2 mV	6.00 ft	150.00 ml/min
6/16/2022 12:25 PM	03:00	7.44 pH	59.60 °F	1,291.6 µS/cm	0.51 mg/L	-99.5 mV	6.00 ft	150.00 ml/min
6/16/2022 12:28 PM	06:00	7.40 pH	60.52 °F	1,289.0 µS/cm	0.38 mg/L	-103.6 mV	6.00 ft	150.00 ml/min
6/16/2022 12:31 PM	09:00	7.36 pH	60.60 °F	1,278.1 µS/cm	0.34 mg/L	-104.3 mV	6.00 ft	150.00 ml/min
6/16/2022 12:34 PM	12:00	7.34 pH	60.26 °F	1,263.7 µS/cm	0.32 mg/L	-104.3 mV	6.00 ft	150.00 ml/min
6/16/2022 12:37 PM	15:00	7.31 pH	60.08 °F	1,243.1 µS/cm	0.28 mg/L	-104.0 mV	6.00 ft	150.00 ml/min
6/16/2022 12:40 PM	18:00	7.25 pH	60.05 °F	1,174.3 µS/cm	0.28 mg/L	-101.9 mV	6.00 ft	150.00 ml/min
6/16/2022 12:43 PM	21:00	7.11 pH	60.32 °F	972.87 µS/cm	0.26 mg/L	-93.1 mV	6.00 ft	150.00 ml/min
6/16/2022 12:46 PM	24:00	6.97 pH	59.83 °F	795.30 µS/cm	0.24 mg/L	-80.3 mV	6.00 ft	150.00 ml/min
6/16/2022 12:49 PM	27:00	6.88 pH	59.99 °F	699.42 µS/cm	0.24 mg/L	-70.2 mV	6.00 ft	150.00 ml/min
6/16/2022 12:52 PM	30:00	6.84 pH	60.07 °F	655.12 µS/cm	0.24 mg/L	-64.2 mV	6.00 ft	150.00 ml/min
6/16/2022 12:55 PM	33:00	6.82 pH	59.88 °F	624.11 µS/cm	0.24 mg/L	-60.5 mV	6.00 ft	150.00 ml/min



6/16/2022 12:58 PM	36:00	6.79 pH	60.21 °F	591.95 µS/cm	0.24 mg/L	-56.7 mV	6.00 ft	150.00 ml/min
6/16/2022 1:01 PM	39:00	6.77 pH	60.38 °F	581.18 µS/cm	0.25 mg/L	-53.8 mV	6.00 ft	150.00 ml/min
6/16/2022 1:04 PM	42:00	6.76 pH	60.34 °F	559.29 µS/cm	0.26 mg/L	-52.0 mV	6.00 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-512	Sample time: 1312 Final DTW: 6.00 ft Ferrous Iron: 2.5 mg/L Final RDO: 0.26 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 6/16/2022 9:57:22 AM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-513</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 3.84 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170" x 1/4"</b>  <b>Pump Intake From TOC: 6 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/16/2022 9:57 AM	00:00	6.84 pH	61.82 °F	3.214e+06 µS/cm	0.96 mg/L	0.19 NTU	15.0 mV	3.84 ft	150.00 ml/min
6/16/2022 10:00 AM	03:00	6.87 pH	61.99 °F	3.251e+06 µS/cm	0.62 mg/L	0.13 NTU	-32.5 mV	3.84 ft	150.00 ml/min
6/16/2022 10:03 AM	06:00	6.88 pH	62.21 °F	3.246e+06 µS/cm	0.41 mg/L	0.12 NTU	-43.3 mV	3.84 ft	150.00 ml/min
6/16/2022 10:06 AM	09:00	6.88 pH	62.00 °F	3.233e+06 µS/cm	0.40 mg/L	0.27 NTU	-49.7 mV	3.84 ft	150.00 ml/min
6/16/2022 10:09 AM	12:00	6.89 pH	61.80 °F	3.185e+06 µS/cm	0.31 mg/L	0.16 NTU	-54.6 mV	3.84 ft	150.00 ml/min
6/16/2022 10:12 AM	15:00	6.90 pH	61.55 °F	2.975e+06 µS/cm	0.30 mg/L	0.47 NTU	-57.1 mV	3.84 ft	150.00 ml/min
6/16/2022 10:15 AM	18:00	6.93 pH	61.83 °F	2.479e+06 µS/cm	0.27 mg/L	0.72 NTU	-58.0 mV	3.84 ft	150.00 ml/min
6/16/2022 10:18 AM	21:00	6.91 pH	61.96 °F	2.139e+06 µS/cm	0.33 mg/L	0.50 NTU	-54.7 mV	3.84 ft	150.00 ml/min
6/16/2022 10:21 AM	24:00	6.92 pH	61.71 °F	1.893e+06 µS/cm	0.39 mg/L	1.03 NTU	-51.9 mV	3.84 ft	150.00 ml/min
6/16/2022 10:24 AM	27:00	6.90 pH	61.72 °F	1.782e+06 µS/cm	0.47 mg/L	0.70 NTU	-48.5 mV	3.84 ft	150.00 ml/min
6/16/2022 10:27 AM	30:00	6.90 pH	61.97 °F	1.729e+06 µS/cm	0.49 mg/L	2.44 NTU	-47.2 mV	3.84 ft	150.00 ml/min
6/16/2022 10:30 AM	33:00	6.90 pH	61.98 °F	1.712e+06 µS/cm	0.54 mg/L	0.81 NTU	-45.7 mV	3.84 ft	150.00 ml/min
6/16/2022 10:33 AM	36:00	6.90 pH	62.07 °F	1.648e+06 µS/cm	0.56 mg/L	0.23 NTU	-45.4 mV	3.84 ft	150.00 ml/min
6/16/2022 10:36 AM	39:00	6.89 pH	62.08 °F	1.581e+06 µS/cm	0.66 mg/L	0.41 NTU	-43.9 mV	3.84 ft	150.00 ml/min

6/16/2022 10:39 AM	42:00	6.90 pH	62.12 °F	1.543e+06 μS/cm	0.68 mg/L	0.53 NTU	-42.7 mV	3.84 ft	150.00 ml/min
6/16/2022 10:42 AM	45:00	6.89 pH	61.38 °F	1.327e+06 μS/cm	0.78 mg/L	1.44 NTU	-39.0 mV	3.84 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-513	Sample time: 1054 Final dtw: 3.87 Final rdo: -47 Ferrous iron: 1

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 12:35:09 PM

Project: Edmonds Terminal 2Q22

Operator Name: Peter Bruno

<b>Location Name: MW-514</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.2 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170" x 1/4"</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/16/2022 12:35 PM	00:00	6.56 pH	62.36 °F	822,108 µS/cm	0.00 mg/L	4.01 NTU	14.3 mV	4.20 ft	150.00 ml/min
6/16/2022 12:38 PM	03:00	6.55 pH	60.46 °F	812,404 µS/cm	0.00 mg/L	4.41 NTU	-6.6 mV	4.20 ft	150.00 ml/min
6/16/2022 12:41 PM	06:00	6.57 pH	59.44 °F	797,690 µS/cm	0.00 mg/L	1.07 NTU	-16.6 mV	4.20 ft	150.00 ml/min
6/16/2022 12:44 PM	09:00	6.57 pH	59.08 °F	775,766 µS/cm	0.00 mg/L	3.37 NTU	-22.4 mV	4.20 ft	150.00 ml/min
6/16/2022 12:47 PM	12:00	6.58 pH	59.03 °F	764,811 µS/cm	0.00 mg/L	2.97 NTU	-25.8 mV	4.20 ft	150.00 ml/min
6/16/2022 12:50 PM	15:00	6.58 pH	58.87 °F	754,949 µS/cm	0.00 mg/L	1.61 NTU	-28.8 mV	4.20 ft	150.00 ml/min
6/16/2022 12:53 PM	18:00	6.59 pH	58.86 °F	741,491 µS/cm	0.00 mg/L	1.51 NTU	-31.3 mV	4.20 ft	150.00 ml/min
6/16/2022 12:56 PM	21:00	6.59 pH	58.70 °F	711,705 µS/cm	0.00 mg/L	1.53 NTU	-32.9 mV	4.20 ft	150.00 ml/min
6/16/2022 12:59 PM	24:00	6.60 pH	58.81 °F	680,878 µS/cm	0.00 mg/L	1.61 NTU	-33.7 mV	4.20 ft	150.00 ml/min
6/16/2022 1:02 PM	27:00	6.60 pH	58.83 °F	639,695 µS/cm	0.00 mg/L	1.03 NTU	-34.0 mV	4.20 ft	150.00 ml/min
6/16/2022 1:05 PM	30:00	6.60 pH	58.74 °F	619,849 µS/cm	0.00 mg/L	0.00 NTU	-33.9 mV	4.20 ft	150.00 ml/min
6/16/2022 1:08 PM	33:00	6.60 pH	58.66 °F	604,606 µS/cm	0.00 mg/L	0.00 NTU	-34.4 mV	4.20 ft	150.00 ml/min
6/16/2022 1:11 PM	36:00	6.60 pH	59.06 °F	606,496 µS/cm	0.00 mg/L	0.00 NTU	-35.4 mV	4.20 ft	150.00 ml/min
6/16/2022 1:14 PM	39:00	6.60 pH	58.92 °F	563,236 µS/cm	0.00 mg/L	0.00 NTU	-36.0 mV	4.20 ft	150.00 ml/min

6/16/2022 1:17 PM	42:00	6.61 pH	59.06 °F	578,143 µS/cm	0.00 mg/L	1.52 NTU	-37.1 mV	4.20 ft	150.00 ml/min
6/16/2022 1:20 PM	45:00	6.60 pH	59.57 °F	579,419 µS/cm	0.00 mg/L	0.00 NTU	-37.6 mV	4.20 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-514	Sample time: 1334 Final dtw: 4.19 Final rdo: 0 Ferrous iron: 1.5 Rdo and orp did not stabilize

# Low-Flow Test Report:

Test Date / Time: 6/15/2022 12:02:26 PM

Project: Edmonds Terminal 2Q22 (2)

Operator Name: ES

<b>Location Name: MW-515</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.39 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/15/2022 12:02 PM	00:00	6.39 pH	60.52 °F	2,683.9 µS/cm	2.56 mg/L	0.00 NTU	203.6 mV	4.39 ft	150.00 ml/min
6/15/2022 12:05 PM	03:00	6.73 pH	59.32 °F	2,296.3 µS/cm	0.63 mg/L	0.00 NTU	184.9 mV	4.39 ft	150.00 ml/min
6/15/2022 12:08 PM	06:00	6.77 pH	59.27 °F	2,039.2 µS/cm	0.43 mg/L	0.00 NTU	168.7 mV	4.39 ft	150.00 ml/min
6/15/2022 12:11 PM	09:00	6.79 pH	59.26 °F	1,950.8 µS/cm	0.38 mg/L	0.00 NTU	152.3 mV	4.39 ft	150.00 ml/min
6/15/2022 12:14 PM	12:00	6.79 pH	59.32 °F	1,887.3 µS/cm	0.63 mg/L	0.00 NTU	146.5 mV	4.39 ft	150.00 ml/min
6/15/2022 12:17 PM	15:00	6.80 pH	59.22 °F	1,888.3 µS/cm	0.49 mg/L	0.00 NTU	139.7 mV	4.39 ft	150.00 ml/min
6/15/2022 12:20 PM	18:00	6.80 pH	59.30 °F	1,892.5 µS/cm	0.45 mg/L	0.00 NTU	135.0 mV	4.39 ft	150.00 ml/min
6/15/2022 12:23 PM	21:00	6.81 pH	59.25 °F	1,888.6 µS/cm	0.54 mg/L	0.00 NTU	132.1 mV	4.39 ft	150.00 ml/min
6/15/2022 12:26 PM	24:00	6.81 pH	59.43 °F	1,856.5 µS/cm	0.59 mg/L	0.00 NTU	132.2 mV	4.39 ft	150.00 ml/min
6/15/2022 12:29 PM	27:00	6.82 pH	59.34 °F	1,850.6 µS/cm	0.61 mg/L	0.00 NTU	130.7 mV	4.39 ft	150.00 ml/min
6/15/2022 12:32 PM	30:00	6.82 pH	59.18 °F	1,865.8 µS/cm	0.65 mg/L	0.00 NTU	127.2 mV	4.39 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-515	Sample time: 12:30 Final DTW: 4.39 ft Final RDO: 0.62 mg/L Ferrous iron: 0.0

# Low-Flow Test Report:

Test Date / Time: 6/15/2022 1:40:47 PM

Project: Edmonds Terminal 2Q22 (3)

Operator Name: ES

<b>Location Name: MW-516</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.06 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6930 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/15/2022 1:40 PM	00:00	6.65 pH	60.27 °F	682.76 µS/cm	0.54 mg/L	0.00 NTU	78.3 mV	4.06 ft	150.00 ml/min
6/15/2022 1:43 PM	03:00	6.58 pH	60.22 °F	691.30 µS/cm	0.81 mg/L	0.17 NTU	32.6 mV	4.06 ft	150.00 ml/min
6/15/2022 1:46 PM	06:00	6.59 pH	60.13 °F	707.35 µS/cm	0.42 mg/L	0.37 NTU	14.4 mV	4.06 ft	150.00 ml/min
6/15/2022 1:47 PM	06:45	6.59 pH	60.14 °F	708.94 µS/cm	0.37 mg/L	0.00 NTU	11.2 mV	4.06 ft	150.00 ml/min
6/15/2022 1:47 PM	07:12	6.59 pH	60.10 °F	709.68 µS/cm	0.37 mg/L	0.00 NTU	9.3 mV	4.06 ft	150.00 ml/min
6/15/2022 1:50 PM	10:12	6.60 pH	60.07 °F	715.57 µS/cm	0.55 mg/L	0.00 NTU	-0.2 mV	4.06 ft	150.00 ml/min
6/15/2022 1:53 PM	13:12	6.60 pH	60.06 °F	717.22 µS/cm	0.48 mg/L	1.43 NTU	-5.5 mV	4.06 ft	150.00 ml/min
6/15/2022 1:56 PM	16:12	6.60 pH	60.05 °F	734.48 µS/cm	0.35 mg/L	0.31 NTU	-10.4 mV	4.06 ft	150.00 ml/min
6/15/2022 1:59 PM	19:12	6.60 pH	60.05 °F	719.24 µS/cm	0.30 mg/L	0.00 NTU	-15.7 mV	4.06 ft	150.00 ml/min
6/15/2022 2:02 PM	22:12	6.59 pH	60.13 °F	727.28 µS/cm	0.34 mg/L	0.00 NTU	-19.1 mV	4.06 ft	150.00 ml/min
6/15/2022 2:05 PM	25:12	6.60 pH	60.09 °F	722.85 µS/cm	0.34 mg/L	0.40 NTU	-23.0 mV	4.06 ft	150.00 ml/min
6/15/2022 2:08 PM	28:12	6.60 pH	60.15 °F	721.93 µS/cm	0.30 mg/L	0.55 NTU	-26.0 mV	4.06 ft	150.00 ml/min



6/15/2022 2:11 PM	31:12	6.61 pH	60.21 °F	730.55 µS/cm	0.30 mg/L	0.22 NTU	-28.9 mV	4.06 ft	150.00 ml/min
6/15/2022 2:14 PM	34:12	6.60 pH	60.20 °F	719.40 µS/cm	0.31 mg/L	0.76 NTU	-28.5 mV	4.06 ft	150.00 ml/min
6/15/2022 2:17 PM	37:12	6.60 pH	60.28 °F	718.00 µS/cm	0.32 mg/L	1.47 NTU	-30.5 mV	4.06 ft	150.00 ml/min
6/15/2022 2:20 PM	40:12	6.60 pH	60.23 °F	730.02 µS/cm	0.31 mg/L	3.25 NTU	-32.8 mV	4.06 ft	150.00 ml/min
6/15/2022 2:23 PM	43:12	6.60 pH	60.28 °F	730.04 µS/cm	0.33 mg/L	8.01 NTU	-31.5 mV	4.06 ft	150.00 ml/min
6/15/2022 2:26 PM	46:12	6.59 pH	60.28 °F	725.93 µS/cm	0.32 mg/L	8.91 NTU	-32.6 mV	4.06 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-516	Sample time: 14:30 Final DTW: 4.06 Final RDO p: 0.32 Ferrous iron: 0.0 ORP did not stabilize after 45 minutes

# Low-Flow Test Report:

Test Date / Time: 6/16/2022 9:01:48 AM

Project: Edmonds Terminal 2Q22

Operator Name: Peter Bruno

<b>Location Name: MW-517</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.77 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170" x 1/4"</b> <b>Pump Intake From TOC: 6 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/16/2022 9:01 AM	00:00	6.94 pH	60.31 °F	300,683 µS/cm	0.18 mg/L	0.04 NTU	170.7 mV	4.77 ft	150.00 ml/min
6/16/2022 9:04 AM	03:00	6.89 pH	60.11 °F	259,612 µS/cm	0.32 mg/L	0.00 NTU	149.3 mV	4.77 ft	150.00 ml/min
6/16/2022 9:07 AM	06:00	6.83 pH	60.30 °F	246,678 µS/cm	0.37 mg/L	0.00 NTU	139.2 mV	4.77 ft	150.00 ml/min
6/16/2022 9:10 AM	09:00	6.84 pH	60.22 °F	243,475 µS/cm	0.34 mg/L	0.00 NTU	130.1 mV	4.77 ft	150.00 ml/min
6/16/2022 9:13 AM	12:00	6.79 pH	60.26 °F	240,393 µS/cm	0.32 mg/L	0.00 NTU	124.2 mV	4.77 ft	150.00 ml/min
6/16/2022 9:16 AM	15:00	6.82 pH	60.38 °F	240,898 µS/cm	0.30 mg/L	0.00 NTU	117.3 mV	4.77 ft	150.00 ml/min
6/16/2022 9:19 AM	18:00	6.77 pH	60.22 °F	247,410 µS/cm	0.29 mg/L	0.00 NTU	118.0 mV	4.77 ft	150.00 ml/min
6/16/2022 9:22 AM	21:00	6.81 pH	60.26 °F	229,658 µS/cm	0.32 mg/L	0.00 NTU	113.9 mV	4.77 ft	150.00 ml/min
6/16/2022 9:25 AM	24:00	6.77 pH	60.37 °F	227,253 µS/cm	0.35 mg/L	0.00 NTU	114.5 mV	4.77 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-517	Sample time 0934 Final dtw: 4.77 Final rdo: 0.32 Ferrous iron: 1
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# Low-Flow Test Report:

Test Date / Time: 6/15/2022 9:16:38 AM

Project: Edmonds Terminal 2Q22

Operator Name: Peter Bruno

<b>Location Name: MW-518</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 12.5 ft</b> <b>Initial Depth to Water: 7.77 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170" x 1/4"</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 7200 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/15/2022 9:16 AM	00:00	7.01 pH	57.43 °F	198,875 µS/cm	0.50 mg/L	3.27 NTU	-17.1 mV	7.77 ft	150.00 ml/min
6/15/2022 9:19 AM	03:00	7.03 pH	56.79 °F	199,035 µS/cm	0.10 mg/L	0.00 NTU	-49.6 mV	7.77 ft	150.00 ml/min
6/15/2022 9:22 AM	06:00	7.03 pH	56.79 °F	198,945 µS/cm	0.08 mg/L	0.00 NTU	-62.1 mV	7.77 ft	150.00 ml/min
6/15/2022 9:25 AM	09:00	7.01 pH	56.73 °F	199,252 µS/cm	0.06 mg/L	0.00 NTU	-69.8 mV	7.77 ft	150.00 ml/min
6/15/2022 9:28 AM	12:00	7.00 pH	56.77 °F	200,074 µS/cm	0.06 mg/L	2.10 NTU	-76.7 mV	7.77 ft	150.00 ml/min
6/15/2022 9:31 AM	15:00	6.96 pH	56.83 °F	201,611 µS/cm	0.06 mg/L	0.00 NTU	-80.7 mV	7.77 ft	150.00 ml/min
6/15/2022 9:34 AM	18:00	6.97 pH	56.93 °F	203,528 µS/cm	0.06 mg/L	0.00 NTU	-85.8 mV	7.77 ft	150.00 ml/min
6/15/2022 9:37 AM	21:00	6.94 pH	56.71 °F	203,934 µS/cm	0.06 mg/L	0.00 NTU	-88.2 mV	7.77 ft	150.00 ml/min
6/15/2022 9:40 AM	24:00	6.96 pH	56.84 °F	203,934 µS/cm	0.06 mg/L	0.00 NTU	-92.4 mV	7.77 ft	150.00 ml/min
6/15/2022 9:43 AM	27:00	6.92 pH	56.82 °F	204,314 µS/cm	0.07 mg/L	0.00 NTU	-92.8 mV	7.77 ft	150.00 ml/min
6/15/2022 9:46 AM	30:00	6.95 pH	56.90 °F	203,583 µS/cm	0.07 mg/L	0.00 NTU	-95.6 mV	7.77 ft	150.00 ml/min
6/15/2022 9:49 AM	33:00	6.92 pH	57.08 °F	202,668 µS/cm	0.08 mg/L	0.00 NTU	-96.3 mV	7.77 ft	150.00 ml/min
6/15/2022 9:52 AM	36:00	6.93 pH	56.97 °F	202,011 µS/cm	0.09 mg/L	0.00 NTU	-96.9 mV	7.77 ft	150.00 ml/min
6/15/2022 9:55 AM	39:00	6.91 pH	57.11 °F	202,224 µS/cm	0.11 mg/L	0.00 NTU	-96.3 mV	7.77 ft	150.00 ml/min

6/15/2022 9:58 AM	42:00	6.94 pH	57.38 °F	201,081 μS/cm	0.11 mg/L	0.00 NTU	-98.1 mV	7.77 ft	150.00 ml/min
6/15/2022 10:01 AM	45:00	6.91 pH	57.09 °F	200,462 μS/cm	0.10 mg/L	0.00 NTU	-97.5 mV	7.77 ft	150.00 ml/min
6/15/2022 10:04 AM	48:00	6.92 pH	56.90 °F	199,521 μS/cm	0.10 mg/L	0.00 NTU	-98.4 mV	7.77 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-518	Sample time: 1014 Final dtw: 8.05 Final rdo: 0.01 Ferrous iron: 2.0

# Low-Flow Test Report:

Test Date / Time: 6/15/2022 1:10:00 PM

Project: Edmonds Terminal 4Q21 (19)

Operator Name: JMS

<b>Location Name: MW-519</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.52 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1308

## Weather Conditions:

65F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/15/2022 1:10 PM	00:00	6.95 pH	61.61 °F	0.07 µS/cm	8.47 mg/L	-15.5 mV	6.52 ft	150.00 ml/min
6/15/2022 1:13 PM	03:00	6.82 pH	58.58 °F	530.72 µS/cm	0.90 mg/L	47.2 mV	6.52 ft	150.00 ml/min
6/15/2022 1:16 PM	06:00	6.82 pH	58.55 °F	522.36 µS/cm	0.92 mg/L	65.8 mV	6.52 ft	150.00 ml/min
6/15/2022 1:19 PM	09:00	6.83 pH	58.67 °F	515.59 µS/cm	1.01 mg/L	74.7 mV	6.52 ft	150.00 ml/min
6/15/2022 1:22 PM	12:00	6.84 pH	58.69 °F	511.14 µS/cm	1.04 mg/L	80.9 mV	6.52 ft	150.00 ml/min
6/15/2022 1:25 PM	15:00	6.84 pH	58.65 °F	509.48 µS/cm	1.07 mg/L	84.9 mV	6.52 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-519	Sample Time: 1332 Final DTW: 6.55 ft Final RDO: 1.07 mg/L Ferrous Iron: 0.0 mg/L



# Low-Flow Test Report:

Test Date / Time: 6/16/2022 8:14:24 AM

Project: Edmonds Terminal 4Q21 (20)

Operator Name: JMS

<b>Location Name: MW-520</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.96 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 1800 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 0812

## Weather Conditions:

60F light rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/16/2022 8:14 AM	00:00	7.02 pH	58.59 °F	1,481.8 µS/cm	4.28 mg/L	160.2 mV	6.96 ft	150.00 ml/min
6/16/2022 8:17 AM	03:00	7.06 pH	57.16 °F	1,305.7 µS/cm	2.49 mg/L	156.6 mV	6.96 ft	150.00 ml/min
6/16/2022 8:20 AM	06:00	7.16 pH	57.29 °F	1,021.9 µS/cm	4.73 mg/L	152.7 mV	6.96 ft	150.00 ml/min
6/16/2022 8:23 AM	09:00	7.16 pH	57.52 °F	1,015.9 µS/cm	4.82 mg/L	151.8 mV	6.96 ft	150.00 ml/min
6/16/2022 8:26 AM	12:00	7.14 pH	58.03 °F	1,015.1 µS/cm	4.76 mg/L	150.5 mV	6.96 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-520	Sample time: 0832 Final DTW: 6.95 ft Final RDO: 4.76 mg/L Ferrous Iron: 0.0 mg/L



# Low-Flow Test Report:

**Test Date / Time:** 6/16/2022 8:57:04 AM

**Project:** Edmonds Terminal 4Q21 (21)

**Operator Name:** JMS

<b>Location Name:</b> MW-521 <b>Well Diameter:</b> 2 in <b>Casing Type:</b> PVC <b>Screen Length:</b> 10 ft <b>Top of Screen:</b> 3 ft <b>Total Depth:</b> 13 ft <b>Initial Depth to Water:</b> 5.83 ft	<b>Pump Type:</b> Geotech Geopump Series 2 <b>Tubing Type:</b> Polyethylene 0.170 x 1/4 <b>Pump Intake From TOC:</b> 10 ft <b>Estimated Total Volume Pumped:</b> 2700 ml <b>Flow Cell Volume:</b> 130 ml <b>Final Flow Rate:</b> 150 ml/min <b>Final Draw Down:</b> 0 ft	<b>Instrument Used:</b> Aqua TROLL 600 Vented <b>Serial Number:</b> 466689
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## Test Notes:

Pump on at 0855

## Weather Conditions:

65F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/16/2022 8:57 AM	00:00	6.99 pH	60.60 °F	683.87 µS/cm	4.69 mg/L	122.9 mV	5.83 ft	150.00 ml/min
6/16/2022 9:00 AM	03:00	6.87 pH	57.85 °F	680.45 µS/cm	0.51 mg/L	108.0 mV	5.83 ft	150.00 ml/min
6/16/2022 9:03 AM	06:00	6.86 pH	57.71 °F	674.79 µS/cm	0.40 mg/L	116.0 mV	5.83 ft	150.00 ml/min
6/16/2022 9:06 AM	09:00	6.85 pH	57.77 °F	671.44 µS/cm	0.36 mg/L	122.8 mV	5.83 ft	150.00 ml/min
6/16/2022 9:09 AM	12:00	6.85 pH	57.72 °F	669.18 µS/cm	0.31 mg/L	126.6 mV	5.83 ft	150.00 ml/min
6/16/2022 9:12 AM	15:00	6.84 pH	57.72 °F	670.17 µS/cm	0.29 mg/L	127.3 mV	5.83 ft	150.00 ml/min
6/16/2022 9:15 AM	18:00	6.84 pH	57.70 °F	669.46 µS/cm	0.27 mg/L	131.3 mV	5.83 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-521	Sample Time: 0922 Final DTW: 5.83 ft Final RDO: mg/L Ferrous Iron: 0.0 mg/L
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# Low-Flow Test Report:

Test Date / Time: 6/16/2022 8:36:45 AM

Project: Edmonds Terminal 2Q22 (4)

Operator Name: DSG

<b>Location Name: MW-522</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 12 ft</b> <b>Initial Depth to Water: 7.49 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 0.25</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
6/16/2022 8:36 AM	00:00	6.77 pH	56.23 °F	522.82 µS/cm	2.60 mg/L	0.50 NTU	173.6 mV	7.49 ft	150.00 ml/min
6/16/2022 8:39 AM	03:00	6.79 pH	55.39 °F	513.66 µS/cm	1.05 mg/L	0.08 NTU	171.2 mV	7.49 ft	150.00 ml/min
6/16/2022 8:42 AM	06:00	6.76 pH	55.34 °F	515.27 µS/cm	0.86 mg/L	0.08 NTU	172.0 mV	7.49 ft	150.00 ml/min
6/16/2022 8:45 AM	09:00	6.76 pH	54.99 °F	513.14 µS/cm	1.17 mg/L	0.09 NTU	172.3 mV	7.49 ft	150.00 ml/min
6/16/2022 8:48 AM	12:00	6.78 pH	54.50 °F	521.40 µS/cm	1.42 mg/L	0.10 NTU	172.4 mV	7.49 ft	150.00 ml/min
6/16/2022 8:51 AM	15:00	6.78 pH	54.41 °F	524.79 µS/cm	1.84 mg/L	1.55 NTU	173.7 mV	7.49 ft	150.00 ml/min
6/16/2022 8:54 AM	18:00	6.79 pH	54.62 °F	525.42 µS/cm	2.07 mg/L	0.12 NTU	174.3 mV	7.49 ft	150.00 ml/min
6/16/2022 8:57 AM	21:00	6.79 pH	54.55 °F	526.83 µS/cm	2.22 mg/L	0.25 NTU	174.2 mV	7.49 ft	150.00 ml/min
6/16/2022 9:00 AM	24:00	6.81 pH	54.59 °F	527.89 µS/cm	2.36 mg/L	0.10 NTU	175.2 mV	7.49 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-522	Sample Time 9:10 Final DTW 7.52 ft btoc Final RDO 2.36 mg/L Ferrous Iron 0.0 mg/L
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Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 6/14/2022 12:30:23 PM

Project: Edmonds Terminal 4Q21 (15)

Operator Name: JMS

<b>Location Name: MW-525</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.97 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1228

## Weather Conditions:

70F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/14/2022 12:30 PM	00:00	6.42 pH	62.84 °F	1,394.9 µS/cm	2.65 mg/L	-29.0 mV	5.97 ft	150.00 ml/min
6/14/2022 12:33 PM	03:00	6.18 pH	60.32 °F	791.58 µS/cm	0.38 mg/L	11.8 mV	5.97 ft	150.00 ml/min
6/14/2022 12:36 PM	06:00	6.09 pH	59.42 °F	735.61 µS/cm	0.28 mg/L	36.9 mV	5.97 ft	150.00 ml/min
6/14/2022 12:39 PM	09:00	6.06 pH	59.12 °F	726.42 µS/cm	0.23 mg/L	44.3 mV	5.97 ft	150.00 ml/min
6/14/2022 12:42 PM	12:00	6.05 pH	58.96 °F	710.89 µS/cm	0.20 mg/L	45.8 mV	5.97 ft	150.00 ml/min
6/14/2022 12:45 PM	15:00	6.04 pH	58.60 °F	733.93 µS/cm	0.18 mg/L	48.5 mV	5.97 ft	150.00 ml/min
6/14/2022 12:48 PM	18:00	6.03 pH	58.52 °F	796.72 µS/cm	0.16 mg/L	50.0 mV	5.97 ft	150.00 ml/min
6/14/2022 12:51 PM	21:00	6.04 pH	58.13 °F	882.21 µS/cm	0.15 mg/L	49.9 mV	5.97 ft	150.00 ml/min
6/14/2022 12:54 PM	24:00	6.04 pH	57.74 °F	972.48 µS/cm	0.14 mg/L	50.1 mV	5.97 ft	150.00 ml/min
6/14/2022 12:57 PM	27:00	6.05 pH	57.49 °F	1,033.1 µS/cm	0.13 mg/L	46.3 mV	5.97 ft	150.00 ml/min
6/14/2022 1:00 PM	30:00	6.06 pH	57.26 °F	1,067.5 µS/cm	0.13 mg/L	40.4 mV	5.97 ft	150.00 ml/min
6/14/2022 1:03 PM	33:00	6.07 pH	57.12 °F	1,133.9 µS/cm	0.14 mg/L	33.6 mV	5.97 ft	150.00 ml/min

6/14/2022 1:06 PM	36:00	6.09 pH	56.85 °F	1,173.2 µS/cm	0.13 mg/L	26.3 mV	5.97 ft	150.00 ml/min
6/14/2022 1:09 PM	39:00	6.10 pH	56.76 °F	1,207.0 µS/cm	0.13 mg/L	20.7 mV	5.97 ft	150.00 ml/min
6/14/2022 1:12 PM	42:00	6.11 pH	56.57 °F	1,237.1 µS/cm	0.12 mg/L	18.0 mV	5.97 ft	150.00 ml/min
6/14/2022 1:15 PM	45:00	6.12 pH	56.72 °F	1,266.7 µS/cm	0.13 mg/L	15.9 mV	5.97 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-525	<p>Sample Time: 1322</p> <p>ORP did not stabilize. Purged for 45 min</p> <p>Final RDO: 0.17 mg/L</p> <p>Ferrous Iron: 4.0 mg/L</p> <p>Final DTW: 9.24 ft</p>

# Low-Flow Test Report:

Test Date / Time: 6/13/2022 12:52:46 PM

Project: Edmonds Terminal 2Q22

Operator Name: Peter Bruno

<b>Location Name: MW-526</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.88 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170" x 1/4"</b> <b>Pump Intake From TOC: 5 ft</b> <b>Estimated Total Volume Pumped: 5952.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/13/2022 12:52 PM	00:00	6.09 pH	61.95 °F	71,187 µS/cm	4.45 mg/L	50.54 NTU	165.3 mV	4.88 ft	150.00 ml/min
6/13/2022 12:55 PM	03:00	5.92 pH	58.76 °F	71,291 µS/cm	0.50 mg/L	45.20 NTU	108.5 mV	4.88 ft	150.00 ml/min
6/13/2022 12:58 PM	06:00	5.85 pH	58.28 °F	66,139 µS/cm	0.28 mg/L	31.51 NTU	113.6 mV	4.88 ft	150.00 ml/min
6/13/2022 1:01 PM	09:00	5.85 pH	58.27 °F	63,697 µS/cm	0.27 mg/L	32.05 NTU	115.2 mV	4.88 ft	150.00 ml/min
6/13/2022 1:04 PM	12:00	5.82 pH	58.12 °F	62,987 µS/cm	0.19 mg/L	33.03 NTU	118.1 mV	4.88 ft	150.00 ml/min
6/13/2022 1:07 PM	15:00	5.85 pH	58.09 °F	66,468 µS/cm	0.19 mg/L	32.63 NTU	114.3 mV	4.88 ft	150.00 ml/min
6/13/2022 1:10 PM	18:00	5.85 pH	58.09 °F	70,103 µS/cm	0.14 mg/L	29.94 NTU	112.4 mV	4.88 ft	150.00 ml/min
6/13/2022 1:13 PM	21:00	5.88 pH	58.07 °F	71,867 µS/cm	0.15 mg/L	28.04 NTU	107.2 mV	4.88 ft	150.00 ml/min
6/13/2022 1:16 PM	24:00	5.86 pH	57.96 °F	72,630 µS/cm	0.13 mg/L	29.40 NTU	106.3 mV	4.88 ft	150.00 ml/min
6/13/2022 1:19 PM	27:00	5.88 pH	57.95 °F	74,643 µS/cm	0.14 mg/L	26.14 NTU	103.1 mV	4.88 ft	150.00 ml/min
6/13/2022 1:22 PM	30:00	5.89 pH	57.99 °F	75,828 µS/cm	0.12 mg/L	26.52 NTU	102.8 mV	4.88 ft	150.00 ml/min
6/13/2022 1:25 PM	33:00	5.90 pH	57.85 °F	77,538 µS/cm	0.12 mg/L	29.16 NTU	100.1 mV	4.88 ft	150.00 ml/min

6/13/2022 1:28 PM	36:00	5.88 pH	57.82 °F	78,796 µS/cm	0.11 mg/L	24.98 NTU	101.3 mV	4.88 ft	150.00 ml/min
6/13/2022 1:32 PM	39:41	5.88 pH	57.75 °F	71,665 µS/cm	0.10 mg/L	38.17 NTU	99.8 mV	4.88 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-526	Sample time: 1340 Final dtw: 5.31 (final intake: 6ft) Final RDO: 0.10 mg/L Ferrous iron: 2.0 mg/L
Dup-1	Sample time: ----



# Low-Flow Test Report:

Test Date / Time: 6/14/2022 10:55:35 AM

Project: Edmonds Terminal 4Q21 (14)

Operator Name: JMS

<b>Location Name: MW-530</b> <b>Well Diameter: 1 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 6.34 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 7.5 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1054

## Weather Conditions:

60F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/14/2022 10:55 AM	00:00	6.27 pH	58.30 °F	19,943 µS/cm	3.00 mg/L	-83.0 mV	6.34 ft	150.00 ml/min
6/14/2022 10:58 AM	03:00	6.33 pH	56.13 °F	20,477 µS/cm	0.37 mg/L	-116.6 mV	6.34 ft	150.00 ml/min
6/14/2022 11:01 AM	06:00	6.35 pH	55.60 °F	20,366 µS/cm	0.27 mg/L	-181.5 mV	6.34 ft	150.00 ml/min
6/14/2022 11:04 AM	09:00	6.37 pH	55.42 °F	20,256 µS/cm	0.23 mg/L	-195.8 mV	6.34 ft	150.00 ml/min
6/14/2022 11:07 AM	12:00	6.38 pH	55.30 °F	20,180 µS/cm	0.20 mg/L	-202.4 mV	6.34 ft	150.00 ml/min
6/14/2022 11:10 AM	15:00	6.39 pH	55.21 °F	19,941 µS/cm	0.18 mg/L	-207.3 mV	6.34 ft	150.00 ml/min
6/14/2022 11:13 AM	18:00	6.40 pH	55.21 °F	19,860 µS/cm	0.16 mg/L	-211.6 mV	6.34 ft	150.00 ml/min
6/14/2022 11:16 AM	21:00	6.41 pH	55.20 °F	19,627 µS/cm	0.15 mg/L	-214.8 mV	6.34 ft	150.00 ml/min
6/14/2022 11:19 AM	24:00	6.43 pH	55.28 °F	19,365 µS/cm	0.14 mg/L	-218.1 mV	6.34 ft	150.00 ml/min
6/14/2022 11:22 AM	27:00	6.43 pH	55.53 °F	19,266 µS/cm	0.17 mg/L	-219.8 mV	6.34 ft	150.00 ml/min
6/14/2022 11:25 AM	30:00	6.44 pH	55.58 °F	19,188 µS/cm	0.17 mg/L	-221.3 mV	6.34 ft	150.00 ml/min
6/14/2022 11:28 AM	33:00	6.44 pH	55.64 °F	19,076 µS/cm	0.16 mg/L	-222.6 mV	6.34 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-530	Sample Time: 1032 Final RDO: 0.16 mg/L Final DTW: 6.88 ft Ferrous Iron: 0.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 6/14/2022 9:46:07 AM

Project: Edmonds Terminal #Q222

Operator Name: MA

<b>Location Name: MW-531</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 0 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.02 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 4512.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy, 55 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %		
6/14/2022 9:46 AM	00:00	6.28 pH	58.54 °F	3,485.1 µS/cm	6.10 mg/L	141.9 mV	7.02 ft	150.00 ml/min
6/14/2022 9:49 AM	03:00	6.29 pH	56.46 °F	3,116.2 µS/cm	0.41 mg/L	129.5 mV	7.02 ft	150.00 ml/min
6/14/2022 9:52 AM	06:00	6.41 pH	56.68 °F	2,520.7 µS/cm	0.27 mg/L	126.2 mV	7.02 ft	150.00 ml/min
6/14/2022 9:55 AM	09:05	6.43 pH	56.85 °F	2,335.7 µS/cm	0.23 mg/L	127.0 mV	7.02 ft	150.00 ml/min
6/14/2022 9:58 AM	12:05	6.50 pH	56.88 °F	1,508.7 µS/cm	0.31 mg/L	118.9 mV	7.02 ft	150.00 ml/min
6/14/2022 10:01 AM	15:05	6.61 pH	56.73 °F	1,292.8 µS/cm	0.39 mg/L	99.5 mV	7.02 ft	150.00 ml/min
6/14/2022 10:04 AM	18:05	6.59 pH	57.07 °F	1,160.0 µS/cm	0.40 mg/L	90.5 mV	7.02 ft	150.00 ml/min
6/14/2022 10:07 AM	21:05	6.58 pH	56.86 °F	1,131.5 µS/cm	0.41 mg/L	81.4 mV	7.02 ft	150.00 ml/min
6/14/2022 10:10 AM	24:05	6.59 pH	56.86 °F	1,092.0 µS/cm	0.40 mg/L	75.9 mV	7.02 ft	150.00 ml/min
6/14/2022 10:13 AM	27:05	6.58 pH	57.04 °F	1,043.5 µS/cm	0.43 mg/L	70.2 mV	7.02 ft	150.00 ml/min

6/14/2022 10:16 AM	30:05	6.58 pH	57.04 °F	1,014.6 µS/cm	0.46 mg/L	69.8 mV	7.02 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-531	Sample Time: 10:16 Final DTW: 7.05 ft boc Final RDO: 0.46 mg/L Ferrous Iron: 0.0 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 6/14/2022 9:38:13 AM

**Project:** Edmonds Terminal 2Q22

**Operator Name:** Peter Bruno

<b>Location Name:</b> MW-532 <b>Well Diameter:</b> 2 in <b>Casing Type:</b> PVC <b>Screen Length:</b> 10 ft <b>Top of Screen:</b> 3 ft <b>Total Depth:</b> 13 ft <b>Initial Depth to Water:</b> 6.7 ft	<b>Pump Type:</b> Geotech Geopump Series 2 <b>Tubing Type:</b> Polyethylene 0.170" x 1/4" <b>Pump Intake From TOC:</b> 9 ft <b>Estimated Total Volume Pumped:</b> 5260 ml <b>Flow Cell Volume:</b> 130 ml <b>Final Flow Rate:</b> 150 ml/min <b>Final Draw Down:</b> 0 ft	<b>Instrument Used:</b> Aqua TROLL 600 Vented <b>Serial Number:</b> 466619
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
6/14/2022 9:38 AM	00:00	5.94 pH	57.74 °F	87,315 µS/cm	0.81 mg/L	44.83 NTU	238.1 mV	6.70 ft	150.00 ml/min
6/14/2022 9:41 AM	03:00	5.85 pH	55.99 °F	84,992 µS/cm	0.43 mg/L	10.12 NTU	237.8 mV	6.70 ft	150.00 ml/min
6/14/2022 9:44 AM	06:00	5.80 pH	55.88 °F	84,563 µS/cm	0.36 mg/L	11.80 NTU	228.8 mV	6.70 ft	150.00 ml/min
6/14/2022 9:47 AM	09:00	5.83 pH	56.09 °F	89,902 µS/cm	0.34 mg/L	6.53 NTU	228.7 mV	6.70 ft	150.00 ml/min
6/14/2022 9:50 AM	12:00	5.79 pH	56.11 °F	91,577 µS/cm	0.27 mg/L	3.60 NTU	227.4 mV	6.70 ft	150.00 ml/min
6/14/2022 9:53 AM	15:00	5.83 pH	56.08 °F	88,908 µS/cm	0.20 mg/L	0.73 NTU	228.1 mV	6.70 ft	150.00 ml/min
6/14/2022 9:56 AM	18:00	5.82 pH	55.89 °F	86,724 µS/cm	0.18 mg/L	0.05 NTU	227.0 mV	6.70 ft	150.00 ml/min
6/14/2022 9:59 AM	21:00	5.80 pH	55.71 °F	87,149 µS/cm	0.17 mg/L	0.00 NTU	226.6 mV	6.70 ft	150.00 ml/min
6/14/2022 10:02 AM	24:00	5.74 pH	55.55 °F	85,362 µS/cm	0.17 mg/L	0.00 NTU	222.6 mV	6.70 ft	150.00 ml/min
6/14/2022 10:13 AM	35:04	5.75 pH	55.16 °F	90,388 µS/cm	0.10 mg/L	0.00 NTU	222.2 mV	6.70 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-532	Sample time: 1014 Final dtw: 8.69 Final rdo: 0.10 Ferrous Iron: 0
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# Low-Flow Test Report:

Test Date / Time: 6/13/2022 1:07:13 PM

Project: Edmonds Terminal 4Q21 (12)

Operator Name: JMS

<b>Location Name: MW-533</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.78 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 1305

## Weather Conditions:

65F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/13/2022 1:07 PM	00:00	6.83 pH	62.25 °F	7,434.4 µS/cm	4.87 mg/L	267.2 mV	4.78 ft	150.00 ml/min
6/13/2022 1:10 PM	03:00	6.99 pH	61.28 °F	7,277.9 µS/cm	3.05 mg/L	237.1 mV	4.78 ft	150.00 ml/min
6/13/2022 1:13 PM	06:00	7.01 pH	61.05 °F	7,328.0 µS/cm	2.93 mg/L	232.3 mV	4.78 ft	150.00 ml/min
6/13/2022 1:16 PM	09:00	7.01 pH	60.87 °F	7,435.8 µS/cm	2.85 mg/L	230.0 mV	4.78 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-533	Sample Time: 1325 Final DTW: 4.78 ft Final RDO: 2.82 mg/L Ferrous Iron: 0.0 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 6/13/2022 1:41:31 PM

**Project:** Edmonds Terminal #Q122 (13)

**Operator Name:** MA

<p><b>Location Name: MW-534</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 3.05 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.175 x 1/4</b>  <b>Pump Intake From TOC: 8 ft</b>  <b>Estimated Total Volume Pumped: 5850 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0.03 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 697450</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/13/2022 1:41 PM	00:00	6.61 pH	70.00 °F	0.06 µS/cm	9.54 mg/L	193.6 mV	3.05 ft	150.00 ml/min
6/13/2022 1:44 PM	03:00	6.58 pH	63.43 °F	542.78 µS/cm	1.40 mg/L	-145.3 mV	3.05 ft	150.00 ml/min
6/13/2022 1:47 PM	06:00	6.60 pH	62.94 °F	544.80 µS/cm	0.32 mg/L	-167.0 mV	3.05 ft	150.00 ml/min
6/13/2022 1:50 PM	09:00	6.61 pH	62.79 °F	550.10 µS/cm	0.32 mg/L	-166.2 mV	3.05 ft	150.00 ml/min
6/13/2022 1:53 PM	12:00	6.63 pH	62.31 °F	553.86 µS/cm	0.38 mg/L	-170.3 mV	3.05 ft	150.00 ml/min
6/13/2022 1:56 PM	15:00	6.63 pH	61.84 °F	565.40 µS/cm	0.23 mg/L	-171.8 mV	3.05 ft	150.00 ml/min
6/13/2022 1:59 PM	18:00	6.65 pH	62.21 °F	584.64 µS/cm	0.25 mg/L	-173.0 mV	3.05 ft	150.00 ml/min
6/13/2022 2:02 PM	21:00	6.66 pH	61.90 °F	653.08 µS/cm	0.27 mg/L	-177.1 mV	3.05 ft	150.00 ml/min
6/13/2022 2:05 PM	24:00	6.67 pH	61.96 °F	786.31 µS/cm	0.19 mg/L	-177.0 mV	3.05 ft	150.00 ml/min
6/13/2022 2:08 PM	27:00	6.66 pH	61.90 °F	940.39 µS/cm	0.19 mg/L	-175.3 mV	3.05 ft	150.00 ml/min
6/13/2022 2:11 PM	30:00	6.65 pH	62.24 °F	1,098.7 µS/cm	0.18 mg/L	-170.6 mV	3.05 ft	150.00 ml/min
6/13/2022 2:14 PM	33:00	6.68 pH	62.04 °F	1,215.1 µS/cm	0.19 mg/L	-176.1 mV	3.05 ft	150.00 ml/min
6/13/2022 2:17 PM	36:00	6.68 pH	61.88 °F	1,277.5 µS/cm	0.19 mg/L	-175.1 mV	3.05 ft	150.00 ml/min
6/13/2022 2:20 PM	39:00	6.68 pH	61.99 °F	1,349.5 µS/cm	0.16 mg/L	-172.1 mV	3.05 ft	150.00 ml/min



**Samples**

Sample ID:	Description:
MW-534	Sample Time: 14:22 Final DTW: 3.08 ft boc Final RDO: 0.16 mg/L Ferrous Iron: 2.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 6/14/2022 10:59:54 AM

Project: Edmonds Terminal #Q222 (2)

Operator Name: MA

<b>Location Name: MW-535</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.52 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 1350 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697450</b>
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## Test Notes:

## Weather Conditions:

Cloudy, 55 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %		
6/14/2022 10:59 AM	00:00	6.69 pH	61.86 °F	520.65 µS/cm	9.60 mg/L	93.6 mV	4.52 ft	150.00 ml/min
6/14/2022 11:02 AM	03:00	7.06 pH	63.73 °F	8,544.5 µS/cm	2.05 mg/L	97.9 mV	4.52 ft	150.00 ml/min
6/14/2022 11:05 AM	06:00	7.07 pH	64.20 °F	8,478.6 µS/cm	1.94 mg/L	101.7 mV	4.52 ft	150.00 ml/min
6/14/2022 11:08 AM	09:00	7.08 pH	64.06 °F	8,373.3 µS/cm	1.91 mg/L	103.3 mV	4.52 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-535	Sample Time: 11:16 Final DTW: 4.55 ft boc Final RDO: 1.91 mg/L Ferrous Iron: 0.0 mg/L



# Low-Flow Test Report:

Test Date / Time: 6/14/2022 9:26:20 AM

Project: Edmonds Terminal 4Q21 (13)

Operator Name: JMS

<b>Location Name: MW-ER</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.55 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

Pump on at 0925

## Weather Conditions:

55F overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
6/14/2022 9:26 AM	00:00	6.50 pH	58.33 °F	1,622.0 µS/cm	4.30 mg/L	-29.8 mV	6.55 ft	150.00 ml/min
6/14/2022 9:29 AM	03:00	6.45 pH	57.02 °F	1,633.3 µS/cm	0.47 mg/L	-70.2 mV	6.55 ft	150.00 ml/min
6/14/2022 9:32 AM	06:00	6.44 pH	57.06 °F	1,624.9 µS/cm	0.28 mg/L	-78.6 mV	6.55 ft	150.00 ml/min
6/14/2022 9:35 AM	09:00	6.42 pH	56.91 °F	1,593.3 µS/cm	0.25 mg/L	-87.1 mV	6.55 ft	150.00 ml/min
6/14/2022 9:38 AM	12:00	6.40 pH	56.93 °F	1,512.7 µS/cm	0.25 mg/L	-93.4 mV	6.55 ft	150.00 ml/min
6/14/2022 9:41 AM	15:00	6.39 pH	56.93 °F	1,445.2 µS/cm	0.22 mg/L	-96.3 mV	6.55 ft	150.00 ml/min
6/14/2022 9:44 AM	18:00	6.38 pH	56.93 °F	1,424.5 µS/cm	0.20 mg/L	-98.0 mV	6.55 ft	150.00 ml/min
6/14/2022 9:47 AM	21:00	6.37 pH	57.03 °F	1,421.3 µS/cm	0.20 mg/L	-99.3 mV	6.55 ft	150.00 ml/min
6/14/2022 9:50 AM	24:00	6.37 pH	56.92 °F	1,424.1 µS/cm	0.20 mg/L	-100.8 mV	6.55 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-ER	Sample time: 1002 Final DTW: 7.19 ft Final RDO: 0.17 mg/L Ferrous Iron: 5.0 mg/L  DUP-2 collected
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# Low-Flow Test Report:

Test Date / Time: 8/24/2022 9:25:18 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: LM-2</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5.5 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 2 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 4 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 9:25 AM	00:00	6.01 pH	67.56 °F	2.858e+06 µS/cm	0.38 mg/L	33.62 NTU	4.7 mV	2.00 ft	150.00 ml/min
8/24/2022 9:28 AM	03:00	6.03 pH	67.34 °F	2.976e+06 µS/cm	0.69 mg/L	14.90 NTU	0.9 mV	2.00 ft	150.00 ml/min
8/24/2022 9:31 AM	06:00	6.04 pH	67.27 °F	2.968e+06 µS/cm	0.88 mg/L	16.19 NTU	-1.0 mV	2.00 ft	150.00 ml/min
8/24/2022 9:34 AM	09:00	6.06 pH	67.15 °F	2.979e+06 µS/cm	0.65 mg/L	13.88 NTU	-5.7 mV	2.00 ft	150.00 ml/min
8/24/2022 9:37 AM	12:00	6.07 pH	67.04 °F	3.018e+06 µS/cm	0.17 mg/L	10.27 NTU	-15.4 mV	2.00 ft	150.00 ml/min
8/24/2022 9:40 AM	15:00	6.09 pH	67.02 °F	3.027e+06 µS/cm	0.05 mg/L	9.79 NTU	-25.7 mV	2.00 ft	150.00 ml/min
8/24/2022 9:43 AM	18:00	6.11 pH	67.06 °F	3.019e+06 µS/cm	0.04 mg/L	9.78 NTU	-33.9 mV	2.00 ft	150.00 ml/min
8/24/2022 9:46 AM	21:00	6.12 pH	67.12 °F	3.007e+06 µS/cm	0.05 mg/L	11.64 NTU	-42.3 mV	2.00 ft	150.00 ml/min
8/24/2022 9:49 AM	24:00	6.13 pH	67.12 °F	2.997e+06 µS/cm	0.04 mg/L	9.48 NTU	-48.9 mV	2.00 ft	150.00 ml/min
8/24/2022 9:52 AM	27:00	6.14 pH	67.14 °F	2.987e+06 µS/cm	0.05 mg/L	9.53 NTU	-56.8 mV	2.00 ft	150.00 ml/min
8/24/2022 9:55 AM	30:00	6.15 pH	67.24 °F	2.981e+06 µS/cm	0.05 mg/L	9.22 NTU	-62.9 mV	2.00 ft	150.00 ml/min
8/24/2022 9:58 AM	33:00	6.15 pH	67.36 °F	2.983e+06 µS/cm	0.01 mg/L	9.64 NTU	-68.5 mV	2.00 ft	150.00 ml/min
8/24/2022 10:01 AM	36:00	6.15 pH	67.46 °F	2.986e+06 µS/cm	0.00 mg/L	9.52 NTU	-71.7 mV	2.00 ft	150.00 ml/min
8/24/2022 10:04 AM	39:00	6.15 pH	67.54 °F	2.986e+06 µS/cm	0.00 mg/L	10.05 NTU	-74.8 mV	2.00 ft	150.00 ml/min

8/24/2022 10:07 AM	42:00	6.16 pH	67.74 °F	2.968e+06 μS/cm	0.07 mg/L	8.93 NTU	-80.0 mV	2.00 ft	150.00 ml/min
8/24/2022 10:10 AM	45:00	6.16 pH	67.74 °F	2.968e+06 μS/cm	0.05 mg/L	9.14 NTU	-85.8 mV	2.00 ft	150.00 ml/min

## Samples

Sample ID:	Description:
LM-2	Sample time 1015 Final dtw 2.41

# Low-Flow Test Report:

Test Date / Time: 9/27/2022 12:01:28 PM

Project: Edmonds Terminal 4Q21 (25)

Operator Name: JMS

<b>Location Name: LM-2</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5.5 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 1.45 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

Pump on at: 1200

Final DTW: 2.50

Final RDO: 0.10

ORP did not stabilize

## Weather Conditions:

75F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 15 %		
9/27/2022 12:01 PM	00:00	6.14 pH	70.03 °F	6,869.8 µS/cm	6.32 mg/L	20.4 mV	1.45 ft	150.00 ml/min
9/27/2022 12:04 PM	03:00	6.22 pH	66.79 °F	7,377.3 µS/cm	2.35 mg/L	5.8 mV	1.45 ft	150.00 ml/min
9/27/2022 12:07 PM	06:00	6.23 pH	66.87 °F	7,877.5 µS/cm	1.63 mg/L	-1.8 mV	1.45 ft	150.00 ml/min
9/27/2022 12:10 PM	09:00	6.23 pH	66.92 °F	8,203.5 µS/cm	1.41 mg/L	-30.6 mV	1.45 ft	150.00 ml/min
9/27/2022 12:13 PM	12:00	6.25 pH	66.97 °F	8,258.0 µS/cm	1.24 mg/L	-36.0 mV	1.45 ft	150.00 ml/min
9/27/2022 12:16 PM	15:00	6.24 pH	67.02 °F	8,302.4 µS/cm	0.83 mg/L	-37.6 mV	1.45 ft	150.00 ml/min
9/27/2022 12:19 PM	18:00	6.26 pH	67.23 °F	8,405.8 µS/cm	0.40 mg/L	-43.0 mV	1.45 ft	150.00 ml/min
9/27/2022 12:22 PM	21:00	6.26 pH	67.54 °F	8,366.0 µS/cm	1.67 mg/L	-49.1 mV	1.45 ft	150.00 ml/min
9/27/2022 12:25 PM	24:00	6.27 pH	67.23 °F	8,356.7 µS/cm	0.55 mg/L	-57.7 mV	1.45 ft	150.00 ml/min
9/27/2022 12:28 PM	27:00	6.27 pH	67.30 °F	8,363.9 µS/cm	0.31 mg/L	-64.9 mV	1.45 ft	150.00 ml/min



9/27/2022 12:31 PM	30:00	6.28 pH	68.52 °F	8,368.0 µS/cm	0.15 mg/L	-63.9 mV	1.45 ft	150.00 ml/min
9/27/2022 12:34 PM	33:00	6.29 pH	67.55 °F	8,302.4 µS/cm	0.16 mg/L	-72.9 mV	1.45 ft	150.00 ml/min
9/27/2022 12:37 PM	36:00	6.30 pH	67.63 °F	8,309.7 µS/cm	0.11 mg/L	-78.1 mV	1.45 ft	150.00 ml/min
9/27/2022 12:40 PM	39:00	6.30 pH	67.75 °F	8,279.9 µS/cm	0.08 mg/L	-70.0 mV	1.45 ft	150.00 ml/min
9/27/2022 12:43 PM	42:00	6.31 pH	67.60 °F	8,249.7 µS/cm	0.08 mg/L	-74.4 mV	1.45 ft	150.00 ml/min
9/27/2022 12:46 PM	45:00	6.31 pH	67.85 °F	8,261.9 µS/cm	0.08 mg/L	-82.2 mV	1.45 ft	150.00 ml/min

## Samples

Sample ID:	Description:
L-M2	Sample time @ 12:50

# Low-Flow Test Report:

Test Date / Time: 8/25/2022 9:44:37 AM

Project: Edmonds Terminal 3Q22 (3)

Operator Name: SG

<b>Location Name: MW-8R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 8.18 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 9:44 AM	00:00	6.71 pH	65.77 °F	619.18 µS/cm	3.61 mg/L	118.75 NTU	235.0 mV	8.18 ft	150.00 ml/min
8/25/2022 9:47 AM	03:00	6.76 pH	62.49 °F	607.97 µS/cm	2.49 mg/L	0.00 NTU	235.2 mV	8.18 ft	150.00 ml/min
8/25/2022 9:50 AM	06:00	6.77 pH	62.18 °F	606.43 µS/cm	1.90 mg/L	122.90 NTU	237.6 mV	8.18 ft	150.00 ml/min
8/25/2022 9:53 AM	09:00	6.77 pH	62.01 °F	608.46 µS/cm	1.59 mg/L	123.82 NTU	238.6 mV	8.18 ft	150.00 ml/min
8/25/2022 9:56 AM	12:00	6.78 pH	62.05 °F	608.06 µS/cm	1.42 mg/L	122.71 NTU	238.6 mV	8.18 ft	150.00 ml/min
8/25/2022 9:59 AM	15:00	6.77 pH	62.06 °F	608.58 µS/cm	1.51 mg/L	123.01 NTU	239.3 mV	8.18 ft	150.00 ml/min
8/25/2022 10:02 AM	18:00	6.78 pH	62.01 °F	607.42 µS/cm	1.38 mg/L	123.25 NTU	239.1 mV	8.18 ft	150.00 ml/min
8/25/2022 10:05 AM	21:00	6.77 pH	62.08 °F	607.81 µS/cm	1.29 mg/L	123.36 NTU	239.0 mV	8.18 ft	150.00 ml/min
8/25/2022 10:08 AM	24:00	6.76 pH	62.10 °F	608.08 µS/cm	1.34 mg/L	121.07 NTU	239.3 mV	8.18 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-8R	Sample time: 1016 Final DTW: 8.20 ft Final RDO: 1.34 mg/L
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# Low-Flow Test Report:

Test Date / Time: 8/24/2022 11:17:21 AM

Project: Edmonds Terminal 3Q22

Operator Name: SG

<b>Location Name: MW-20R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 4 ft</b> <b>Total Depth: 14.5 ft</b> <b>Initial Depth to Water: 6.96 m</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.06 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 11:17 AM	00:00	5.81 pH	64.46 °F	21,141 µS/cm	6.14 mg/L	27.29 NTU	256.1 mV	6.96 m	150.00 ml/min
8/24/2022 11:20 AM	03:00	6.12 pH	60.56 °F	30,303 µS/cm	1.90 mg/L	94.83 NTU	266.6 mV	6.96 m	150.00 ml/min
8/24/2022 11:23 AM	06:00	6.37 pH	60.11 °F	33,650 µS/cm	1.29 mg/L	99.93 NTU	253.0 mV	6.96 m	150.00 ml/min
8/24/2022 11:26 AM	09:00	6.50 pH	59.84 °F	34,180 µS/cm	0.61 mg/L	116.23 NTU	151.8 mV	6.96 m	150.00 ml/min
8/24/2022 11:29 AM	12:00	6.57 pH	59.84 °F	34,485 µS/cm	0.40 mg/L	115.69 NTU	86.8 mV	6.96 m	150.00 ml/min
8/24/2022 11:32 AM	15:00	6.53 pH	60.10 °F	34,254 µS/cm	0.19 mg/L	115.81 NTU	63.5 mV	6.96 m	150.00 ml/min
8/24/2022 11:35 AM	18:00	6.63 pH	60.10 °F	35,198 µS/cm	0.28 mg/L	124.60 NTU	46.0 mV	6.96 m	150.00 ml/min
8/24/2022 11:38 AM	21:00	6.63 pH	60.12 °F	34,605 µS/cm	0.31 mg/L	124.15 NTU	35.8 mV	6.96 m	150.00 ml/min
8/24/2022 11:41 AM	24:00	6.60 pH	60.13 °F	34,644 µS/cm	0.32 mg/L	124.48 NTU	31.4 mV	6.96 m	150.00 ml/min
8/24/2022 11:44 AM	27:00	6.60 pH	60.13 °F	34,448 µS/cm	0.42 mg/L	124.14 NTU	26.9 mV	6.96 m	150.00 ml/min
8/24/2022 11:47 AM	30:00	6.59 pH	60.22 °F	34,467 µS/cm	0.39 mg/L	124.52 NTU	23.5 mV	6.96 m	150.00 ml/min
8/24/2022 11:50 AM	33:00	6.62 pH	60.47 °F	34,960 µS/cm	0.28 mg/L	124.57 NTU	20.2 mV	6.96 m	150.00 ml/min

8/24/2022 11:53 AM	36:00	6.57 pH	60.28 °F	34,281 µS/cm	0.29 mg/L	124.66 NTU	18.6 mV	6.96 m	150.00 ml/min
8/24/2022 11:56 AM	39:00	6.63 pH	60.11 °F	35,295 µS/cm	0.14 mg/L	123.47 NTU	19.1 mV	6.96 m	150.00 ml/min
8/24/2022 11:59 AM	42:00	6.60 pH	60.19 °F	33,816 µS/cm	0.32 mg/L	124.56 NTU	12.3 mV	6.96 m	150.00 ml/min
8/24/2022 12:02 PM	45:00	6.65 pH	60.17 °F	35,102 µS/cm	0.18 mg/L	125.27 NTU	10.5 mV	6.96 m	150.00 ml/min

## Samples

Sample ID:	Description:
MW-20R	<p>Sample Time 1216  Final DTW 7.02 ft bloc  Final RDO 0.18 mg/L</p> <p>RDO and ORP did not stabilize after 45 minutes</p>

# Low-Flow Test Report:

**Test Date / Time:** 8/24/2022 1:01:59 PM

**Project:** Edmonds Terminal 3Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-101</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 5 ft</b>  <b>Total Depth: 15 ft</b>  <b>Initial Depth to Water: 9.17 ft</b></p>	<p><b>Pump Type: Geotechnical Geopump series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 10 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 1:01 PM	00:00	7.18 pH	69.11 °F	176,885 µS/cm	1.04 mg/L	16.74 NTU	-7.6 mV	9.17 ft	150.00 ml/min
8/24/2022 1:04 PM	03:00	6.86 pH	63.32 °F	131,399 µS/cm	0.17 mg/L	9.80 NTU	-28.7 mV	9.17 ft	150.00 ml/min
8/24/2022 1:07 PM	06:00	6.81 pH	62.20 °F	127,560 µS/cm	0.10 mg/L	7.36 NTU	-38.0 mV	9.17 ft	150.00 ml/min
8/24/2022 1:10 PM	09:00	6.76 pH	61.45 °F	144,975 µS/cm	0.06 mg/L	7.15 NTU	-43.5 mV	9.17 ft	150.00 ml/min
8/24/2022 1:13 PM	12:00	6.75 pH	61.02 °F	153,435 µS/cm	0.13 mg/L	6.84 NTU	-58.0 mV	9.17 ft	150.00 ml/min
8/24/2022 1:16 PM	15:00	6.74 pH	60.95 °F	159,879 µS/cm	0.07 mg/L	6.96 NTU	-62.2 mV	9.17 ft	150.00 ml/min
8/24/2022 1:19 PM	18:00	6.72 pH	60.75 °F	161,001 µS/cm	0.04 mg/L	6.96 NTU	-64.9 mV	9.17 ft	150.00 ml/min
8/24/2022 1:22 PM	21:00	6.71 pH	60.68 °F	160,279 µS/cm	0.07 mg/L	7.74 NTU	-64.4 mV	9.17 ft	150.00 ml/min
8/24/2022 1:25 PM	24:00	6.69 pH	60.64 °F	160,065 µS/cm	0.02 mg/L	6.80 NTU	-65.1 mV	9.17 ft	150.00 ml/min
8/24/2022 1:28 PM	27:00	6.68 pH	60.88 °F	160,465 µS/cm	0.15 mg/L	6.61 NTU	-61.3 mV	9.17 ft	150.00 ml/min
8/24/2022 1:31 PM	30:00	6.66 pH	60.94 °F	156,872 µS/cm	0.04 mg/L	6.61 NTU	-62.8 mV	9.17 ft	150.00 ml/min
8/24/2022 1:34 PM	33:00	6.65 pH	60.85 °F	158,589 µS/cm	0.04 mg/L	6.69 NTU	-62.4 mV	9.17 ft	150.00 ml/min
8/24/2022 1:37 PM	36:00	6.65 pH	60.96 °F	157,621 µS/cm	0.07 mg/L	6.60 NTU	-62.9 mV	9.17 ft	150.00 ml/min
8/24/2022 1:40 PM	39:00	6.65 pH	60.89 °F	158,036 µS/cm	0.08 mg/L	6.58 NTU	-62.4 mV	9.17 ft	150.00 ml/min

8/24/2022 1:43 PM	42:00	6.64 pH	60.91 °F	152,424 µS/cm	0.04 mg/L	6.56 NTU	-62.1 mV	9.17 ft	150.00 ml/min
8/24/2022 1:46 PM	45:00	6.65 pH	60.91 °F	158,508 µS/cm	0.09 mg/L	6.61 NTU	-61.1 mV	9.17 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-101	Sample time 1355 Final dtw 9.59 Rdo 0.09
DUP-4	Sample time 1355

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 11:55:48 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: MW-104</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 8.5 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny 75

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 11:55 AM	00:00	6.49 pH	80.97 °F	524,320 µS/cm	0.02 mg/L	24.78 NTU	73.1 mV	8.50 ft	150.00 ml/min
8/23/2022 11:58 AM	03:00	6.43 pH	71.80 °F	544.02 µS/cm	2.75 mg/L	7.23 NTU	33.9 mV	8.50 ft	150.00 ml/min
8/23/2022 12:01 PM	06:00	6.43 pH	67.91 °F	561,739 µS/cm	0.00 mg/L	8.30 NTU	27.5 mV	8.50 ft	150.00 ml/min
8/23/2022 12:04 PM	09:00	6.41 pH	66.22 °F	586,845 µS/cm	0.00 mg/L	7.35 NTU	26.5 mV	8.50 ft	150.00 ml/min
8/23/2022 12:07 PM	12:00	6.43 pH	65.64 °F	612,242 µS/cm	0.00 mg/L	9.17 NTU	22.7 mV	8.50 ft	150.00 ml/min
8/23/2022 12:10 PM	15:00	6.42 pH	65.10 °F	621,234 µS/cm	0.00 mg/L	6.87 NTU	20.2 mV	8.50 ft	150.00 ml/min
8/23/2022 12:13 PM	18:00	6.43 pH	64.75 °F	651,629 µS/cm	0.00 mg/L	7.63 NTU	17.6 mV	8.50 ft	150.00 ml/min
8/23/2022 12:16 PM	21:00	6.43 pH	64.44 °F	664,362 µS/cm	0.00 mg/L	6.49 NTU	15.5 mV	8.50 ft	150.00 ml/min
8/23/2022 12:19 PM	24:00	6.44 pH	64.28 °F	669,119 µS/cm	0.00 mg/L	6.75 NTU	13.3 mV	8.50 ft	150.00 ml/min
8/23/2022 12:22 PM	27:00	6.44 pH	64.15 °F	700,822 µS/cm	0.00 mg/L	6.39 NTU	11.6 mV	8.50 ft	150.00 ml/min
8/23/2022 12:25 PM	30:00	6.45 pH	63.94 °F	697,920 µS/cm	0.00 mg/L	6.42 NTU	10.4 mV	8.50 ft	150.00 ml/min
8/23/2022 12:28 PM	33:00	6.44 pH	63.81 °F	706,733 µS/cm	0.00 mg/L	6.39 NTU	9.2 mV	8.50 ft	150.00 ml/min



8/23/2022 12:31 PM	36:00	6.44 pH	63.82 °F	720,286 µS/cm	0.00 mg/L	6.21 NTU	8.3 mV	8.50 ft	150.00 ml/min
8/23/2022 12:34 PM	39:00	6.44 pH	63.76 °F	740,037 µS/cm	0.00 mg/L	6.26 NTU	7.4 mV	8.50 ft	150.00 ml/min
8/23/2022 12:37 PM	42:00	6.44 pH	63.69 °F	723,468 µS/cm	0.00 mg/L	7.08 NTU	6.3 mV	8.50 ft	150.00 ml/min
8/23/2022 12:40 PM	45:00	6.44 pH	63.83 °F	735,443 µS/cm	0.00 mg/L	6.46 NTU	5.5 mV	8.50 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-104	Sample time 1250 Final dtw 8.68 Final rdo 0.00
MW-104 MS	Sample time 1300
MW-104 MSD	Sample time 1305

# Low-Flow Test Report:

Test Date / Time: 8/22/2022 11:29:26 AM

Project: Edmonds Terminal 3Q22 (3)

Operator Name: JMS

<b>Location Name: MW-126</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 3.7 ft</b> <b>Total Depth: 14.2 ft</b> <b>Initial Depth to Water: 5.62 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 1127

Initial PID: 0.0 ppm

## Weather Conditions:

70F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/22/2022 11:29 AM	00:00	6.33 pH	61.71 °F	503.00 µS/cm	7.60 mg/L	22.25 NTU	219.8 mV	5.62 ft	150.00 ml/min
8/22/2022 11:32 AM	03:00	6.43 pH	61.62 °F	508.06 µS/cm	6.87 mg/L	21.40 NTU	225.9 mV	5.62 ft	150.00 ml/min
8/22/2022 11:35 AM	06:00	6.44 pH	62.87 °F	510.76 µS/cm	6.86 mg/L	20.63 NTU	228.2 mV	5.62 ft	150.00 ml/min
8/22/2022 11:38 AM	09:00	6.45 pH	59.58 °F	503.28 µS/cm	6.45 mg/L	16.79 NTU	230.9 mV	5.62 ft	150.00 ml/min
8/22/2022 11:41 AM	12:00	6.46 pH	59.14 °F	511.13 µS/cm	6.03 mg/L	10.67 NTU	235.4 mV	5.62 ft	150.00 ml/min
8/22/2022 11:44 AM	15:00	6.46 pH	58.85 °F	514.94 µS/cm	5.46 mg/L	2.83 NTU	234.9 mV	5.62 ft	150.00 ml/min
8/22/2022 11:47 AM	18:00	6.47 pH	58.83 °F	511.86 µS/cm	5.01 mg/L	1.82 NTU	235.0 mV	5.62 ft	150.00 ml/min
8/22/2022 11:50 AM	21:00	6.47 pH	58.79 °F	516.10 µS/cm	4.73 mg/L	0.85 NTU	235.8 mV	5.62 ft	150.00 ml/min
8/22/2022 11:53 AM	24:00	6.48 pH	58.64 °F	514.40 µS/cm	4.31 mg/L	0.00 NTU	236.8 mV	5.62 ft	150.00 ml/min
8/22/2022 11:56 AM	27:00	6.48 pH	58.66 °F	517.13 µS/cm	3.98 mg/L	0.00 NTU	236.4 mV	5.62 ft	150.00 ml/min
8/22/2022 11:59 AM	30:00	6.48 pH	58.61 °F	518.55 µS/cm	3.85 mg/L	0.00 NTU	232.4 mV	5.62 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-126	Sample Time: 1202 Final DTW: 6.22 ft btoc Final RDO: 3.82 mg/L

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 9:48:24 AM

Project: Edmonds Terminal 3Q22

Operator Name: ES

<b>Location Name: MW-129R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.59 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.5 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 9:48 AM	00:00	5.67 pH	60.08 °F	1,005.1 µS/cm	2.94 mg/L	4.18 NTU	69.3 mV	5.59 ft	150.00 ml/min
8/23/2022 9:51 AM	03:00	5.48 pH	59.71 °F	1,011.3 µS/cm	0.63 mg/L	0.23 NTU	46.7 mV	5.59 ft	150.00 ml/min
8/23/2022 9:54 AM	06:00	5.47 pH	59.29 °F	1,007.0 µS/cm	0.36 mg/L	0.28 NTU	37.1 mV	5.59 ft	150.00 ml/min
8/23/2022 9:57 AM	09:00	5.45 pH	59.14 °F	1,006.8 µS/cm	0.29 mg/L	0.00 NTU	34.5 mV	5.59 ft	150.00 ml/min
8/23/2022 10:00 AM	12:00	5.45 pH	59.14 °F	1,008.1 µS/cm	0.33 mg/L	0.28 NTU	28.6 mV	5.59 ft	150.00 ml/min
8/23/2022 10:03 AM	15:00	5.47 pH	59.18 °F	1,014.2 µS/cm	0.28 mg/L	0.58 NTU	23.4 mV	5.59 ft	150.00 ml/min
8/23/2022 10:06 AM	18:00	5.52 pH	59.27 °F	1,022.0 µS/cm	0.21 mg/L	0.14 NTU	16.1 mV	5.59 ft	150.00 ml/min
8/23/2022 10:09 AM	21:00	5.58 pH	59.32 °F	1,031.6 µS/cm	0.25 mg/L	1.71 NTU	5.8 mV	5.59 ft	150.00 ml/min
8/23/2022 10:12 AM	24:00	5.61 pH	59.21 °F	1,035.2 µS/cm	0.21 mg/L	1.77 NTU	0.0 mV	5.59 ft	150.00 ml/min
8/23/2022 10:15 AM	27:00	5.63 pH	59.06 °F	1,036.2 µS/cm	0.18 mg/L	1.71 NTU	-2.5 mV	5.59 ft	150.00 ml/min
8/23/2022 10:18 AM	30:00	5.65 pH	58.93 °F	1,041.5 µS/cm	0.18 mg/L	0.90 NTU	-8.4 mV	5.59 ft	150.00 ml/min
8/23/2022 10:21 AM	33:00	5.67 pH	58.82 °F	1,041.6 µS/cm	0.20 mg/L	1.31 NTU	-9.9 mV	5.59 ft	150.00 ml/min

8/23/2022 10:24 AM	36:00	5.69 pH	58.77 °F	1,045.6 µS/cm	0.17 mg/L	4.94 NTU	-12.2 mV	5.59 ft	150.00 ml/min
8/23/2022 10:27 AM	39:00	5.70 pH	58.64 °F	1,044.9 µS/cm	0.17 mg/L	0.96 NTU	-14.8 mV	5.59 ft	150.00 ml/min
8/23/2022 10:30 AM	42:00	5.72 pH	58.60 °F	1,051.4 µS/cm	0.18 mg/L	5.26 NTU	-18.0 mV	5.59 ft	150.00 ml/min
8/23/2022 10:33 AM	45:00	5.72 pH	58.36 °F	1,052.9 µS/cm	0.18 mg/L	2.31 NTU	-18.7 mV	5.59 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-129R	Sample Time- 10:34 Final DTW-7.09 Final RDO- 0.25

# Low-Flow Test Report:

**Test Date / Time:** 8/24/2022 11:03:32 AM

**Project:** Edmonds Terminal 3Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-139R</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10.5 ft</b>  <b>Top of Screen: 4.4 ft</b>  <b>Total Depth: 14.9 ft</b>  <b>Initial Depth to Water: 7.11 ft</b></p>	<p><b>Pump Type: Geotechnical Geopump series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 10 ft</b>  <b>Estimated Total Volume Pumped: 3150 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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**Test Notes:**

**Low-Flow Readings:**

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 11:03 AM	00:00	6.66 pH	72.66 °F	4.338e+06 µS/cm	3.65 mg/L	24.65 NTU	20.6 mV	7.11 ft	150.00 ml/min
8/24/2022 11:06 AM	03:00	6.90 pH	69.54 °F	4.284e+06 µS/cm	0.53 mg/L	7.42 NTU	30.6 mV	7.11 ft	150.00 ml/min
8/24/2022 11:09 AM	06:00	6.92 pH	69.43 °F	4.118e+06 µS/cm	0.45 mg/L	7.52 NTU	31.8 mV	7.11 ft	150.00 ml/min
8/24/2022 11:12 AM	09:00	6.93 pH	69.56 °F	3.824e+06 µS/cm	0.52 mg/L	8.37 NTU	31.3 mV	7.11 ft	150.00 ml/min
8/24/2022 11:15 AM	12:00	6.93 pH	69.83 °F	3.703e+06 µS/cm	0.63 mg/L	10.55 NTU	32.8 mV	7.11 ft	150.00 ml/min
8/24/2022 11:18 AM	15:00	6.93 pH	69.91 °F	3.790e+06 µS/cm	0.60 mg/L	7.69 NTU	33.5 mV	7.11 ft	150.00 ml/min
8/24/2022 11:21 AM	18:00	6.93 pH	70.04 °F	3.667e+06 µS/cm	0.60 mg/L	7.41 NTU	34.6 mV	7.11 ft	150.00 ml/min
8/24/2022 11:24 AM	21:00	6.93 pH	69.94 °F	3.659e+06 µS/cm	0.61 mg/L	7.32 NTU	35.0 mV	7.11 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-139R	Sample time 1135 Final dtw 7.12 Rdo



# Low-Flow Test Report:

Test Date / Time: 8/22/2022 12:24:22 PM

Project: Edmonds Terminal 3Q22 (4)

Operator Name: JMS

<b>Location Name: MW-143</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.6 ft</b> <b>Top of Screen: 3.5 ft</b> <b>Total Depth: 14.1 ft</b> <b>Initial Depth to Water: 5.22 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at: 1223

Initial PID: 1.7 ppm

## Weather Conditions:

70F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/22/2022 12:24 PM	00:00	6.33 pH	62.63 °F	597.36 µS/cm	4.13 mg/L	5.03 NTU	32.5 mV	5.22 ft	150.00 ml/min
8/22/2022 12:27 PM	03:00	6.47 pH	59.31 °F	599.54 µS/cm	0.50 mg/L	0.00 NTU	-0.5 mV	5.22 ft	150.00 ml/min
8/22/2022 12:30 PM	06:00	6.41 pH	59.20 °F	607.51 µS/cm	0.38 mg/L	0.00 NTU	-10.5 mV	5.22 ft	150.00 ml/min
8/22/2022 12:33 PM	09:00	6.38 pH	59.03 °F	607.35 µS/cm	0.34 mg/L	0.00 NTU	-14.6 mV	5.22 ft	150.00 ml/min
8/22/2022 12:36 PM	12:00	6.37 pH	59.09 °F	606.94 µS/cm	0.31 mg/L	0.00 NTU	-19.5 mV	5.22 ft	150.00 ml/min
8/22/2022 12:39 PM	15:00	6.33 pH	59.02 °F	607.75 µS/cm	0.29 mg/L	0.00 NTU	-23.2 mV	5.22 ft	150.00 ml/min
8/22/2022 12:42 PM	18:00	6.32 pH	59.01 °F	608.18 µS/cm	0.27 mg/L	0.00 NTU	-25.0 mV	5.22 ft	150.00 ml/min
8/22/2022 12:45 PM	21:00	6.32 pH	58.95 °F	608.61 µS/cm	0.27 mg/L	0.00 NTU	-27.3 mV	5.22 ft	150.00 ml/min
8/22/2022 12:48 PM	24:00	6.31 pH	58.88 °F	606.81 µS/cm	0.24 mg/L	0.00 NTU	-29.8 mV	5.22 ft	150.00 ml/min
8/22/2022 12:51 PM	27:00	6.30 pH	58.77 °F	605.45 µS/cm	0.26 mg/L	0.00 NTU	-30.7 mV	5.22 ft	150.00 ml/min
8/22/2022 12:54 PM	30:00	6.30 pH	58.74 °F	604.51 µS/cm	0.28 mg/L	0.00 NTU	-31.4 mV	5.22 ft	150.00 ml/min
8/22/2022 12:57 PM	33:00	6.30 pH	58.78 °F	599.96 µS/cm	0.26 mg/L	0.00 NTU	-33.4 mV	5.22 ft	150.00 ml/min



**Samples**

Sample ID:	Description:
MW-143	Sample Time: 1302 Final DTW: 7.29 ft btoc Final RDO: 0.26 mg/L

# Low-Flow Test Report:

Test Date / Time: 8/22/2022 12:40:18 PM

Project: Edmonds Terminal 3Q22 (3)

Operator Name: DSG

<b>Location Name: MW-502</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.31 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.25 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/22/2022 12:40 PM	00:00	6.61 pH	63.39 °F	91,565 µS/cm	0.40 mg/L	79.55 NTU	69.2 mV	5.31 ft	150.00 ml/min
8/22/2022 12:43 PM	03:00	6.40 pH	60.85 °F	93,739 µS/cm	0.18 mg/L	30.94 NTU	74.0 mV	5.31 ft	150.00 ml/min
8/22/2022 12:46 PM	06:00	6.40 pH	60.28 °F	94,340 µS/cm	0.19 mg/L	9.74 NTU	73.3 mV	5.31 ft	150.00 ml/min
8/22/2022 12:49 PM	09:00	6.35 pH	60.01 °F	93,903 µS/cm	0.09 mg/L	8.96 NTU	75.2 mV	5.31 ft	150.00 ml/min
8/22/2022 12:52 PM	12:00	6.34 pH	59.86 °F	94,632 µS/cm	0.09 mg/L	10.36 NTU	75.4 mV	5.31 ft	150.00 ml/min
8/22/2022 12:55 PM	15:00	6.29 pH	59.52 °F	94,322 µS/cm	0.09 mg/L	10.85 NTU	78.1 mV	5.31 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-502	Sample Time 1306 Final DTW 5.56 ft btoc Final RDO 0.08 mg/L



# Low-Flow Test Report:

Test Date / Time: 8/24/2022 8:04:07 AM

Project: Edmonds Terminal 3Q22 (9)

Operator Name: JMS

<b>Location Name: MW-503</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.22 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 0802

Initial PID: 0.0 ppm

## Weather Conditions:

70F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/24/2022 8:04 AM	00:00	7.24 pH	65.93 °F	522.26 µS/cm	5.76 mg/L	364.13 NTU	73.5 mV	5.22 ft	150.00 ml/min
8/24/2022 8:07 AM	03:00	6.35 pH	63.73 °F	0.06 µS/cm	9.39 mg/L	386.93 NTU	58.6 mV	5.22 ft	150.00 ml/min
8/24/2022 8:10 AM	06:00	6.42 pH	60.79 °F	418.20 µS/cm	0.97 mg/L	52.83 NTU	23.8 mV	5.22 ft	150.00 ml/min
8/24/2022 8:13 AM	09:00	6.39 pH	60.86 °F	424.63 µS/cm	0.38 mg/L	9.79 NTU	20.9 mV	5.22 ft	150.00 ml/min
8/24/2022 8:16 AM	12:00	6.39 pH	60.67 °F	418.59 µS/cm	0.40 mg/L	0.00 NTU	18.1 mV	5.22 ft	150.00 ml/min
8/24/2022 8:19 AM	15:00	6.38 pH	60.74 °F	425.59 µS/cm	0.39 mg/L	0.00 NTU	15.2 mV	5.22 ft	150.00 ml/min
8/24/2022 8:22 AM	18:00	6.39 pH	60.75 °F	422.33 µS/cm	0.30 mg/L	0.00 NTU	12.6 mV	5.22 ft	150.00 ml/min
8/24/2022 8:25 AM	21:00	6.39 pH	60.82 °F	426.48 µS/cm	0.41 mg/L	0.00 NTU	10.2 mV	5.22 ft	150.00 ml/min
8/24/2022 8:28 AM	24:00	6.39 pH	60.41 °F	421.13 µS/cm	0.31 mg/L	0.00 NTU	8.4 mV	5.22 ft	150.00 ml/min
8/24/2022 8:31 AM	27:00	6.39 pH	60.49 °F	422.60 µS/cm	0.25 mg/L	0.00 NTU	7.1 mV	5.22 ft	150.00 ml/min
8/24/2022 8:34 AM	30:00	6.38 pH	60.63 °F	423.66 µS/cm	0.24 mg/L	0.00 NTU	5.2 mV	5.22 ft	150.00 ml/min
8/24/2022 8:37 AM	33:00	6.39 pH	60.67 °F	421.82 µS/cm	0.27 mg/L	0.00 NTU	3.7 mV	5.22 ft	150.00 ml/min

8/24/2022 8:40 AM	36:00	6.39 pH	60.58 °F	420.85 µS/cm	0.22 mg/L	0.00 NTU	2.6 mV	5.22 ft	150.00 ml/min
8/24/2022 8:43 AM	39:00	6.39 pH	60.67 °F	423.81 µS/cm	0.22 mg/L	0.00 NTU	1.7 mV	5.22 ft	150.00 ml/min
8/24/2022 8:46 AM	42:00	6.39 pH	60.70 °F	420.54 µS/cm	0.25 mg/L	0.00 NTU	0.1 mV	5.22 ft	150.00 ml/min
8/24/2022 8:49 AM	45:00	6.36 pH	60.88 °F	421.47 µS/cm	0.26 mg/L	0.00 NTU	-0.5 mV	5.22 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-503	Sample Time: 0852 Final DTW: 5.29 ft btoc Final RDO: 0.26 mg/L RDO did not stabilize

# Low-Flow Test Report:

Test Date / Time: 8/22/2022 12:14:15 PM

Project: Edmonds Terminal 3Q22 (2)

Operator Name: ES

<b>Location Name: MW-504</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 m</b> <b>Top of Screen: 3 m</b> <b>Total Depth: 13 m</b> <b>Initial Depth to Water: 6.65 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.01 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/22/2022 12:14 PM	00:00	6.03 pH	70.19 °F	2.040e+06 µS/cm	6.06 mg/L	0.00 NTU	-14.4 mV	6.65 ft	150.00 ml/min
8/22/2022 12:17 PM	03:00	5.87 pH	65.53 °F	2.147e+06 µS/cm	0.55 mg/L	151.61 NTU	-21.1 mV	6.65 ft	150.00 ml/min
8/22/2022 12:20 PM	06:00	5.86 pH	65.44 °F	2.083e+06 µS/cm	0.27 mg/L	144.65 NTU	-24.6 mV	6.65 ft	150.00 ml/min
8/22/2022 12:23 PM	09:00	5.86 pH	65.69 °F	2.088e+06 µS/cm	0.22 mg/L	100.46 NTU	-26.3 mV	6.65 ft	150.00 ml/min
8/22/2022 12:26 PM	12:00	5.86 pH	65.48 °F	2.080e+06 µS/cm	0.20 mg/L	34.82 NTU	-27.1 mV	6.65 ft	150.00 ml/min
8/22/2022 12:29 PM	15:00	5.87 pH	65.56 °F	2.084e+06 µS/cm	0.19 mg/L	71.82 NTU	-27.2 mV	6.65 ft	150.00 ml/min
8/22/2022 12:32 PM	18:00	5.87 pH	65.55 °F	2.075e+06 µS/cm	0.20 mg/L	4.78 NTU	-26.6 mV	6.65 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-504	Sample time- 12:34 Final DTW-6.66 Final RDO- 0.20



# Low-Flow Test Report:

Test Date / Time: 8/22/2022 1:13:30 PM

Project: Edmonds Terminal 3Q22

Operator Name: ES

<b>Location Name: MW-505</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 m</b> <b>Top of Screen: 3 m</b> <b>Total Depth: 13 m</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %	
8/22/2022 1:13 PM	00:00	5.99 pH	69.68 °F	239,994 µS/cm	0.91 mg/L	123.36 NTU	-26.2 mV	150.00 ml/min
8/22/2022 1:16 PM	03:00	5.67 pH	69.53 °F	414,740 µS/cm	0.01 mg/L	125.89 NTU	-39.4 mV	150.00 ml/min
8/22/2022 1:19 PM	06:00	5.69 pH	69.65 °F	664,336 µS/cm	0.00 mg/L	133.26 NTU	-44.0 mV	150.00 ml/min
8/22/2022 1:22 PM	09:00	5.68 pH	69.19 °F	715,521 µS/cm	0.00 mg/L	136.13 NTU	-46.9 mV	150.00 ml/min
8/22/2022 1:25 PM	12:00	5.68 pH	69.43 °F	978,818 µS/cm	0.26 mg/L	135.86 NTU	-48.3 mV	150.00 ml/min
8/22/2022 1:28 PM	15:00	5.70 pH	69.19 °F	1.086e+06 µS/cm	0.21 mg/L	126.98 NTU	-50.8 mV	150.00 ml/min
8/22/2022 1:31 PM	18:00	5.72 pH	69.55 °F	1.155e+06 µS/cm	0.18 mg/L	0.00 NTU	-53.2 mV	150.00 ml/min
8/22/2022 1:34 PM	21:00	5.71 pH	69.39 °F	1.201e+06 µS/cm	0.18 mg/L	0.00 NTU	-54.1 mV	150.00 ml/min
8/22/2022 1:37 PM	24:00	5.71 pH	69.52 °F	1.331e+06 µS/cm	0.17 mg/L	0.00 NTU	-55.0 mV	150.00 ml/min
8/22/2022 1:40 PM	27:00	5.74 pH	69.57 °F	1.347e+06 µS/cm	0.15 mg/L	0.00 NTU	-56.5 mV	150.00 ml/min
8/22/2022 1:43 PM	30:00	5.73 pH	69.35 °F	1.411e+06 µS/cm	0.14 mg/L	0.00 NTU	-57.1 mV	150.00 ml/min
8/22/2022 1:46 PM	33:00	5.74 pH	69.73 °F	1.471e+06 µS/cm	0.14 mg/L	0.00 NTU	-58.1 mV	150.00 ml/min

## Samples



Sample ID:	Description:
MW-505	Sample Time: 13:44 Final DTW-4.73 Final RDO- 0.14

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# Low-Flow Test Report:

Test Date / Time: 8/22/2022 10:55:53 AM

Project: Edmonds Terminal 3Q22

Operator Name: ES

<b>Location Name: MW-506</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.7 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.02 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/22/2022 10:55 AM	00:00	5.63 pH	68.19 °F	2.737e+06 µS/cm	4.38 mg/L	0.00 NTU	158.3 mV	6.70 ft	150.00 ml/min
8/22/2022 10:58 AM	03:00	5.77 pH	63.79 °F	2.661e+06 µS/cm	0.31 mg/L	0.00 NTU	3.2 mV	6.70 ft	150.00 ml/min
8/22/2022 11:01 AM	06:00	5.76 pH	64.01 °F	2.593e+06 µS/cm	0.25 mg/L	0.00 NTU	-33.1 mV	6.70 ft	150.00 ml/min
8/22/2022 11:04 AM	09:00	5.75 pH	63.88 °F	2.448e+06 µS/cm	0.22 mg/L	0.00 NTU	-50.9 mV	6.70 ft	150.00 ml/min
8/22/2022 11:07 AM	12:00	5.73 pH	64.03 °F	2.239e+06 µS/cm	0.20 mg/L	0.00 NTU	-57.6 mV	6.70 ft	150.00 ml/min
8/22/2022 11:10 AM	15:00	5.73 pH	64.21 °F	1.992e+06 µS/cm	0.22 mg/L	0.00 NTU	-62.6 mV	6.70 ft	150.00 ml/min
8/22/2022 11:13 AM	18:00	5.73 pH	64.06 °F	2.012e+06 µS/cm	0.20 mg/L	0.00 NTU	-68.0 mV	6.70 ft	150.00 ml/min
8/22/2022 11:16 AM	21:00	5.74 pH	64.06 °F	1.990e+06 µS/cm	0.19 mg/L	0.00 NTU	-71.2 mV	6.70 ft	150.00 ml/min
8/22/2022 11:19 AM	24:00	5.75 pH	64.40 °F	1.927e+06 µS/cm	0.17 mg/L	0.00 NTU	-74.8 mV	6.70 ft	150.00 ml/min
8/22/2022 11:22 AM	27:00	5.76 pH	64.29 °F	1.893e+06 µS/cm	0.16 mg/L	0.00 NTU	-79.7 mV	6.70 ft	150.00 ml/min
8/22/2022 11:25 AM	30:00	5.78 pH	64.34 °F	1.981e+06 µS/cm	0.15 mg/L	0.00 NTU	-83.4 mV	6.70 ft	150.00 ml/min
8/22/2022 11:28 AM	33:00	5.79 pH	64.30 °F	1.953e+06 µS/cm	0.15 mg/L	0.00 NTU	-84.8 mV	6.70 ft	150.00 ml/min

8/22/2022 11:31 AM	36:00	5.80 pH	64.25 °F	1.909e+06 μS/cm	0.14 mg/L	0.00 NTU	-88.0 mV	6.70 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-506	Sample time: 11:34 Final DTW: 6.72 Final RDO: 19.0 Sample ID: MW-506

# Low-Flow Test Report:

Test Date / Time: 8/22/2022 10:38:14 AM

Project: Edmonds Terminal 3Q22

Operator Name: DSG

<b>Location Name: MW-507</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.9 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.27 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/22/2022 10:38 AM	00:00	6.75 pH	67.35 °F	316,984 µS/cm	0.19 mg/L	35.95 NTU	180.2 mV	6.90 ft	150.00 ml/min
8/22/2022 10:41 AM	03:00	6.74 pH	65.77 °F	321,891 µS/cm	0.12 mg/L	12.68 NTU	177.6 mV	6.90 ft	150.00 ml/min
8/22/2022 10:44 AM	06:00	6.74 pH	65.10 °F	324,596 µS/cm	0.04 mg/L	26.77 NTU	173.6 mV	6.90 ft	150.00 ml/min
8/22/2022 10:47 AM	09:00	6.72 pH	65.13 °F	328,496 µS/cm	0.02 mg/L	9.17 NTU	171.4 mV	6.90 ft	150.00 ml/min
8/22/2022 10:50 AM	12:00	6.73 pH	65.16 °F	333,387 µS/cm	0.01 mg/L	9.47 NTU	164.8 mV	6.90 ft	150.00 ml/min
8/22/2022 10:53 AM	15:00	6.72 pH	65.03 °F	336,403 µS/cm	0.02 mg/L	13.29 NTU	159.0 mV	6.90 ft	150.00 ml/min
8/22/2022 10:56 AM	18:00	6.73 pH	64.94 °F	341,652 µS/cm	0.01 mg/L	7.97 NTU	151.9 mV	6.90 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-507

Sample time: 1106  
Final DTW 7.17 ft btoc  
Final RDO: 0.01 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 8/24/2022 12:02:41 PM

**Project:** Edmonds Terminal 3Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-509</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 3.56 ft</b></p>	<p><b>Pump Type: Geotechnical Geopump series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 6 ft</b>  <b>Estimated Total Volume Pumped: 3150 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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**Test Notes:**

**Low-Flow Readings:**

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 12:02 PM	00:00	6.71 pH	77.28 °F	8.070e+06 µS/cm	4.58 mg/L	33.62 NTU	99.7 mV	3.56 ft	150.00 ml/min
8/24/2022 12:05 PM	03:00	6.77 pH	72.48 °F	9.022e+06 µS/cm	0.22 mg/L	7.89 NTU	102.0 mV	3.56 ft	150.00 ml/min
8/24/2022 12:08 PM	06:00	6.78 pH	72.57 °F	7.755e+06 µS/cm	0.21 mg/L	7.81 NTU	97.1 mV	3.56 ft	150.00 ml/min
8/24/2022 12:11 PM	09:00	6.80 pH	72.53 °F	7.131e+06 µS/cm	0.16 mg/L	7.70 NTU	95.3 mV	3.56 ft	150.00 ml/min
8/24/2022 12:14 PM	12:00	6.81 pH	72.71 °F	6.932e+06 µS/cm	0.21 mg/L	7.69 NTU	92.7 mV	3.56 ft	150.00 ml/min
8/24/2022 12:17 PM	15:00	6.81 pH	72.62 °F	6.887e+06 µS/cm	0.12 mg/L	7.76 NTU	91.7 mV	3.56 ft	150.00 ml/min
8/24/2022 12:20 PM	18:00	6.81 pH	72.79 °F	7.087e+06 µS/cm	0.14 mg/L	7.77 NTU	90.7 mV	3.56 ft	150.00 ml/min
8/24/2022 12:23 PM	21:00	6.81 pH	72.54 °F	6.627e+06 µS/cm	0.12 mg/L	7.72 NTU	90.1 mV	3.56 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-509	Sample time 1235 Final dtw 3.55  Rdo 0.42



# Low-Flow Test Report:

Test Date / Time: 8/22/2022 10:44:12 AM

Project: Edmonds Terminal 3Q22 (2)

Operator Name: JMS

<b>Location Name: MW-511</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 5 ft</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.93 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 1042

Initial PID: 0.0 ppm

## Weather Conditions:

65F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/22/2022 10:44 AM	00:00	6.17 pH	57.02 °F	322.99 µS/cm	7.96 mg/L	0.00 NTU	235.5 mV	7.93 ft	150.00 ml/min
8/22/2022 10:47 AM	03:00	6.19 pH	57.33 °F	322.30 µS/cm	7.90 mg/L	0.00 NTU	244.8 mV	7.93 ft	150.00 ml/min
8/22/2022 10:50 AM	06:00	6.20 pH	57.37 °F	321.68 µS/cm	7.89 mg/L	0.00 NTU	247.7 mV	7.93 ft	150.00 ml/min
8/22/2022 10:53 AM	09:00	6.21 pH	57.25 °F	321.45 µS/cm	7.84 mg/L	0.00 NTU	249.0 mV	7.93 ft	150.00 ml/min
8/22/2022 10:56 AM	12:00	6.22 pH	57.13 °F	321.07 µS/cm	7.81 mg/L	0.00 NTU	255.2 mV	7.93 ft	150.00 ml/min
8/22/2022 10:59 AM	15:00	6.23 pH	57.24 °F	321.00 µS/cm	7.78 mg/L	0.26 NTU	259.9 mV	7.93 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-511	Sample Time: 1102 Final DTW: 7.94 ft btoc Final RDO: 7.78 mg/L





# Low-Flow Test Report:

**Test Date / Time:** 8/24/2022 8:10:10 AM

**Project:** Edmonds Terminal 3Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-512</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 6.57 ft</b></p>	<p><b>Pump Type: Geotechnical Geopump series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 9 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 8:10 AM	00:00	7.20 pH	66.62 °F	446,286 µS/cm	0.03 mg/L	7.51 NTU	26.9 mV	6.57 ft	150.00 ml/min
8/24/2022 8:13 AM	03:00	7.24 pH	63.89 °F	427,007 µS/cm	0.01 mg/L	7.09 NTU	-33.6 mV	6.57 ft	150.00 ml/min
8/24/2022 8:16 AM	06:00	7.26 pH	64.22 °F	415,912 µS/cm	0.01 mg/L	7.01 NTU	-51.2 mV	6.57 ft	150.00 ml/min
8/24/2022 8:19 AM	09:00	7.24 pH	64.35 °F	409,136 µS/cm	0.00 mg/L	8.13 NTU	-58.5 mV	6.57 ft	150.00 ml/min
8/24/2022 8:22 AM	12:00	7.19 pH	64.73 °F	392,602 µS/cm	0.01 mg/L	7.78 NTU	-61.0 mV	6.57 ft	150.00 ml/min
8/24/2022 8:25 AM	15:00	7.02 pH	65.06 °F	323,369 µS/cm	0.02 mg/L	7.50 NTU	-53.6 mV	6.57 ft	150.00 ml/min
8/24/2022 8:28 AM	18:00	6.87 pH	65.28 °F	267,825 µS/cm	0.03 mg/L	8.14 NTU	-41.8 mV	6.57 ft	150.00 ml/min
8/24/2022 8:31 AM	21:00	6.80 pH	65.41 °F	254,818 µS/cm	0.05 mg/L	8.25 NTU	-35.2 mV	6.57 ft	150.00 ml/min
8/24/2022 8:34 AM	24:00	6.75 pH	65.54 °F	238,215 µS/cm	0.05 mg/L	6.94 NTU	-30.4 mV	6.57 ft	150.00 ml/min
8/24/2022 8:37 AM	27:00	6.73 pH	65.62 °F	236,053 µS/cm	0.04 mg/L	6.95 NTU	-27.9 mV	6.57 ft	150.00 ml/min
8/24/2022 8:40 AM	30:00	6.72 pH	65.70 °F	212,191 µS/cm	0.04 mg/L	7.53 NTU	-25.8 mV	6.57 ft	150.00 ml/min
8/24/2022 8:43 AM	33:00	6.71 pH	65.75 °F	236,239 µS/cm	0.03 mg/L	6.68 NTU	-23.7 mV	6.57 ft	150.00 ml/min
8/24/2022 8:46 AM	36:00	6.71 pH	65.77 °F	228,951 µS/cm	0.03 mg/L	6.86 NTU	-24.4 mV	6.57 ft	150.00 ml/min
8/24/2022 8:49 AM	39:00	6.69 pH	65.87 °F	228,984 µS/cm	0.02 mg/L	6.73 NTU	-23.9 mV	6.57 ft	150.00 ml/min

8/24/2022 8:52 AM	42:00	6.69 pH	65.87 °F	257,844 μS/cm	0.02 mg/L	6.86 NTU	-24.3 mV	6.57 ft	150.00 ml/min
8/24/2022 8:55 AM	45:00	6.70 pH	65.94 °F	229,845 μS/cm	0.02 mg/L	6.73 NTU	-24.0 mV	6.57 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-512	Sample time 0900 Final dtw 6.56

# Low-Flow Test Report:

Test Date / Time: 8/25/2022 10:51:55 AM

Project: Edmonds Terminal 3Q22 (4)

Operator Name: SG

<b>Location Name: MW-513</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.39 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 7200 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 10:51 AM	00:00	6.66 pH	64.82 °F	4,809.6 µS/cm	1.80 mg/L	121.16 NTU	210.9 mV	4.39 ft	150.00 ml/min
8/25/2022 10:54 AM	03:00	6.82 pH	65.43 °F	4,889.2 µS/cm	1.50 mg/L	119.30 NTU	40.3 mV	4.39 ft	150.00 ml/min
8/25/2022 10:57 AM	06:00	6.85 pH	65.86 °F	4,903.3 µS/cm	1.44 mg/L	110.16 NTU	-2.4 mV	4.39 ft	150.00 ml/min
8/25/2022 11:00 AM	09:00	6.86 pH	66.09 °F	4,905.6 µS/cm	1.21 mg/L	75.24 NTU	-17.1 mV	4.39 ft	150.00 ml/min
8/25/2022 11:03 AM	12:00	6.87 pH	66.25 °F	4,903.8 µS/cm	1.15 mg/L	0.00 NTU	-24.4 mV	4.39 ft	150.00 ml/min
8/25/2022 11:06 AM	15:00	6.88 pH	66.31 °F	4,885.8 µS/cm	1.06 mg/L	0.00 NTU	-28.7 mV	4.39 ft	150.00 ml/min
8/25/2022 11:09 AM	18:00	6.88 pH	66.54 °F	4,869.0 µS/cm	0.99 mg/L	0.00 NTU	-31.6 mV	4.39 ft	150.00 ml/min
8/25/2022 11:12 AM	21:00	6.88 pH	66.79 °F	4,811.5 µS/cm	0.84 mg/L	0.00 NTU	-33.5 mV	4.39 ft	150.00 ml/min
8/25/2022 11:15 AM	24:00	6.89 pH	66.82 °F	4,652.1 µS/cm	0.82 mg/L	0.00 NTU	-34.8 mV	4.39 ft	150.00 ml/min
8/25/2022 11:18 AM	27:00	6.90 pH	66.91 °F	4,294.9 µS/cm	0.85 mg/L	79.65 NTU	-35.4 mV	4.39 ft	150.00 ml/min
8/25/2022 11:21 AM	30:00	6.91 pH	66.90 °F	3,894.3 µS/cm	0.99 mg/L	72.77 NTU	-34.3 mV	4.39 ft	150.00 ml/min
8/25/2022 11:24 AM	33:00	6.91 pH	66.99 °F	3,620.2 µS/cm	1.16 mg/L	87.11 NTU	-32.3 mV	4.39 ft	150.00 ml/min

8/25/2022 11:27 AM	36:00	6.91 pH	67.06 °F	3,381.7 µS/cm	1.31 mg/L	80.33 NTU	-30.3 mV	4.39 ft	150.00 ml/min
8/25/2022 11:30 AM	39:00	6.90 pH	67.11 °F	3,297.8 µS/cm	1.45 mg/L	113.82 NTU	-28.1 mV	4.39 ft	150.00 ml/min
8/25/2022 11:33 AM	42:00	6.91 pH	67.11 °F	3,284.6 µS/cm	1.54 mg/L	110.68 NTU	-26.9 mV	4.39 ft	150.00 ml/min
8/25/2022 11:36 AM	45:00	6.91 pH	67.16 °F	3,234.4 µS/cm	1.61 mg/L	49.74 NTU	-25.5 mV	4.39 ft	150.00 ml/min
8/25/2022 11:39 AM	48:00	6.91 pH	67.21 °F	3,178.5 µS/cm	1.80 mg/L	105.40 NTU	-24.3 mV	4.39 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-513	Sample Time 1146 Final DTW 4.38 ft btoc Final RDO

# Low-Flow Test Report:

**Test Date / Time:** 8/25/2022 11:42:17 AM

**Project:** Edmonds Terminal 3Q22

**Operator Name:** Peter Bruno

<p><b>Location Name: MW-514</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 4.72 ft</b></p>	<p><b>Pump Type: Geotechnical Geopump series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 9 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 11:42 AM	00:00	6.66 pH	78.03 °F	390,383 µS/cm	0.27 mg/L	8.21 NTU	84.7 mV	4.72 ft	150.00 ml/min
8/25/2022 11:45 AM	03:00	6.65 pH	66.86 °F	377,282 µS/cm	0.02 mg/L	7.66 NTU	32.9 mV	4.72 ft	150.00 ml/min
8/25/2022 11:48 AM	06:00	6.68 pH	66.00 °F	365,255 µS/cm	0.01 mg/L	7.43 NTU	16.7 mV	4.72 ft	150.00 ml/min
8/25/2022 11:51 AM	09:00	6.68 pH	65.61 °F	362,663 µS/cm	0.01 mg/L	7.13 NTU	9.4 mV	4.72 ft	150.00 ml/min
8/25/2022 11:54 AM	12:00	6.68 pH	65.60 °F	360,916 µS/cm	0.01 mg/L	11.43 NTU	4.1 mV	4.72 ft	150.00 ml/min
8/25/2022 11:57 AM	15:00	6.67 pH	65.57 °F	364,140 µS/cm	0.01 mg/L	6.98 NTU	0.2 mV	4.72 ft	150.00 ml/min
8/25/2022 12:00 PM	18:00	6.67 pH	65.70 °F	373,233 µS/cm	0.01 mg/L	7.50 NTU	-2.9 mV	4.72 ft	150.00 ml/min
8/25/2022 12:03 PM	21:00	6.66 pH	65.62 °F	380,007 µS/cm	0.01 mg/L	9.87 NTU	-4.6 mV	4.72 ft	150.00 ml/min
8/25/2022 12:06 PM	24:00	6.66 pH	65.73 °F	372,088 µS/cm	0.01 mg/L	8.37 NTU	-6.7 mV	4.72 ft	150.00 ml/min
8/25/2022 12:09 PM	27:00	6.66 pH	65.49 °F	376,568 µS/cm	0.01 mg/L	7.80 NTU	-8.3 mV	4.72 ft	150.00 ml/min
8/25/2022 12:12 PM	30:00	6.66 pH	65.53 °F	380,539 µS/cm	0.01 mg/L	7.01 NTU	-10.1 mV	4.72 ft	150.00 ml/min
8/25/2022 12:15 PM	33:00	6.66 pH	65.67 °F	384,186 µS/cm	0.01 mg/L	7.38 NTU	-11.4 mV	4.72 ft	150.00 ml/min
8/25/2022 12:18 PM	36:00	6.66 pH	65.64 °F	380,329 µS/cm	0.01 mg/L	7.66 NTU	-12.5 mV	4.72 ft	150.00 ml/min
8/25/2022 12:21 PM	39:00	6.66 pH	65.69 °F	379,225 µS/cm	0.01 mg/L	7.94 NTU	-13.3 mV	4.72 ft	150.00 ml/min

8/25/2022 12:24 PM	42:00	6.66 pH	65.79 °F	384,216 μS/cm	0.01 mg/L	8.62 NTU	-13.7 mV	4.72 ft	150.00 ml/min
8/25/2022 12:27 PM	45:00	6.66 pH	65.78 °F	397,744 μS/cm	0.01 mg/L	9.05 NTU	-14.5 mV	4.72 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-514	Sample time 1240 Rdo 0.01 Final dtw 5.71

# Low-Flow Test Report:

Test Date / Time: 8/25/2022 8:16:18 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: MW-515</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.91 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 3150 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 8:16 AM	00:00	6.78 pH	65.30 °F	2.067e+06 µS/cm	1.46 mg/L	6.46 NTU	193.2 mV	4.91 ft	150.00 ml/min
8/25/2022 8:19 AM	03:00	6.85 pH	65.79 °F	2.105e+06 µS/cm	0.21 mg/L	22.22 NTU	142.0 mV	4.91 ft	150.00 ml/min
8/25/2022 8:22 AM	06:00	6.85 pH	66.43 °F	2.015e+06 µS/cm	0.16 mg/L	6.50 NTU	124.5 mV	4.91 ft	150.00 ml/min
8/25/2022 8:25 AM	09:00	6.83 pH	66.65 °F	1.819e+06 µS/cm	0.13 mg/L	6.56 NTU	121.8 mV	4.91 ft	150.00 ml/min
8/25/2022 8:28 AM	12:00	6.82 pH	67.04 °F	1.695e+06 µS/cm	0.13 mg/L	6.47 NTU	120.4 mV	4.91 ft	150.00 ml/min
8/25/2022 8:31 AM	15:00	6.81 pH	67.20 °F	1.644e+06 µS/cm	0.10 mg/L	6.61 NTU	118.3 mV	4.91 ft	150.00 ml/min
8/25/2022 8:34 AM	18:00	6.81 pH	67.26 °F	1.625e+06 µS/cm	0.10 mg/L	6.69 NTU	115.2 mV	4.91 ft	150.00 ml/min
8/25/2022 8:37 AM	21:00	6.81 pH	67.46 °F	1.614e+06 µS/cm	0.09 mg/L	6.66 NTU	113.3 mV	4.91 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-515	Sample time 0845 Final dtw 4.91 Rdo 0.08





# Low-Flow Test Report:

Test Date / Time: 8/25/2022 9:07:06 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: MW-516</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.57 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 9:07 AM	00:00	7.03 pH	68.31 °F	910,139 µS/cm	4.18 mg/L	6.71 NTU	138.5 mV	4.57 ft	150.00 ml/min
8/25/2022 9:10 AM	03:00	6.67 pH	69.17 °F	842,413 µS/cm	0.00 mg/L	6.83 NTU	123.8 mV	4.57 ft	150.00 ml/min
8/25/2022 9:13 AM	06:00	6.65 pH	69.58 °F	804,053 µS/cm	0.00 mg/L	6.84 NTU	112.5 mV	4.57 ft	150.00 ml/min
8/25/2022 9:16 AM	09:00	6.64 pH	69.94 °F	761,330 µS/cm	0.00 mg/L	6.89 NTU	102.8 mV	4.57 ft	150.00 ml/min
8/25/2022 9:19 AM	12:00	6.64 pH	70.13 °F	760,574 µS/cm	0.00 mg/L	6.82 NTU	96.1 mV	4.57 ft	150.00 ml/min
8/25/2022 9:22 AM	15:00	6.63 pH	70.18 °F	762,932 µS/cm	0.00 mg/L	6.84 NTU	90.1 mV	4.57 ft	150.00 ml/min
8/25/2022 9:25 AM	18:00	6.63 pH	70.25 °F	757,123 µS/cm	0.00 mg/L	6.93 NTU	80.4 mV	4.57 ft	150.00 ml/min
8/25/2022 9:28 AM	21:00	6.63 pH	70.32 °F	769,805 µS/cm	0.00 mg/L	7.21 NTU	72.7 mV	4.57 ft	150.00 ml/min
8/25/2022 9:31 AM	24:00	6.63 pH	70.34 °F	761,269 µS/cm	0.00 mg/L	7.56 NTU	66.5 mV	4.57 ft	150.00 ml/min
8/25/2022 9:34 AM	27:00	6.63 pH	70.37 °F	765,985 µS/cm	0.00 mg/L	8.21 NTU	61.1 mV	4.57 ft	150.00 ml/min
8/25/2022 9:37 AM	30:00	6.63 pH	70.29 °F	769,736 µS/cm	0.00 mg/L	7.03 NTU	56.8 mV	4.57 ft	150.00 ml/min
8/25/2022 9:40 AM	33:00	6.63 pH	70.27 °F	764,983 µS/cm	0.00 mg/L	8.41 NTU	52.7 mV	4.57 ft	150.00 ml/min
8/25/2022 9:43 AM	36:00	6.63 pH	70.30 °F	767,497 µS/cm	0.00 mg/L	8.03 NTU	50.0 mV	4.57 ft	150.00 ml/min
8/25/2022 9:46 AM	39:00	6.63 pH	70.27 °F	760,486 µS/cm	0.00 mg/L	8.73 NTU	46.6 mV	4.57 ft	150.00 ml/min

8/25/2022 9:49 AM	42:00	6.63 pH	70.30 °F	756,764 μS/cm	0.00 mg/L	9.96 NTU	43.8 mV	4.57 ft	150.00 ml/min
8/25/2022 9:52 AM	45:00	6.63 pH	70.33 °F	761,459 μS/cm	0.00 mg/L	10.84 NTU	41.2 mV	4.57 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-516	Sample time 1000 Final dtw 4.57 Rdo 0.00

# Low-Flow Test Report:

Test Date / Time: 8/25/2022 10:24:18 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: MW-517</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.33 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/25/2022 10:24 AM	00:00	6.69 pH	69.73 °F	829,968 µS/cm	0.00 mg/L	11.63 NTU	116.6 mV	5.33 ft	150.00 ml/min
8/25/2022 10:27 AM	03:00	6.68 pH	69.53 °F	740,564 µS/cm	0.00 mg/L	19.79 NTU	112.8 mV	5.33 ft	150.00 ml/min
8/25/2022 10:30 AM	06:00	6.71 pH	70.13 °F	549,095 µS/cm	0.00 mg/L	9.96 NTU	108.4 mV	5.33 ft	150.00 ml/min
8/25/2022 10:33 AM	09:00	6.69 pH	70.36 °F	496,588 µS/cm	0.01 mg/L	7.78 NTU	109.0 mV	5.33 ft	150.00 ml/min
8/25/2022 10:36 AM	12:00	6.70 pH	70.37 °F	482,451 µS/cm	0.02 mg/L	7.15 NTU	109.6 mV	5.33 ft	150.00 ml/min
8/25/2022 10:39 AM	15:00	6.68 pH	70.42 °F	492,025 µS/cm	0.01 mg/L	7.18 NTU	111.7 mV	5.33 ft	150.00 ml/min
8/25/2022 10:42 AM	18:00	6.69 pH	70.57 °F	502,599 µS/cm	0.01 mg/L	7.24 NTU	112.1 mV	5.33 ft	150.00 ml/min
8/25/2022 10:45 AM	21:00	6.68 pH	70.46 °F	489,958 µS/cm	0.01 mg/L	7.23 NTU	113.2 mV	5.33 ft	150.00 ml/min
8/25/2022 10:48 AM	24:00	6.70 pH	70.45 °F	498,116 µS/cm	0.01 mg/L	8.11 NTU	114.3 mV	5.33 ft	150.00 ml/min
8/25/2022 10:51 AM	27:00	6.68 pH	70.55 °F	487,907 µS/cm	0.02 mg/L	37.37 NTU	117.4 mV	5.33 ft	150.00 ml/min
8/25/2022 10:54 AM	30:00	6.69 pH	70.65 °F	497,406 µS/cm	0.01 mg/L	56.70 NTU	118.9 mV	5.33 ft	150.00 ml/min
8/25/2022 10:57 AM	33:00	6.68 pH	70.99 °F	495,142 µS/cm	0.01 mg/L	12.21 NTU	119.9 mV	5.33 ft	150.00 ml/min
8/25/2022 11:00 AM	36:00	6.68 pH	71.02 °F	507,578 µS/cm	0.01 mg/L	7.31 NTU	120.3 mV	5.33 ft	150.00 ml/min
8/25/2022 11:03 AM	39:00	6.68 pH	70.97 °F	472,422 µS/cm	0.03 mg/L	7.27 NTU	120.8 mV	5.33 ft	150.00 ml/min

8/25/2022 11:06 AM	42:00	6.69 pH	71.02 °F	481,240 µS/cm	0.02 mg/L	7.51 NTU	121.5 mV	5.33 ft	150.00 ml/min
8/25/2022 11:09 AM	45:00	6.67 pH	71.22 °F	480,175 µS/cm	0.02 mg/L	7.36 NTU	122.4 mV	5.33 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-517	Sample time 1120 Final dtw 5.34 Rdo 0.02

# Low-Flow Test Report:

Test Date / Time: 8/22/2022 11:34:27 AM

Project: Edmonds Terminal 3Q22 (2)

Operator Name: DSG

<p><b>Location Name: MW-518</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 2.5 ft</b>  <b>Total Depth: 12.5 ft</b>  <b>Initial Depth to Water: 8.7 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 10 ft</b>  <b>Estimated Total Volume Pumped: 2700 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/22/2022 11:34 AM	00:00	7.07 pH	71.75 °F	193,452 µS/cm	2.25 mg/L	46.91 NTU	-39.3 mV	8.70 ft	150.00 ml/min
8/22/2022 11:37 AM	03:00	7.05 pH	69.59 °F	262,376 µS/cm	0.13 mg/L	7.93 NTU	-56.8 mV	8.70 ft	150.00 ml/min
8/22/2022 11:40 AM	06:00	7.06 pH	69.18 °F	262,503 µS/cm	0.06 mg/L	7.77 NTU	-63.7 mV	8.70 ft	150.00 ml/min
8/22/2022 11:43 AM	09:00	7.06 pH	68.75 °F	262,536 µS/cm	0.05 mg/L	7.60 NTU	-70.5 mV	8.70 ft	150.00 ml/min
8/22/2022 11:46 AM	12:00	7.07 pH	69.39 °F	262,763 µS/cm	0.06 mg/L	7.53 NTU	-74.3 mV	8.70 ft	150.00 ml/min
8/22/2022 11:49 AM	15:00	7.01 pH	69.47 °F	262,758 µS/cm	0.05 mg/L	7.45 NTU	-76.4 mV	8.70 ft	150.00 ml/min
8/22/2022 11:52 AM	18:00	7.01 pH	69.49 °F	262,608 µS/cm	0.05 mg/L	7.37 NTU	-78.3 mV	8.70 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-518	Sample Time 1206 Final DTW 8.75 ft btoc Final RDO 0.05 mg/L



# Low-Flow Test Report:

Test Date / Time: 8/22/2022 1:23:48 PM

Project: Edmonds Terminal 3Q22 (5)

Operator Name: JMS

<b>Location Name: MW-519</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.03 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 1322

Initial PID: 97.3 ppm

## Weather Conditions:

75F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/22/2022 1:23 PM	00:00	6.38 pH	69.24 °F	1,064.7 µS/cm	5.32 mg/L	8.39 NTU	42.1 mV	7.03 ft	150.00 ml/min
8/22/2022 1:26 PM	03:00	6.58 pH	69.34 °F	1,064.7 µS/cm	0.85 mg/L	4.41 NTU	45.7 mV	7.03 ft	150.00 ml/min
8/22/2022 1:29 PM	06:00	6.61 pH	69.90 °F	1,065.1 µS/cm	0.79 mg/L	0.00 NTU	51.4 mV	7.03 ft	150.00 ml/min
8/22/2022 1:32 PM	09:00	6.61 pH	70.30 °F	1,064.5 µS/cm	0.83 mg/L	0.00 NTU	59.3 mV	7.03 ft	150.00 ml/min
8/22/2022 1:35 PM	12:00	6.61 pH	70.90 °F	1,068.0 µS/cm	0.78 mg/L	0.00 NTU	67.3 mV	7.03 ft	150.00 ml/min
8/22/2022 1:38 PM	15:00	6.61 pH	71.02 °F	1,071.6 µS/cm	0.69 mg/L	0.00 NTU	71.7 mV	7.03 ft	150.00 ml/min
8/22/2022 1:41 PM	18:00	6.60 pH	71.03 °F	1,072.2 µS/cm	0.68 mg/L	0.00 NTU	77.2 mV	7.03 ft	150.00 ml/min
8/22/2022 1:44 PM	21:00	6.60 pH	71.61 °F	1,076.3 µS/cm	0.73 mg/L	0.00 NTU	84.4 mV	7.03 ft	150.00 ml/min
8/22/2022 1:47 PM	24:00	6.62 pH	71.58 °F	1,070.2 µS/cm	0.90 mg/L	2.86 NTU	95.4 mV	7.03 ft	150.00 ml/min
8/22/2022 1:50 PM	27:00	6.60 pH	71.53 °F	1,075.4 µS/cm	0.67 mg/L	1.42 NTU	96.3 mV	7.03 ft	150.00 ml/min
8/22/2022 1:53 PM	30:00	6.60 pH	71.54 °F	1,073.0 µS/cm	0.75 mg/L	0.00 NTU	100.0 mV	7.03 ft	150.00 ml/min
8/22/2022 1:56 PM	33:00	6.60 pH	71.63 °F	1,074.5 µS/cm	0.79 mg/L	0.00 NTU	107.2 mV	7.03 ft	150.00 ml/min



8/22/2022 1:59 PM	36:00	6.60 pH	71.44 °F	1,075.2 µS/cm	0.76 mg/L	0.00 NTU	109.7 mV	7.03 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-519	Sample Time: 1402 Final DTW: 7.04 ft btoc Final RDO: 0.76 mg/L

# Low-Flow Test Report:

Test Date / Time: 8/24/2022 11:56:59 AM

Project: Edmonds Terminal 3Q22 (11)

Operator Name: JMS

<b>Location Name: MW-520</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.7 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 1155

Initial PID: 0.0 ppm

## Weather Conditions:

80F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/24/2022 11:56 AM	00:00	8.10 pH	68.55 °F	3,169.7 µS/cm	5.37 mg/L	3.21 NTU	-3.0 mV	7.70 ft	150.00 ml/min
8/24/2022 11:59 AM	03:00	6.95 pH	66.32 °F	2,519.8 µS/cm	0.53 mg/L	0.16 NTU	4.8 mV	7.70 ft	150.00 ml/min
8/24/2022 12:02 PM	06:00	6.85 pH	66.33 °F	2,258.9 µS/cm	0.43 mg/L	0.00 NTU	6.3 mV	7.70 ft	150.00 ml/min
8/24/2022 12:05 PM	09:00	6.81 pH	66.68 °F	2,182.2 µS/cm	0.38 mg/L	0.00 NTU	5.3 mV	7.70 ft	150.00 ml/min
8/24/2022 12:08 PM	12:00	6.80 pH	66.59 °F	2,044.3 µS/cm	0.34 mg/L	0.00 NTU	5.7 mV	7.70 ft	150.00 ml/min
8/24/2022 12:11 PM	15:00	6.79 pH	66.68 °F	1,979.3 µS/cm	0.30 mg/L	0.00 NTU	6.4 mV	7.70 ft	150.00 ml/min
8/24/2022 12:14 PM	18:00	6.79 pH	66.65 °F	1,941.3 µS/cm	0.27 mg/L	0.00 NTU	5.0 mV	7.70 ft	150.00 ml/min
8/24/2022 12:17 PM	21:00	6.79 pH	66.50 °F	1,883.6 µS/cm	0.26 mg/L	0.00 NTU	4.8 mV	7.70 ft	150.00 ml/min
8/24/2022 12:20 PM	24:00	6.78 pH	66.72 °F	1,879.1 µS/cm	0.26 mg/L	0.00 NTU	4.9 mV	7.70 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-520

Sample Time: 1222  
Final DTW: 7.69 ft btoc  
Final RDO: 0.26 mg/L

# Low-Flow Test Report:

Test Date / Time: 8/24/2022 12:45:56 PM

Project: Edmonds Terminal 3Q22 (12)

Operator Name: JMS

<b>Location Name: MW-521</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.6 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 1244

Initial PID: 0.0 ppm

## Weather Conditions:

75F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/24/2022 12:45 PM	00:00	7.08 pH	68.65 °F	3.76 µS/cm	9.94 mg/L	5.15 NTU	20.6 mV	6.60 ft	150.00 ml/min
8/24/2022 12:48 PM	03:00	6.79 pH	68.60 °F	956.74 µS/cm	3.35 mg/L	0.00 NTU	44.2 mV	6.60 ft	150.00 ml/min
8/24/2022 12:51 PM	06:00	6.76 pH	68.72 °F	950.81 µS/cm	3.03 mg/L	0.00 NTU	51.4 mV	6.60 ft	150.00 ml/min
8/24/2022 12:54 PM	09:00	6.75 pH	68.54 °F	946.20 µS/cm	3.19 mg/L	0.00 NTU	55.3 mV	6.60 ft	150.00 ml/min
8/24/2022 12:57 PM	12:00	6.74 pH	68.37 °F	944.51 µS/cm	3.06 mg/L	0.00 NTU	60.2 mV	6.60 ft	150.00 ml/min
8/24/2022 1:00 PM	15:00	6.73 pH	68.49 °F	945.89 µS/cm	2.85 mg/L	0.00 NTU	64.0 mV	6.60 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-521	Sample Time: 1302 Final DTW: 6.62 ft btoc Final RDO: 2.85 mg/L



# Low-Flow Test Report:

Test Date / Time: 8/24/2022 12:43:27 PM

Project: Edmonds Terminal 3Q22 (2)

Operator Name: SG

<b>Location Name: MW-522</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 8.26 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.07 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 12:43 PM	00:00	7.72 pH	64.14 °F	1,126.6 µS/cm	5.38 mg/L	94.97 NTU	15.4 mV	8.26 ft	150.00 ml/min
8/24/2022 12:46 PM	03:00	7.09 pH	61.51 °F	747.72 µS/cm	0.59 mg/L	123.96 NTU	32.8 mV	8.26 ft	150.00 ml/min
8/24/2022 12:49 PM	06:00	7.01 pH	61.55 °F	704.40 µS/cm	0.44 mg/L	125.10 NTU	38.8 mV	8.26 ft	150.00 ml/min
8/24/2022 12:52 PM	09:00	6.95 pH	61.53 °F	683.73 µS/cm	0.34 mg/L	124.89 NTU	40.4 mV	8.26 ft	150.00 ml/min
8/24/2022 12:55 PM	12:00	6.88 pH	61.37 °F	676.60 µS/cm	0.29 mg/L	125.03 NTU	43.6 mV	8.26 ft	150.00 ml/min
8/24/2022 12:58 PM	15:00	6.83 pH	61.35 °F	677.02 µS/cm	0.30 mg/L	125.17 NTU	45.3 mV	8.26 ft	150.00 ml/min
8/24/2022 1:01 PM	18:00	6.81 pH	61.27 °F	676.45 µS/cm	0.30 mg/L	0.00 NTU	45.6 mV	8.26 ft	150.00 ml/min
8/24/2022 1:04 PM	21:00	6.80 pH	61.17 °F	675.32 µS/cm	0.39 mg/L	0.00 NTU	45.8 mV	8.26 ft	150.00 ml/min
8/24/2022 1:07 PM	24:00	6.77 pH	61.19 °F	674.36 µS/cm	0.46 mg/L	0.00 NTU	47.0 mV	8.26 ft	150.00 ml/min
8/24/2022 1:10 PM	27:00	6.74 pH	61.19 °F	674.52 µS/cm	0.68 mg/L	0.00 NTU	47.7 mV	8.26 ft	150.00 ml/min
8/24/2022 1:13 PM	30:00	6.74 pH	61.21 °F	674.26 µS/cm	0.69 mg/L	0.00 NTU	47.9 mV	8.26 ft	150.00 ml/min
8/24/2022 1:16 PM	33:00	6.73 pH	61.16 °F	673.88 µS/cm	0.73 mg/L	0.00 NTU	48.2 mV	8.26 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-522	Sample Time 1136 Final DTW 8.33 ft btoc Final RDO 0.73 mg/L
MW-522 MSMSD	

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 10:16:52 AM

Project: Edmonds Terminal 3Q22

Operator Name: Peter Bruno

<b>Location Name: MW-525</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.81 ft</b>	<b>Pump Type: Geotechnical Geopump series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Overcast 70 degrees F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 10:16 AM	00:00	6.37 pH	64.57 °F	713,066 µS/cm	0.00 mg/L	10.70 NTU	92.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:19 AM	03:00	6.33 pH	65.22 °F	654,891 µS/cm	0.00 mg/L	10.08 NTU	99.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:22 AM	06:00	6.30 pH	65.43 °F	635,105 µS/cm	0.00 mg/L	9.32 NTU	98.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:25 AM	09:00	6.29 pH	65.74 °F	646,485 µS/cm	0.00 mg/L	8.57 NTU	94.5 mV	6.81 ft	150.00 ml/min
8/23/2022 10:28 AM	12:00	6.30 pH	65.60 °F	660,565 µS/cm	0.00 mg/L	9.64 NTU	86.8 mV	6.81 ft	150.00 ml/min
8/23/2022 10:31 AM	15:00	6.30 pH	65.66 °F	682,797 µS/cm	0.00 mg/L	9.49 NTU	80.5 mV	6.81 ft	150.00 ml/min
8/23/2022 10:34 AM	18:00	6.30 pH	65.81 °F	705,549 µS/cm	0.00 mg/L	10.99 NTU	75.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:37 AM	21:00	6.30 pH	65.87 °F	727,717 µS/cm	0.00 mg/L	13.82 NTU	71.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:40 AM	24:00	6.29 pH	65.87 °F	738,483 µS/cm	0.00 mg/L	13.96 NTU	68.9 mV	6.81 ft	150.00 ml/min
8/23/2022 10:43 AM	27:00	6.29 pH	66.16 °F	748,052 µS/cm	0.00 mg/L	14.23 NTU	66.7 mV	6.81 ft	150.00 ml/min
8/23/2022 10:46 AM	30:00	6.27 pH	66.30 °F	749,019 µS/cm	0.00 mg/L	20.67 NTU	65.4 mV	6.81 ft	150.00 ml/min
8/23/2022 10:49 AM	33:00	6.26 pH	66.88 °F	813,581 µS/cm	0.00 mg/L	26.99 NTU	63.1 mV	6.81 ft	150.00 ml/min
8/23/2022 10:52 AM	36:00	6.27 pH	66.64 °F	750,159 µS/cm	0.00 mg/L	81.02 NTU	58.6 mV	6.81 ft	150.00 ml/min



8/23/2022 10:55 AM	39:00	6.29 pH	66.39 °F	790,224 μS/cm	0.00 mg/L	82.03 NTU	55.5 mV	6.81 ft	150.00 ml/min
8/23/2022 10:58 AM	42:00	6.28 pH	66.47 °F	764,693 μS/cm	0.00 mg/L	73.28 NTU	53.0 mV	6.81 ft	150.00 ml/min
8/23/2022 11:01 AM	45:00	6.30 pH	67.22 °F	678,560 μS/cm	0.00 mg/L	84.06 NTU	49.0 mV	6.81 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-525	Sample time: 1115 Final DTW: 8.95

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 11:28:03 AM

Project: Edmonds Terminal 3Q22 (4)

Operator Name: DSG

<b>Location Name: MW-526</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.49 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.45 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 11:28 AM	00:00	6.18 pH	63.75 °F	277.35 µS/cm	2.76 mg/L	0.00 NTU	156.3 mV	5.49 ft	150.00 ml/min
8/23/2022 11:31 AM	03:00	6.05 pH	64.73 °F	268.13 µS/cm	0.73 mg/L	0.00 NTU	114.6 mV	5.49 ft	150.00 ml/min
8/23/2022 11:34 AM	06:00	5.98 pH	65.21 °F	241.30 µS/cm	0.53 mg/L	25.85 NTU	95.7 mV	5.49 ft	150.00 ml/min
8/23/2022 11:37 AM	09:00	5.99 pH	65.48 °F	238.77 µS/cm	0.53 mg/L	29.05 NTU	87.3 mV	5.49 ft	150.00 ml/min
8/23/2022 11:40 AM	12:00	5.95 pH	65.56 °F	234.38 µS/cm	0.54 mg/L	5.92 NTU	82.9 mV	5.49 ft	150.00 ml/min
8/23/2022 11:43 AM	15:00	5.95 pH	65.55 °F	243.56 µS/cm	0.46 mg/L	0.69 NTU	79.9 mV	5.49 ft	150.00 ml/min
8/23/2022 11:46 AM	18:00	5.95 pH	65.46 °F	245.65 µS/cm	0.44 mg/L	0.00 NTU	75.9 mV	5.49 ft	150.00 ml/min
8/23/2022 11:49 AM	21:00	5.96 pH	65.51 °F	254.79 µS/cm	0.37 mg/L	0.00 NTU	71.6 mV	5.49 ft	150.00 ml/min
8/23/2022 11:52 AM	24:00	5.93 pH	65.83 °F	246.41 µS/cm	0.53 mg/L	0.00 NTU	75.3 mV	5.49 ft	150.00 ml/min
8/23/2022 11:55 AM	27:00	5.93 pH	65.70 °F	250.36 µS/cm	0.47 mg/L	0.00 NTU	76.2 mV	5.49 ft	150.00 ml/min
8/23/2022 11:58 AM	30:00	5.96 pH	65.67 °F	252.34 µS/cm	0.66 mg/L	0.00 NTU	75.8 mV	5.49 ft	150.00 ml/min
8/23/2022 12:01 PM	33:00	5.97 pH	65.71 °F	249.83 µS/cm	0.68 mg/L	0.00 NTU	75.4 mV	5.49 ft	150.00 ml/min

8/23/2022 12:04 PM	36:00	5.90 pH	65.73 °F	249.20 µS/cm	0.44 mg/L	0.00 NTU	77.0 mV	5.49 ft	150.00 ml/min
8/23/2022 12:07 PM	39:00	5.86 pH	66.03 °F	238.07 µS/cm	0.22 mg/L	0.00 NTU	75.6 mV	5.49 ft	150.00 ml/min
8/23/2022 12:10 PM	42:00	5.89 pH	65.86 °F	246.33 µS/cm	0.25 mg/L	0.00 NTU	72.3 mV	5.49 ft	150.00 ml/min
8/23/2022 12:13 PM	45:00	5.87 pH	65.81 °F	242.05 µS/cm	0.29 mg/L	0.00 NTU	73.0 mV	5.49 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-526	<p>Sample Time 12:26  Final DTW 5.94 ft btoc  Final RDO: 0.29 mg/L</p> <p>RDO did not stabilize after 45 minutes</p>
Dup-3	

# Low-Flow Test Report:

Test Date / Time: 8/24/2022 9:18:27 AM

Project: Edmonds Terminal 3Q22 (10)

Operator Name: JMS

<b>Location Name: MW-530</b> <b>Well Diameter: 1 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 6.6 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

Pump on at 0917

Initial PID: 0.0 ppm

## Weather Conditions:

70 F clear

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/24/2022 9:18 AM	00:00	5.85 pH	64.10 °F	133.13 µS/cm	9.79 mg/L	111.95 NTU	-27.6 mV	6.60 ft	150.00 ml/min
8/24/2022 9:21 AM	03:00	6.40 pH	59.61 °F	28,897 µS/cm	0.36 mg/L	116.62 NTU	-99.6 mV	6.60 ft	150.00 ml/min
8/24/2022 9:24 AM	06:00	6.51 pH	59.24 °F	26,973 µS/cm	0.40 mg/L	24.38 NTU	-122.3 mV	6.60 ft	150.00 ml/min
8/24/2022 9:27 AM	09:00	6.58 pH	59.17 °F	26,120 µS/cm	0.32 mg/L	6.79 NTU	-140.3 mV	6.60 ft	150.00 ml/min
8/24/2022 9:30 AM	12:00	6.67 pH	59.28 °F	25,563 µS/cm	0.10 mg/L	0.62 NTU	-154.2 mV	6.60 ft	150.00 ml/min
8/24/2022 9:33 AM	15:00	6.75 pH	59.16 °F	24,975 µS/cm	0.11 mg/L	0.00 NTU	-171.4 mV	6.60 ft	150.00 ml/min
8/24/2022 9:36 AM	18:00	6.81 pH	59.13 °F	24,228 µS/cm	0.17 mg/L	0.00 NTU	-185.2 mV	6.60 ft	150.00 ml/min
8/24/2022 9:39 AM	21:00	6.84 pH	59.15 °F	23,455 µS/cm	0.07 mg/L	0.00 NTU	-204.1 mV	6.60 ft	150.00 ml/min
8/24/2022 9:42 AM	24:00	6.85 pH	59.07 °F	23,201 µS/cm	0.07 mg/L	0.00 NTU	-218.7 mV	6.60 ft	150.00 ml/min
8/24/2022 9:45 AM	27:00	6.84 pH	59.15 °F	23,166 µS/cm	0.09 mg/L	0.00 NTU	-227.4 mV	6.60 ft	150.00 ml/min
8/24/2022 9:48 AM	30:00	6.81 pH	59.08 °F	22,922 µS/cm	0.10 mg/L	0.00 NTU	-236.3 mV	6.60 ft	150.00 ml/min
8/24/2022 9:51 AM	33:00	6.78 pH	59.12 °F	22,577 µS/cm	0.07 mg/L	0.00 NTU	-243.9 mV	6.60 ft	150.00 ml/min

8/24/2022 9:54 AM	36:00	6.74 pH	58.93 °F	22,438 µS/cm	0.11 mg/L	0.00 NTU	-248.7 mV	6.60 ft	150.00 ml/min
8/24/2022 9:57 AM	39:00	6.72 pH	58.78 °F	22,066 µS/cm	0.11 mg/L	0.00 NTU	-252.9 mV	6.60 ft	150.00 ml/min
8/24/2022 10:00 AM	42:00	6.70 pH	58.82 °F	21,640 µS/cm	0.08 mg/L	0.00 NTU	-256.9 mV	6.60 ft	150.00 ml/min
8/24/2022 10:03 AM	45:00	6.69 pH	58.69 °F	21,411 µS/cm	0.10 mg/L	0.00 NTU	-260.2 mV	6.60 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-530	Sample Time: 1012 Final DTW: 7.59 ft btoc Final RDO: 0.10 mg/L RDO and ORP did not stabilize

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 11:00:39 AM

Project: Edmonds Terminal 3Q22 (7)

Operator Name: JMS

<b>Location Name: MW-531</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.64 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

Pump on at 1059

Initial PID: 0.0 ppm

Turbid brown water at beginning of test.

## Weather Conditions:

73F heavy fog

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/23/2022 11:00 AM	00:00	5.81 pH	69.29 °F	1.408e+06 µS/cm	8.02 mg/L	0.00 NTU	69.4 mV	7.64 ft	150.00 ml/min
8/23/2022 11:03 AM	03:00	5.71 pH	66.42 °F	1.399e+06 µS/cm	1.02 mg/L	0.00 NTU	76.2 mV	7.64 ft	150.00 ml/min
8/23/2022 11:06 AM	06:00	5.72 pH	66.53 °F	1.304e+06 µS/cm	0.88 mg/L	98.70 NTU	77.4 mV	7.64 ft	150.00 ml/min
8/23/2022 11:09 AM	09:00	5.75 pH	66.16 °F	1.095e+06 µS/cm	0.82 mg/L	80.76 NTU	77.7 mV	7.64 ft	150.00 ml/min
8/23/2022 11:12 AM	12:00	5.74 pH	66.63 °F	919,418 µS/cm	0.54 mg/L	5.72 NTU	79.1 mV	7.64 ft	150.00 ml/min
8/23/2022 11:15 AM	15:00	5.73 pH	66.66 °F	973,017 µS/cm	0.41 mg/L	79.02 NTU	80.3 mV	7.64 ft	150.00 ml/min
8/23/2022 11:18 AM	18:00	5.73 pH	66.59 °F	844,540 µS/cm	0.00 mg/L	120.61 NTU	81.6 mV	7.64 ft	150.00 ml/min
8/23/2022 11:21 AM	21:00	5.73 pH	66.45 °F	908,998 µS/cm	0.38 mg/L	153.68 NTU	82.8 mV	7.64 ft	150.00 ml/min
8/23/2022 11:24 AM	24:00	5.73 pH	66.40 °F	827,430 µS/cm	0.00 mg/L	153.27 NTU	83.8 mV	7.64 ft	150.00 ml/min
8/23/2022 11:27 AM	27:00	5.73 pH	66.33 °F	900,861 µS/cm	0.40 mg/L	157.79 NTU	84.7 mV	7.64 ft	150.00 ml/min
8/23/2022 11:30 AM	30:00	5.72 pH	66.35 °F	822,891 µS/cm	0.00 mg/L	159.43 NTU	85.6 mV	7.64 ft	150.00 ml/min

8/23/2022 11:33 AM	33:00	5.72 pH	66.47 °F	787,575 μS/cm	0.00 mg/L	158.59 NTU	86.4 mV	7.64 ft	150.00 ml/min
8/23/2022 11:36 AM	36:00	5.72 pH	66.59 °F	819,924 μS/cm	0.00 mg/L	159.85 NTU	87.2 mV	7.64 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-531	Sample Time: 1142 Final DTW: 7.65 ft btoc Final RDO: 0.00 mg/L

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 12:09:50 PM

Project: Edmonds Terminal 3Q22 (8)

Operator Name: JMS

<b>Location Name: MW-532</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.34 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 7135 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

Pump on at 1208

Initial PID: 11.8 ppm

Test interrupted by sensor fault

## Weather Conditions:

75F partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/23/2022 12:09 PM	00:00	5.84 pH	65.01 °F	133,276 µS/cm	1.88 mg/L	0.00 NTU	101.3 mV	7.34 ft	150.00 ml/min
8/23/2022 12:12 PM	03:00	5.28 pH	63.31 °F	111,062 µS/cm	1.37 mg/L	78.71 NTU	104.9 mV	7.34 ft	150.00 ml/min
8/23/2022 12:15 PM	06:00	5.12 pH	63.87 °F	107,236 µS/cm	1.38 mg/L	99.82 NTU	116.4 mV	7.34 ft	150.00 ml/min
8/23/2022 12:18 PM	09:00	5.17 pH	64.14 °F	108,694 µS/cm	1.72 mg/L	133.21 NTU	115.9 mV	7.34 ft	150.00 ml/min
8/23/2022 12:21 PM	12:00	5.20 pH	63.99 °F	109,697 µS/cm	1.90 mg/L	144.34 NTU	114.2 mV	7.34 ft	150.00 ml/min
8/23/2022 12:24 PM	15:00	5.23 pH	63.53 °F	110,167 µS/cm	1.83 mg/L	148.70 NTU	111.4 mV	7.34 ft	150.00 ml/min
8/23/2022 12:27 PM	18:00	5.20 pH	63.19 °F	112,298 µS/cm	1.56 mg/L	156.10 NTU	111.2 mV	7.34 ft	150.00 ml/min
8/23/2022 12:30 PM	21:00	5.21 pH	62.81 °F	114,458 µS/cm	1.27 mg/L	154.12 NTU	107.6 mV	7.34 ft	150.00 ml/min
8/23/2022 12:33 PM	24:00	5.22 pH	62.73 °F	116,699 µS/cm	0.95 mg/L	150.00 NTU	103.3 mV	7.34 ft	150.00 ml/min
8/23/2022 12:36 PM	27:00	5.25 pH	62.60 °F	119,165 µS/cm	0.67 mg/L	153.94 NTU	95.7 mV	7.34 ft	150.00 ml/min



8/23/2022 12:39 PM	30:00	5.28 pH	62.36 °F	120,817 µS/cm	0.45 mg/L	149.15 NTU	85.7 mV	7.34 ft	150.00 ml/min
8/23/2022 12:42 PM	32:34	5.29 pH	62.44 °F	130,469 µS/cm	0.20 mg/L	102.30 NTU	77.0 mV	7.34 ft	150.00 ml/min
8/23/2022 12:45 PM	35:34	5.35 pH	63.19 °F	139,772 µS/cm	0.11 mg/L	146.90 NTU	60.9 mV	7.34 ft	150.00 ml/min
8/23/2022 12:48 PM	38:34	5.39 pH	62.82 °F	140,051 µS/cm	0.10 mg/L	151.11 NTU	50.5 mV	7.34 ft	150.00 ml/min
8/23/2022 12:51 PM	41:34	5.40 pH	62.98 °F	140,512 µS/cm	0.10 mg/L	147.22 NTU	45.8 mV	7.34 ft	150.00 ml/min
8/23/2022 12:54 PM	44:34	5.40 pH	63.08 °F	140,284 µS/cm	0.10 mg/L	140.90 NTU	42.2 mV	7.34 ft	150.00 ml/min
8/23/2022 12:57 PM	47:34	5.41 pH	62.73 °F	139,908 µS/cm	0.10 mg/L	137.35 NTU	39.9 mV	7.34 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-532	Sample Time: 1302 Final RDO: 0.10 mg/L Final DTW: 8.80 ft btoc

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 12:30:50 PM

Project: Edmonds Terminal 3Q22

Operator Name: ES

<b>Location Name: MW-533</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.14 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 12:30 PM	00:00	6.73 pH	70.12 °F	14,491 µS/cm	2.67 mg/L	2.16 NTU	29.5 mV	5.14 ft	150.00 ml/min
8/23/2022 12:33 PM	03:00	6.82 pH	70.07 °F	14,624 µS/cm	0.96 mg/L	1.01 NTU	25.7 mV	5.14 ft	150.00 ml/min
8/23/2022 12:36 PM	06:00	6.83 pH	70.33 °F	14,636 µS/cm	0.97 mg/L	0.00 NTU	26.8 mV	5.14 ft	150.00 ml/min
8/23/2022 12:39 PM	09:00	6.83 pH	70.15 °F	14,667 µS/cm	0.92 mg/L	0.25 NTU	29.1 mV	5.14 ft	150.00 ml/min
8/23/2022 12:42 PM	12:00	6.84 pH	70.09 °F	14,711 µS/cm	0.75 mg/L	0.00 NTU	31.3 mV	5.14 ft	150.00 ml/min
8/23/2022 12:45 PM	15:00	6.84 pH	69.98 °F	14,779 µS/cm	0.74 mg/L	0.00 NTU	31.8 mV	5.14 ft	150.00 ml/min
8/23/2022 12:48 PM	18:00	6.84 pH	70.03 °F	14,863 µS/cm	0.89 mg/L	0.00 NTU	35.8 mV	5.14 ft	150.00 ml/min
8/23/2022 12:51 PM	21:00	6.84 pH	70.11 °F	14,952 µS/cm	0.73 mg/L	0.00 NTU	37.9 mV	5.14 ft	150.00 ml/min
8/23/2022 12:54 PM	24:00	6.84 pH	70.03 °F	15,029 µS/cm	0.69 mg/L	0.00 NTU	39.1 mV	5.14 ft	150.00 ml/min
8/23/2022 12:57 PM	27:00	6.84 pH	70.18 °F	15,166 µS/cm	0.80 mg/L	0.00 NTU	42.4 mV	5.14 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-533	Sample Time- Final DTW-5.14 Final RDO- 0.80

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# Low-Flow Test Report:

Test Date / Time: 8/23/2022 11:21:02 AM

Project: Edmonds Terminal 3Q22 (3)

Operator Name: ES

<b>Location Name: MW-534</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.51 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 3150 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.04 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469050</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/23/2022 11:21 AM	00:00	6.12 pH	67.26 °F	7,106.5 µS/cm	3.92 mg/L	0.59 NTU	23.6 mV	3.51 ft	150.00 ml/min
8/23/2022 11:24 AM	03:00	6.60 pH	68.14 °F	5,956.9 µS/cm	0.51 mg/L	4.79 NTU	-28.6 mV	3.51 ft	150.00 ml/min
8/23/2022 11:27 AM	06:00	6.64 pH	68.72 °F	6,935.5 µS/cm	0.36 mg/L	6.07 NTU	-41.8 mV	3.51 ft	150.00 ml/min
8/23/2022 11:30 AM	09:00	6.65 pH	68.99 °F	6,845.1 µS/cm	0.28 mg/L	0.08 NTU	-48.5 mV	3.51 ft	150.00 ml/min
8/23/2022 11:33 AM	12:00	6.66 pH	69.38 °F	6,778.6 µS/cm	0.26 mg/L	0.00 NTU	-54.3 mV	3.51 ft	150.00 ml/min
8/23/2022 11:36 AM	15:00	6.66 pH	69.60 °F	6,684.1 µS/cm	0.23 mg/L	0.00 NTU	-58.1 mV	3.51 ft	150.00 ml/min
8/23/2022 11:39 AM	18:00	6.67 pH	69.45 °F	6,582.1 µS/cm	0.21 mg/L	0.00 NTU	-61.3 mV	3.51 ft	150.00 ml/min
8/23/2022 11:42 AM	21:00	6.67 pH	69.50 °F	6,475.4 µS/cm	0.20 mg/L	0.00 NTU	-65.1 mV	3.51 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-534

Sample Time- 11:44

Final DTW-3.55

Final RDO-0.22

# Low-Flow Test Report:

Test Date / Time: 8/24/2022 9:20:52 AM

Project: Edmonds Terminal 3Q22 (5)

Operator Name: DSG

<b>Location Name: MW-535</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 14 ft</b> <b>Initial Depth to Water: 4.61 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.31 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
8/24/2022 9:20 AM	00:00	5.91 pH	71.44 °F	4.058e+06 µS/cm	1.81 mg/L	117.66 NTU	307.4 mV	4.61 ft	150.00 ml/min
8/24/2022 9:23 AM	03:00	6.23 pH	70.78 °F	4.164e+06 µS/cm	0.77 mg/L	85.68 NTU	304.0 mV	4.61 ft	150.00 ml/min
8/24/2022 9:26 AM	06:00	6.27 pH	70.51 °F	4.233e+06 µS/cm	0.53 mg/L	150.88 NTU	298.8 mV	4.61 ft	150.00 ml/min
8/24/2022 9:29 AM	09:00	6.30 pH	70.30 °F	4.297e+06 µS/cm	0.34 mg/L	152.36 NTU	292.1 mV	4.61 ft	150.00 ml/min
8/24/2022 9:32 AM	12:00	6.30 pH	70.36 °F	4.296e+06 µS/cm	0.41 mg/L	151.41 NTU	285.8 mV	4.61 ft	150.00 ml/min
8/24/2022 9:35 AM	15:00	6.30 pH	70.39 °F	4.305e+06 µS/cm	0.40 mg/L	152.32 NTU	278.6 mV	4.61 ft	150.00 ml/min
8/24/2022 9:38 AM	18:00	6.30 pH	70.40 °F	4.309e+06 µS/cm	0.38 mg/L	150.29 NTU	271.7 mV	4.61 ft	150.00 ml/min
8/24/2022 9:41 AM	21:00	6.30 pH	70.59 °F	4.241e+06 µS/cm	0.43 mg/L	151.34 NTU	268.4 mV	4.61 ft	150.00 ml/min
8/24/2022 9:44 AM	24:00	6.30 pH	70.35 °F	4.291e+06 µS/cm	0.39 mg/L	152.15 NTU	260.7 mV	4.61 ft	150.00 ml/min
8/24/2022 9:47 AM	27:00	6.30 pH	70.52 °F	4.282e+06 µS/cm	0.40 mg/L	151.64 NTU	255.3 mV	4.61 ft	150.00 ml/min
8/24/2022 9:50 AM	30:00	6.31 pH	70.33 °F	4.286e+06 µS/cm	0.40 mg/L	152.95 NTU	250.6 mV	4.61 ft	150.00 ml/min
8/24/2022 9:53 AM	33:00	6.31 pH	70.35 °F	4.279e+06 µS/cm	0.41 mg/L	151.28 NTU	246.0 mV	4.61 ft	150.00 ml/min

8/24/2022 9:56 AM	36:00	6.31 pH	70.61 °F	4.279e+06 μS/cm	0.41 mg/L	152.60 NTU	241.8 mV	4.61 ft	150.00 ml/min
8/24/2022 9:59 AM	39:00	6.31 pH	70.36 °F	4.286e+06 μS/cm	0.40 mg/L	152.36 NTU	237.8 mV	4.61 ft	150.00 ml/min
8/24/2022 10:02 AM	42:00	6.31 pH	70.54 °F	4.298e+06 μS/cm	0.37 mg/L	152.00 NTU	233.8 mV	4.61 ft	150.00 ml/min
8/24/2022 10:05 AM	45:00	6.31 pH	70.43 °F	4.277e+06 μS/cm	0.39 mg/L	152.00 NTU	230.8 mV	4.61 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-535	<p>Sample Time 1006  Final DTW 4.92  Final RDO 0.39 mg/L</p> <p>Specific conductivity sensor acting strange, purged 45 minutes</p>

# Low-Flow Test Report:

Test Date / Time: 8/23/2022 9:34:53 AM

Project: Edmonds Terminal 3Q22 (6)

Operator Name: JMS

<b>Location Name: MW-ER</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.09 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466586</b>
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## Test Notes:

Pump on at 0933

Initial PID: 3.4 ppm

## Weather Conditions:

68F fog

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10	+/- 15 %		
8/23/2022 9:34 AM	00:00	5.48 pH	64.36 °F	666,036 µS/cm	0.00 mg/L	0.00 NTU	-4.7 mV	7.09 ft	150.00 ml/min
8/23/2022 9:37 AM	03:00	5.49 pH	62.77 °F	635,761 µS/cm	0.00 mg/L	47.28 NTU	-54.0 mV	7.09 ft	150.00 ml/min
8/23/2022 9:40 AM	06:00	5.50 pH	63.04 °F	564,760 µS/cm	0.00 mg/L	96.10 NTU	-63.8 mV	7.09 ft	150.00 ml/min
8/23/2022 9:43 AM	09:00	5.50 pH	63.10 °F	587,363 µS/cm	0.00 mg/L	33.51 NTU	-69.6 mV	7.09 ft	150.00 ml/min
8/23/2022 9:46 AM	12:00	5.50 pH	63.32 °F	532,118 µS/cm	0.00 mg/L	129.21 NTU	-73.4 mV	7.09 ft	150.00 ml/min
8/23/2022 9:49 AM	15:00	5.50 pH	63.30 °F	495,523 µS/cm	0.00 mg/L	120.07 NTU	-76.4 mV	7.09 ft	150.00 ml/min
8/23/2022 9:52 AM	18:00	5.50 pH	63.64 °F	482,612 µS/cm	0.00 mg/L	50.47 NTU	-78.0 mV	7.09 ft	150.00 ml/min
8/23/2022 9:55 AM	21:00	5.50 pH	63.64 °F	474,220 µS/cm	0.00 mg/L	130.50 NTU	-78.9 mV	7.09 ft	150.00 ml/min
8/23/2022 9:58 AM	24:00	5.50 pH	63.53 °F	469,015 µS/cm	0.00 mg/L	142.19 NTU	-79.6 mV	7.09 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-ER	Sample Time: 1002 Final DTW: 7.52 ft btoc Final RDO: 0.0 mg/L  Turbidity is less than 10 NTU. Bubbles accumulating on probe. Small bubbles in tubing intake.
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# Low-Flow Test Report:

Test Date / Time: 11/8/2022 9:43:39 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: LM-2</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5.5 ft</b> <b>Top of Screen: 2.5 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 1.1 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 3.5 ft</b> <b>Estimated Total Volume Pumped: 6907.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Windy 37°F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 9:43 AM	00:00	6.21 pH	53.54 °F	8,780.1 µS/cm	7.42 mg/L	24.38 NTU	-22.8 mV	1.10 ft	150.00 ml/min
11/8/2022 9:46 AM	03:00	6.11 pH	56.21 °F	8,652.1 µS/cm	0.43 mg/L	24.40 NTU	-33.4 mV	1.10 ft	150.00 ml/min
11/8/2022 9:49 AM	06:00	6.09 pH	56.49 °F	8,647.9 µS/cm	0.30 mg/L	24.57 NTU	-36.1 mV	1.10 ft	150.00 ml/min
11/8/2022 9:52 AM	09:00	6.08 pH	56.64 °F	8,671.8 µS/cm	0.25 mg/L	24.74 NTU	-37.7 mV	1.10 ft	150.00 ml/min
11/8/2022 9:55 AM	12:00	6.07 pH	56.80 °F	8,684.8 µS/cm	0.22 mg/L	24.66 NTU	-38.6 mV	1.10 ft	150.00 ml/min
11/8/2022 9:58 AM	15:00	6.05 pH	56.90 °F	8,713.6 µS/cm	0.21 mg/L	24.73 NTU	-39.1 mV	1.10 ft	150.00 ml/min
11/8/2022 10:01 AM	18:00	6.06 pH	56.94 °F	8,716.0 µS/cm	0.20 mg/L	24.76 NTU	-40.5 mV	1.10 ft	150.00 ml/min
11/8/2022 10:04 AM	21:00	6.06 pH	57.17 °F	8,714.9 µS/cm	0.18 mg/L	24.82 NTU	-41.3 mV	1.10 ft	150.00 ml/min
11/8/2022 10:07 AM	24:00	6.05 pH	57.33 °F	8,721.3 µS/cm	0.17 mg/L	24.80 NTU	-42.1 mV	1.10 ft	150.00 ml/min
11/8/2022 10:10 AM	27:00	6.05 pH	57.35 °F	8,733.1 µS/cm	0.15 mg/L	24.94 NTU	-43.1 mV	1.10 ft	150.00 ml/min
11/8/2022 10:13 AM	30:00	6.03 pH	57.64 °F	8,744.8 µS/cm	0.13 mg/L	24.84 NTU	-43.5 mV	1.10 ft	150.00 ml/min
11/8/2022 10:16 AM	33:00	6.04 pH	57.83 °F	8,739.9 µS/cm	0.13 mg/L	24.84 NTU	-45.0 mV	1.10 ft	150.00 ml/min

11/8/2022 10:19 AM	36:00	6.04 pH	57.96 °F	8,751.3 μS/cm	0.11 mg/L	24.90 NTU	-45.6 mV	1.10 ft	150.00 ml/min
11/8/2022 10:22 AM	39:00	6.03 pH	58.16 °F	8,747.6 μS/cm	0.11 mg/L	24.81 NTU	-46.9 mV	1.10 ft	150.00 ml/min
11/8/2022 10:25 AM	42:00	6.04 pH	58.13 °F	8,749.3 μS/cm	0.11 mg/L	24.80 NTU	-47.9 mV	1.10 ft	150.00 ml/min
11/8/2022 10:28 AM	45:00	6.03 pH	58.40 °F	8,729.6 μS/cm	0.10 mg/L	24.75 NTU	-48.9 mV	1.10 ft	150.00 ml/min
11/8/2022 10:29 AM	46:03	6.03 pH	58.27 °F	8,724.1 μS/cm	0.11 mg/L	24.70 NTU	-49.5 mV	1.10 ft	150.00 ml/min

## Samples

Sample ID:	Description:
LM-2	Sample time: 1040 Final DTW: 1.94 ft btoc Final RDO: 0.11mg/L Ferrous Iron: 3 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 12:58:23 PM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-8R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.4 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 1800 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 12:58 PM	00:00	7.43 pH	52.50 °F	162.64 µS/cm	11.48 mg/L	17,984 NTU	98.2 mV	7.40 ft	150.00 ml/min
11/9/2022 1:01 PM	03:00	6.86 pH	56.24 °F	869.61 µS/cm	7.98 mg/L	21.23 NTU	111.4 mV	7.40 ft	150.00 ml/min
11/9/2022 1:04 PM	06:00	6.83 pH	56.73 °F	888.98 µS/cm	7.72 mg/L	21.25 NTU	119.0 mV	7.40 ft	150.00 ml/min
11/9/2022 1:07 PM	09:00	6.81 pH	57.23 °F	898.54 µS/cm	7.63 mg/L	21.25 NTU	122.2 mV	7.40 ft	150.00 ml/min
11/9/2022 1:10 PM	12:00	6.80 pH	57.40 °F	903.73 µS/cm	7.40 mg/L	21.25 NTU	124.7 mV	7.40 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-8R	Sample Time: 1320 Final DTW: 7.40 ft btoc Final RDO: 7.40 mg/L Ferrous Iron: 0
MW-8R MS	Sample Time: 1320
MW-8R MSD	Sample Time: 1320

# Low-Flow Test Report:

Test Date / Time: 11/11/2022 10:35:39 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-20R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 4 ft</b> <b>Total Depth: 14.5 ft</b> <b>Initial Depth to Water: 5.88 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6900 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.29 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/11/2022 10:35 AM	00:00	5.91 pH	54.06 °F	15,367 µS/cm	7.88 mg/L	43.57 NTU	186.6 mV	5.88 ft	150.00 ml/min
11/11/2022 10:38 AM	03:00	5.84 pH	54.55 °F	18,130 µS/cm	6.48 mg/L	20.63 NTU	199.8 mV	5.88 ft	150.00 ml/min
11/11/2022 10:41 AM	06:00	6.24 pH	55.09 °F	24,280 µS/cm	2.44 mg/L	17.61 NTU	201.6 mV	5.88 ft	150.00 ml/min
11/11/2022 10:44 AM	09:00	6.36 pH	55.49 °F	25,395 µS/cm	1.59 mg/L	17.71 NTU	191.6 mV	5.88 ft	150.00 ml/min
11/11/2022 10:47 AM	12:00	6.41 pH	55.65 °F	25,917 µS/cm	1.45 mg/L	17.84 NTU	172.4 mV	5.88 ft	150.00 ml/min
11/11/2022 10:50 AM	15:00	6.43 pH	55.51 °F	26,298 µS/cm	1.39 mg/L	17.86 NTU	150.9 mV	5.88 ft	150.00 ml/min
11/11/2022 10:53 AM	18:00	6.46 pH	55.60 °F	26,566 µS/cm	1.36 mg/L	18.11 NTU	129.4 mV	5.88 ft	150.00 ml/min
11/11/2022 10:56 AM	21:00	6.47 pH	55.61 °F	26,840 µS/cm	1.42 mg/L	28.21 NTU	111.8 mV	5.88 ft	150.00 ml/min
11/11/2022 10:59 AM	24:00	6.47 pH	55.36 °F	26,648 µS/cm	1.43 mg/L	25.02 NTU	102.0 mV	5.88 ft	150.00 ml/min
11/11/2022 11:02 AM	27:00	6.48 pH	55.18 °F	26,663 µS/cm	1.50 mg/L	25.37 NTU	97.8 mV	5.88 ft	150.00 ml/min
11/11/2022 11:06 AM	31:00	6.50 pH	54.64 °F	26,645 µS/cm	2.01 mg/L	18.83 NTU	92.0 mV	5.88 ft	150.00 ml/min
11/11/2022 11:09 AM	34:00	6.44 pH	55.90 °F	27,181 µS/cm	2.36 mg/L	18.74 NTU	85.3 mV	5.88 ft	150.00 ml/min

11/11/2022 11:12 AM	37:00	6.50 pH	56.55 °F	26,157 µS/cm	1.35 mg/L	17.69 NTU	74.7 mV	5.88 ft	150.00 ml/min
11/11/2022 11:15 AM	40:00	6.55 pH	56.38 °F	26,606 µS/cm	0.98 mg/L	17.71 NTU	62.8 mV	5.88 ft	150.00 ml/min
11/11/2022 11:18 AM	43:00	6.56 pH	56.25 °F	25,705 µS/cm	1.19 mg/L	17.69 NTU	46.8 mV	5.88 ft	150.00 ml/min
11/11/2022 11:21 AM	46:00	6.56 pH	56.29 °F	26,242 µS/cm	1.18 mg/L	17.66 NTU	42.4 mV	5.88 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MR-20R	Sample time: 11:30 Final RDO: 1.18 Final DTW: 5.95 Ferrous iron: 1.0

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 8:28:23 AM

Project: Edmonds Terminal 4Q22

Operator Name: ES

<b>Location Name: MW-101</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 9.32 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 6300 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.1 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 8:28 AM	00:00	6.31 pH	51.89 °F	708.27 µS/cm	2.64 mg/L	149.10 NTU	41.2 mV	9.32 ft	150.00 ml/min
11/10/2022 8:31 AM	03:00	6.48 pH	54.95 °F	701.46 µS/cm	0.69 mg/L	99.30 NTU	16.0 mV	9.32 ft	150.00 ml/min
11/10/2022 8:34 AM	06:00	6.51 pH	55.80 °F	707.93 µS/cm	0.76 mg/L	58.79 NTU	11.4 mV	9.32 ft	150.00 ml/min
11/10/2022 8:37 AM	09:00	6.52 pH	56.25 °F	705.74 µS/cm	0.84 mg/L	43.42 NTU	16.6 mV	9.32 ft	150.00 ml/min
11/10/2022 8:40 AM	12:00	6.54 pH	56.79 °F	700.60 µS/cm	1.07 mg/L	30.23 NTU	20.6 mV	9.32 ft	150.00 ml/min
11/10/2022 8:43 AM	15:00	6.53 pH	57.61 °F	691.45 µS/cm	1.04 mg/L	31.85 NTU	24.7 mV	9.32 ft	150.00 ml/min
11/10/2022 8:46 AM	18:00	6.54 pH	57.95 °F	686.07 µS/cm	0.90 mg/L	28.62 NTU	22.6 mV	9.32 ft	150.00 ml/min
11/10/2022 8:49 AM	21:00	6.52 pH	58.10 °F	671.64 µS/cm	1.13 mg/L	10.38 NTU	28.9 mV	9.32 ft	150.00 ml/min
11/10/2022 8:52 AM	24:00	6.52 pH	58.24 °F	667.39 µS/cm	1.08 mg/L	9.05 NTU	27.5 mV	9.32 ft	150.00 ml/min
11/10/2022 8:55 AM	27:00	6.50 pH	58.32 °F	677.36 µS/cm	0.80 mg/L	4.18 NTU	22.4 mV	9.32 ft	150.00 ml/min
11/10/2022 8:58 AM	30:00	6.52 pH	58.31 °F	682.33 µS/cm	0.69 mg/L	12.29 NTU	17.5 mV	9.32 ft	150.00 ml/min
11/10/2022 9:01 AM	33:00	6.49 pH	57.87 °F	689.78 µS/cm	0.61 mg/L	48.72 NTU	15.1 mV	9.32 ft	150.00 ml/min
11/10/2022 9:04 AM	36:00	6.51 pH	57.83 °F	695.06 µS/cm	0.56 mg/L	29.74 NTU	11.4 mV	9.32 ft	150.00 ml/min
11/10/2022 9:07 AM	39:00	6.50 pH	57.81 °F	704.53 µS/cm	0.50 mg/L	20.32 NTU	11.9 mV	9.32 ft	150.00 ml/min

11/10/2022 9:10 AM	42:00	6.51 pH	57.89 °F	701.40 µS/cm	0.56 mg/L	25.07 NTU	11.0 mV	9.32 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-101	Sample time: 0913 Final DTW: 8.42 Final RDO: 0.55 Ferrous iron: 3.5
DUP-3	Sample time:



# Low-Flow Test Report:

Test Date / Time: 11/8/2022 11:39:59 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-104</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 m</b> <b>Top of Screen: 5 m</b> <b>Total Depth: 15 m</b> <b>Initial Depth to Water: 7.55 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Windy, sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 11:39 AM	00:00	7.25 pH	51.30 °F	3.77 µS/cm	10.67 mg/L	0.00 NTU	202.8 mV	7.55 ft	150.00 ml/min
11/8/2022 11:42 AM	03:00	6.23 pH	55.49 °F	7,283.0 µS/cm	0.94 mg/L	3.49 NTU	-20.4 mV	7.55 ft	150.00 ml/min
11/8/2022 11:45 AM	06:00	6.18 pH	56.37 °F	7,254.9 µS/cm	0.51 mg/L	0.00 NTU	-70.5 mV	7.55 ft	150.00 ml/min
11/8/2022 11:48 AM	09:00	6.17 pH	56.69 °F	7,211.8 µS/cm	0.31 mg/L	3.03 NTU	-90.4 mV	7.55 ft	150.00 ml/min
11/8/2022 11:51 AM	12:00	6.16 pH	56.73 °F	7,226.7 µS/cm	0.23 mg/L	5.01 NTU	-100.9 mV	7.55 ft	150.00 ml/min
11/8/2022 11:54 AM	15:00	6.13 pH	57.17 °F	7,247.7 µS/cm	0.20 mg/L	3.40 NTU	-107.0 mV	7.55 ft	150.00 ml/min
11/8/2022 11:57 AM	18:00	6.15 pH	56.80 °F	7,278.4 µS/cm	0.18 mg/L	0.00 NTU	-114.4 mV	7.55 ft	150.00 ml/min
11/8/2022 12:00 PM	21:00	6.15 pH	57.23 °F	7,301.0 µS/cm	0.17 mg/L	0.00 NTU	-118.3 mV	7.55 ft	150.00 ml/min
11/8/2022 12:03 PM	24:00	6.15 pH	57.58 °F	7,317.1 µS/cm	0.16 mg/L	0.00 NTU	-122.5 mV	7.55 ft	150.00 ml/min
11/8/2022 12:06 PM	27:00	6.15 pH	57.22 °F	7,320.1 µS/cm	0.15 mg/L	0.00 NTU	-125.3 mV	7.55 ft	150.00 ml/min
11/8/2022 12:09 PM	30:00	6.14 pH	56.90 °F	7,303.0 µS/cm	0.14 mg/L	0.00 NTU	-127.2 mV	7.55 ft	150.00 ml/min
11/8/2022 12:12 PM	33:00	6.15 pH	56.99 °F	7,343.5 µS/cm	0.14 mg/L	0.00 NTU	-129.5 mV	7.55 ft	150.00 ml/min

11/8/2022 12:15 PM	36:00	6.15 pH	56.81 °F	7,347.5 µS/cm	0.13 mg/L	0.00 NTU	-130.5 mV	7.55 ft	150.00 ml/min
11/8/2022 12:18 PM	39:00	6.15 pH	57.01 °F	7,359.3 µS/cm	0.13 mg/L	0.00 NTU	-131.5 mV	7.55 ft	150.00 ml/min
11/8/2022 12:21 PM	42:00	6.15 pH	57.20 °F	7,389.1 µS/cm	0.13 mg/L	0.00 NTU	-132.6 mV	7.55 ft	150.00 ml/min
11/8/2022 12:24 PM	45:00	6.14 pH	57.08 °F	7,392.9 µS/cm	0.12 mg/L	0.00 NTU	-134.1 mV	7.55 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-104	Final RDO: 0.12 Final DTW: 7.65 Sample time: 12:28 Ferrous Iron: 7.0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 1:21:04 PM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-126</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.5 ft</b> <b>Top of Screen: 3.7 ft</b> <b>Total Depth: 14.2 ft</b> <b>Initial Depth to Water: 4.5 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 6300 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Sunny, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 1:21 PM	00:00	6.56 pH	54.15 °F	578.68 µS/cm	8.02 mg/L	18.35 NTU	38.3 mV	4.50 ft	150.00 ml/min
11/10/2022 1:24 PM	03:00	6.60 pH	53.95 °F	578.66 µS/cm	7.31 mg/L	11.26 NTU	60.2 mV	4.50 ft	150.00 ml/min
11/10/2022 1:27 PM	06:00	6.61 pH	53.79 °F	578.48 µS/cm	7.26 mg/L	7.62 NTU	73.5 mV	4.50 ft	150.00 ml/min
11/10/2022 1:30 PM	09:00	6.60 pH	53.72 °F	577.74 µS/cm	7.26 mg/L	4.96 NTU	85.8 mV	4.50 ft	150.00 ml/min
11/10/2022 1:33 PM	12:00	6.60 pH	53.87 °F	579.63 µS/cm	7.24 mg/L	2.97 NTU	94.1 mV	4.50 ft	150.00 ml/min
11/10/2022 1:36 PM	15:00	6.55 pH	54.08 °F	579.47 µS/cm	7.23 mg/L	20.72 NTU	103.7 mV	4.50 ft	150.00 ml/min
11/10/2022 1:39 PM	18:00	6.60 pH	54.05 °F	578.87 µS/cm	7.23 mg/L	15.83 NTU	108.1 mV	4.50 ft	150.00 ml/min
11/10/2022 1:42 PM	21:00	6.60 pH	53.96 °F	578.24 µS/cm	7.23 mg/L	13.83 NTU	114.5 mV	4.50 ft	150.00 ml/min
11/10/2022 1:45 PM	24:00	6.60 pH	54.07 °F	579.10 µS/cm	7.22 mg/L	7.12 NTU	119.1 mV	4.50 ft	150.00 ml/min
11/10/2022 1:48 PM	27:00	6.60 pH	54.06 °F	575.20 µS/cm	7.22 mg/L	3.06 NTU	123.3 mV	4.50 ft	150.00 ml/min
11/10/2022 1:51 PM	30:00	6.56 pH	53.92 °F	573.18 µS/cm	7.22 mg/L	0.00 NTU	128.6 mV	4.50 ft	150.00 ml/min
11/10/2022 1:54 PM	33:00	6.59 pH	53.86 °F	571.52 µS/cm	7.22 mg/L	0.00 NTU	133.1 mV	4.50 ft	150.00 ml/min

11/10/2022 1:57 PM	36:00	6.59 pH	53.93 °F	571.23 µS/cm	7.22 mg/L	0.00 NTU	136.6 mV	4.50 ft	150.00 ml/min
11/10/2022 2:00 PM	39:00	6.59 pH	53.91 °F	570.04 µS/cm	7.21 mg/L	0.00 NTU	138.9 mV	4.50 ft	150.00 ml/min
11/10/2022 2:03 PM	42:00	6.59 pH	53.97 °F	569.82 µS/cm	7.21 mg/L	0.00 NTU	140.9 mV	4.50 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-126	Final RDO: 7.21 Final DTW: 5.31 Ferrous iron: 0 mg/L Sample time: 1404

# Low-Flow Test Report:

Test Date / Time: 11/8/2022 11:42:34 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-129R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.72 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 3157.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Windy 39°F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 11:42 AM	00:00	6.90 pH	51.38 °F	894.39 µS/cm	7.84 mg/L	420.81 NTU	11.0 mV	4.72 ft	150.00 ml/min
11/8/2022 11:45 AM	03:03	6.17 pH	54.12 °F	817.68 µS/cm	0.57 mg/L	159.37 NTU	52.8 mV	4.72 ft	150.00 ml/min
11/8/2022 11:48 AM	06:03	6.07 pH	53.71 °F	682.78 µS/cm	0.41 mg/L	151.60 NTU	63.4 mV	4.72 ft	150.00 ml/min
11/8/2022 11:51 AM	09:03	6.01 pH	53.72 °F	710.17 µS/cm	0.37 mg/L	149.19 NTU	71.5 mV	4.72 ft	150.00 ml/min
11/8/2022 11:54 AM	12:03	5.96 pH	53.43 °F	737.35 µS/cm	0.33 mg/L	152.49 NTU	77.8 mV	4.72 ft	150.00 ml/min
11/8/2022 11:57 AM	15:03	5.90 pH	53.89 °F	761.66 µS/cm	0.31 mg/L	150.43 NTU	83.6 mV	4.72 ft	150.00 ml/min
11/8/2022 12:00 PM	18:03	5.91 pH	53.98 °F	784.07 µS/cm	0.29 mg/L	148.53 NTU	85.6 mV	4.72 ft	150.00 ml/min
11/8/2022 12:03 PM	21:03	5.89 pH	54.44 °F	815.20 µS/cm	0.27 mg/L	146.67 NTU	85.6 mV	4.72 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-129R

Sample time: 1215  
Final DTW: 5.74 ft btoc  
Final RDO: 0.27 mg/L  
Ferrous Iron: 3.5 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 11/10/2022 10:26:46 AM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** ES

<p><b>Location Name: MW-139R</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10.5 ft</b>  <b>Top of Screen: 4.4 ft</b>  <b>Total Depth: 14.9 ft</b>  <b>Initial Depth to Water: 6.54 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 11 ft</b>  <b>Estimated Total Volume Pumped: 3512.5 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0.02 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 10:26 AM	00:00	6.60 pH	54.60 °F	10,353 µS/cm	5.18 mg/L	652.74 NTU	221.1 mV	6.54 ft	150.00 ml/min
11/10/2022 10:32 AM	05:25	6.98 pH	56.50 °F	9,351.7 µS/cm	0.61 mg/L	15.77 NTU	192.7 mV	6.54 ft	150.00 ml/min
11/10/2022 10:35 AM	08:25	6.99 pH	56.62 °F	8,081.9 µS/cm	0.69 mg/L	28.01 NTU	181.1 mV	6.54 ft	150.00 ml/min
11/10/2022 10:38 AM	11:25	7.00 pH	56.38 °F	7,567.3 µS/cm	0.87 mg/L	5.68 NTU	172.9 mV	6.54 ft	150.00 ml/min
11/10/2022 10:41 AM	14:25	6.99 pH	56.76 °F	7,246.8 µS/cm	1.07 mg/L	6.56 NTU	168.1 mV	6.54 ft	150.00 ml/min
11/10/2022 10:44 AM	17:25	7.00 pH	56.81 °F	7,151.7 µS/cm	1.22 mg/L	0.00 NTU	164.3 mV	6.54 ft	150.00 ml/min
11/10/2022 10:47 AM	20:25	6.99 pH	56.83 °F	7,094.9 µS/cm	1.33 mg/L	0.00 NTU	161.5 mV	6.54 ft	150.00 ml/min
11/10/2022 10:50 AM	23:25	7.00 pH	56.82 °F	7,072.8 µS/cm	1.43 mg/L	0.00 NTU	159.2 mV	6.54 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-139R	<p>Sample time: 11:00                      Final DTW: 6.53                      Final RDO: 1.45                      Ferrous Iron: 0.0</p>





# Low-Flow Test Report:

Test Date / Time: 11/10/2022 12:13:39 PM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-143</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10.6 ft</b> <b>Top of Screen: 3.5 ft</b> <b>Total Depth: 14.1 ft</b> <b>Initial Depth to Water: 4.23 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Sunny, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 12:13 PM	00:00	6.08 pH	56.44 °F	504.85 µS/cm	3.11 mg/L	0.00 NTU	-50.9 mV	4.23 ft	150.00 ml/min
11/10/2022 12:16 PM	03:00	6.12 pH	55.65 °F	505.42 µS/cm	0.41 mg/L	0.00 NTU	-99.1 mV	4.23 ft	150.00 ml/min
11/10/2022 12:19 PM	06:00	6.12 pH	55.67 °F	508.49 µS/cm	0.28 mg/L	0.00 NTU	-115.3 mV	4.23 ft	150.00 ml/min
11/10/2022 12:22 PM	09:00	6.12 pH	55.66 °F	509.79 µS/cm	0.22 mg/L	0.00 NTU	-123.9 mV	4.23 ft	150.00 ml/min
11/10/2022 12:25 PM	12:00	6.13 pH	55.49 °F	514.01 µS/cm	0.19 mg/L	0.00 NTU	-129.6 mV	4.23 ft	150.00 ml/min
11/10/2022 12:28 PM	15:00	6.10 pH	55.70 °F	523.17 µS/cm	0.17 mg/L	0.00 NTU	-131.7 mV	4.23 ft	150.00 ml/min
11/10/2022 12:31 PM	18:00	6.16 pH	55.75 °F	525.18 µS/cm	0.17 mg/L	0.00 NTU	-134.9 mV	4.23 ft	150.00 ml/min
11/10/2022 12:34 PM	21:00	6.16 pH	55.45 °F	524.37 µS/cm	0.17 mg/L	0.00 NTU	-134.8 mV	4.23 ft	150.00 ml/min
11/10/2022 12:37 PM	24:00	6.16 pH	55.69 °F	525.78 µS/cm	0.17 mg/L	0.00 NTU	-135.3 mV	4.23 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-143

Final RDO: 1.70  
Final DTW: 5.63  
Sample time: 12:38  
Ferrous iron: 3.5 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 11/10/2022 10:22:29 AM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** PB

<p><b>Location Name: MW-502</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 4.9 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170"x1/4"</b>  <b>Pump Intake From TOC: 8 ft</b>  <b>Estimated Total Volume Pumped: 2700 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 457166</b></p>
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**Test Notes:**

**Low-Flow Readings:**

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 10:22 AM	00:00	6.63 pH	51.86 °F	45.32 µS/cm	10.94 mg/L	50.25 NTU	43.6 mV	4.90 ft	150.00 ml/min
11/10/2022 10:25 AM	03:00	6.24 pH	55.10 °F	252.64 µS/cm	0.65 mg/L	23.59 NTU	78.0 mV	4.90 ft	150.00 ml/min
11/10/2022 10:28 AM	06:00	6.22 pH	55.11 °F	251.76 µS/cm	0.40 mg/L	23.73 NTU	90.0 mV	4.90 ft	150.00 ml/min
11/10/2022 10:31 AM	09:00	6.22 pH	54.79 °F	251.44 µS/cm	0.34 mg/L	23.54 NTU	95.8 mV	4.90 ft	150.00 ml/min
11/10/2022 10:34 AM	12:00	6.21 pH	54.75 °F	251.12 µS/cm	0.32 mg/L	23.55 NTU	100.6 mV	4.90 ft	150.00 ml/min
11/10/2022 10:37 AM	15:00	6.21 pH	54.86 °F	252.07 µS/cm	0.30 mg/L	23.21 NTU	103.7 mV	4.90 ft	150.00 ml/min
11/10/2022 10:40 AM	18:00	6.20 pH	54.97 °F	252.54 µS/cm	0.28 mg/L	23.27 NTU	106.7 mV	4.90 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-502	Sample Time: 1050 Final DTW: 5.10 ft btoc Final RDO: 0.28 mg/L Ferrous Iron: 3.0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 8:19:05 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-503</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.66 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 8:19 AM	00:00	7.89 pH	44.74 °F	0.08 µS/cm	13.61 mg/L	601.36 NTU	72.6 mV	4.66 ft	150.00 ml/min
11/10/2022 8:22 AM	03:00	6.43 pH	48.19 °F	0.08 µS/cm	1.11 mg/L	22.42 NTU	26.6 mV	4.66 ft	150.00 ml/min
11/10/2022 8:25 AM	06:00	6.38 pH	49.90 °F	0.08 µS/cm	0.65 mg/L	22.51 NTU	24.1 mV	4.66 ft	150.00 ml/min
11/10/2022 8:28 AM	09:00	6.36 pH	50.98 °F	0.08 µS/cm	0.52 mg/L	25.67 NTU	19.6 mV	4.66 ft	150.00 ml/min
11/10/2022 8:31 AM	12:00	6.35 pH	51.71 °F	0.08 µS/cm	0.45 mg/L	24.12 NTU	17.4 mV	4.66 ft	150.00 ml/min
11/10/2022 8:34 AM	15:00	6.34 pH	52.15 °F	0.07 µS/cm	0.40 mg/L	24.34 NTU	15.3 mV	4.66 ft	150.00 ml/min
11/10/2022 8:37 AM	18:00	6.33 pH	52.37 °F	0.07 µS/cm	0.36 mg/L	24.22 NTU	14.3 mV	4.66 ft	150.00 ml/min
11/10/2022 8:40 AM	21:00	6.32 pH	52.60 °F	0.07 µS/cm	0.34 mg/L	24.74 NTU	13.1 mV	4.66 ft	150.00 ml/min
11/10/2022 8:43 AM	24:00	6.31 pH	52.92 °F	0.07 µS/cm	0.33 mg/L	24.63 NTU	11.9 mV	4.66 ft	150.00 ml/min
11/10/2022 8:46 AM	27:00	6.31 pH	53.19 °F	0.07 µS/cm	0.31 mg/L	25.21 NTU	10.9 mV	4.66 ft	150.00 ml/min
11/10/2022 8:49 AM	30:00	6.31 pH	53.45 °F	0.07 µS/cm	0.30 mg/L	25.09 NTU	9.8 mV	4.66 ft	150.00 ml/min
11/10/2022 8:52 AM	33:00	6.30 pH	53.63 °F	0.07 µS/cm	0.29 mg/L	25.05 NTU	9.2 mV	4.66 ft	150.00 ml/min
11/10/2022 8:55 AM	36:00	6.30 pH	53.85 °F	0.07 µS/cm	0.28 mg/L	25.12 NTU	8.3 mV	4.66 ft	150.00 ml/min
11/10/2022 8:58 AM	39:00	6.29 pH	54.02 °F	0.07 µS/cm	0.27 mg/L	25.12 NTU	7.6 mV	4.66 ft	150.00 ml/min

11/10/2022 9:01 AM	42:00	6.29 pH	54.19 °F	0.07 µS/cm	0.27 mg/L	25.20 NTU	7.1 mV	4.66 ft	150.00 ml/min
11/10/2022 9:04 AM	45:00	6.29 pH	54.38 °F	0.07 µS/cm	0.26 mg/L	25.21 NTU	6.2 mV	4.66 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-503	Sample time: 0920 Final DTW: 4.75 ft btoc Final RDO: 0.26 mg/L Ferrous Iron: 3.0 mg/L
MW-503 MS	Sample time: 0920
MW-503 MSD	Sample Time: 0920

# Low-Flow Test Report:

Test Date / Time: 11/7/2022 1:14:55 PM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-504</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.02 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 5147.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Overcast 41F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 1:14 PM	00:00	7.98 pH	55.02 °F	405.86 µS/cm	10.32 mg/L	25.23 NTU	-38.5 mV	6.02 ft	150.00 ml/min
11/7/2022 1:17 PM	03:00	7.29 pH	56.76 °F	312.82 µS/cm	9.62 mg/L	25.24 NTU	-7.2 mV	6.02 ft	150.00 ml/min
11/7/2022 1:20 PM	06:00	7.12 pH	56.67 °F	313.15 µS/cm	9.55 mg/L	25.44 NTU	12.3 mV	6.02 ft	150.00 ml/min
11/7/2022 1:23 PM	09:00	7.11 pH	56.20 °F	315.66 µS/cm	9.56 mg/L	25.48 NTU	21.8 mV	6.02 ft	150.00 ml/min
11/7/2022 1:26 PM	12:00	7.07 pH	56.11 °F	315.50 µS/cm	9.51 mg/L	25.69 NTU	31.0 mV	6.02 ft	150.00 ml/min
11/7/2022 1:29 PM	15:00	7.05 pH	55.95 °F	319.37 µS/cm	9.54 mg/L	25.70 NTU	38.1 mV	6.02 ft	150.00 ml/min
11/7/2022 1:32 PM	18:00	7.03 pH	56.11 °F	323.25 µS/cm	9.52 mg/L	25.63 NTU	45.3 mV	6.02 ft	150.00 ml/min
11/7/2022 1:35 PM	21:00	7.02 pH	56.25 °F	325.20 µS/cm	9.53 mg/L	25.70 NTU	51.0 mV	6.02 ft	150.00 ml/min
11/7/2022 1:38 PM	24:00	7.01 pH	56.23 °F	324.52 µS/cm	9.55 mg/L	25.72 NTU	56.5 mV	6.02 ft	150.00 ml/min
11/7/2022 1:41 PM	27:00	6.99 pH	56.49 °F	325.37 µS/cm	9.52 mg/L	25.71 NTU	62.1 mV	6.02 ft	150.00 ml/min
11/7/2022 1:44 PM	30:00	6.99 pH	56.44 °F	324.50 µS/cm	9.51 mg/L	25.68 NTU	66.5 mV	6.02 ft	150.00 ml/min
11/7/2022 1:47 PM	33:00	6.98 pH	56.31 °F	325.24 µS/cm	9.49 mg/L	25.74 NTU	70.7 mV	6.02 ft	150.00 ml/min

11/7/2022 1:49 PM	34:19	6.98 pH	56.40 °F	326.65 µS/cm	9.52 mg/L	25.76 NTU	72.6 mV	6.02 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-504	Sample time: 1400 Final DTW: 6.03 ft btoc Final RDO: 9.52 mg/L Ferrous Iron: 0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/7/2022 11:45:33 AM

Project: Edmonds Terminal 4Q22

Operator Name: TB

<b>Location Name: MW-505</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.1 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.1 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

## Weather Conditions:

Rainy, 37 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 11:45 AM	00:00	6.95 pH	54.05 °F	572.62 µS/cm	1.30 mg/L	16,579 NTU	74.0 mV	4.10 ft	150.00 ml/min
11/7/2022 11:48 AM	03:00	6.83 pH	54.86 °F	483.55 µS/cm	0.43 mg/L	3,813.2 NTU	62.2 mV	4.10 ft	150.00 ml/min
11/7/2022 11:51 AM	06:00	6.79 pH	54.52 °F	602.49 µS/cm	0.36 mg/L	9,884.2 NTU	63.1 mV	4.10 ft	150.00 ml/min
11/7/2022 11:54 AM	09:00	6.75 pH	55.22 °F	697.74 µS/cm	0.45 mg/L	9,683.9 NTU	66.0 mV	4.10 ft	150.00 ml/min
11/7/2022 11:57 AM	12:00	6.77 pH	55.88 °F	812.35 µS/cm	0.66 mg/L	25,522 NTU	64.4 mV	4.10 ft	150.00 ml/min
11/7/2022 12:00 PM	15:00	6.76 pH	55.80 °F	915.90 µS/cm	0.77 mg/L	64,872 NTU	64.7 mV	4.10 ft	150.00 ml/min
11/7/2022 12:03 PM	18:00	6.76 pH	55.58 °F	1,062.6 µS/cm	0.82 mg/L	72,191 NTU	65.7 mV	4.10 ft	150.00 ml/min
11/7/2022 12:06 PM	21:00	6.76 pH	55.63 °F	1,223.6 µS/cm	0.97 mg/L	40,542 NTU	64.6 mV	4.10 ft	150.00 ml/min
11/7/2022 12:09 PM	24:00	6.75 pH	55.93 °F	1,032.2 µS/cm	1.19 mg/L	33,403 NTU	63.8 mV	4.10 ft	150.00 ml/min
11/7/2022 12:12 PM	27:00	6.75 pH	56.69 °F	1,476.0 µS/cm	1.36 mg/L	19,951 NTU	62.1 mV	4.10 ft	150.00 ml/min
11/7/2022 12:15 PM	30:00	6.76 pH	56.79 °F	1,508.9 µS/cm	1.50 mg/L	16,081 NTU	60.0 mV	4.10 ft	150.00 ml/min
11/7/2022 12:18 PM	33:00	6.76 pH	56.50 °F	1,413.2 µS/cm	1.62 mg/L	7,129.2 NTU	61.4 mV	4.10 ft	150.00 ml/min



11/7/2022 12:21 PM	36:00	6.76 pH	56.87 °F	1,161.2 µS/cm	1.67 mg/L	4,658.6 NTU	62.6 mV	4.10 ft	150.00 ml/min
11/7/2022 12:24 PM	39:00	6.76 pH	56.84 °F	1,169.7 µS/cm	2.04 mg/L	4,661.0 NTU	60.2 mV	4.10 ft	150.00 ml/min
11/7/2022 12:27 PM	42:00	6.77 pH	56.44 °F	974.17 µS/cm	2.20 mg/L	4,478.8 NTU	61.1 mV	4.10 ft	150.00 ml/min
11/7/2022 12:30 PM	45:00	6.77 pH	56.07 °F	973.92 µS/cm	2.38 mg/L	5,667.1 NTU	60.9 mV	4.10 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-505	<p>Sample Time: 12:30  Final DTW: 4.20 ft btoc  Final RDO: 2.42 mg/L  Ferrous Iron: 1.5 mg/L  Specific conductance did not stabilize after 45 minutes.</p>

# Low-Flow Test Report:

**Test Date / Time:** 11/7/2022 11:47:48 AM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** PB

<b>Location Name: MW-506</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.12 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Rainy 40F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 11:47 AM	00:00	6.62 pH	55.17 °F	5,890.9 µS/cm	11.34 mg/L	22.86 NTU	78.3 mV	6.12 ft	150.00 ml/min
11/7/2022 11:50 AM	03:00	6.65 pH	57.76 °F	5,779.6 µS/cm	0.55 mg/L	22.83 NTU	-14.2 mV	6.12 ft	150.00 ml/min
11/7/2022 11:53 AM	06:00	6.64 pH	57.89 °F	5,600.7 µS/cm	0.40 mg/L	22.83 NTU	-24.2 mV	6.12 ft	150.00 ml/min
11/7/2022 11:56 AM	09:00	6.64 pH	58.19 °F	5,599.9 µS/cm	0.35 mg/L	22.80 NTU	-30.4 mV	6.12 ft	150.00 ml/min
11/7/2022 11:59 AM	12:00	6.64 pH	58.72 °F	5,612.0 µS/cm	0.32 mg/L	22.83 NTU	-34.8 mV	6.12 ft	150.00 ml/min
11/7/2022 12:02 PM	15:00	6.65 pH	58.77 °F	5,613.0 µS/cm	0.31 mg/L	22.86 NTU	-38.3 mV	6.12 ft	150.00 ml/min
11/7/2022 12:05 PM	18:00	6.65 pH	58.39 °F	5,615.3 µS/cm	0.27 mg/L	22.83 NTU	-41.1 mV	6.12 ft	150.00 ml/min
11/7/2022 12:08 PM	21:00	6.65 pH	58.99 °F	5,637.5 µS/cm	0.26 mg/L	22.82 NTU	-43.8 mV	6.12 ft	150.00 ml/min
11/7/2022 12:11 PM	24:00	6.66 pH	58.92 °F	5,660.9 µS/cm	0.26 mg/L	22.85 NTU	-46.3 mV	6.12 ft	150.00 ml/min
11/7/2022 12:14 PM	27:00	6.66 pH	58.84 °F	5,652.0 µS/cm	0.24 mg/L	22.83 NTU	-48.5 mV	6.12 ft	150.00 ml/min
11/7/2022 12:17 PM	30:00	6.66 pH	58.89 °F	5,667.2 µS/cm	0.24 mg/L	22.99 NTU	-50.6 mV	6.12 ft	150.00 ml/min
11/7/2022 12:20 PM	33:00	6.67 pH	58.85 °F	5,622.0 µS/cm	0.23 mg/L	22.87 NTU	-53.0 mV	6.12 ft	150.00 ml/min

11/7/2022 12:23 PM	36:00	6.67 pH	58.70 °F	5,605.3 µS/cm	0.24 mg/L	22.89 NTU	-54.7 mV	6.12 ft	150.00 ml/min
11/7/2022 12:26 PM	39:00	6.67 pH	59.17 °F	5,574.2 µS/cm	0.24 mg/L	22.91 NTU	-56.4 mV	6.12 ft	150.00 ml/min
11/7/2022 12:29 PM	42:00	6.68 pH	58.82 °F	5,521.0 µS/cm	0.24 mg/L	22.88 NTU	-57.9 mV	6.12 ft	150.00 ml/min
11/7/2022 12:32 PM	45:00	6.68 pH	58.99 °F	5,469.6 µS/cm	0.23 mg/L	22.94 NTU	-59.2 mV	6.12 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-506	Sample time: 1240 Final DTW: 6.18 ft btoc Final RDO: mg/L Ferrous Iron: 0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/7/2022 12:08:22 PM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-507</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.16 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.18 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Rainy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 12:08 PM	00:00	6.42 pH	56.97 °F	614.22 µS/cm	6.84 mg/L	1.44 NTU	173.9 mV	6.16 ft	150.00 ml/min
11/7/2022 12:11 PM	03:00	6.53 pH	56.60 °F	601.81 µS/cm	6.28 mg/L	0.00 NTU	162.1 mV	6.16 ft	150.00 ml/min
11/7/2022 12:14 PM	06:00	6.55 pH	56.98 °F	606.23 µS/cm	6.11 mg/L	0.00 NTU	159.3 mV	6.16 ft	150.00 ml/min
11/7/2022 12:17 PM	09:00	6.56 pH	56.84 °F	611.01 µS/cm	5.88 mg/L	0.00 NTU	158.7 mV	6.16 ft	150.00 ml/min
11/7/2022 12:20 PM	12:00	6.57 pH	57.34 °F	616.25 µS/cm	5.63 mg/L	0.00 NTU	159.1 mV	6.16 ft	150.00 ml/min
11/7/2022 12:23 PM	15:00	6.56 pH	57.28 °F	618.79 µS/cm	5.48 mg/L	0.00 NTU	161.1 mV	6.16 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-507	Sample time: 12:26 Final DTW: 6.34 Final RDO: Ferrous iron: 0 mg/L



# Low-Flow Test Report:

Test Date / Time: 11/7/2022 11:43:36 AM

Project: Edmonds Terminal 4Q22 (3)

Operator Name: ES

<b>Location Name: MW-509</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.01 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.01 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 11:43 AM	00:00	6.73 pH	55.55 °F	33,728 µS/cm	5.94 mg/L	43.92 NTU	296.4 mV	3.01 ft	150.00 ml/min
11/7/2022 11:46 AM	03:00	6.75 pH	57.67 °F	32,519 µS/cm	1.13 mg/L	16.09 NTU	309.5 mV	3.01 ft	150.00 ml/min
11/7/2022 11:49 AM	06:00	6.76 pH	57.96 °F	31,551 µS/cm	0.69 mg/L	2.26 NTU	312.9 mV	3.01 ft	150.00 ml/min
11/7/2022 11:52 AM	09:00	6.76 pH	58.18 °F	30,428 µS/cm	0.61 mg/L	1.71 NTU	308.7 mV	3.01 ft	150.00 ml/min
11/7/2022 11:55 AM	12:00	6.77 pH	58.53 °F	29,148 µS/cm	0.49 mg/L	0.00 NTU	306.2 mV	3.01 ft	150.00 ml/min
11/7/2022 11:58 AM	15:00	6.78 pH	58.80 °F	28,224 µS/cm	0.52 mg/L	0.00 NTU	298.4 mV	3.01 ft	150.00 ml/min
11/7/2022 12:01 PM	18:00	6.79 pH	58.66 °F	27,653 µS/cm	0.44 mg/L	0.03 NTU	294.5 mV	3.01 ft	150.00 ml/min
11/7/2022 12:04 PM	21:00	6.80 pH	58.90 °F	27,261 µS/cm	0.49 mg/L	0.00 NTU	289.4 mV	3.01 ft	150.00 ml/min
11/7/2022 12:07 PM	24:00	6.80 pH	59.21 °F	27,031 µS/cm	0.41 mg/L	0.00 NTU	286.6 mV	3.01 ft	150.00 ml/min
11/7/2022 12:10 PM	27:00	6.80 pH	59.50 °F	26,923 µS/cm	0.45 mg/L	0.00 NTU	282.8 mV	3.01 ft	150.00 ml/min
11/7/2022 12:13 PM	30:00	6.80 pH	60.27 °F	26,796 µS/cm	0.39 mg/L	0.00 NTU	279.9 mV	3.01 ft	150.00 ml/min
11/7/2022 12:16 PM	33:00	6.80 pH	60.63 °F	26,653 µS/cm	0.44 mg/L	0.04 NTU	277.1 mV	3.01 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-509	Sample time: 12:22 Final DTW: 3.0 Final RDO: 0.41 Ferrous iron: 0.0

# Low-Flow Test Report:

**Test Date / Time:** 11/10/2022 1:36:14 PM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** PB

<p><b>Location Name: MW-511</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 5 ft</b>  <b>Total Depth: 15 ft</b>  <b>Initial Depth to Water: 7.39 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170"x1/4"</b>  <b>Pump Intake From TOC: 10 ft</b>  <b>Estimated Total Volume Pumped: 5850 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 457166</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 1:36 PM	00:00	6.70 pH	53.51 °F	316.82 µS/cm	7.20 mg/L	27.63 NTU	-0.9 mV	7.39 ft	150.00 ml/min
11/10/2022 1:39 PM	03:00	6.49 pH	52.90 °F	307.28 µS/cm	6.55 mg/L	28.06 NTU	31.3 mV	7.39 ft	150.00 ml/min
11/10/2022 1:42 PM	06:00	6.45 pH	52.50 °F	306.42 µS/cm	6.55 mg/L	28.30 NTU	41.1 mV	7.39 ft	150.00 ml/min
11/10/2022 1:45 PM	09:00	6.43 pH	52.49 °F	307.42 µS/cm	6.56 mg/L	28.47 NTU	49.8 mV	7.39 ft	150.00 ml/min
11/10/2022 1:48 PM	12:00	6.42 pH	52.46 °F	306.90 µS/cm	6.57 mg/L	28.60 NTU	55.7 mV	7.39 ft	150.00 ml/min
11/10/2022 1:51 PM	15:00	6.40 pH	52.46 °F	307.08 µS/cm	6.58 mg/L	28.77 NTU	61.6 mV	7.39 ft	150.00 ml/min
11/10/2022 1:54 PM	18:00	6.41 pH	52.44 °F	306.44 µS/cm	6.56 mg/L	28.81 NTU	65.9 mV	7.39 ft	150.00 ml/min
11/10/2022 1:57 PM	21:00	6.39 pH	52.63 °F	306.68 µS/cm	6.55 mg/L	28.78 NTU	70.3 mV	7.39 ft	150.00 ml/min
11/10/2022 2:00 PM	24:00	6.40 pH	52.50 °F	306.07 µS/cm	6.50 mg/L	28.92 NTU	73.7 mV	7.39 ft	150.00 ml/min
11/10/2022 2:03 PM	27:00	6.39 pH	52.74 °F	306.33 µS/cm	6.51 mg/L	28.96 NTU	77.5 mV	7.39 ft	150.00 ml/min
11/10/2022 2:06 PM	30:00	6.40 pH	52.59 °F	306.29 µS/cm	6.53 mg/L	28.99 NTU	80.6 mV	7.39 ft	150.00 ml/min
11/10/2022 2:09 PM	33:00	6.42 pH	52.51 °F	306.21 µS/cm	6.56 mg/L	29.07 NTU	81.9 mV	7.39 ft	150.00 ml/min
11/10/2022 2:12 PM	36:00	6.40 pH	52.55 °F	307.31 µS/cm	6.62 mg/L	29.08 NTU	84.3 mV	7.39 ft	150.00 ml/min
11/10/2022 2:15 PM	39:00	6.40 pH	52.79 °F	305.47 µS/cm	6.52 mg/L	29.13 NTU	86.6 mV	7.39 ft	150.00 ml/min



**Samples**

Sample ID:	Description:
MW-511	Sample time: 1420 Final DTW: 7.38 ft btoc Final RDO: 10.57 mg/L Ferrous Iron: 0 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 11/10/2022 12:26:09 PM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** PB

<p><b>Location Name: MW-512</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 5.97 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170"x1/4"</b>  <b>Pump Intake From TOC: 8 ft</b>  <b>Estimated Total Volume Pumped: 6750 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 457166</b></p>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 12:26 PM	00:00	6.66 pH	54.43 °F	2,245.2 µS/cm	11.77 mg/L	26.07 NTU	16.3 mV	5.97 ft	150.00 ml/min
11/10/2022 12:29 PM	03:00	6.93 pH	57.17 °F	2,692.1 µS/cm	0.52 mg/L	25.97 NTU	-31.5 mV	5.97 ft	150.00 ml/min
11/10/2022 12:32 PM	06:00	6.96 pH	56.98 °F	2,639.1 µS/cm	0.37 mg/L	26.17 NTU	-44.7 mV	5.97 ft	150.00 ml/min
11/10/2022 12:35 PM	09:00	6.97 pH	57.40 °F	2,515.5 µS/cm	0.32 mg/L	26.45 NTU	-51.7 mV	5.97 ft	150.00 ml/min
11/10/2022 12:38 PM	12:00	6.97 pH	57.45 °F	2,441.1 µS/cm	0.29 mg/L	26.55 NTU	-55.7 mV	5.97 ft	150.00 ml/min
11/10/2022 12:41 PM	15:00	6.96 pH	57.76 °F	2,400.8 µS/cm	0.28 mg/L	26.61 NTU	-58.1 mV	5.97 ft	150.00 ml/min
11/10/2022 12:44 PM	18:00	6.93 pH	57.91 °F	2,216.9 µS/cm	0.26 mg/L	26.70 NTU	-58.5 mV	5.97 ft	150.00 ml/min
11/10/2022 12:47 PM	21:00	6.86 pH	57.58 °F	1,906.8 µS/cm	0.26 mg/L	26.80 NTU	-54.1 mV	5.97 ft	150.00 ml/min
11/10/2022 12:50 PM	24:00	6.82 pH	57.48 °F	1,799.0 µS/cm	0.27 mg/L	26.80 NTU	-50.1 mV	5.97 ft	150.00 ml/min
11/10/2022 12:53 PM	27:00	6.80 pH	57.82 °F	1,756.6 µS/cm	0.28 mg/L	26.61 NTU	-47.5 mV	5.97 ft	150.00 ml/min
11/10/2022 12:56 PM	30:00	6.79 pH	57.61 °F	1,739.8 µS/cm	0.30 mg/L	26.55 NTU	-45.3 mV	5.97 ft	150.00 ml/min
11/10/2022 12:59 PM	33:00	6.78 pH	57.07 °F	1,721.9 µS/cm	0.32 mg/L	26.61 NTU	-43.5 mV	5.97 ft	150.00 ml/min
11/10/2022 1:02 PM	36:00	6.77 pH	57.76 °F	1,721.5 µS/cm	0.33 mg/L	26.62 NTU	-42.5 mV	5.97 ft	150.00 ml/min
11/10/2022 1:05 PM	39:00	6.77 pH	57.24 °F	1,714.8 µS/cm	0.35 mg/L	26.57 NTU	-41.6 mV	5.97 ft	150.00 ml/min

11/10/2022 1:08 PM	42:00	6.77 pH	57.05 °F	1,719.9 μS/cm	0.35 mg/L	26.56 NTU	-40.7 mV	5.97 ft	150.00 ml/min
11/10/2022 1:11 PM	45:00	6.77 pH	56.88 °F	1,706.2 μS/cm	0.37 mg/L	26.71 NTU	-40.3 mV	5.97 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-512	Sample Time: 1320 Final DTW: 5.98 ft btoc Final RDO: 0.37 mg/L Ferrous Iron: 2.0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 11:44:44 AM

Project: Edmonds Terminal 4Q22

Operator Name: ES

<p><b>Location Name: MW-513</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 3 ft</b>  <b>Total Depth: 13 ft</b>  <b>Initial Depth to Water: 3.82 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 11 ft</b>  <b>Estimated Total Volume Pumped: 5400 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0.02 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 466619</b></p>
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## Test Notes:

## Weather Conditions:

Overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 11:44 AM	00:00	7.17 pH	55.35 °F	5,903.6 µS/cm	4.32 mg/L	24.84 NTU	81.7 mV	3.82 ft	150.00 ml/min
11/10/2022 11:47 AM	03:00	6.99 pH	57.10 °F	5,216.3 µS/cm	0.58 mg/L	0.00 NTU	10.7 mV	3.82 ft	150.00 ml/min
11/10/2022 11:50 AM	06:00	7.00 pH	57.67 °F	4,476.4 µS/cm	0.38 mg/L	576.21 NTU	-8.0 mV	3.82 ft	150.00 ml/min
11/10/2022 11:53 AM	09:00	7.02 pH	57.93 °F	4,215.0 µS/cm	0.36 mg/L	130.34 NTU	-15.5 mV	3.82 ft	150.00 ml/min
11/10/2022 11:56 AM	12:00	7.02 pH	57.98 °F	4,118.7 µS/cm	0.24 mg/L	149.99 NTU	-18.0 mV	3.82 ft	150.00 ml/min
11/10/2022 11:59 AM	15:00	7.02 pH	58.42 °F	4,148.3 µS/cm	0.21 mg/L	105.39 NTU	-20.9 mV	3.82 ft	150.00 ml/min
11/10/2022 12:02 PM	18:00	7.02 pH	58.24 °F	4,138.0 µS/cm	0.17 mg/L	31.21 NTU	-22.6 mV	3.82 ft	150.00 ml/min
11/10/2022 12:05 PM	21:00	7.03 pH	58.61 °F	4,104.5 µS/cm	0.17 mg/L	20.57 NTU	-25.0 mV	3.82 ft	150.00 ml/min
11/10/2022 12:08 PM	24:00	7.02 pH	58.79 °F	4,109.3 µS/cm	0.14 mg/L	23.60 NTU	-26.5 mV	3.82 ft	150.00 ml/min
11/10/2022 12:11 PM	27:00	7.03 pH	58.55 °F	4,136.3 µS/cm	0.15 mg/L	234.70 NTU	-28.2 mV	3.82 ft	150.00 ml/min
11/10/2022 12:14 PM	30:00	7.03 pH	58.53 °F	4,135.5 µS/cm	0.12 mg/L	25.14 NTU	-29.6 mV	3.82 ft	150.00 ml/min
11/10/2022 12:17 PM	33:00	7.03 pH	58.49 °F	4,161.5 µS/cm	0.13 mg/L	45.77 NTU	-31.0 mV	3.82 ft	150.00 ml/min

11/10/2022 12:20 PM	36:00	7.02 pH	58.52 °F	4,207.5 µS/cm	0.11 mg/L	37.70 NTU	-31.6 mV	3.82 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-513	Sample time: 12:30 Final DtTW:4.85 Final RDO: 0.11 Ferrous iron: 1.5

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 11:13:32 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-514</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.12 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 11:13 AM	00:00	6.73 pH	53.53 °F	0.07 µS/cm	11.89 mg/L	25.78 NTU	105.5 mV	4.12 ft	150.00 ml/min
11/10/2022 11:16 AM	03:00	6.56 pH	57.92 °F	1,523.2 µS/cm	0.66 mg/L	26.22 NTU	56.2 mV	4.12 ft	150.00 ml/min
11/10/2022 11:19 AM	06:00	6.59 pH	58.13 °F	1,233.3 µS/cm	0.43 mg/L	26.41 NTU	39.6 mV	4.12 ft	150.00 ml/min
11/10/2022 11:22 AM	09:00	6.60 pH	58.06 °F	1,182.8 µS/cm	0.37 mg/L	26.64 NTU	29.2 mV	4.12 ft	150.00 ml/min
11/10/2022 11:25 AM	12:00	6.60 pH	58.39 °F	1,170.8 µS/cm	0.32 mg/L	26.81 NTU	23.3 mV	4.12 ft	150.00 ml/min
11/10/2022 11:28 AM	15:00	6.61 pH	57.43 °F	1,153.4 µS/cm	0.31 mg/L	27.19 NTU	19.2 mV	4.12 ft	150.00 ml/min
11/10/2022 11:31 AM	18:00	6.62 pH	57.66 °F	1,140.8 µS/cm	0.29 mg/L	27.31 NTU	15.7 mV	4.12 ft	150.00 ml/min
11/10/2022 11:34 AM	21:00	6.61 pH	57.32 °F	1,142.5 µS/cm	0.28 mg/L	27.60 NTU	14.4 mV	4.12 ft	150.00 ml/min
11/10/2022 11:37 AM	24:00	6.61 pH	57.70 °F	1,098.7 µS/cm	0.27 mg/L	27.85 NTU	12.3 mV	4.12 ft	150.00 ml/min
11/10/2022 11:40 AM	27:00	6.60 pH	57.98 °F	1,118.1 µS/cm	0.26 mg/L	27.82 NTU	10.9 mV	4.12 ft	150.00 ml/min
11/10/2022 11:43 AM	30:00	6.62 pH	57.13 °F	1,124.4 µS/cm	0.26 mg/L	28.13 NTU	9.1 mV	4.12 ft	150.00 ml/min
11/10/2022 11:46 AM	33:00	6.61 pH	57.21 °F	1,140.7 µS/cm	0.26 mg/L	28.49 NTU	8.3 mV	4.12 ft	150.00 ml/min
11/10/2022 11:49 AM	36:00	6.61 pH	57.84 °F	1,155.7 µS/cm	0.25 mg/L	28.68 NTU	6.8 mV	4.12 ft	150.00 ml/min
11/10/2022 11:52 AM	39:00	6.61 pH	57.59 °F	1,181.0 µS/cm	0.25 mg/L	29.02 NTU	6.1 mV	4.12 ft	150.00 ml/min

11/10/2022 11:55 AM	42:00	6.63 pH	57.50 °F	1,193.7 µS/cm	0.24 mg/L	35.77 NTU	3.9 mV	4.12 ft	150.00 ml/min
11/10/2022 11:58 AM	45:00	6.60 pH	58.26 °F	1,215.5 µS/cm	0.24 mg/L	35.03 NTU	3.4 mV	4.12 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-514	Sample Time: 1205 Final DTW: 4.13 ft btoc Final RDO: 0.24 mg/L Ferrous Iron: 1.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/7/2022 10:36:26 AM

Project: Edmonds Terminal 4Q22

Operator Name: ES

<b>Location Name: MW-515</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

Correct record

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %	
11/7/2022 10:36 AM	00:00	6.94 pH	55.26 °F	6,762.8 µS/cm	1.92 mg/L	16.43 NTU	244.6 mV	150.00 ml/min
11/7/2022 10:39 AM	03:00	6.89 pH	57.43 °F	6,121.9 µS/cm	0.40 mg/L	5.38 NTU	261.5 mV	150.00 ml/min
11/7/2022 10:42 AM	06:00	6.87 pH	57.85 °F	6,097.0 µS/cm	0.33 mg/L	0.00 NTU	241.0 mV	150.00 ml/min
11/7/2022 10:45 AM	09:00	6.86 pH	58.02 °F	6,107.8 µS/cm	0.25 mg/L	1.12 NTU	242.1 mV	150.00 ml/min
11/7/2022 10:48 AM	12:00	6.86 pH	57.89 °F	6,138.9 µS/cm	0.23 mg/L	0.00 NTU	227.3 mV	150.00 ml/min
11/7/2022 10:51 AM	15:00	6.86 pH	58.10 °F	6,099.6 µS/cm	0.20 mg/L	3.77 NTU	235.9 mV	150.00 ml/min
11/7/2022 10:54 AM	18:00	6.86 pH	58.41 °F	6,111.9 µS/cm	0.21 mg/L	0.00 NTU	220.0 mV	150.00 ml/min

## Samples

Sample ID:	Description:
MW-515	Sample time: 10:52 Final RDO: 0.23 Final DRW: 4.37 Ferrous iron: 0



# Low-Flow Test Report:

Test Date / Time: 11/7/2022 10:21:35 AM

Project: Edmonds Terminal 4Q22

Operator Name: TB

<b>Location Name: MW-516</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

## Weather Conditions:

Rainy, 38 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 10:21 AM	00:00	6.78 pH	59.03 °F	3,889.1 µS/cm	3.64 mg/L	151.13 NTU	198.4 mV	4.00 ft	150.00 ml/min
11/7/2022 10:24 AM	03:00	6.80 pH	58.32 °F	3,972.1 µS/cm	1.08 mg/L	51,416 NTU	175.6 mV	4.00 ft	150.00 ml/min
11/7/2022 10:27 AM	06:00	6.81 pH	58.77 °F	3,970.3 µS/cm	1.27 mg/L	57.12 NTU	166.1 mV	4.00 ft	150.00 ml/min
11/7/2022 10:30 AM	09:00	6.80 pH	58.84 °F	3,975.1 µS/cm	0.87 mg/L	34.11 NTU	159.7 mV	4.00 ft	150.00 ml/min
11/7/2022 10:33 AM	12:00	6.80 pH	58.89 °F	3,744.0 µS/cm	1.49 mg/L	29.25 NTU	154.5 mV	4.00 ft	150.00 ml/min
11/7/2022 10:36 AM	15:00	6.81 pH	58.84 °F	3,333.2 µS/cm	1.06 mg/L	23,672 NTU	148.2 mV	4.00 ft	150.00 ml/min
11/7/2022 10:39 AM	18:00	6.81 pH	58.73 °F	3,127.3 µS/cm	0.62 mg/L	14.23 NTU	143.3 mV	4.00 ft	150.00 ml/min
11/7/2022 10:42 AM	21:00	6.82 pH	58.75 °F	2,794.6 µS/cm	0.46 mg/L	21,249 NTU	138.0 mV	4.00 ft	150.00 ml/min
11/7/2022 10:45 AM	24:00	6.82 pH	58.50 °F	3,029.6 µS/cm	0.45 mg/L	277,225 NTU	136.0 mV	4.00 ft	150.00 ml/min
11/7/2022 10:48 AM	27:00	6.84 pH	58.61 °F	2,925.4 µS/cm	0.45 mg/L	135.59 NTU	132.2 mV	4.00 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-516	Sample Time: 10:50 Final DTW: 4.00 ft btoc Final RDO: 0.47 mg/L Ferrous Iron: 0 mg/L

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# Low-Flow Test Report:

Test Date / Time: 11/7/2022 10:20:01 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-517</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.76 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 5122.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Weather Conditions:

Drizzling 42F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/7/2022 10:20 AM	00:00	6.78 pH	59.74 °F	4,602.0 µS/cm	1.37 mg/L	23.82 NTU	81.7 mV	4.76 ft	150.00 ml/min
11/7/2022 10:23 AM	03:00	6.61 pH	58.47 °F	4,238.0 µS/cm	0.42 mg/L	24.21 NTU	73.6 mV	4.76 ft	150.00 ml/min
11/7/2022 10:26 AM	06:00	6.58 pH	58.61 °F	3,656.6 µS/cm	0.35 mg/L	24.14 NTU	68.6 mV	4.76 ft	150.00 ml/min
11/7/2022 10:29 AM	09:00	6.59 pH	58.59 °F	3,157.7 µS/cm	0.37 mg/L	24.33 NTU	66.1 mV	4.76 ft	150.00 ml/min
11/7/2022 10:32 AM	12:00	6.60 pH	59.01 °F	2,821.0 µS/cm	0.45 mg/L	24.32 NTU	66.7 mV	4.76 ft	150.00 ml/min
11/7/2022 10:35 AM	15:00	6.61 pH	58.87 °F	2,647.4 µS/cm	0.67 mg/L	24.38 NTU	66.8 mV	4.76 ft	150.00 ml/min
11/7/2022 10:38 AM	18:00	6.63 pH	58.67 °F	2,446.9 µS/cm	0.97 mg/L	24.50 NTU	67.6 mV	4.76 ft	150.00 ml/min
11/7/2022 10:41 AM	21:00	6.64 pH	58.59 °F	2,385.3 µS/cm	1.24 mg/L	24.59 NTU	68.3 mV	4.76 ft	150.00 ml/min
11/7/2022 10:44 AM	24:00	6.65 pH	58.50 °F	2,350.8 µS/cm	1.49 mg/L	24.74 NTU	69.3 mV	4.76 ft	150.00 ml/min
11/7/2022 10:47 AM	27:00	6.65 pH	58.56 °F	2,329.9 µS/cm	1.66 mg/L	24.89 NTU	70.5 mV	4.76 ft	150.00 ml/min
11/7/2022 10:50 AM	30:00	6.66 pH	58.27 °F	2,286.3 µS/cm	1.80 mg/L	24.87 NTU	71.3 mV	4.76 ft	150.00 ml/min
11/7/2022 10:53 AM	33:00	6.67 pH	58.69 °F	2,275.9 µS/cm	1.88 mg/L	24.71 NTU	72.2 mV	4.76 ft	150.00 ml/min

11/7/2022 10:54 AM	34:09	6.67 pH	58.62 °F	2,268.3 µS/cm	1.91 mg/L	24.79 NTU	72.3 mV	4.76 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-517	Sample time: 1110 Final DTW: 4.76 ft btoc Final RDO: 1.91 mg/L Ferrous iron: 0 mg/L

# Low-Flow Test Report:

**Test Date / Time:** 11/10/2022 8:25:34 AM

**Project:** Edmonds Terminal 4Q22

**Operator Name:** SG

<p><b>Location Name: MW-518</b>  <b>Well Diameter: 2 in</b>  <b>Casing Type: PVC</b>  <b>Screen Length: 10 ft</b>  <b>Top of Screen: 2.5 ft</b>  <b>Total Depth: 12.5 ft</b>  <b>Initial Depth to Water: 7.76 ft</b></p>	<p><b>Pump Type: Geotech Geopump Series 2</b>  <b>Tubing Type: Polyethylene 0.170 x 1/4</b>  <b>Pump Intake From TOC: 10 m</b>  <b>Estimated Total Volume Pumped: 5850 ml</b>  <b>Flow Cell Volume: 130 ml</b>  <b>Final Flow Rate: 150 ml/min</b>  <b>Final Draw Down: 0 ft</b></p>	<p><b>Instrument Used: Aqua TROLL 600 Vented</b>  <b>Serial Number: 697669</b></p>
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**Test Notes:**

**Weather Conditions:**

Overcast, chilly

**Low-Flow Readings:**

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 8:25 AM	00:00	5.87 pH	53.15 °F	0.07 µS/cm	8.64 mg/L	0.00 NTU	250.0 mV	7.76 ft	150.00 ml/min
11/10/2022 8:28 AM	03:00	6.65 pH	59.37 °F	829.24 µS/cm	0.78 mg/L	0.00 NTU	-61.2 mV	7.76 ft	150.00 ml/min
11/10/2022 8:31 AM	06:00	6.74 pH	59.42 °F	1,168.8 µS/cm	0.53 mg/L	0.00 NTU	-136.6 mV	7.76 ft	150.00 ml/min
11/10/2022 8:34 AM	09:00	6.78 pH	59.79 °F	1,261.5 µS/cm	0.45 mg/L	0.00 NTU	-165.9 mV	7.76 ft	150.00 ml/min
11/10/2022 8:37 AM	12:00	6.80 pH	59.17 °F	1,310.1 µS/cm	0.48 mg/L	0.00 NTU	-177.7 mV	7.76 ft	150.00 ml/min
11/10/2022 8:40 AM	15:00	6.70 pH	59.61 °F	1,244.5 µS/cm	0.53 mg/L	0.00 NTU	-177.1 mV	7.76 ft	150.00 ml/min
11/10/2022 8:43 AM	18:00	6.78 pH	60.40 °F	1,250.3 µS/cm	0.60 mg/L	0.00 NTU	-182.3 mV	7.76 ft	150.00 ml/min
11/10/2022 8:46 AM	21:00	6.76 pH	60.51 °F	1,269.3 µS/cm	0.55 mg/L	0.00 NTU	-184.4 mV	7.76 ft	150.00 ml/min
11/10/2022 8:49 AM	24:00	6.77 pH	60.70 °F	1,253.6 µS/cm	0.57 mg/L	0.00 NTU	-185.0 mV	7.76 ft	150.00 ml/min
11/10/2022 8:52 AM	27:00	6.78 pH	60.86 °F	1,270.0 µS/cm	0.55 mg/L	0.00 NTU	-185.5 mV	7.76 ft	150.00 ml/min
11/10/2022 8:55 AM	30:00	6.72 pH	60.92 °F	1,256.5 µS/cm	0.61 mg/L	0.00 NTU	-183.2 mV	7.76 ft	150.00 ml/min
11/10/2022 8:58 AM	33:00	6.77 pH	60.87 °F	1,262.1 µS/cm	0.55 mg/L	0.00 NTU	-188.0 mV	7.76 ft	150.00 ml/min

11/10/2022 9:01 AM	36:00	6.77 pH	60.76 °F	1,253.5 µS/cm	0.57 mg/L	0.00 NTU	-187.9 mV	7.76 ft	150.00 ml/min
11/10/2022 9:04 AM	39:00	6.77 pH	60.82 °F	1,266.6 µS/cm	0.56 mg/L	0.00 NTU	-189.9 mV	7.76 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-518	Final RDO: 0.56 Ferrous iron: 1 mg/L Final DTW: 7.81 Sample time: 9:0

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 11:17:24 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-519</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.34 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 2250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Overcast, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 11:17 AM	00:00	6.76 pH	59.20 °F	568.93 µS/cm	3.41 mg/L	0.00 NTU	78.0 mV	6.34 ft	150.00 ml/min
11/10/2022 11:20 AM	03:00	6.75 pH	59.32 °F	567.61 µS/cm	2.47 mg/L	0.00 NTU	81.3 mV	6.34 ft	150.00 ml/min
11/10/2022 11:23 AM	06:00	6.75 pH	59.26 °F	566.57 µS/cm	2.42 mg/L	0.00 NTU	85.7 mV	6.34 ft	150.00 ml/min
11/10/2022 11:26 AM	09:00	6.75 pH	59.46 °F	569.31 µS/cm	2.35 mg/L	0.00 NTU	89.1 mV	6.34 ft	150.00 ml/min
11/10/2022 11:29 AM	12:00	6.73 pH	59.54 °F	566.40 µS/cm	2.35 mg/L	0.00 NTU	92.5 mV	6.34 ft	150.00 ml/min
11/10/2022 11:32 AM	15:00	6.65 pH	59.81 °F	564.45 µS/cm	2.39 mg/L	0.00 NTU	98.5 mV	6.34 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-519	Final RDO: 2.39 Final DTW: 6.34 Sample time: 11:32 Ferrous iron: 0 mg/L





# Low-Flow Test Report:

Test Date / Time: 11/10/2022 10:16:31 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-520</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.04 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Overcast, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 10:16 AM	00:00	6.96 pH	57.09 °F	829.06 µS/cm	6.72 mg/L	0.00 NTU	29.9 mV	7.04 ft	150.00 ml/min
11/10/2022 10:19 AM	03:00	7.00 pH	56.75 °F	825.05 µS/cm	6.15 mg/L	0.00 NTU	42.8 mV	7.04 ft	150.00 ml/min
11/10/2022 10:22 AM	06:00	6.98 pH	56.84 °F	821.32 µS/cm	5.94 mg/L	0.00 NTU	52.9 mV	7.04 ft	150.00 ml/min
11/10/2022 10:25 AM	09:00	6.97 pH	56.98 °F	819.62 µS/cm	5.82 mg/L	0.00 NTU	60.8 mV	7.04 ft	150.00 ml/min
11/10/2022 10:28 AM	12:00	6.96 pH	56.92 °F	817.83 µS/cm	5.72 mg/L	0.00 NTU	67.5 mV	7.04 ft	150.00 ml/min
11/10/2022 10:31 AM	15:00	6.88 pH	57.22 °F	816.87 µS/cm	5.64 mg/L	0.00 NTU	76.5 mV	7.04 ft	150.00 ml/min
11/10/2022 10:34 AM	18:00	6.94 pH	57.18 °F	815.81 µS/cm	5.59 mg/L	0.00 NTU	80.4 mV	7.04 ft	150.00 ml/min
11/10/2022 10:37 AM	21:00	6.94 pH	57.37 °F	816.03 µS/cm	5.54 mg/L	0.00 NTU	84.7 mV	7.04 ft	150.00 ml/min
11/10/2022 10:40 AM	24:00	6.94 pH	57.34 °F	813.44 µS/cm	5.51 mg/L	0.00 NTU	88.8 mV	7.04 ft	150.00 ml/min
11/10/2022 10:43 AM	27:00	6.93 pH	57.10 °F	813.92 µS/cm	5.46 mg/L	0.00 NTU	93.1 mV	7.04 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-520	Final RDO: 5.46 Final DTW: 7.04 Sample time: 10:44 Ferrous iron: 0 mg/L

Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 1:09:47 PM

Project: Edmonds Terminal 4Q22

Operator Name: TB

<b>Location Name: MW-521</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.76 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x1/4</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 1800 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

## Weather Conditions:

Sunny, 40 F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 1:09 PM	00:00	7.45 pH	51.03 °F	289.65 µS/cm	9.60 mg/L	683.25 NTU	111.6 mV	5.76 ft	150.00 ml/min
11/9/2022 1:12 PM	03:00	7.14 pH	53.82 °F	272.51 µS/cm	6.06 mg/L	0.00 NTU	110.5 mV	5.76 ft	150.00 ml/min
11/9/2022 1:15 PM	06:00	7.06 pH	54.07 °F	267.30 µS/cm	6.06 mg/L	46,854 NTU	112.4 mV	5.76 ft	150.00 ml/min
11/9/2022 1:18 PM	09:00	7.07 pH	54.61 °F	266.35 µS/cm	6.05 mg/L	0.00 NTU	116.6 mV	5.76 ft	150.00 ml/min
11/9/2022 1:21 PM	12:00	7.05 pH	54.48 °F	263.84 µS/cm	6.04 mg/L	22.88 NTU	116.6 mV	5.76 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-521	Sample Time: 13:25 Final DTW: 5.76 Final RDO: 6.05 mg/L Ferrous Iron: 0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/10/2022 1:14:14 PM

Project: Edmonds Terminal 4Q22 (6)

Operator Name: ES

<b>Location Name: MW-522</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.56 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 1800 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.1 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/10/2022 1:14 PM	00:00	7.73 pH	55.36 °F	824.55 µS/cm	9.63 mg/L	4.78 NTU	104.4 mV	7.56 ft	150.00 ml/min
11/10/2022 1:17 PM	03:00	7.19 pH	55.39 °F	796.42 µS/cm	8.54 mg/L	2.06 NTU	116.0 mV	7.56 ft	150.00 ml/min
11/10/2022 1:20 PM	06:00	7.05 pH	55.36 °F	793.04 µS/cm	8.57 mg/L	7.74 NTU	130.2 mV	7.56 ft	150.00 ml/min
11/10/2022 1:23 PM	09:00	7.05 pH	55.35 °F	789.32 µS/cm	8.46 mg/L	3.03 NTU	139.1 mV	7.56 ft	150.00 ml/min
11/10/2022 1:26 PM	12:00	7.01 pH	55.49 °F	787.57 µS/cm	8.43 mg/L	0.00 NTU	148.2 mV	7.56 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-522	Sample time: 1335 Final DTW: 7.60 Final RDO: 8.43 Ferrous iron: 0.0

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 12:40:06 PM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-525</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 5.61 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 5400 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Sunny, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 12:40 PM	00:00	6.43 pH	58.02 °F	226.65 µS/cm	5.52 mg/L	45.45 NTU	206.8 mV	5.61 ft	150.00 ml/min
11/9/2022 12:43 PM	03:00	5.89 pH	58.80 °F	238.14 µS/cm	2.15 mg/L	29.68 NTU	205.4 mV	5.61 ft	150.00 ml/min
11/9/2022 12:46 PM	06:00	5.84 pH	58.82 °F	250.75 µS/cm	1.95 mg/L	26.10 NTU	199.5 mV	5.61 ft	150.00 ml/min
11/9/2022 12:49 PM	09:00	5.85 pH	58.81 °F	252.27 µS/cm	2.00 mg/L	24.02 NTU	197.4 mV	5.61 ft	150.00 ml/min
11/9/2022 12:52 PM	12:00	5.64 pH	57.79 °F	201.10 µS/cm	3.35 mg/L	10,868 NTU	208.2 mV	5.61 ft	150.00 ml/min
11/9/2022 12:55 PM	15:00	5.66 pH	58.04 °F	222.86 µS/cm	3.43 mg/L	30.34 NTU	205.9 mV	5.61 ft	150.00 ml/min
11/9/2022 12:58 PM	18:00	5.77 pH	58.15 °F	247.58 µS/cm	2.02 mg/L	26.63 NTU	196.5 mV	5.61 ft	150.00 ml/min
11/9/2022 1:01 PM	21:00	5.73 pH	57.73 °F	246.28 µS/cm	1.63 mg/L	24.20 NTU	189.1 mV	5.61 ft	150.00 ml/min
11/9/2022 1:04 PM	24:00	5.73 pH	57.80 °F	239.06 µS/cm	1.53 mg/L	26.27 NTU	187.0 mV	5.61 ft	150.00 ml/min
11/9/2022 1:07 PM	27:00	5.70 pH	57.60 °F	240.90 µS/cm	1.45 mg/L	26.35 NTU	184.3 mV	5.61 ft	150.00 ml/min
11/9/2022 1:10 PM	30:00	5.62 pH	57.45 °F	244.72 µS/cm	1.36 mg/L	26.41 NTU	182.3 mV	5.61 ft	150.00 ml/min
11/9/2022 1:13 PM	33:00	5.71 pH	57.03 °F	247.35 µS/cm	1.28 mg/L	27.44 NTU	170.8 mV	5.61 ft	150.00 ml/min

11/9/2022 1:16 PM	36:00	5.68 pH	56.70 °F	252.07 µS/cm	1.20 mg/L	28.42 NTU	164.5 mV	5.61 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-525	Final RDO: 1.20 Final DTW: 6.31 Ferrous iron: 0 mg/L Sample time: 1320 Duplicate taken with sample. DUP-2

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 12:42:00 PM

Project: Edmonds Terminal 4Q22 (5)

Operator Name: ES

<b>Location Name: MW-526</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.63 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 2705 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 12:42 PM	00:00	5.83 pH	50.94 °F	161.44 µS/cm	3.17 mg/L	2,074.0 NTU	211.5 mV	4.63 ft	150.00 ml/min
11/9/2022 12:45 PM	03:00	5.74 pH	51.82 °F	158.39 µS/cm	3.05 mg/L	2,066.3 NTU	216.1 mV	4.63 ft	150.00 ml/min
11/9/2022 12:48 PM	06:00	5.80 pH	53.09 °F	158.75 µS/cm	2.86 mg/L	2,271.2 NTU	214.0 mV	4.63 ft	150.00 ml/min
11/9/2022 12:51 PM	09:00	5.75 pH	53.68 °F	161.05 µS/cm	2.69 mg/L	2,258.5 NTU	210.4 mV	4.63 ft	150.00 ml/min
11/9/2022 12:54 PM	12:00	5.82 pH	52.89 °F	161.30 µS/cm	2.74 mg/L	2,087.7 NTU	205.4 mV	4.63 ft	150.00 ml/min
11/9/2022 12:57 PM	15:02	5.85 pH	50.35 °F	153.06 µS/cm	2.70 mg/L	2,423.2 NTU	206.8 mV	4.63 ft	150.00 ml/min
11/9/2022 1:00 PM	18:02	5.76 pH	53.18 °F	163.44 µS/cm	2.60 mg/L	2,268.0 NTU	201.8 mV	4.63 ft	150.00 ml/min

## Samples

Sample ID:	Description:
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MW-526	Sample time: 13:10 Final DTW: 4.96 Final RDO: 2.60 Ferrous iron: 0.0
DUP-1	Sample time:



# Groundwater Sampling Form



<b>Project Number</b>	30064301	<b>Well ID</b>	MW-526	<b>Date</b>	12/16/2022		
<b>Project Name/Location</b>	Edmonds Terminal		<b>Weather(°F)</b>	Sunny, 38 °F, , winds at mph.			
<b>Measuring Pt. Description</b>	Top of Inner Casing	<b>MP Elevation</b>	<b>Casing Diameter (in)</b>	2	<b>Well Casing Material</b>	PVC	
<b>Static Water Level (ft-bmp)</b>	4.42	<b>Total Depth (ft-bmp)</b>	13	<b>Water Column (ft)</b>	8.58	<b>Gallons in Well</b>	1.39
<b>Purge Start</b>	12:30	<b>Pump Intake (ft-bmp)</b>	7	<b>Purge Method</b>	Low-Flow	<b>Purge Equipment</b>	Peristaltic
<b>Purge End</b>	12:43	<b>Volumes Purged</b>	0.49	<b>Sample ID</b>	MW-526	<b>Sampled by</b>	Trevor Bryant
<b>Sample Time</b>	12:45	<b>Gallons Purged</b>		<b>Replicate/ Code No.</b>	NA	<b>Sample Type</b>	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:30	0	0	200	4.42	0.00	5.79	0.135	34.5	1.2	9.5	251.8	Clear	None
12:34	4	4	200	4.42	0.21	5.68	0.129	38.82	0.95	9.3	251.2	Clear	None
12:37	3	7	200	4.42	1.00	5.63	0.128	37.62	0.91	9.3	251.2	Clear	None
12:40	3	10	200	4.42	0.53	5.58	0.127	35.49	0.88	9.3	250.6	Clear	None
12:43	3	13	200	4.42	0.69	5.57	0.127	34.62	0.83	9.3	246.9	Clear	None

<b>Constituent Sampled</b>	<b>Container</b>	<b>Number</b>	<b>Preservative</b>
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**Comments:**

**Well Casing Volume Conversion**

Well diameter (inches) = gallons per foot    1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47  
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

**Well Information**

Well Location: _____	Well Locked at Arrival: no
Condition of Well: Good condition	Well Locked at Departure: no
Well Completion: Flush mount	Key Number To Well: NA

ft-bmp = feet below measuring point  
 in = inches  
 ft = feet  
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter  
 NTU = Nephelometric Turbidity Unit  
 mg/L = milligrams per liter

mV = millivolts  
 °F = degrees Fahrenheit  
 °C = degrees Celsius

# Low-Flow Test Report:

Test Date / Time: 11/8/2022 9:45:46 AM

Project: Edmonds Terminal 4Q22 (4)

Operator Name: ES

<b>Location Name: MW-530</b> <b>Well Diameter: 1 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 5 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 8 ft</b> <b>Initial Depth to Water: 5.8 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 6 ft</b> <b>Estimated Total Volume Pumped: 7020 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

## Weather Conditions:

Wind

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 9:45 AM	00:00	6.79 pH	47.22 °F	22,754 µS/cm	7.33 mg/L	305.41 NTU	97.4 mV	5.80 ft	150.00 ml/min
11/8/2022 9:48 AM	03:00	6.68 pH	48.27 °F	25,689 µS/cm	2.02 mg/L	0.00 NTU	-62.0 mV	5.80 ft	150.00 ml/min
11/8/2022 9:51 AM	06:00	6.68 pH	47.33 °F	26,276 µS/cm	1.76 mg/L	0.00 NTU	-78.7 mV	5.80 ft	150.00 ml/min
11/8/2022 9:53 AM	07:48	6.68 pH	46.94 °F	26,822 µS/cm	1.74 mg/L	190.15 NTU	-85.0 mV	5.80 ft	150.00 ml/min
11/8/2022 9:56 AM	10:48	6.69 pH	46.35 °F	26,905 µS/cm	1.65 mg/L	0.00 NTU	-92.2 mV	5.80 ft	150.00 ml/min
11/8/2022 9:59 AM	13:48	6.98 pH	44.84 °F	11.82 µS/cm	12.87 mg/L	15,670 NTU	-82.3 mV	5.80 ft	150.00 ml/min
11/8/2022 10:02 AM	16:48	7.12 pH	44.36 °F	13.16 µS/cm	12.96 mg/L	15,251 NTU	-78.0 mV	5.80 ft	150.00 ml/min
11/8/2022 10:05 AM	19:48	7.18 pH	44.00 °F	13.37 µS/cm	13.04 mg/L	13,407 NTU	-74.3 mV	5.80 ft	150.00 ml/min
11/8/2022 10:08 AM	22:48	6.66 pH	49.58 °F	31,564 µS/cm	0.58 mg/L	0.00 NTU	-90.0 mV	5.80 ft	150.00 ml/min
11/8/2022 10:11 AM	25:48	6.65 pH	50.99 °F	32,403 µS/cm	0.32 mg/L	0.00 NTU	-100.8 mV	5.80 ft	150.00 ml/min
11/8/2022 10:14 AM	28:48	6.64 pH	51.91 °F	32,175 µS/cm	0.28 mg/L	0.00 NTU	-106.8 mV	5.80 ft	150.00 ml/min
11/8/2022 10:17 AM	31:48	6.65 pH	51.95 °F	31,874 µS/cm	0.27 mg/L	0.00 NTU	-111.4 mV	5.80 ft	150.00 ml/min

11/8/2022 10:20 AM	34:48	6.65 pH	52.57 °F	31,474 µS/cm	0.25 mg/L	5.62 NTU	-115.2 mV	5.80 ft	150.00 ml/min
11/8/2022 10:23 AM	37:48	6.66 pH	52.09 °F	31,038 µS/cm	0.23 mg/L	0.00 NTU	-119.0 mV	5.80 ft	150.00 ml/min
11/8/2022 10:26 AM	40:48	6.67 pH	52.61 °F	30,681 µS/cm	0.23 mg/L	0.00 NTU	-123.4 mV	5.80 ft	150.00 ml/min
11/8/2022 10:29 AM	43:48	6.68 pH	52.63 °F	30,058 µS/cm	0.22 mg/L	0.00 NTU	-129.2 mV	5.80 ft	150.00 ml/min
11/8/2022 10:32 AM	46:48	6.69 pH	52.68 °F	29,560 µS/cm	0.21 mg/L	0.00 NTU	-136.3 mV	5.80 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-530	Sample time: 10:35 Final DTW: 6.39 Ferrous iron: 0.0 ORP did not stabilize

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 8:45:31 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-531</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.83 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Sunny, chilly

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 8:45 AM	00:00	7.27 pH	41.81 °F	5.51 µS/cm	12.31 mg/L	0.00 NTU	244.3 mV	6.83 ft	150.00 ml/min
11/9/2022 8:48 AM	03:00	6.83 pH	50.88 °F	1,669.5 µS/cm	5.51 mg/L	0.00 NTU	178.5 mV	6.83 ft	150.00 ml/min
11/9/2022 8:51 AM	06:00	6.82 pH	50.71 °F	1,536.4 µS/cm	5.30 mg/L	0.00 NTU	159.4 mV	6.83 ft	150.00 ml/min
11/9/2022 8:54 AM	09:00	6.83 pH	51.32 °F	1,385.0 µS/cm	5.89 mg/L	0.00 NTU	153.1 mV	6.83 ft	150.00 ml/min
11/9/2022 8:57 AM	12:00	6.82 pH	51.83 °F	1,382.3 µS/cm	5.58 mg/L	0.00 NTU	147.2 mV	6.83 ft	150.00 ml/min
11/9/2022 9:00 AM	15:00	6.86 pH	51.62 °F	1,026.5 µS/cm	6.39 mg/L	0.00 NTU	151.3 mV	6.83 ft	150.00 ml/min
11/9/2022 9:03 AM	18:00	6.88 pH	51.56 °F	922.35 µS/cm	6.91 mg/L	0.00 NTU	156.6 mV	6.83 ft	150.00 ml/min
11/9/2022 9:06 AM	21:00	6.87 pH	51.54 °F	908.24 µS/cm	7.04 mg/L	0.00 NTU	162.7 mV	6.83 ft	150.00 ml/min
11/9/2022 9:09 AM	24:00	6.87 pH	51.68 °F	898.08 µS/cm	6.98 mg/L	0.00 NTU	166.7 mV	6.83 ft	150.00 ml/min
11/9/2022 9:12 AM	27:00	6.86 pH	51.88 °F	927.02 µS/cm	7.03 mg/L	0.00 NTU	169.6 mV	6.83 ft	150.00 ml/min
11/9/2022 9:15 AM	30:00	6.85 pH	51.99 °F	908.15 µS/cm	6.96 mg/L	0.00 NTU	171.2 mV	6.83 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-531	Final RDO: 6.96 Final DTW: 6.81 Sample time: 9:16 Ferrous iron: 0 mg/L

# Groundwater Sampling Form



<b>Project Number</b>	30064301	<b>Well ID</b>	MW-531	<b>Date</b>	12/16/2022
<b>Project Name/Location</b>	Edmonds Terminal	<b>Weather(°F)</b>	Sunny, 38 °F, Sunny, winds at mph.		
<b>Measuring Pt. Description</b>	Top of Inner Casing	<b>MP Elevation</b>		<b>Casing Diameter (in)</b>	2
				<b>Well Casing Material</b>	PVC
<b>Static Water Level (ft-bmp)</b>	7.13	<b>Total Depth (ft-bmp)</b>	13	<b>Water Column (ft)</b>	5.87
				<b>Gallons in Well</b>	0.95
<b>Purge Start</b>	11:17	<b>Pump Intake (ft-bmp)</b>	10	<b>Purge Method</b>	Low-Flow
				<b>Purge Equipment</b>	Peristaltic
<b>Purge End</b>	12:02	<b>Volumes Purged</b>	2.50	<b>Sample ID</b>	MW-531
				<b>Sampled by</b>	Trevor Bryant
<b>Sample Time</b>	12:05	<b>Gallons Purged</b>		<b>Replicate/ Code No.</b>	NA
				<b>Sample Type</b>	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:17	0	0	200	7.13	0.00	6.45	2.213	2.1	2.94	10.6	241.1	Clear	None
11:20	3	3	200	7.13	0.16	6.5	2.497	1.35	1.65	10.2	227.9	Clear	None
11:23	3	6	200	7.13	0.32	6.52	2.522	1.8	0.87	10.2	213.7	Clear	None
11:26	3	9	200	7.13	0.48	6.6	2.119	2.28	3.13	10	202.8	Clear	None
11:29	3	12	200	7.13	0.63	6.72	1.487	1.53	5.3	9.6	202.7	Clear	None
11:33	4	16	200	7.13	0.85	6.76	1.274	1.27	6.26	9.7	204.2	Clear	None
11:36	3	19	200	7.13	1.00	6.78	1.193	1.01	6.61	9.8	207.4	Clear	None
11:39	3	22	200	7.13	1.16	7.14	1.144	0.98	6.7	9.9	210.3	Clear	None
11:42	3	25	200	7.13	1.32	7.14	6.78	1.111	6.75	9.8	213.5	Clear	None
11:47	5	30	200	7.13	1.59	6.78	1.066	0.77	6.58	9.6	217.6	Clear	None
11:53	6	36	200	7.13	1.90	6.78	1.012	0.82	6.25	9.6	222.7	Clear	None
11:59	6	42	200	7.13	2.22	7.14	1.001	0.91	5.92	9.4	227.3	Clear	None
12:02	3	45	200	7.13	2.38	6.75	1.005	0.96	5.68	9.4	230.1	Clear	None

<b>Constituent Sampled</b>	<b>Container</b>	<b>Number</b>	<b>Preservative</b>
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**Comments:**

**Well Casing Volume Conversion**

Well diameter (inches) = gallons per foot    1 = 0.04; 1.5 = 0.09; 2.5 = 0.26; 3.5 = 0.50; 6 = 1.47  
 1.25 = 0.06; 2 = 0.16; 3 = 0.37; 4 = 0.65

**Well Information**

Well Location: _____	Well Locked at Arrival: _____
Condition of Well: _____	Well Locked at Departure: _____
Well Completion: _____	Key Number To Well: NA

ft-bmp = feet below measuring point  
 in = inches  
 ft = feet  
 mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter  
 NTU = Nephelometric Turbidity Unit  
 mg/L = milligrams per liter

mV = millivolts  
 °F = degrees Fahrenheit  
 °C = degrees Celsius

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 9:00:59 AM

Project: Edmonds Terminal 4Q22

Operator Name: ES

<b>Location Name: MW-532</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.4 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 5850 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 1.37 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466619</b>
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## Test Notes:

## Weather Conditions:

Sunny cold

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 9:00 AM	00:00	6.35 pH	45.82 °F	168.68 µS/cm	4.21 mg/L	22.68 NTU	179.1 mV	6.40 ft	150.00 ml/min
11/9/2022 9:03 AM	03:00	6.04 pH	50.62 °F	123.04 µS/cm	1.60 mg/L	16.61 NTU	195.8 mV	6.40 ft	150.00 ml/min
11/9/2022 9:06 AM	06:00	6.04 pH	51.70 °F	108.13 µS/cm	1.36 mg/L	11.33 NTU	208.7 mV	6.40 ft	150.00 ml/min
11/9/2022 9:09 AM	09:00	5.95 pH	51.93 °F	105.26 µS/cm	1.13 mg/L	12.36 NTU	218.1 mV	6.40 ft	150.00 ml/min
11/9/2022 9:12 AM	12:00	5.97 pH	52.32 °F	102.03 µS/cm	1.09 mg/L	25.27 NTU	214.3 mV	6.40 ft	150.00 ml/min
11/9/2022 9:15 AM	15:00	5.84 pH	52.28 °F	99.01 µS/cm	0.90 mg/L	15.60 NTU	192.4 mV	6.40 ft	150.00 ml/min
11/9/2022 9:18 AM	18:00	5.94 pH	52.56 °F	99.97 µS/cm	0.83 mg/L	18.55 NTU	147.2 mV	6.40 ft	150.00 ml/min
11/9/2022 9:21 AM	21:00	5.83 pH	52.57 °F	103.55 µS/cm	0.73 mg/L	15.45 NTU	119.4 mV	6.40 ft	150.00 ml/min
11/9/2022 9:24 AM	24:00	5.90 pH	52.67 °F	106.87 µS/cm	0.68 mg/L	15.84 NTU	97.2 mV	6.40 ft	150.00 ml/min
11/9/2022 9:27 AM	27:00	5.81 pH	52.99 °F	111.02 µS/cm	0.54 mg/L	19.35 NTU	89.9 mV	6.40 ft	150.00 ml/min
11/9/2022 9:30 AM	30:00	5.90 pH	53.00 °F	112.60 µS/cm	0.54 mg/L	13.21 NTU	84.0 mV	6.40 ft	150.00 ml/min
11/9/2022 9:33 AM	33:00	5.83 pH	53.09 °F	120.61 µS/cm	0.46 mg/L	20.45 NTU	85.9 mV	6.40 ft	150.00 ml/min

11/9/2022 9:36 AM	36:00	5.90 pH	53.12 °F	127.00 µS/cm	0.46 mg/L	26.81 NTU	83.2 mV	6.40 ft	150.00 ml/min
11/9/2022 9:39 AM	39:00	5.88 pH	53.44 °F	122.40 µS/cm	0.41 mg/L	20.99 NTU	84.9 mV	6.40 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-532	Sample time: 0950 Final DTW: 7.77 Final RDO: 0.41 Ferrous iron: 0.5



# Low-Flow Test Report:

Test Date / Time: 11/8/2022 1:21:34 PM

Project: Edmonds Terminal 4Q22 (2)

Operator Name: SG

<b>Location Name: MW-533</b> <b>Well Diameter: 2 ft</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.71 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 1:21 PM	00:00	6.97 pH	54.33 °F	11,699 µS/cm	5.87 mg/L	9.47 NTU	71.8 mV	4.71 ft	150.00 ml/min
11/8/2022 1:24 PM	03:00	7.05 pH	54.09 °F	11,975 µS/cm	5.52 mg/L	9.04 NTU	76.5 mV	4.71 ft	150.00 ml/min
11/8/2022 1:27 PM	06:00	7.06 pH	54.29 °F	12,154 µS/cm	5.43 mg/L	12.63 NTU	82.2 mV	4.71 ft	150.00 ml/min
11/8/2022 1:30 PM	09:00	7.07 pH	54.44 °F	12,324 µS/cm	5.35 mg/L	13.03 NTU	87.3 mV	4.71 ft	150.00 ml/min
11/8/2022 1:33 PM	12:00	7.07 pH	54.49 °F	12,559 µS/cm	5.27 mg/L	12.29 NTU	92.0 mV	4.71 ft	150.00 ml/min
11/8/2022 1:36 PM	15:00	7.07 pH	54.27 °F	12,882 µS/cm	5.18 mg/L	11.85 NTU	96.7 mV	4.71 ft	150.00 ml/min
11/8/2022 1:39 PM	18:00	7.06 pH	54.35 °F	13,141 µS/cm	5.08 mg/L	8.56 NTU	100.7 mV	4.71 ft	150.00 ml/min
11/8/2022 1:42 PM	21:00	7.06 pH	54.17 °F	13,534 µS/cm	5.00 mg/L	6.71 NTU	103.9 mV	4.71 ft	150.00 ml/min
11/8/2022 1:45 PM	24:00	7.05 pH	54.28 °F	13,651 µS/cm	4.92 mg/L	5.17 NTU	107.1 mV	4.71 ft	150.00 ml/min
11/8/2022 1:48 PM	27:00	7.05 pH	54.32 °F	13,903 µS/cm	4.83 mg/L	2.71 NTU	109.6 mV	4.71 ft	150.00 ml/min
11/8/2022 1:51 PM	30:00	7.05 pH	54.11 °F	14,039 µS/cm	4.78 mg/L	1.63 NTU	112.7 mV	4.71 ft	150.00 ml/min
11/8/2022 1:54 PM	33:00	7.04 pH	54.11 °F	14,220 µS/cm	4.72 mg/L	0.46 NTU	115.1 mV	4.71 ft	150.00 ml/min
11/8/2022 1:57 PM	36:00	7.04 pH	54.18 °F	14,299 µS/cm	4.68 mg/L	0.00 NTU	117.1 mV	4.71 ft	150.00 ml/min
11/8/2022 2:00 PM	39:00	7.04 pH	54.19 °F	14,408 µS/cm	4.63 mg/L	0.00 NTU	118.9 mV	4.71 ft	150.00 ml/min

11/8/2022 2:03 PM	42:00	7.04 pH	54.30 °F	14,523 µS/cm	4.60 mg/L	0.00 NTU	120.6 mV	4.71 ft	150.00 ml/min
11/8/2022 2:06 PM	45:00	7.04 pH	54.14 °F	14,690 µS/cm	4.57 mg/L	0.00 NTU	122.0 mV	4.71 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-533	Final RDO: 4.57 Final DTW: 4.71 Sample time: 1410 Ferrous iron: 0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/9/2022 8:45:00 AM

Project: Edmonds Terminal 4Q22

Operator Name: PB

<b>Location Name: MW-534</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 2.91 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170"x1/4"</b> <b>Pump Intake From TOC: 6 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 457166</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/9/2022 8:45 AM	00:00	6.56 pH	41.97 °F	3.05 µS/cm	12.34 mg/L	1,184.3 NTU	175.3 mV	2.91 ft	150.00 ml/min
11/9/2022 8:48 AM	03:00	6.78 pH	54.27 °F	886.91 µS/cm	0.67 mg/L	30.02 NTU	56.7 mV	2.91 ft	150.00 ml/min
11/9/2022 8:51 AM	06:00	6.73 pH	55.23 °F	898.03 µS/cm	0.46 mg/L	29.85 NTU	42.9 mV	2.91 ft	150.00 ml/min
11/9/2022 8:54 AM	09:00	6.72 pH	56.24 °F	906.58 µS/cm	0.38 mg/L	28.98 NTU	34.6 mV	2.91 ft	150.00 ml/min
11/9/2022 8:57 AM	12:00	6.71 pH	56.56 °F	941.58 µS/cm	0.33 mg/L	28.70 NTU	29.7 mV	2.91 ft	150.00 ml/min
11/9/2022 9:00 AM	15:00	6.70 pH	57.22 °F	977.87 µS/cm	0.31 mg/L	27.90 NTU	25.4 mV	2.91 ft	150.00 ml/min
11/9/2022 9:03 AM	18:00	6.71 pH	57.42 °F	999.59 µS/cm	0.30 mg/L	27.17 NTU	21.5 mV	2.91 ft	150.00 ml/min
11/9/2022 9:06 AM	21:00	6.72 pH	57.41 °F	1,015.2 µS/cm	0.29 mg/L	26.56 NTU	18.5 mV	2.91 ft	150.00 ml/min
11/9/2022 9:09 AM	24:00	6.71 pH	57.37 °F	1,077.8 µS/cm	0.28 mg/L	25.41 NTU	17.0 mV	2.91 ft	150.00 ml/min
11/9/2022 9:12 AM	27:00	6.70 pH	58.12 °F	1,197.9 µS/cm	0.25 mg/L	25.25 NTU	15.1 mV	2.91 ft	150.00 ml/min
11/9/2022 9:15 AM	30:00	6.70 pH	58.11 °F	1,234.3 µS/cm	0.24 mg/L	24.82 NTU	12.7 mV	2.91 ft	150.00 ml/min
11/9/2022 9:18 AM	33:00	6.72 pH	58.09 °F	1,270.4 µS/cm	0.24 mg/L	24.68 NTU	10.9 mV	2.91 ft	150.00 ml/min
11/9/2022 9:21 AM	36:00	6.72 pH	57.57 °F	1,297.3 µS/cm	0.24 mg/L	24.61 NTU	8.8 mV	2.91 ft	150.00 ml/min
11/9/2022 9:24 AM	39:00	6.71 pH	58.06 °F	1,339.6 µS/cm	0.23 mg/L	24.47 NTU	7.7 mV	2.91 ft	150.00 ml/min

11/9/2022 9:27 AM	42:00	6.73 pH	58.27 °F	1,385.6 µS/cm	0.23 mg/L	24.37 NTU	5.7 mV	2.91 ft	150.00 ml/min
11/9/2022 9:30 AM	45:00	6.73 pH	58.42 °F	1,378.1 µS/cm	0.24 mg/L	24.16 NTU	4.2 mV	2.91 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-534	Sample Time: 0940 Final DTW: 2.96 ft btoc Final RDO: 0.23 mg/L Ferrous Iron: 1.5 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/8/2022 9:42:55 AM

Project: Edmonds Terminal 4Q22

Operator Name: SG

<b>Location Name: MW-535</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 4.2 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 m</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 697669</b>
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## Test Notes:

## Weather Conditions:

Windy, sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 9:42 AM	00:00	6.23 pH	44.59 °F	0.08 µS/cm	11.80 mg/L	0.00 NTU	200.0 mV	4.20 ft	150.00 ml/min
11/8/2022 9:45 AM	03:00	7.12 pH	51.85 °F	16,470 µS/cm	1.41 mg/L	0.00 NTU	198.5 mV	4.20 ft	150.00 ml/min
11/8/2022 9:48 AM	06:00	7.16 pH	51.84 °F	16,492 µS/cm	1.27 mg/L	0.00 NTU	196.0 mV	4.20 ft	150.00 ml/min
11/8/2022 9:51 AM	09:00	7.16 pH	52.22 °F	16,449 µS/cm	1.31 mg/L	0.00 NTU	194.8 mV	4.20 ft	150.00 ml/min
11/8/2022 9:54 AM	12:00	7.17 pH	52.31 °F	16,465 µS/cm	1.42 mg/L	0.00 NTU	193.9 mV	4.20 ft	150.00 ml/min
11/8/2022 9:57 AM	15:00	7.15 pH	52.30 °F	16,386 µS/cm	1.51 mg/L	0.00 NTU	191.8 mV	4.20 ft	150.00 ml/min
11/8/2022 10:00 AM	18:00	7.17 pH	52.42 °F	16,394 µS/cm	1.63 mg/L	0.00 NTU	182.0 mV	4.20 ft	150.00 ml/min
11/8/2022 10:03 AM	21:00	7.17 pH	52.15 °F	16,406 µS/cm	1.73 mg/L	0.00 NTU	177.5 mV	4.20 ft	150.00 ml/min
11/8/2022 10:06 AM	24:00	7.17 pH	52.42 °F	16,404 µS/cm	1.81 mg/L	0.00 NTU	175.7 mV	4.20 ft	150.00 ml/min
11/8/2022 10:09 AM	27:00	7.17 pH	52.37 °F	16,402 µS/cm	1.84 mg/L	0.00 NTU	175.3 mV	4.20 ft	150.00 ml/min
11/8/2022 10:12 AM	30:00	7.17 pH	52.33 °F	16,349 µS/cm	1.89 mg/L	0.00 NTU	174.7 mV	4.20 ft	150.00 ml/min
11/8/2022 10:15 AM	33:00	7.17 pH	52.40 °F	16,381 µS/cm	1.95 mg/L	0.00 NTU	174.6 mV	4.20 ft	150.00 ml/min

11/8/2022 10:18 AM	36:00	7.17 pH	52.27 °F	16,360 µS/cm	2.02 mg/L	0.00 NTU	175.7 mV	4.20 ft	150.00 ml/min
11/8/2022 10:21 AM	39:00	7.17 pH	52.37 °F	16,316 µS/cm	2.04 mg/L	0.00 NTU	177.0 mV	4.20 ft	150.00 ml/min
11/8/2022 10:24 AM	42:00	7.17 pH	52.70 °F	16,273 µS/cm	2.07 mg/L	0.00 NTU	178.1 mV	4.20 ft	150.00 ml/min
11/8/2022 10:27 AM	45:00	7.16 pH	52.76 °F	16,253 µS/cm	2.09 mg/L	0.00 NTU	178.2 mV	4.20 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-535	Final RDO: 2.09 mg/L Sample time: 10:28 Final DTW: 4.34 ft Ferrous Iron: 0 mg/L

# Low-Flow Test Report:

Test Date / Time: 11/8/2022 11:48:54 AM

Project: Edmonds Terminal 4Q22

Operator Name: ES

<b>Location Name: MW-ER</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Screen Length: 10 ft</b> <b>Top of Screen: 3 ft</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 6.59 ft</b>	<b>Pump Type: Geotech Geopump Series 2</b> <b>Tubing Type: Polyethylene 0.170 x 1/4</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.61 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 466689</b>
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## Test Notes:

## Weather Conditions:

Sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth to Water	Flow
		+/- 10 %	+/- 10 %	+/- 10 %	+/- 15 %	+/- 10 %	+/- 15 %		
11/8/2022 11:48 AM	00:00	6.72 pH	56.67 °F	1,849.0 µS/cm	0.98 mg/L	7,253.0 NTU	-84.5 mV	6.59 ft	150.00 ml/min
11/8/2022 11:51 AM	03:00	6.62 pH	57.14 °F	1,606.7 µS/cm	0.68 mg/L	6,349.9 NTU	-89.4 mV	6.59 ft	150.00 ml/min
11/8/2022 11:54 AM	06:00	6.56 pH	57.58 °F	1,576.4 µS/cm	0.44 mg/L	5,177.6 NTU	-91.1 mV	6.59 ft	150.00 ml/min
11/8/2022 11:57 AM	09:00	6.53 pH	57.61 °F	1,570.5 µS/cm	0.38 mg/L	4,201.9 NTU	-91.8 mV	6.59 ft	150.00 ml/min
11/8/2022 12:00 PM	12:00	6.51 pH	58.48 °F	1,568.4 µS/cm	0.44 mg/L	3,813.8 NTU	-92.6 mV	6.59 ft	150.00 ml/min
11/8/2022 12:03 PM	15:00	6.49 pH	60.21 °F	1,541.9 µS/cm	0.48 mg/L	3,211.5 NTU	-83.0 mV	6.59 ft	150.00 ml/min
11/8/2022 12:06 PM	18:00	6.48 pH	60.16 °F	1,554.2 µS/cm	0.36 mg/L	3,551.2 NTU	-79.2 mV	6.59 ft	150.00 ml/min
11/8/2022 12:09 PM	21:00	6.48 pH	60.25 °F	1,559.1 µS/cm	0.48 mg/L	1,987.8 NTU	-78.1 mV	6.59 ft	150.00 ml/min
11/8/2022 12:12 PM	24:00	6.47 pH	59.69 °F	1,568.9 µS/cm	0.34 mg/L	1,835.5 NTU	-79.8 mV	6.59 ft	150.00 ml/min
11/8/2022 12:15 PM	27:00	6.46 pH	60.24 °F	1,564.9 µS/cm	0.61 mg/L	1,417.4 NTU	-77.8 mV	6.59 ft	150.00 ml/min
11/8/2022 12:18 PM	30:00	6.47 pH	60.33 °F	1,560.6 µS/cm	0.36 mg/L	1,235.9 NTU	-78.3 mV	6.59 ft	150.00 ml/min
11/8/2022 12:21 PM	33:00	6.45 pH	60.34 °F	1,613.5 µS/cm	0.48 mg/L	948.95 NTU	-76.6 mV	6.59 ft	150.00 ml/min

11/8/2022 12:24 PM	36:00	6.47 pH	59.79 °F	1,595.8 μS/cm	0.26 mg/L	500.44 NTU	-80.5 mV	6.59 ft	150.00 ml/min
11/8/2022 12:27 PM	39:00	6.47 pH	59.48 °F	1,601.2 μS/cm	0.23 mg/L	282.36 NTU	-83.9 mV	6.59 ft	150.00 ml/min
11/8/2022 12:30 PM	42:00	6.47 pH	59.12 °F	1,600.1 μS/cm	0.28 mg/L	255.31 NTU	-85.3 mV	6.59 ft	150.00 ml/min
11/8/2022 12:33 PM	45:00	6.47 pH	58.77 °F	1,595.0 μS/cm	0.25 mg/L	333.74 NTU	-86.8 mV	6.59 ft	150.00 ml/min

## Samples

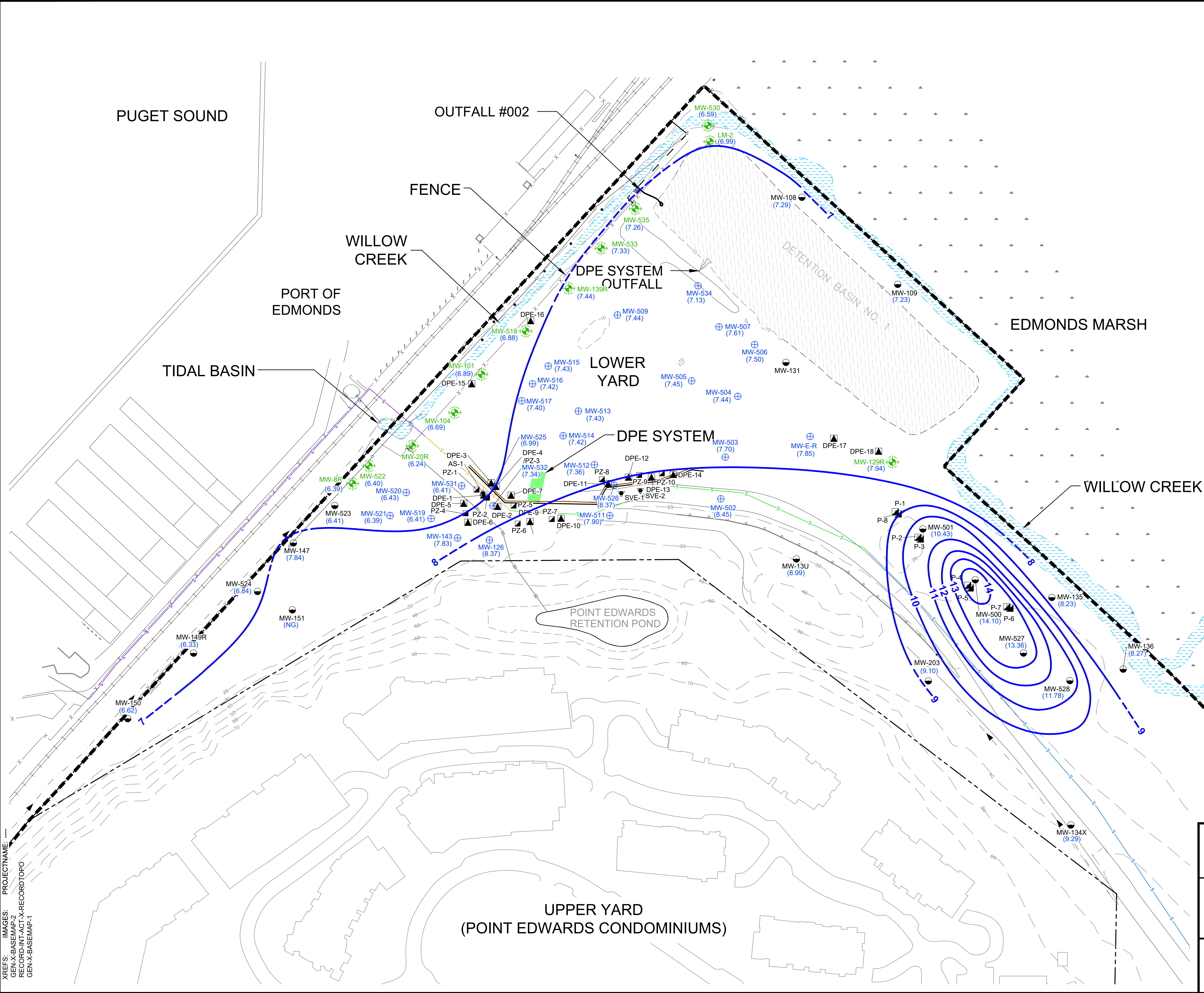
Sample ID:	Description:
MW-ER	Sample time: 12:40 Final DTW-7.20 Final RDO: 0.25 Ferrous Iron: 3.0 RDO did not stabilize after 45 minutes



# Appendix C

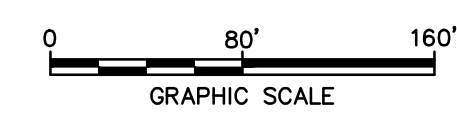
## Groundwater Sampling Event Figures

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER LD: R. OBERLANDER PIC: (Cpt) PM: (Read) TM: (Cpt) LXR: (Cpt) OFF: (REF)  
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 XREFS: IMAGES: PROJECTNAME: ---  
 GEN-X-BASEMAP-2  
 RECORD-INT-ACT-X-RECORD-TOPO  
 GEN-X-BASEMAP-1



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ⊕ MONITORING WELL LOCATION
  - PZ-1 ⊕ PIEZOMETER LOCATION
  - AS-1 ⊕ AIR SPARGE WELL LOCATION
  - DPE-10 ⊕ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (14.10) --- GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
  - 14 --- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - (NG) --- NOT GAUGED
  - ⊕ --- WELL NOT USED IN GROUNDWATER ELEVATION CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.



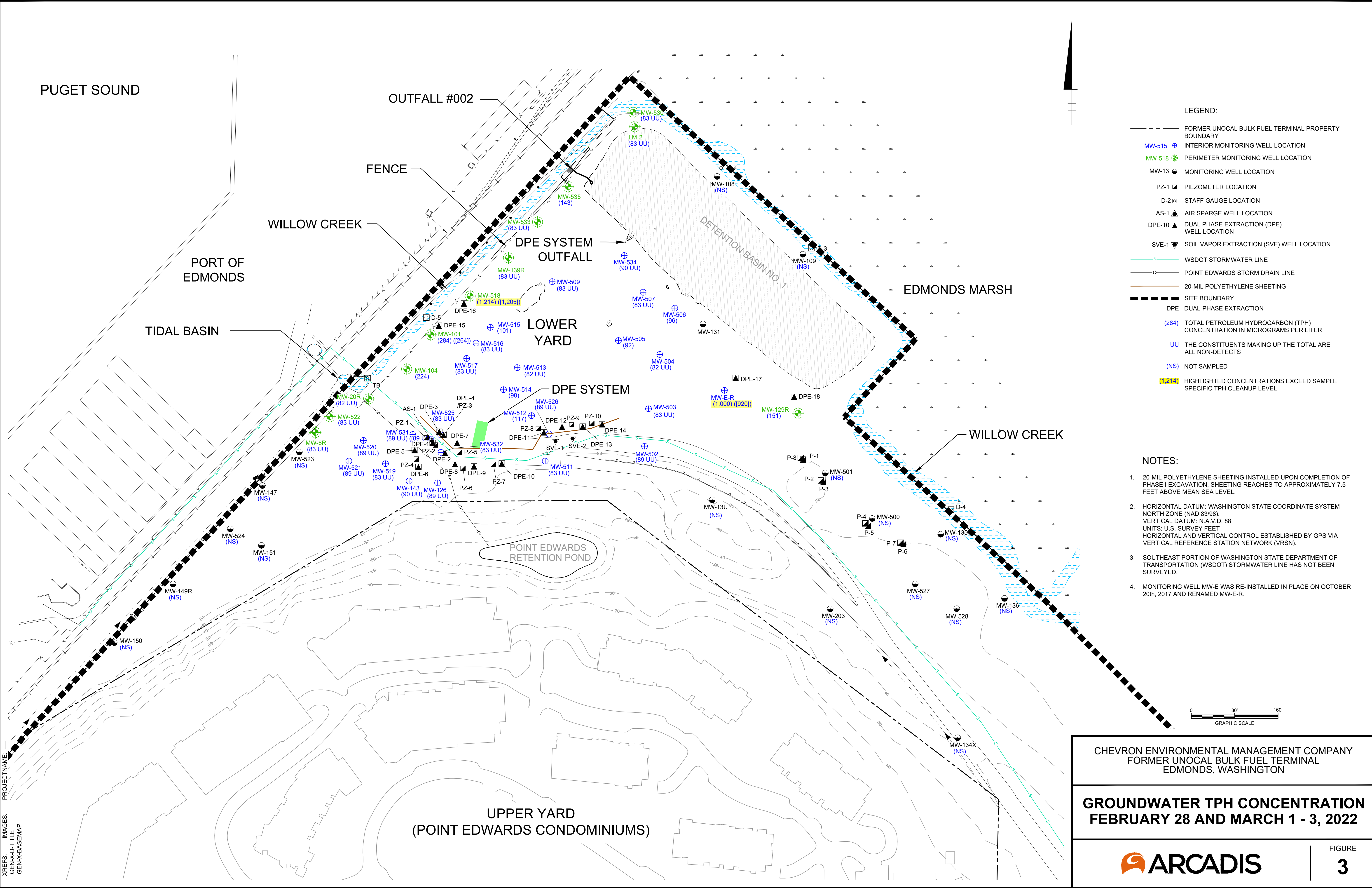
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS  
 AND CONTOURS  
 MARCH 4, 2022**

**ARCADIS**

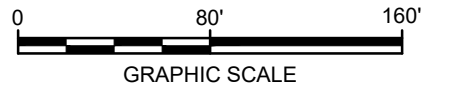
FIGURE  
**2**

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 IMAGES: GEN-X-D-TITLE  
 GEN-X-BASEMAP  
 PLOTSTYLETABLE: --- PLOTTED: 4/6/2022 3:59 PM BY: Y. M. BABU



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ⊕ MONITORING WELL LOCATION
  - PZ-1 ⊕ PIEZOMETER LOCATION
  - D-2 ⊕ STAFF GAUGE LOCATION
  - AS-1 ⊕ AIR SPARGE WELL LOCATION
  - DPE-10 ⊕ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (284) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
  - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
  - (NS) NOT SAMPLED
  - (1,214) HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
 VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.



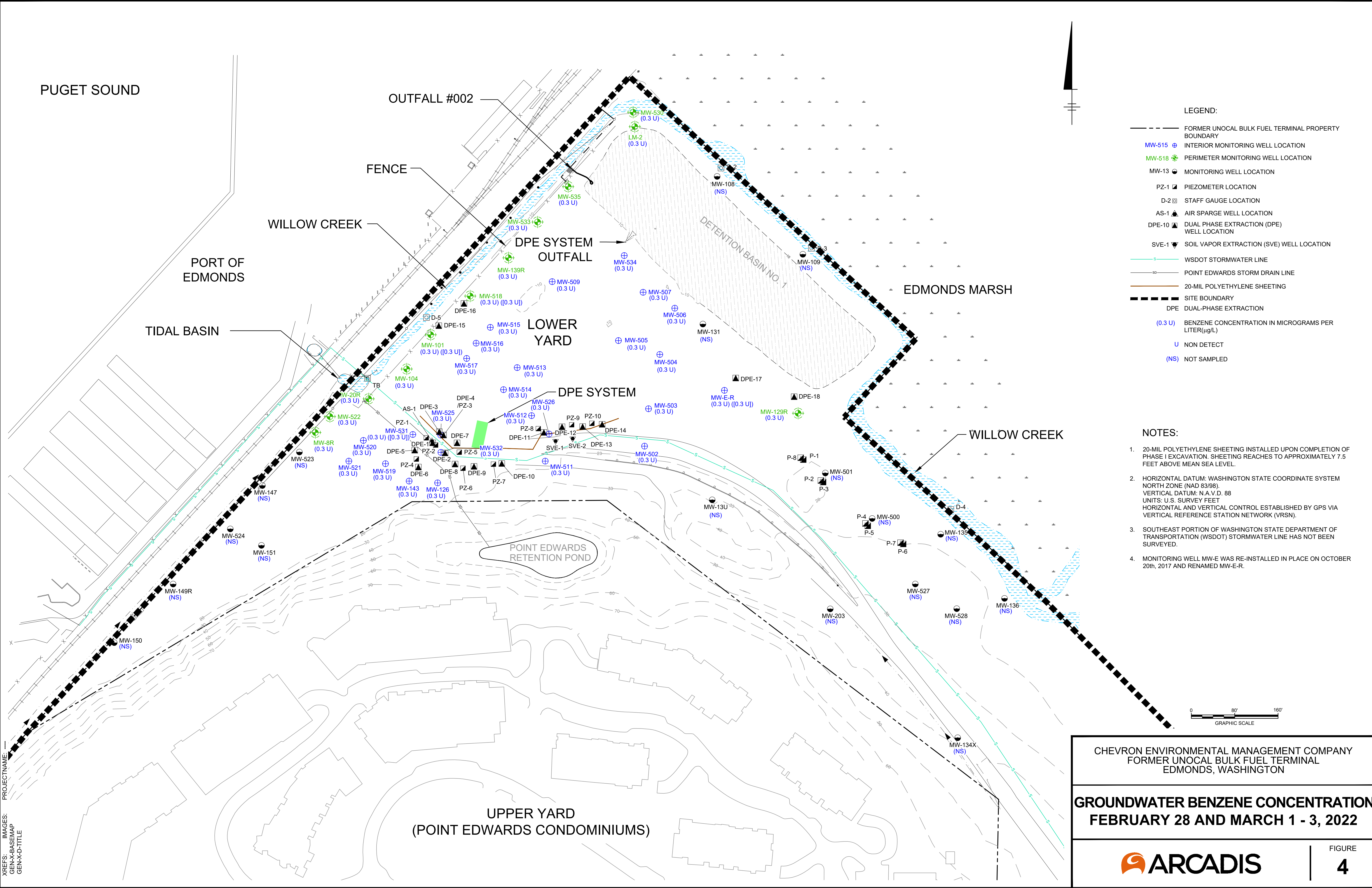
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION  
 FEBRUARY 28 AND MARCH 1 - 3, 2022**

**ARCADIS**

FIGURE  
**3**

C:\Users\jmb2640\OneDrive\Arcadis\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS\Washington\Project Files\20220101-In Progress\01-DWG\GWM-1022-F04-BENZENE CONCENTRATION.dwg LAYOUT: 4 SAVED: 4/6/2022 3:56 PM ACADVER: 24.05 (LMS TECH) PAGESETUP: ---  
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 IMAGES: GEN-X-BASEMAP  
 PLOT STYLE TABLE: --- PLOTTED: 4/6/2022 3:59 PM BY: Y. M. BABU  
 GEN-X-D-TITLE



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▴ PIEZOMETER LOCATION
  - D-2 □ STAFF GAUGE LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (0.3 U) BENZENE CONCENTRATION IN MICROGRAMS PER LITER(µg/L)
  - U NON DETECT
  - (NS) NOT SAMPLED

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
 VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.



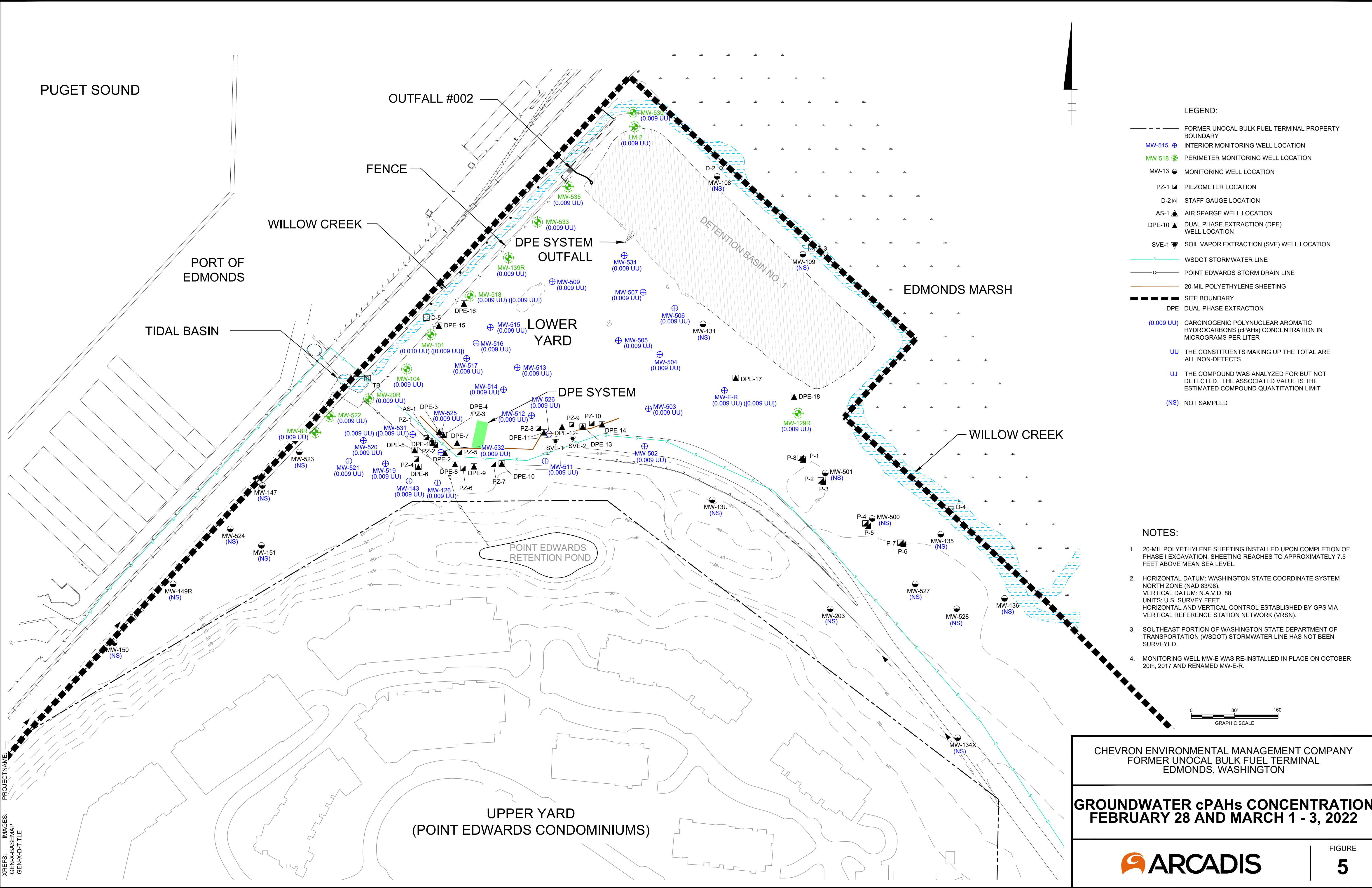
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER BENZENE CONCENTRATION  
 FEBRUARY 28 AND MARCH 1 - 3, 2022**

**ARCADIS**

FIGURE  
**4**

C:\Users\jmb2640\OneDrive\Arcadis\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS\Washington\Project Files\20220101\In Progress\01-DWG\GWM-1022-F05-cPAHs CONCENTRATION.dwg LAYOUT: 5 SAVED: 4/6/2022 3:56 PM ACADVER: 24.0S (LMS TECH) PAGESETUP: ---  
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 PLOTSTYLETABLE: --- PLOTTED: 4/6/2022 3:59 PM BY: Y. M. BABU



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▴ PIEZOMETER LOCATION
  - D-2 □ STAFF GAUGE LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE
  - (0.009 UU) CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS (cPAHs) CONCENTRATION IN MICROGRAMS PER LITER
  - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
  - UJ THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE ESTIMATED COMPOUND QUANTITATION LIMIT
  - (NS) NOT SAMPLED

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.

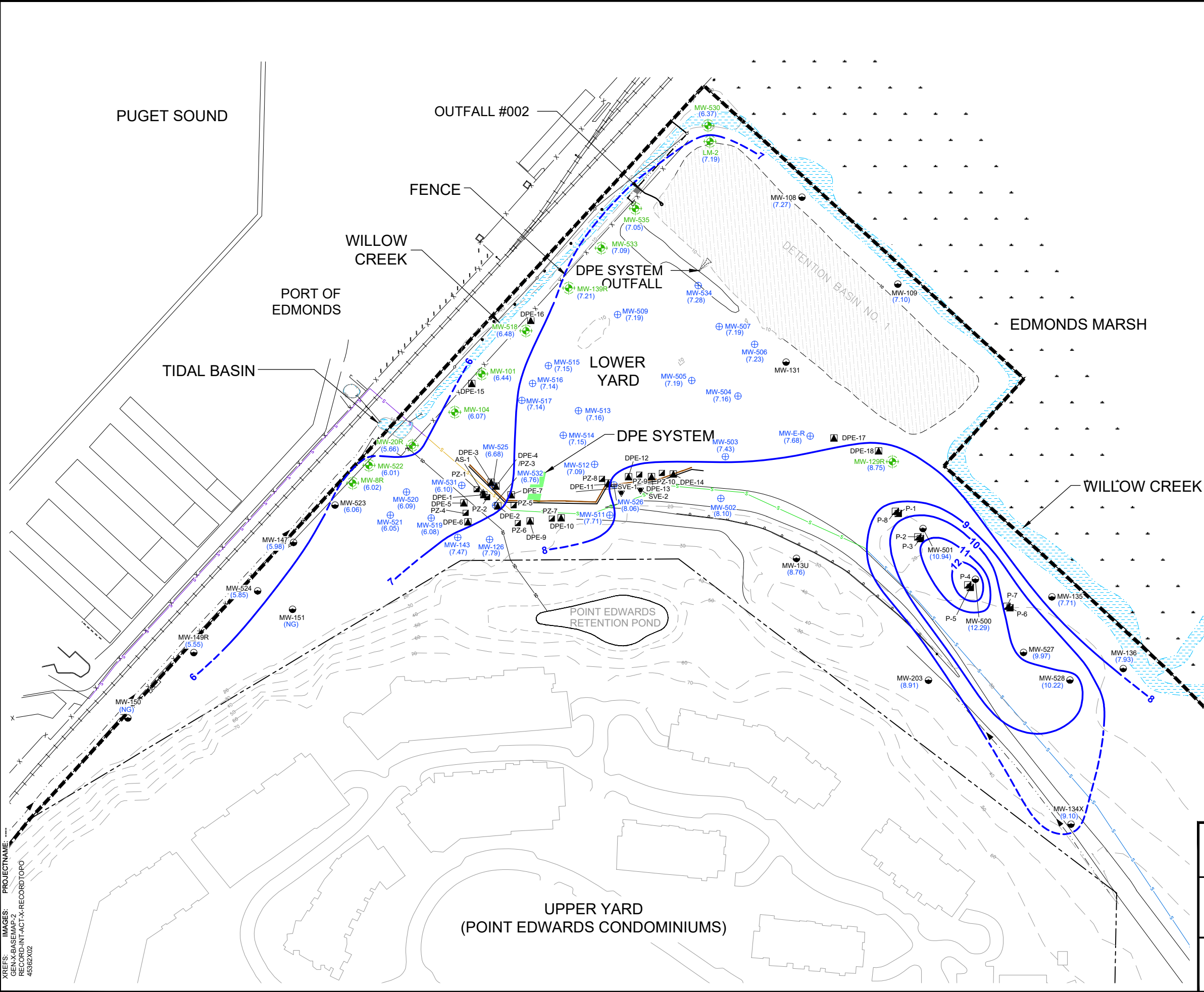
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION  
 FEBRUARY 28 AND MARCH 1 - 3, 2022**

**ARCADIS**

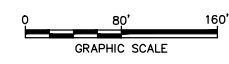
FIGURE  
**5**

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PIC:(Opr), PM:(Read), TM:(Cpt), LTR:(Option) OFF=REF  
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 GEN-X-BASEMAP-2  
 RECORD-INT-ACT-X-RECORD TOPO  
 48362X02



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▣ PIEZOMETER LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▣ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (12.29) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
  - 12 --- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - (NG) NOT GAUGED
  - WELL NOT USED IN GROUNDWATER ELEVATION CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.



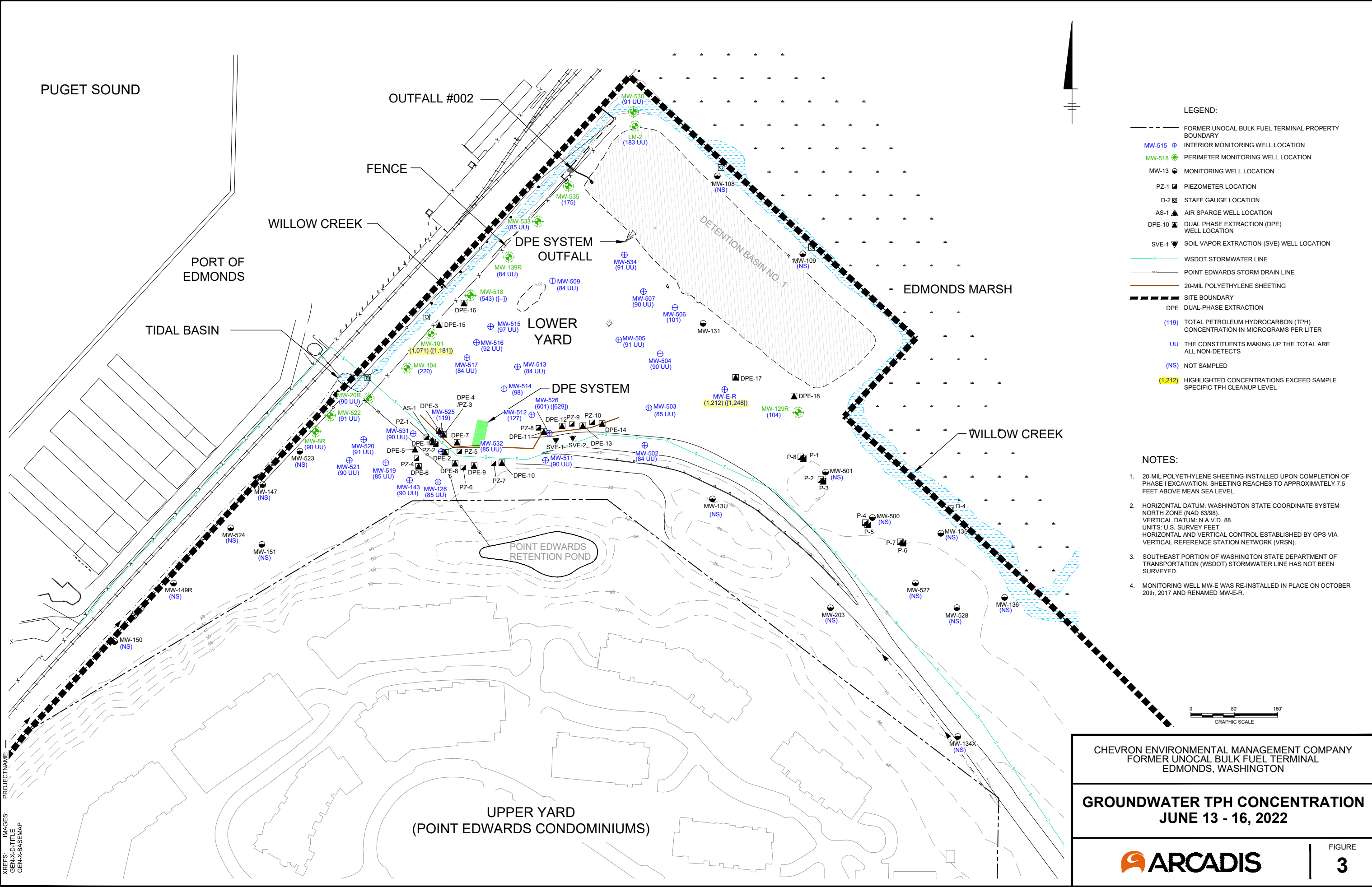
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS  
 AND CONTOURS  
 JUNE 14, 2022**

**ARCADIS**

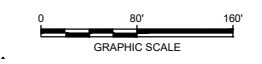
FIGURE  
**2**

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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ⊕ MONITORING WELL LOCATION
  - PZ-1 ⊕ PIEZOMETER LOCATION
  - D-2 ⊕ STAFF GAUGE LOCATION
  - AS-1 ⊕ AIR SPARGE WELL LOCATION
  - DPE-10 ⊕ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE
  - (119) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
  - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
  - (NS) NOT SAMPLED
  - (1,212) HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
VERTICAL DATUM: N.A.V.D. 88  
UNITS: U.S. SURVEY FEET  
HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.

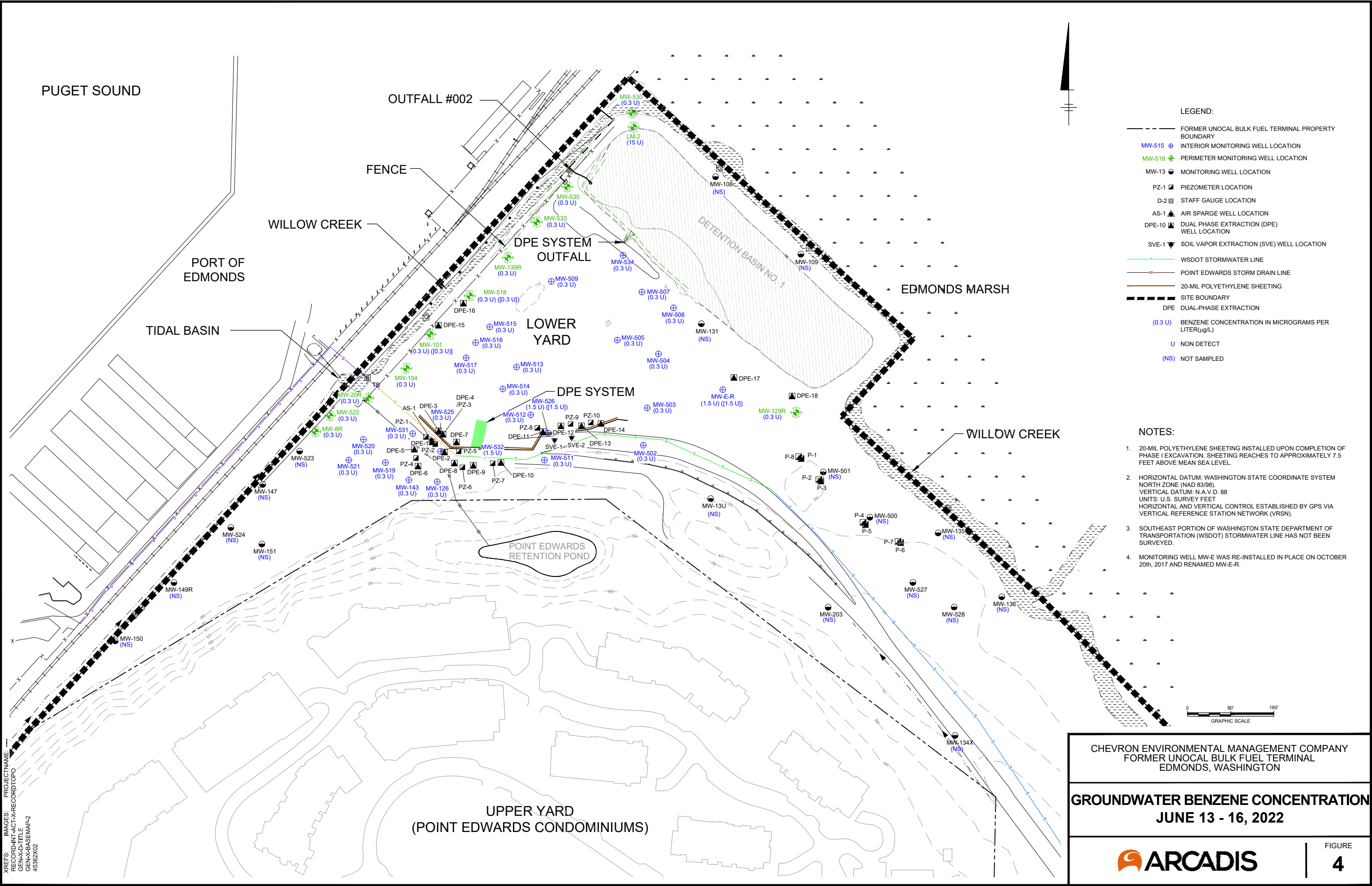


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION**  
**JUNE 13 - 16, 2022**

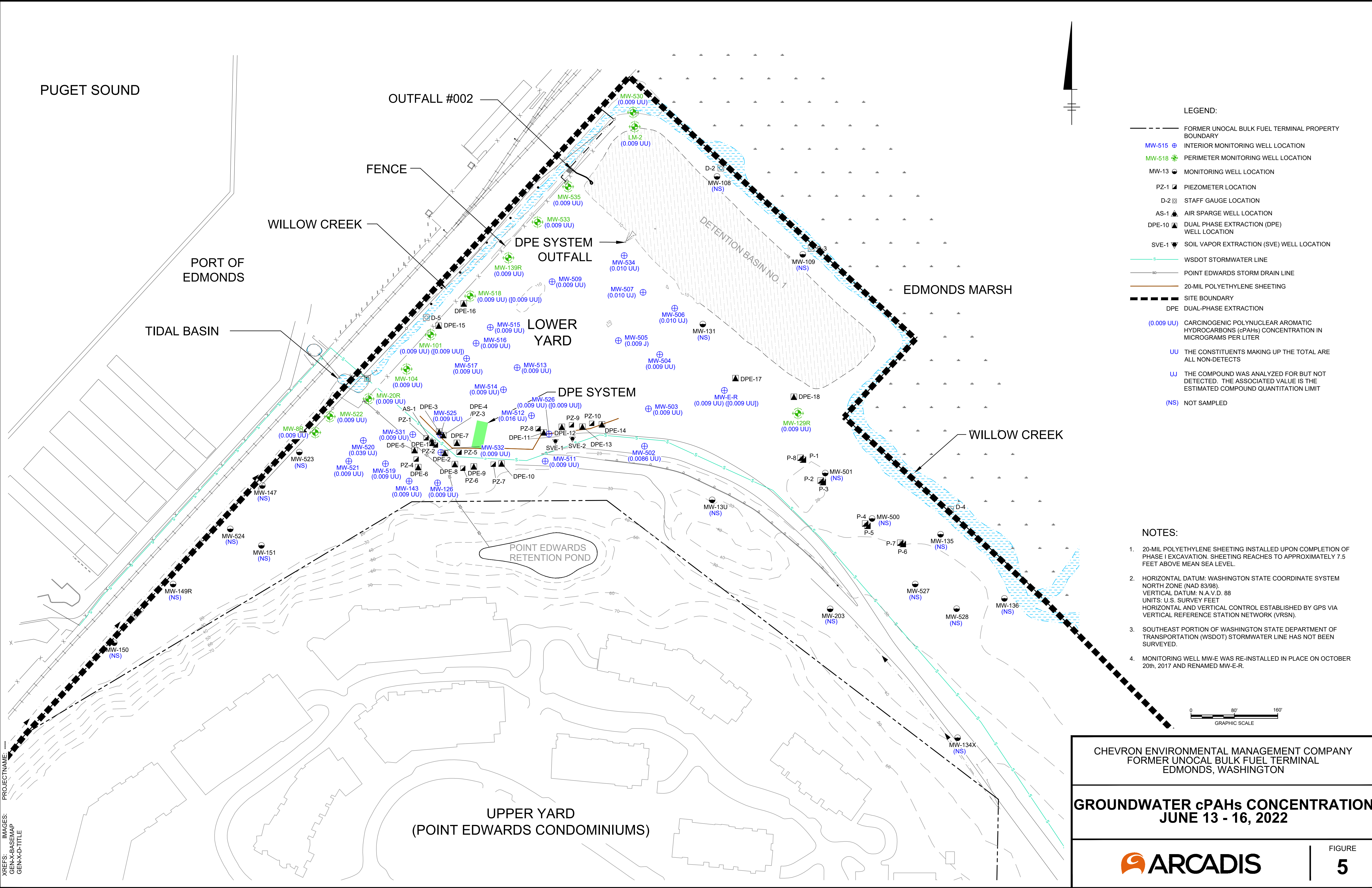
**ARCADIS**

FIGURE  
**3**





C:\Users\shankam\4688\ARCADIS\Environmental\CAD Team - BIM360 - OneDrive Sync\Location\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS Washington\Project Files\2022\01-In Progress\01-DWG\GWM-2022-F05-cPAHs CONCENTRATION.dwg LAYOUT: 5 SAVED: 8/5/2022 12:37 PM  
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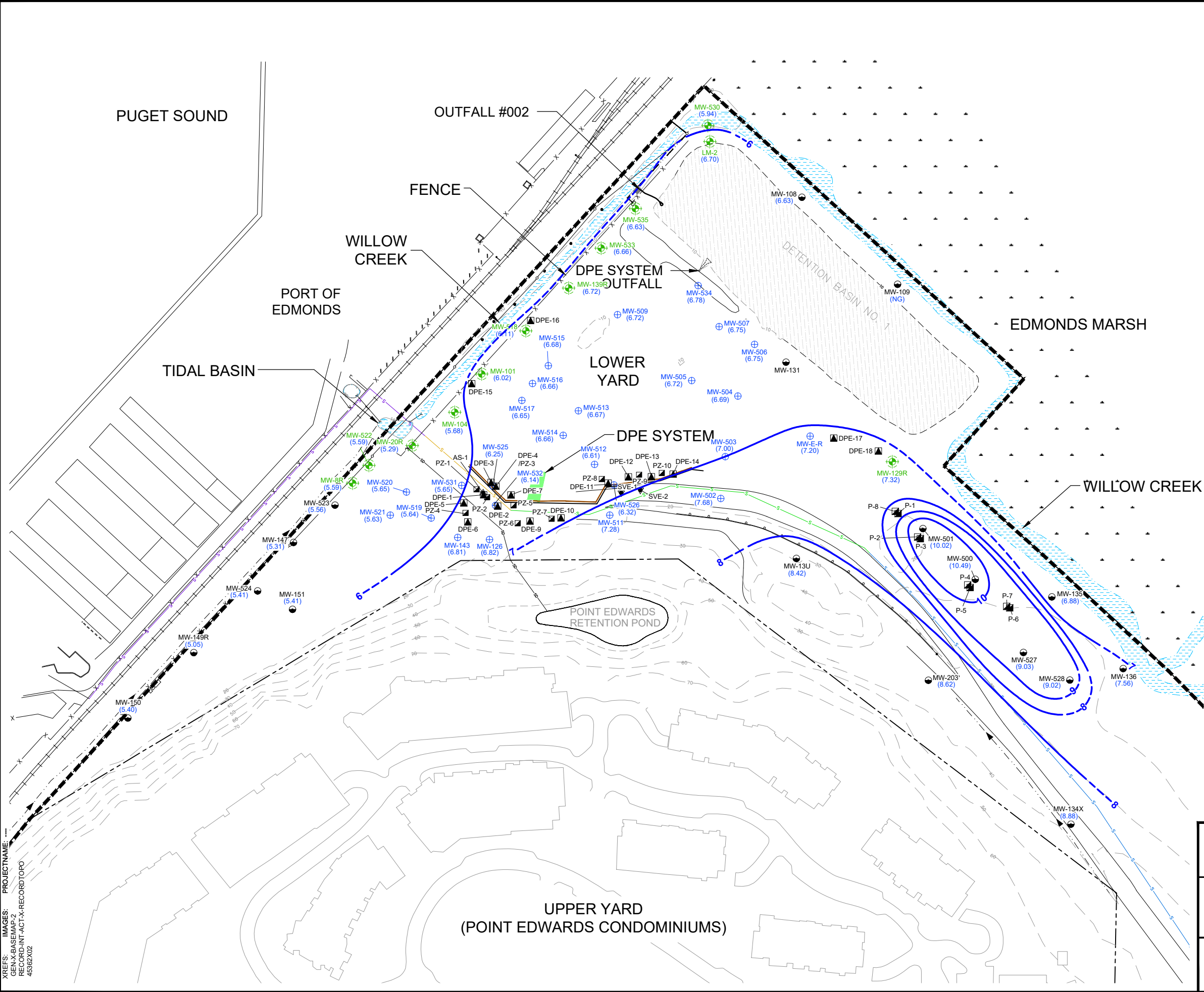
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION  
 JUNE 13 - 16, 2022**

**ARCADIS**

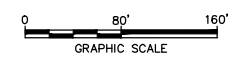
FIGURE  
**5**

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PIC: (Opt) PM: (Read) TM: (Opt) LTR: (Opt) LTR: (Opt) OFF: (REF)  
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 XREFS: IMAGES: PROJECTNAME: ---  
 GEN-X-BASEMAP-2  
 RECORD-INT-ACT-X-RECORD TOPO  
 48362X02



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ⊕ MONITORING WELL LOCATION
  - PZ-1 ⊕ PIEZOMETER LOCATION
  - AS-1 ⊕ AIR SPARGE WELL LOCATION
  - DPE-10 ⊕ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (10.02) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
  - 10 --- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - (NG) NOT GAUGED
  - WELL NOT USED FOR CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98), VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.

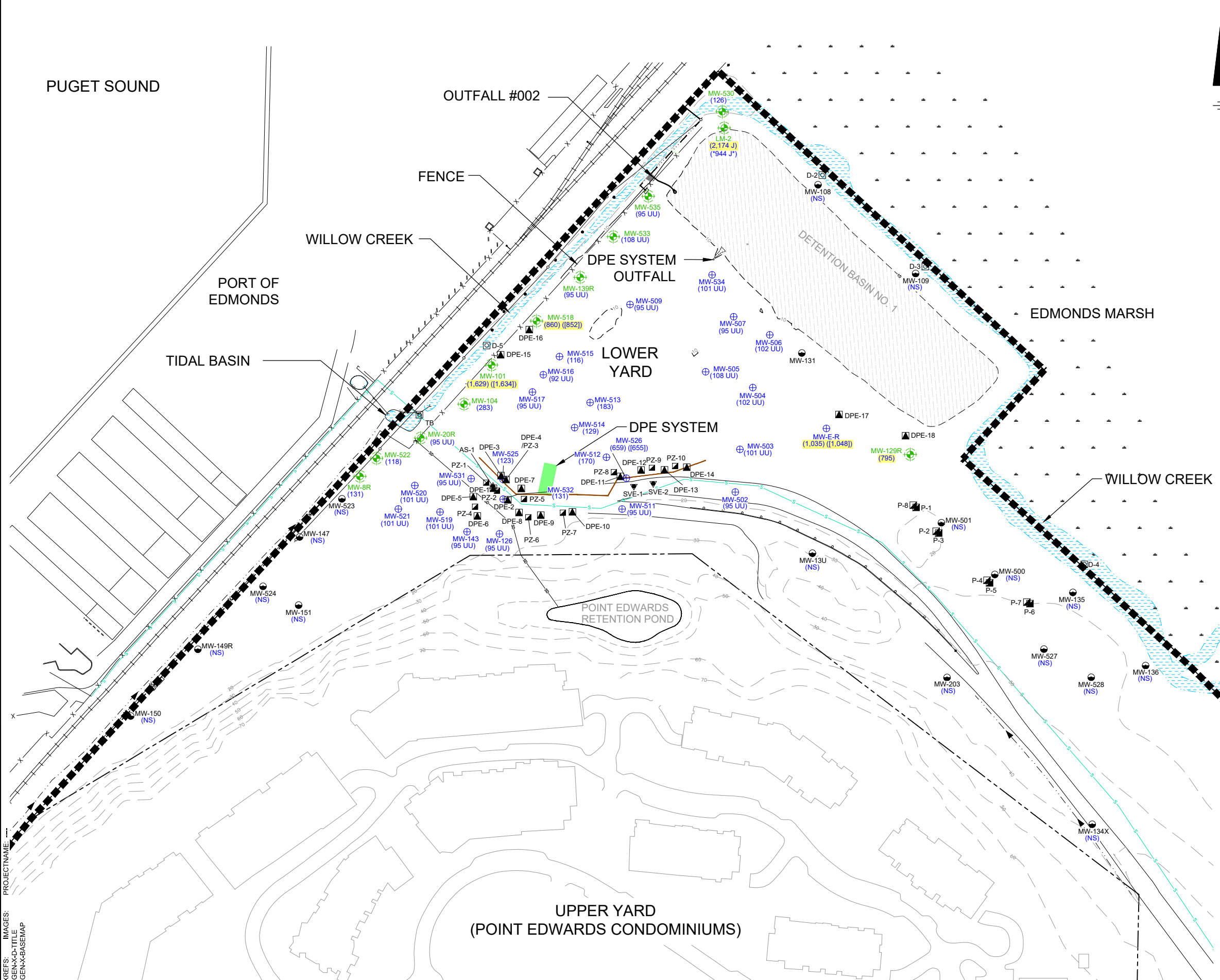


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS  
 AND CONTOURS  
 AUGUST 22, 2022**

**ARCADIS**

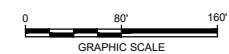
FIGURE  
**1**



**LEGEND:**

- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-516 ⊕ PERIMETER MONITORING WELL LOCATION
- MW-13 ⊙ MONITORING WELL LOCATION
- PZ-1 ▽ PIEZOMETER LOCATION
- D-2 □ STAFF GAUGE LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▽ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▽ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- SITE BOUNDARY
- DPE DUAL-PHASE EXTRACTION
- (1,629) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
- UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
- J INDICATES AN ESTIMATED VALUE
- (NS) NOT SAMPLED
- (795) HIGHLIGHTED CONCENTRATIONS EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL
- (655) DUPLICATE SAMPLE RESULTS
- (\*944 J') RESAMPLE SAMPLE RESULTS

- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
 VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  - MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.
  - MONITORING WELL LM-2 WAS RESAMPLED ON SEPTEMBER 9, 2022.



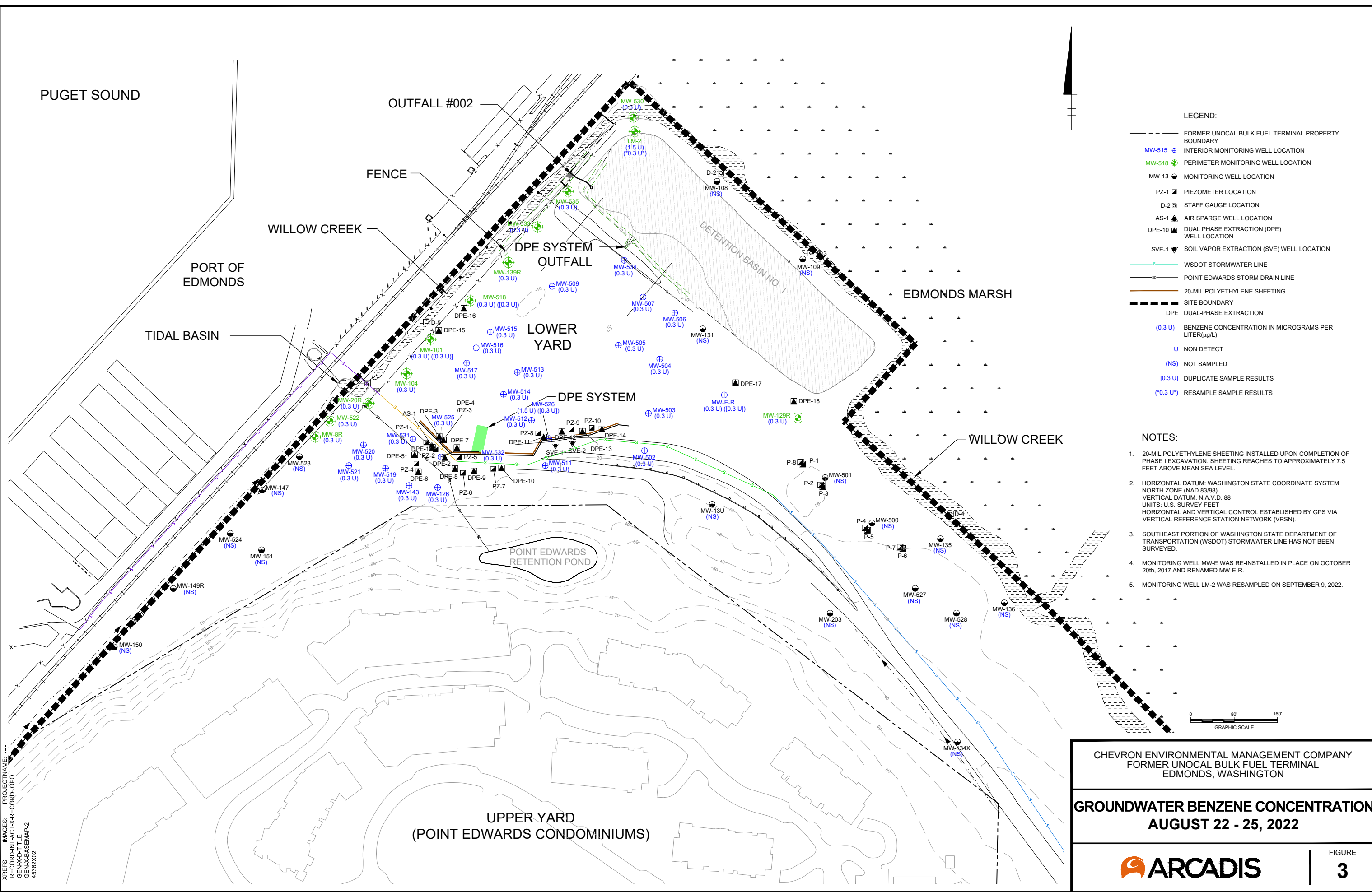
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION  
 AUGUST 22 - 25, 2022**

**ARCADIS**

FIGURE  
**2**

C:\Users\JL\OneDrive\Environmental\CAD Team - BIM\360 - OneDrive Sync Location\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS WASHINGTON\Project Files\2022\201-1n Progress\01-DWG\G\MW-3022-F04-BENZENE CONCENTRATION.dwg LAYOUT: 4. SAVED: 11/11/2022 11:36 AM ACADVER: 23.13 (LMS TECH) PAGES: 1. PLOTTED: 11/11/2022 1:55 PM BY: LIVING, JEFF



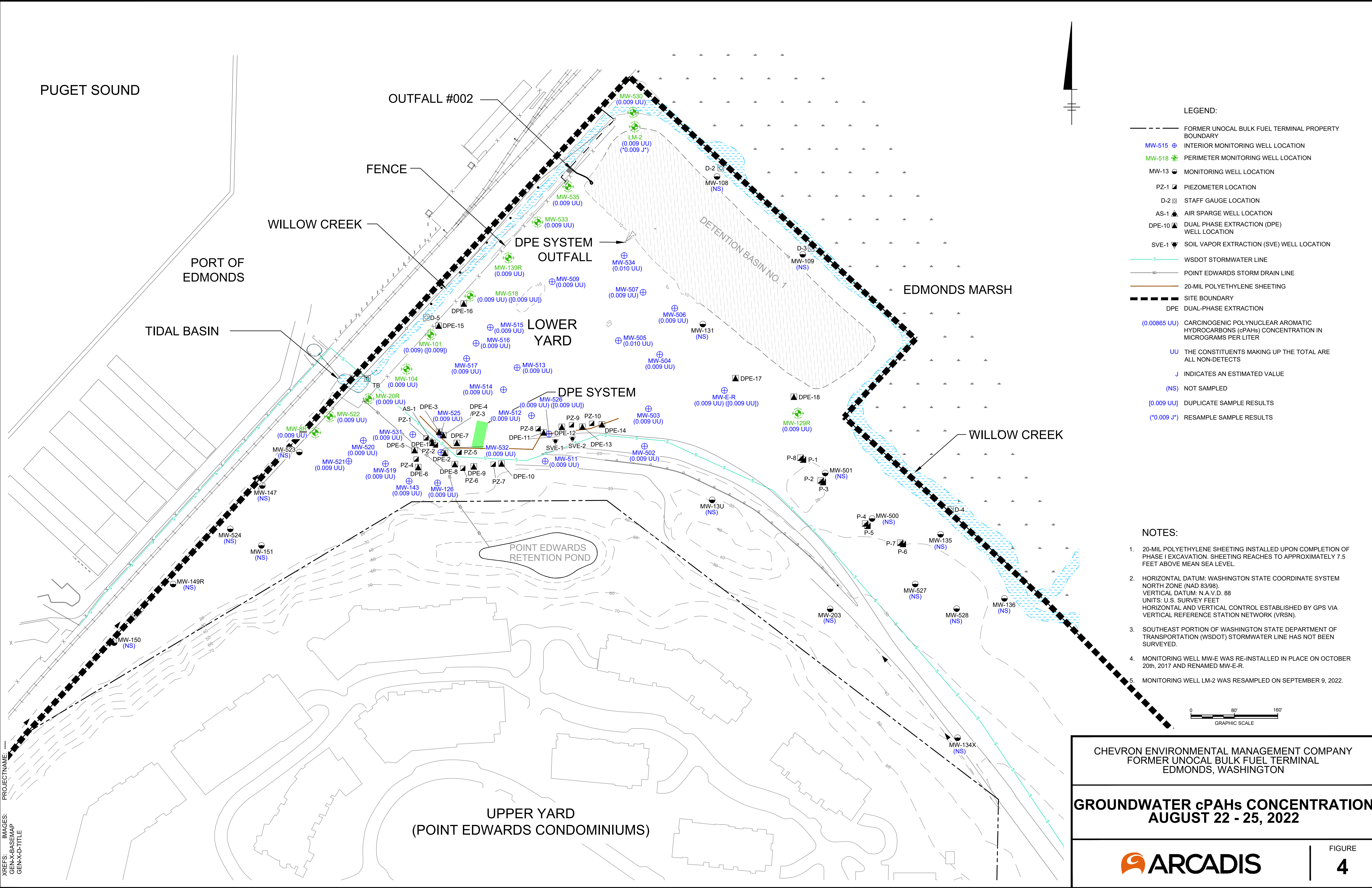
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
FORMER UNOCAL BULK FUEL TERMINAL  
EDMONDS, WASHINGTON

**GROUNDWATER BENZENE CONCENTRATION  
AUGUST 22 - 25, 2022**

**ARCADIS**

FIGURE  
**3**

C:\Users\jld\OneDrive\OneDrive Sync Location\AUS-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS Washington\Project Files\2022\01-11\Progress\01-DWG\GWM-3022-F05-cPAHs CONCENTRATION.dwg LAYOUT: 5 - SAVED: 11/11/2022 1:56 PM  
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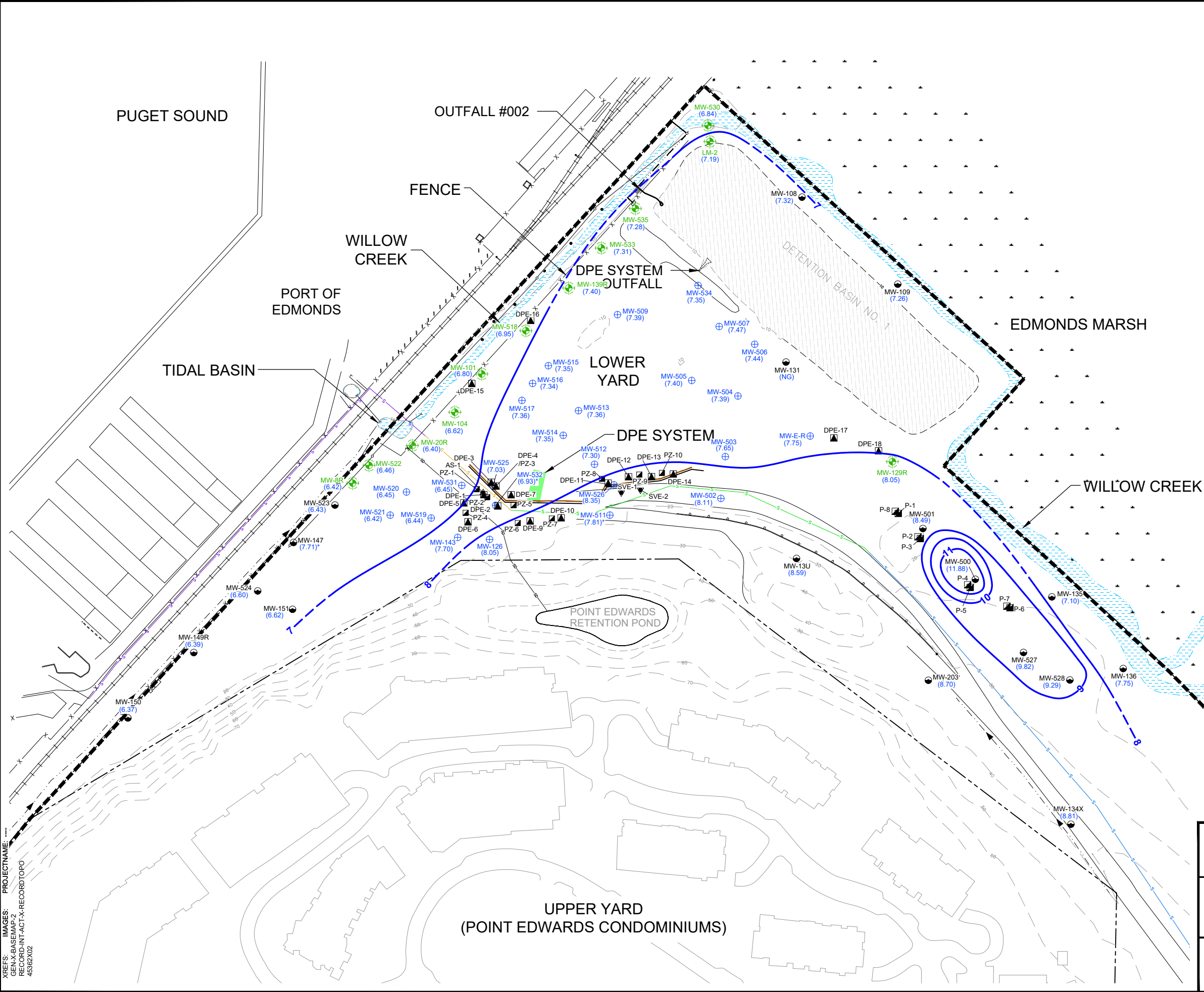
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION  
 AUGUST 22 - 25, 2022**

**ARCADIS**

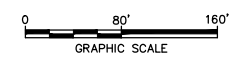
FIGURE  
**4**

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER, LD: R. OBERLANDER, PIC: (Opt) PM: (Rept) TM: (Opt) LXR: (Opt) ON: OFF=REF  
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 XREFS: IMAGES: PROJECTNAME: RECORD: INT-ACT-X-RECORD TOPO 48362X02



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▣ PIEZOMETER LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - (11.88) GROUNDWATER ELEVATION IN FEET ABOVE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
  - 11- - - GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - (NG) NOT GAUGED
  - WELL NOT USED IN GROUNDWATER ELEVATION CONTOURING

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: NAVD88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20, 2017 AND RENAMED MW-E-R.



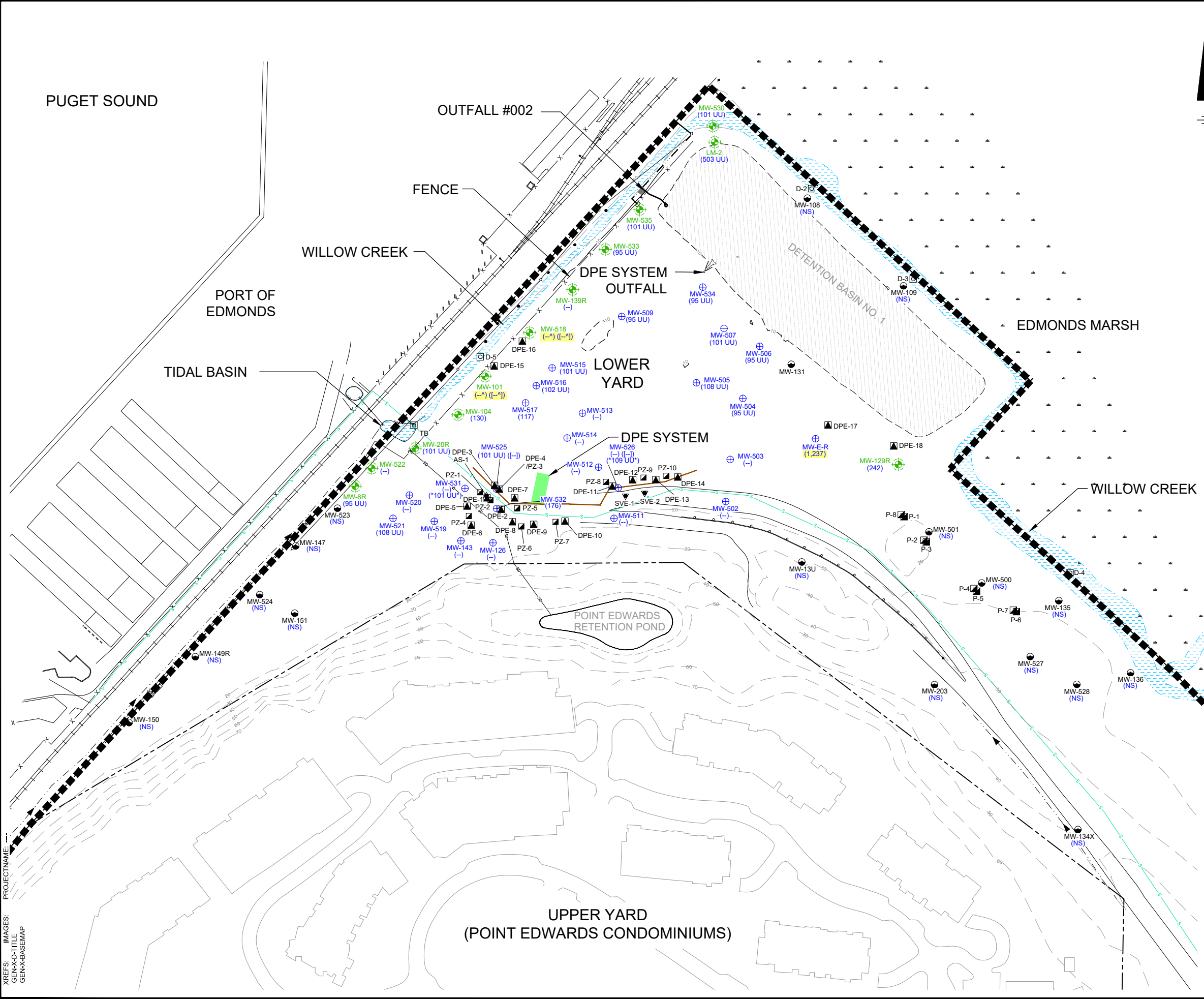
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER ELEVATIONS  
 AND CONTOURS  
 NOVEMBER 9, 2022**

**ARCADIS**

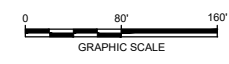
FIGURE  
**2**

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 XREFS: IMAGES: PROJECTNAME: GEN-XD-TITLE GEN-X-BASEMAP PLOTSTYLETABLE: 1 PLOTTED: 2/2/2023 10:35 AM BY: K. MAHENDRA



- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-516 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ● MONITORING WELL LOCATION
  - PZ-1 ▴ PIEZOMETER LOCATION
  - D-2 □ STAFF GAUGE LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (1,237) TOTAL PETROLEUM HYDROCARBON (TPH) CONCENTRATION IN MICROGRAMS PER LITER
  - UU THE CONSTITUENTS MAKING UP THE TOTAL ARE ALL NON-DETECTS
  - (NS) NOT SAMPLED
  - (1,237) HIGHLIGHTED CONCENTRATION EXCEED SAMPLE SPECIFIC TPH CLEANUP LEVEL
  - (-) DUPLICATE SAMPLE RESULTS
  - (\*101 UU) RESAMPLE SAMPLE RESULTS
  - TPH CONCENTRATION NOT CALCULATED DUE TO REJECTION OF DIESEL, AND/OR HEAVY OIL RESULTS IN DATA VALIDATION
  - ▲ DUE TO THE REJECTION OF HEAVY OIL CONCENTRATION, A TPH CALCULATION AND SAMPLE SPECIFIC TPH CUL COULD NOT BE CALCULATED. BASED ON HISTORICAL TPH CUL CALCULATIONS, THE GRO CONCENTRATION OBSERVED IN THIS SAMPLE WOULD RESULT IN A LIKELY TPH CONCENTRATION EXCEEDING THE SAMPLE SPECIFIC TPH CUL. THE TPH CONCENTRATION IS THEREFORE MARKED AS AN EXCEEDANCE

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.
  5. MONITORING WELLS MW-526 AND MW-531 WERE RESAMPLED ON DECEMBER 16, 2022.



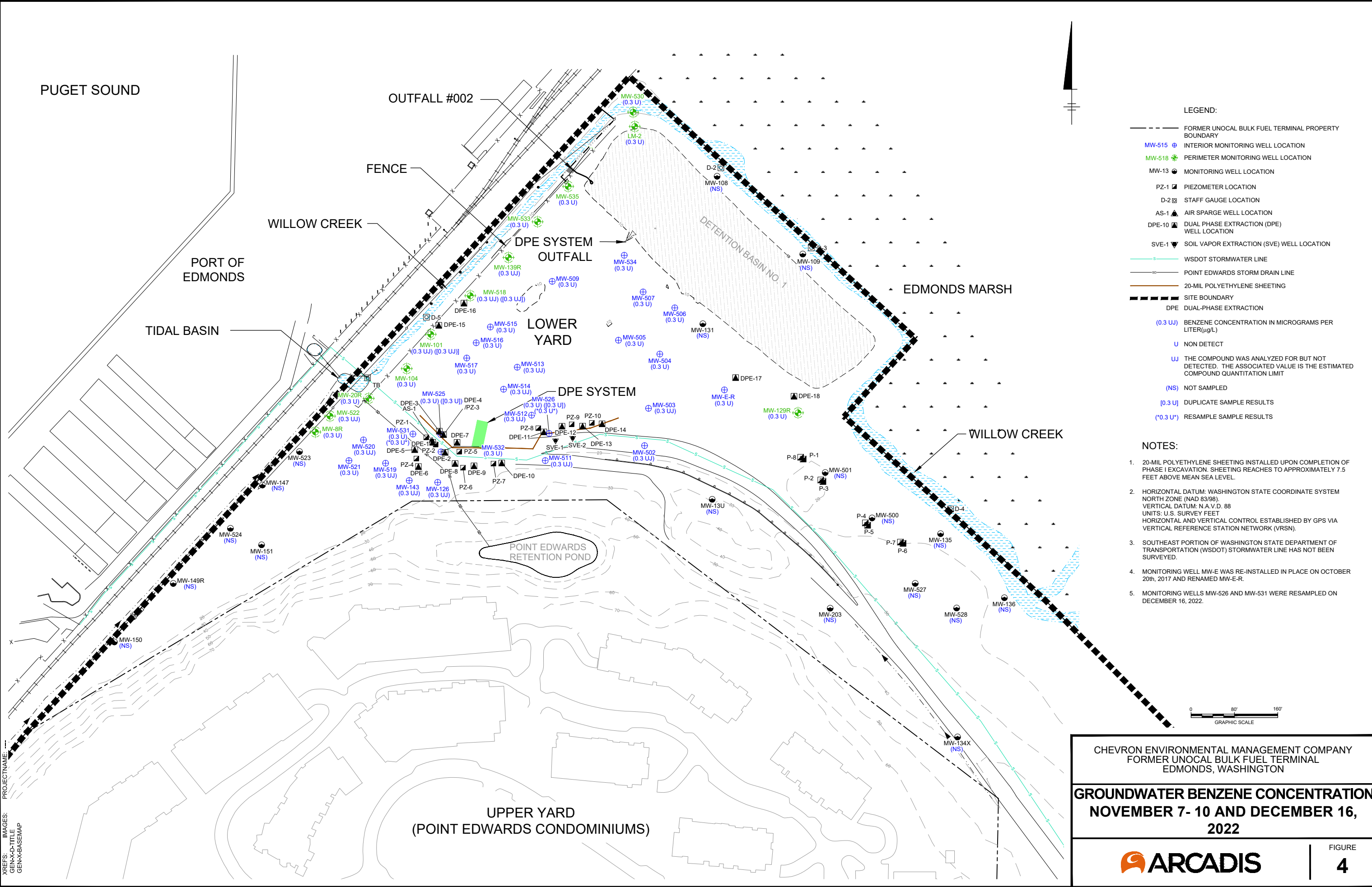
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER TPH CONCENTRATION  
 NOVEMBER 7- 10 AND DECEMBER 16,  
 2022**

**ARCADIS**

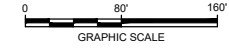
FIGURE  
**3**

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- LEGEND:**
- FORMER UNOCAL BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - MW-13 ⊕ MONITORING WELL LOCATION
  - PZ-1 ⊕ PIEZOMETER LOCATION
  - D-2 ⊕ STAFF GAUGE LOCATION
  - AS-1 ⊕ AIR SPARGE WELL LOCATION
  - DPE-10 ⊕ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ⊕ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - SITE BOUNDARY
  - DPE DUAL-PHASE EXTRACTION
  - (0.3 UJ) BENZENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
  - U NON DETECT
  - UJ THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE ESTIMATED COMPOUND QUANTITATION LIMIT
  - (NS) NOT SAMPLED
  - [0.3 U] DUPLICATE SAMPLE RESULTS
  - (0.3 U\*) RESAMPLE SAMPLE RESULTS

- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. MONITORING WELL MW-E WAS RE-INSTALLED IN PLACE ON OCTOBER 20th, 2017 AND RENAMED MW-E-R.
  5. MONITORING WELLS MW-526 AND MW-531 WERE RESAMPLED ON DECEMBER 16, 2022.

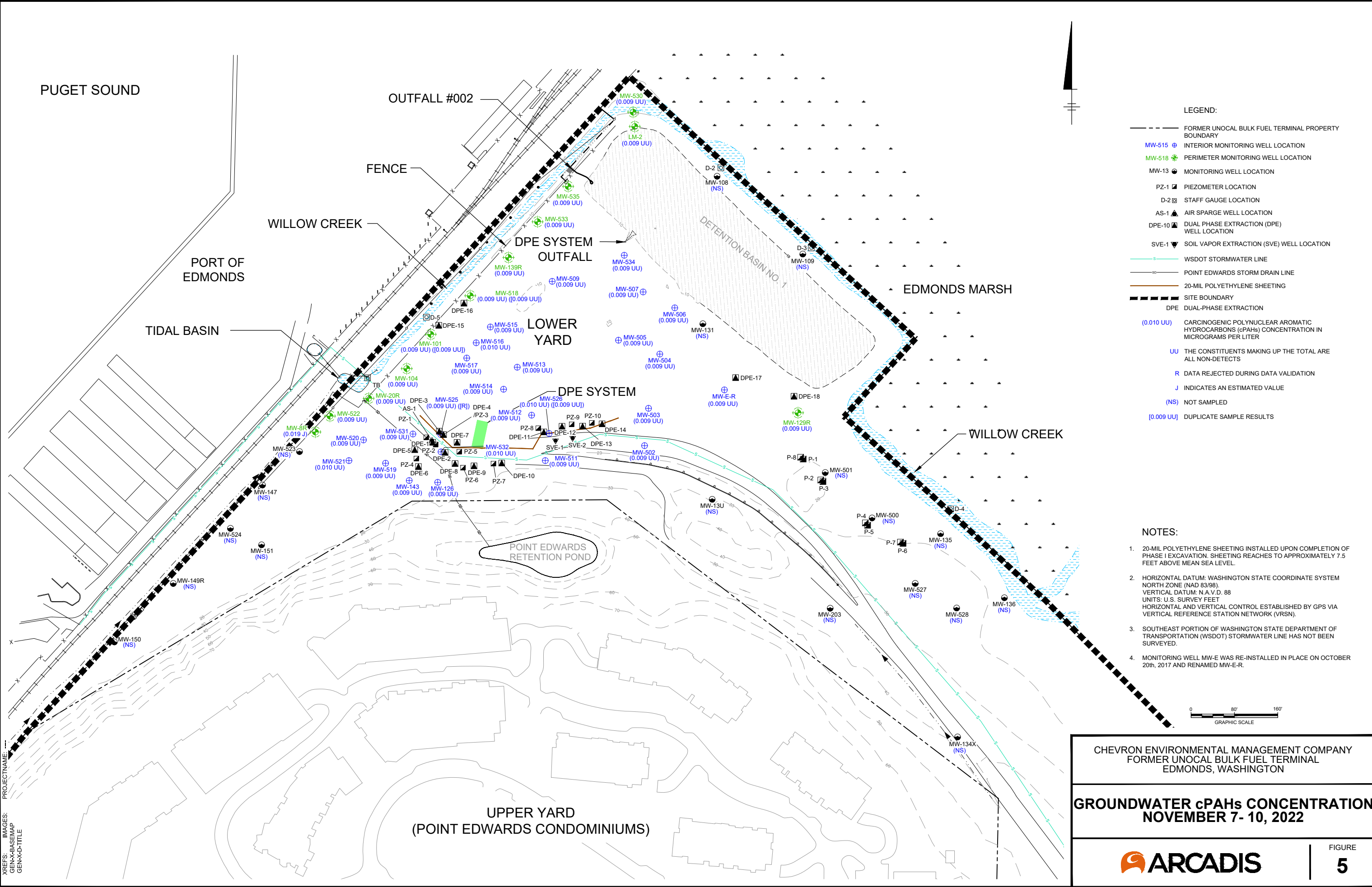


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
FORMER UNOCAL BULK FUEL TERMINAL  
EDMONDS, WASHINGTON

**GROUNDWATER BENZENE CONCENTRATION  
NOVEMBER 7- 10 AND DECEMBER 16,  
2022**



C:\Users\km7686\ArcGIS\AUS\CHEVRON\FORMER UNOCAL BULK FUEL TERMINAL\EDMONDS\Washington\Project Files\2023\01\4h Progress\01-DWG\GWM-202304-F05-cPAHs CONCENTRATION.dwg LAYOUT: 5 - SAVED: 21/2023 3:58 PM ACADVER: 24.1S (LMS TECH) PAGES: 1/1  
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 XREFS: IMAGES: GEN-X-BASEMAP GEN-X-D-TITLE  
 PLOTSTYLETABLE: PLOTTED: 22/2023 10:39 AM BY: K. MAHENDRA



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**GROUNDWATER cPAHs CONCENTRATION  
 NOVEMBER 7- 10, 2022**

**ARCADIS**

FIGURE  
**5**

# Appendix D

## Groundwater Analytical Reports and Chain of Custody Documentation

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-74489-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
3/9/2022 12:57:47 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@eurofinset.com](mailto:Loran.Carter@eurofinset.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

A handwritten signature in cursive script that reads "Amek Carter".

---

Amek Carter  
Project Manager  
3/9/2022 12:57:47 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

---

## Job ID: 410-74489-1

---

Laboratory: Eurofins Lancaster Laboratories Env, LLC

### Narrative

---

#### Job Narrative 410-74489-1

#### Receipt

The samples were received on 3/1/2022 10:13 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.8°C, 1.7°C and 2.0°C

#### Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-521 (410-74489-9). The container labels list 13:34, while the COC lists 11:34.

The following samples were submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): MW-512 (410-74489-15) and MW-520 (410-74489-16)

One 250ml amber glass HCl container for the following sample was received broken. MW-512 (410-74489-15).

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-509

Lab Sample ID: 410-74489-1

No Detections.

## Client Sample ID: MW-126

Lab Sample ID: 410-74489-2

No Detections.

## Client Sample ID: MW-511

Lab Sample ID: 410-74489-3

No Detections.

## Client Sample ID: MW-515

Lab Sample ID: 410-74489-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	27	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-139R

Lab Sample ID: 410-74489-5

No Detections.

## Client Sample ID: MW-519

Lab Sample ID: 410-74489-6

No Detections.

## Client Sample ID: MW-516

Lab Sample ID: 410-74489-7

No Detections.

## Client Sample ID: MW-518

Lab Sample ID: 410-74489-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	59	J	110	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-521

Lab Sample ID: 410-74489-9

No Detections.

## Client Sample ID: MW-517

Lab Sample ID: 410-74489-10

No Detections.

## Client Sample ID: MW-514

Lab Sample ID: 410-74489-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	24	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-506

Lab Sample ID: 410-74489-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	23	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: DUP-1

Lab Sample ID: 410-74489-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	55	J	100	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: Trip Blank

Lab Sample ID: 410-74489-14

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-512

Lab Sample ID: 410-74489-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	44	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-520

Lab Sample ID: 410-74489-16

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

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

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-509**

**Lab Sample ID: 410-74489-1**

Date Collected: 02/28/22 10:15

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 23:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/07/22 23:02	1
Dibromofluoromethane (Surr)	100		80 - 120					03/07/22 23:02	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/07/22 23:02	1
Toluene-d8 (Surr)	97		80 - 120					03/07/22 23:02	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 02:42	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 02:42	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 02:42	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 02:42	1
Chrysene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 02:42	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 02:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 02:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	75		10 - 110				03/03/22 17:40	03/05/22 02:42	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111				03/03/22 17:40	03/05/22 02:42	1
Fluoranthene-d10 (Surr)	83		47 - 128				03/03/22 17:40	03/05/22 02:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 16:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					03/02/22 16:20	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/07/22 08:35	03/08/22 19:36	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 19:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	66		50 - 150				03/07/22 08:35	03/08/22 19:36	1

**Client Sample ID: MW-126**

**Lab Sample ID: 410-74489-2**

Date Collected: 02/28/22 10:15

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 23:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					03/07/22 23:22	1
Dibromofluoromethane (Surr)	99		80 - 120					03/07/22 23:22	1
4-Bromofluorobenzene (Surr)	97		80 - 120					03/07/22 23:22	1
Toluene-d8 (Surr)	96		80 - 120					03/07/22 23:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-126**

**Lab Sample ID: 410-74489-2**

Date Collected: 02/28/22 10:15

Matrix: Water

Date Received: 03/01/22 10:13

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/03/22 17:40	03/05/22 03:12	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/03/22 17:40	03/05/22 03:12	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/03/22 17:40	03/05/22 03:12	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/03/22 17:40	03/05/22 03:12	1
Chrysene	ND		0.053	0.011	ug/L		03/03/22 17:40	03/05/22 03:12	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/03/22 17:40	03/05/22 03:12	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/03/22 17:40	03/05/22 03:12	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	92		10 - 110				03/03/22 17:40	03/05/22 03:12	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				03/03/22 17:40	03/05/22 03:12	1
Fluoranthene-d10 (Surr)	82		47 - 128				03/03/22 17:40	03/05/22 03:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 16:48	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					03/02/22 16:48	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		03/07/22 08:35	03/08/22 19:58	1
C24-C40	ND		260	110	ug/L		03/07/22 08:35	03/08/22 19:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	53		50 - 150				03/07/22 08:35	03/08/22 19:58	1

**Client Sample ID: MW-511**

**Lab Sample ID: 410-74489-3**

Date Collected: 02/28/22 10:21

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 23:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					03/07/22 23:42	1
Dibromofluoromethane (Surr)	100		80 - 120					03/07/22 23:42	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/07/22 23:42	1
Toluene-d8 (Surr)	96		80 - 120					03/07/22 23:42	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 03:42	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 03:42	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 03:42	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 03:42	1
Chrysene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 03:42	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/03/22 17:40	03/05/22 03:42	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/03/22 17:40	03/05/22 03:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-511**

**Lab Sample ID: 410-74489-3**

Date Collected: 02/28/22 10:21

Matrix: Water

Date Received: 03/01/22 10:13

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110	03/03/22 17:40	03/05/22 03:42	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111	03/03/22 17:40	03/05/22 03:42	1
Fluoranthene-d10 (Surr)	80		47 - 128	03/03/22 17:40	03/05/22 03:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	90		50 - 150		03/02/22 17:16	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/07/22 08:35	03/08/22 20:21	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	62		50 - 150	03/07/22 08:35	03/08/22 20:21	1

**Client Sample ID: MW-515**

**Lab Sample ID: 410-74489-4**

Date Collected: 02/28/22 11:10

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 22:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		03/07/22 22:03	1
Dibromofluoromethane (Surr)	99		80 - 120		03/07/22 22:03	1
4-Bromofluorobenzene (Surr)	100		80 - 120		03/07/22 22:03	1
Toluene-d8 (Surr)	98		80 - 120		03/07/22 22:03	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 04:12	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 04:12	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 04:12	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 04:12	1
Chrysene	ND		0.051	0.010	ug/L		03/03/22 17:40	03/05/22 04:12	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/03/22 17:40	03/05/22 04:12	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/03/22 17:40	03/05/22 04:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110	03/03/22 17:40	03/05/22 04:12	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	03/03/22 17:40	03/05/22 04:12	1
Fluoranthene-d10 (Surr)	83		47 - 128	03/03/22 17:40	03/05/22 04:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	27	J	250	19	ug/L			03/07/22 16:52	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-515

Lab Sample ID: 410-74489-4

Date Collected: 02/28/22 11:10

Matrix: Water

Date Received: 03/01/22 10:13

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	105		50 - 150		03/07/22 16:52	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	F1	100	47	ug/L		03/07/22 08:35	03/08/22 20:44	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 20:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	72		50 - 150	03/07/22 08:35	03/08/22 20:44	1

## Client Sample ID: MW-139R

Lab Sample ID: 410-74489-5

Date Collected: 02/28/22 11:22

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 00:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		03/08/22 00:02	1
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 00:02	1
4-Bromofluorobenzene (Surr)	97		80 - 120		03/08/22 00:02	1
Toluene-d8 (Surr)	96		80 - 120		03/08/22 00:02	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 05:42	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 05:42	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 05:42	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 05:42	1
Chrysene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 05:42	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 05:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 05:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110	03/03/22 17:40	03/05/22 05:42	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	03/03/22 17:40	03/05/22 05:42	1
Fluoranthene-d10 (Surr)	91		47 - 128	03/03/22 17:40	03/05/22 05:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 17:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	95		50 - 150		03/02/22 17:45	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/07/22 08:35	03/08/22 21:51	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 21:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	63		50 - 150	03/07/22 08:35	03/08/22 21:51	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-519**

**Lab Sample ID: 410-74489-6**

Date Collected: 02/28/22 11:34

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 00:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 00:22	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 00:22	1
4-Bromofluorobenzene (Surr)	97		80 - 120					03/08/22 00:22	1
Toluene-d8 (Surr)	96		80 - 120					03/08/22 00:22	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:12	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:12	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:12	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:12	1
Chrysene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:12	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 06:12	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 06:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	67		10 - 110				03/03/22 17:40	03/05/22 06:12	1
1-Methylnaphthalene-d10 (Surr)	59		36 - 111				03/03/22 17:40	03/05/22 06:12	1
Fluoranthene-d10 (Surr)	72		47 - 128				03/03/22 17:40	03/05/22 06:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 18:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					03/02/22 18:13	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/07/22 08:35	03/08/22 22:14	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 22:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150				03/07/22 08:35	03/08/22 22:14	1

**Client Sample ID: MW-516**

**Lab Sample ID: 410-74489-7**

Date Collected: 02/28/22 12:40

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 00:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 00:42	1
Dibromofluoromethane (Surr)	98		80 - 120					03/08/22 00:42	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/08/22 00:42	1
Toluene-d8 (Surr)	98		80 - 120					03/08/22 00:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-516**

**Lab Sample ID: 410-74489-7**

Date Collected: 02/28/22 12:40

Matrix: Water

Date Received: 03/01/22 10:13

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:42	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:42	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:42	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:42	1
Chrysene	ND		0.052	0.010	ug/L		03/03/22 17:40	03/05/22 06:42	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 06:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/03/22 17:40	03/05/22 06:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	84		10 - 110				03/03/22 17:40	03/05/22 06:42	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111				03/03/22 17:40	03/05/22 06:42	1
Fluoranthene-d10 (Surr)	84		47 - 128				03/03/22 17:40	03/05/22 06:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 19:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					03/02/22 19:38	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/07/22 08:35	03/08/22 22:37	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/08/22 22:37	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	71		50 - 150				03/07/22 08:35	03/08/22 22:37	1

**Client Sample ID: MW-518**

**Lab Sample ID: 410-74489-8**

Date Collected: 02/28/22 12:42

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 01:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 01:02	1
Dibromofluoromethane (Surr)	99		80 - 120					03/08/22 01:02	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/08/22 01:02	1
Toluene-d8 (Surr)	97		80 - 120					03/08/22 01:02	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/07/22 23:21	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/07/22 23:21	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/07/22 23:21	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/07/22 23:21	1
Chrysene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/07/22 23:21	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		03/04/22 09:04	03/07/22 23:21	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		03/04/22 09:04	03/07/22 23:21	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-518**

**Lab Sample ID: 410-74489-8**

Date Collected: 02/28/22 12:42

Matrix: Water

Date Received: 03/01/22 10:13

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	03/04/22 09:04	03/07/22 23:21	1
1-Methylnaphthalene-d10 (Surr)	95		36 - 111	03/04/22 09:04	03/07/22 23:21	1
Fluoranthene-d10 (Surr)	83		47 - 128	03/04/22 09:04	03/07/22 23:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	19	ug/L			03/02/22 20:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		03/02/22 20:07	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	59	J	110	47	ug/L		03/07/22 08:35	03/08/22 23:44	1
C24-C40	ND		260	110	ug/L		03/07/22 08:35	03/08/22 23:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	75		50 - 150	03/07/22 08:35	03/08/22 23:44	1

**Client Sample ID: MW-521**

**Lab Sample ID: 410-74489-9**

Date Collected: 02/28/22 11:34

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 01:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		03/08/22 01:21	1
Dibromofluoromethane (Surr)	98		80 - 120		03/08/22 01:21	1
4-Bromofluorobenzene (Surr)	98		80 - 120		03/08/22 01:21	1
Toluene-d8 (Surr)	95		80 - 120		03/08/22 01:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		03/04/22 09:04	03/07/22 23:43	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		03/04/22 09:04	03/07/22 23:43	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		03/04/22 09:04	03/07/22 23:43	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		03/04/22 09:04	03/07/22 23:43	1
Chrysene	ND		0.055	0.011	ug/L		03/04/22 09:04	03/07/22 23:43	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		03/04/22 09:04	03/07/22 23:43	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		03/04/22 09:04	03/07/22 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	63		10 - 110	03/04/22 09:04	03/07/22 23:43	1
1-Methylnaphthalene-d10 (Surr)	92		36 - 111	03/04/22 09:04	03/07/22 23:43	1
Fluoranthene-d10 (Surr)	90		47 - 128	03/04/22 09:04	03/07/22 23:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 20:35	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-521

Lab Sample ID: 410-74489-9

Date Collected: 02/28/22 11:34

Matrix: Water

Date Received: 03/01/22 10:13

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	97		50 - 150		03/02/22 20:35	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		03/07/22 08:35	03/09/22 00:07	1
C24-C40	ND		270	110	ug/L		03/07/22 08:35	03/09/22 00:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150	03/07/22 08:35	03/09/22 00:07	1

## Client Sample ID: MW-517

Lab Sample ID: 410-74489-10

Date Collected: 02/28/22 13:30

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		03/08/22 01:41	1
Dibromofluoromethane (Surr)	98		80 - 120		03/08/22 01:41	1
4-Bromofluorobenzene (Surr)	99		80 - 120		03/08/22 01:41	1
Toluene-d8 (Surr)	96		80 - 120		03/08/22 01:41	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/08/22 00:06	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/08/22 00:06	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/08/22 00:06	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/08/22 00:06	1
Chrysene	ND		0.054	0.011	ug/L		03/04/22 09:04	03/08/22 00:06	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		03/04/22 09:04	03/08/22 00:06	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		03/04/22 09:04	03/08/22 00:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	63		10 - 110	03/04/22 09:04	03/08/22 00:06	1
1-Methylnaphthalene-d10 (Surr)	87		36 - 111	03/04/22 09:04	03/08/22 00:06	1
Fluoranthene-d10 (Surr)	86		47 - 128	03/04/22 09:04	03/08/22 00:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 21:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		03/02/22 21:04	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/07/22 08:35	03/09/22 00:30	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/09/22 00:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	66		50 - 150	03/07/22 08:35	03/09/22 00:30	1

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-514**

**Lab Sample ID: 410-74489-11**

Date Collected: 02/28/22 13:36

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 02:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 02:01	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 02:01	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/08/22 02:01	1
Toluene-d8 (Surr)	97		80 - 120					03/08/22 02:01	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/08/22 00:28	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/08/22 00:28	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/08/22 00:28	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/08/22 00:28	1
Chrysene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/08/22 00:28	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/04/22 09:04	03/08/22 00:28	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/04/22 09:04	03/08/22 00:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	43		10 - 110				03/04/22 09:04	03/08/22 00:28	1
1-Methylnaphthalene-d10 (Surr)	87		36 - 111				03/04/22 09:04	03/08/22 00:28	1
Fluoranthene-d10 (Surr)	83		47 - 128				03/04/22 09:04	03/08/22 00:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	24	J	250	19	ug/L			03/02/22 21:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					03/02/22 21:32	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/07/22 08:35	03/09/22 00:52	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/09/22 00:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	56		50 - 150				03/07/22 08:35	03/09/22 00:52	1

**Client Sample ID: MW-506**

**Lab Sample ID: 410-74489-12**

Date Collected: 02/28/22 14:00

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 02:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					03/08/22 02:21	1
Dibromofluoromethane (Surr)	98		80 - 120					03/08/22 02:21	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/08/22 02:21	1
Toluene-d8 (Surr)	97		80 - 120					03/08/22 02:21	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-506**

**Lab Sample ID: 410-74489-12**

Date Collected: 02/28/22 14:00

Matrix: Water

Date Received: 03/01/22 10:13

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/04/22 09:04	03/08/22 00:50	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/04/22 09:04	03/08/22 00:50	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/04/22 09:04	03/08/22 00:50	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/04/22 09:04	03/08/22 00:50	1
Chrysene	ND		0.052	0.010	ug/L		03/04/22 09:04	03/08/22 00:50	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/04/22 09:04	03/08/22 00:50	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/04/22 09:04	03/08/22 00:50	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	60		10 - 110				03/04/22 09:04	03/08/22 00:50	1
1-Methylnaphthalene-d10 (Surr)	91		36 - 111				03/04/22 09:04	03/08/22 00:50	1
Fluoranthene-d10 (Surr)	89		47 - 128				03/04/22 09:04	03/08/22 00:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>23</b>	<b>J</b>	250	19	ug/L			03/02/22 22:01	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					03/02/22 22:01	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/07/22 08:35	03/09/22 01:15	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/09/22 01:15	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	65		50 - 150				03/07/22 08:35	03/09/22 01:15	1

**Client Sample ID: DUP-1**

**Lab Sample ID: 410-74489-13**

Date Collected: 02/28/22 00:00

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 02:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					03/08/22 02:41	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 02:41	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/08/22 02:41	1
Toluene-d8 (Surr)	96		80 - 120					03/08/22 02:41	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:12	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:12	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:12	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:12	1
Chrysene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:12	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/04/22 09:04	03/08/22 01:12	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/04/22 09:04	03/08/22 01:12	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: DUP-1

Lab Sample ID: 410-74489-13

Date Collected: 02/28/22 00:00

Matrix: Water

Date Received: 03/01/22 10:13

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	50		10 - 110	03/04/22 09:04	03/08/22 01:12	1
1-Methylnaphthalene-d10 (Surr)	84		36 - 111	03/04/22 09:04	03/08/22 01:12	1
Fluoranthene-d10 (Surr)	80		47 - 128	03/04/22 09:04	03/08/22 01:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	19	ug/L			03/02/22 22:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		03/02/22 22:29	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	55	J	100	47	ug/L		03/07/22 08:35	03/09/22 02:00	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/09/22 02:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150	03/07/22 08:35	03/09/22 02:00	1

## Client Sample ID: Trip Blank

Lab Sample ID: 410-74489-14

Date Collected: 02/28/22 00:00

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 21:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		03/07/22 21:03	1
Dibromofluoromethane (Surr)	100		80 - 120		03/07/22 21:03	1
4-Bromofluorobenzene (Surr)	98		80 - 120		03/07/22 21:03	1
Toluene-d8 (Surr)	97		80 - 120		03/07/22 21:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 13:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		03/02/22 13:29	1

## Client Sample ID: MW-512

Lab Sample ID: 410-74489-15

Date Collected: 02/28/22 11:56

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 03:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		03/08/22 03:00	1
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 03:00	1
4-Bromofluorobenzene (Surr)	99		80 - 120		03/08/22 03:00	1
Toluene-d8 (Surr)	95		80 - 120		03/08/22 03:00	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-512**

**Lab Sample ID: 410-74489-15**

Date Collected: 02/28/22 11:56

Matrix: Water

Date Received: 03/01/22 10:13

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/04/22 09:04	03/08/22 01:34	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/04/22 09:04	03/08/22 01:34	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/04/22 09:04	03/08/22 01:34	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/04/22 09:04	03/08/22 01:34	1
Chrysene	ND		0.051	0.010	ug/L		03/04/22 09:04	03/08/22 01:34	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/04/22 09:04	03/08/22 01:34	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/04/22 09:04	03/08/22 01:34	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	60		10 - 110				03/04/22 09:04	03/08/22 01:34	1
1-Methylnaphthalene-d10 (Surr)	101		36 - 111				03/04/22 09:04	03/08/22 01:34	1
Fluoranthene-d10 (Surr)	82		47 - 128				03/04/22 09:04	03/08/22 01:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>44</b>	<b>J</b>	250	19	ug/L			03/02/22 22:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					03/02/22 22:58	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/07/22 08:35	03/09/22 02:23	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/09/22 02:23	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	66		50 - 150				03/07/22 08:35	03/09/22 02:23	1

**Client Sample ID: MW-520**

**Lab Sample ID: 410-74489-16**

Date Collected: 02/28/22 12:14

Matrix: Water

Date Received: 03/01/22 10:13

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 16:12	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					03/08/22 16:12	1
Dibromofluoromethane (Surr)	101		80 - 120					03/08/22 16:12	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/08/22 16:12	1
Toluene-d8 (Surr)	95		80 - 120					03/08/22 16:12	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:57	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:57	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:57	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:57	1
Chrysene	ND		0.053	0.011	ug/L		03/04/22 09:04	03/08/22 01:57	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/04/22 09:04	03/08/22 01:57	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/04/22 09:04	03/08/22 01:57	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-520**

**Lab Sample ID: 410-74489-16**

**Date Collected: 02/28/22 12:14**

**Matrix: Water**

**Date Received: 03/01/22 10:13**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	51		10 - 110	03/04/22 09:04	03/08/22 01:57	1
1-Methylnaphthalene-d10 (Surr)	83		36 - 111	03/04/22 09:04	03/08/22 01:57	1
Fluoranthene-d10 (Surr)	81		47 - 128	03/04/22 09:04	03/08/22 01:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 23:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		03/02/22 23:26	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		03/07/22 08:35	03/09/22 02:45	1
C24-C40	ND		270	110	ug/L		03/07/22 08:35	03/09/22 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	60		50 - 150	03/07/22 08:35	03/09/22 02:45	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-74489-1	MW-509	98	100	99	97
410-74489-2	MW-126	100	99	97	96
410-74489-3	MW-511	97	100	98	96
410-74489-4	MW-515	103	99	100	98
410-74489-4 MS	MW-515-MS	97	100	100	97
410-74489-4 MSD	MW-515-MSD	100	101	100	96
410-74489-5	MW-139R	99	101	97	96
410-74489-6	MW-519	98	100	97	96
410-74489-7	MW-516	98	98	100	98
410-74489-8	MW-518	98	99	98	97
410-74489-9	MW-521	97	98	98	95
410-74489-10	MW-517	101	98	99	96
410-74489-11	MW-514	98	100	98	97
410-74489-12	MW-506	100	98	99	97
410-74489-13	DUP-1	100	100	99	96
410-74489-14	Trip Blank	98	100	98	97
410-74489-15	MW-512	100	101	99	95
410-74489-16	MW-520	99	101	100	95
LCS 410-230927/4	Lab Control Sample	100	100	99	97
LCS 410-231090/4	Lab Control Sample	102	100	99	96
LCSD 410-230927/5	Lab Control Sample Dup	97	100	100	98
MB 410-230927/7	Method Blank	101	100	99	96
MB 410-231090/6	Method Blank	98	101	99	95

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-74489-1	MW-509	75	74	83
410-74489-2	MW-126	92	76	82
410-74489-3	MW-511	71	70	80
410-74489-4	MW-515	86	74	83
410-74489-4 MS	MW-515-MS	94	71	81
410-74489-4 MSD	MW-515-MSD	94	76	94
410-74489-5	MW-139R	82	78	91
410-74489-6	MW-519	67	59	72
410-74489-7	MW-516	84	70	84
410-74489-8	MW-518	59	95	83
410-74489-9	MW-521	63	92	90
410-74489-10	MW-517	63	87	86
410-74489-11	MW-514	43	87	83
410-74489-12	MW-506	60	91	89

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-74489-13	DUP-1	50	84	80
410-74489-15	MW-512	60	101	82
410-74489-16	MW-520	51	83	81
LCS 410-229810/2-A	Lab Control Sample	99	62	91
LCS 410-229996/2-A	Lab Control Sample	83	75	89
LCSD 410-229996/3-A	Lab Control Sample Dup	87	79	97
MB 410-229810/1-A	Method Blank	88	72	92
MB 410-229996/1-A	Method Blank	81	85	90

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-74489-1	MW-509	102
410-74489-2	MW-126	102
410-74489-3	MW-511	90
410-74489-4	MW-515	105
410-74489-4 MS	MW-515-MS	95
410-74489-4 MSD	MW-515-MSD	96
410-74489-5	MW-139R	95
410-74489-6	MW-519	100
410-74489-7	MW-516	100
410-74489-8	MW-518	100
410-74489-9	MW-521	97
410-74489-10	MW-517	101
410-74489-11	MW-514	100
410-74489-12	MW-506	101
410-74489-13	DUP-1	101
410-74489-14	Trip Blank	101
410-74489-15	MW-512	101
410-74489-16	MW-520	101
LCS 410-229142/5	Lab Control Sample	97
LCS 410-230814/5	Lab Control Sample	93
LCSD 410-229142/6	Lab Control Sample Dup	98
LCSD 410-230814/6	Lab Control Sample Dup	94
MB 410-229142/4	Method Blank	102
MB 410-230814/4	Method Blank	105

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)



# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-74489-1	MW-509	66
410-74489-2	MW-126	53
410-74489-3	MW-511	62
410-74489-4	MW-515	72
410-74489-4 MS	MW-515-MS	61
410-74489-4 MSD	MW-515-MSD	63
410-74489-5	MW-139R	63
410-74489-6	MW-519	67
410-74489-7	MW-516	71
410-74489-7 DU	MW-516	70
410-74489-8	MW-518	75
410-74489-9	MW-521	69
410-74489-10	MW-517	66
410-74489-11	MW-514	56
410-74489-12	MW-506	65
410-74489-12 DU	MW-506	69
410-74489-13	DUP-1	67
410-74489-15	MW-512	66
410-74489-16	MW-520	60
LCS 410-230654/2-B	Lab Control Sample	70
MB 410-230654/1-B	Method Blank	75

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

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

Lab Sample ID: MB 410-230927/7

Matrix: Water

Analysis Batch: 230927

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/07/22 20:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					03/07/22 20:43	1
Dibromofluoromethane (Surr)	100		80 - 120					03/07/22 20:43	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/07/22 20:43	1
Toluene-d8 (Surr)	96		80 - 120					03/07/22 20:43	1

Lab Sample ID: LCS 410-230927/4

Matrix: Water

Analysis Batch: 230927

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	19.7		ug/L		98	80 - 120
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	100		80 - 120				
Dibromofluoromethane (Surr)	100		80 - 120				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Toluene-d8 (Surr)	97		80 - 120				

Lab Sample ID: LCSD 410-230927/5

Matrix: Water

Analysis Batch: 230927

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	20.0	19.9		ug/L		99	80 - 120	1	30
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
4-Bromofluorobenzene (Surr)	100		80 - 120						
Toluene-d8 (Surr)	98		80 - 120						

Lab Sample ID: 410-74489-4 MS

Matrix: Water

Analysis Batch: 230927

Client Sample ID: MW-515-MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		20.0	20.1		ug/L		100	80 - 120
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
4-Bromofluorobenzene (Surr)	100		80 - 120						
Toluene-d8 (Surr)	97		80 - 120						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

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

**Lab Sample ID: 410-74489-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 230927**

**Client Sample ID: MW-515-MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		20.0	20.5		ug/L		103	80 - 120	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	100		80 - 120								
Dibromofluoromethane (Surr)	101		80 - 120								
4-Bromofluorobenzene (Surr)	100		80 - 120								
Toluene-d8 (Surr)	96		80 - 120								

**Lab Sample ID: MB 410-231090/6**  
**Matrix: Water**  
**Analysis Batch: 231090**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 10:36	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 10:36	1
Dibromofluoromethane (Surr)	101		80 - 120					03/08/22 10:36	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/08/22 10:36	1
Toluene-d8 (Surr)	95		80 - 120					03/08/22 10:36	1

**Lab Sample ID: LCS 410-231090/4**  
**Matrix: Water**  
**Analysis Batch: 231090**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	19.9		ug/L		99	80 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	102		80 - 120				
Dibromofluoromethane (Surr)	100		80 - 120				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Toluene-d8 (Surr)	96		80 - 120				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-229810/1-A**  
**Matrix: Water**  
**Analysis Batch: 230371**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 229810**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/03/22 17:40	03/04/22 22:13	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/03/22 17:40	03/04/22 22:13	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/03/22 17:40	03/04/22 22:13	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/03/22 17:40	03/04/22 22:13	1
Chrysene	ND		0.050	0.010	ug/L		03/03/22 17:40	03/04/22 22:13	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/03/22 17:40	03/04/22 22:13	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/03/22 17:40	03/04/22 22:13	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	88		10 - 110	03/03/22 17:40	03/04/22 22:13	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	03/03/22 17:40	03/04/22 22:13	1
Fluoranthene-d10 (Surr)	92		47 - 128	03/03/22 17:40	03/04/22 22:13	1

Lab Sample ID: LCS 410-229810/2-A

Matrix: Water

Analysis Batch: 230371

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 229810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	1.00	0.950		ug/L		95	61 - 122	
Benzo[a]pyrene	1.00	0.889		ug/L		89	60 - 120	
Benzo[b]fluoranthene	1.00	0.930		ug/L		93	58 - 122	
Benzo[k]fluoranthene	1.00	0.977		ug/L		98	57 - 128	
Chrysene	1.00	0.884		ug/L		88	55 - 123	
Dibenz(a,h)anthracene	1.00	0.886		ug/L		89	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.842		ug/L		84	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	99		10 - 110
1-Methylnaphthalene-d10 (Surr)	62		36 - 111
Fluoranthene-d10 (Surr)	91		47 - 128

Lab Sample ID: 410-74489-4 MS

Matrix: Water

Analysis Batch: 230371

Client Sample ID: MW-515-MS

Prep Type: Total/NA

Prep Batch: 229810

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	ND		1.04	0.958		ug/L		92	61 - 122	
Benzo[a]pyrene	ND		1.04	0.851		ug/L		82	60 - 120	
Benzo[b]fluoranthene	ND		1.04	0.891		ug/L		85	58 - 122	
Benzo[k]fluoranthene	ND		1.04	0.898		ug/L		86	57 - 128	
Chrysene	ND		1.04	0.888		ug/L		85	55 - 123	
Dibenz(a,h)anthracene	ND		1.04	0.845		ug/L		81	50 - 121	
Indeno[1,2,3-cd]pyrene	ND		1.04	0.811		ug/L		78	47 - 143	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	94		10 - 110
1-Methylnaphthalene-d10 (Surr)	71		36 - 111
Fluoranthene-d10 (Surr)	81		47 - 128

Lab Sample ID: 410-74489-4 MSD

Matrix: Water

Analysis Batch: 230371

Client Sample ID: MW-515-MSD

Prep Type: Total/NA

Prep Batch: 229810

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD Limit	
Benzo[a]anthracene	ND		1.04	0.966		ug/L		93	61 - 122	1	30	
Benzo[a]pyrene	ND		1.04	0.901		ug/L		87	60 - 120	6	30	
Benzo[b]fluoranthene	ND		1.04	0.919		ug/L		89	58 - 122	3	30	
Benzo[k]fluoranthene	ND		1.04	0.899		ug/L		87	57 - 128	0	30	
Chrysene	ND		1.04	0.899		ug/L		87	55 - 123	1	30	
Dibenz(a,h)anthracene	ND		1.04	0.883		ug/L		85	50 - 121	4	30	

Eurofins Lancaster Laboratories Env, LLC

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: 410-74489-4 MSD**

**Matrix: Water**

**Analysis Batch: 230371**

**Client Sample ID: MW-515-MSD**

**Prep Type: Total/NA**

**Prep Batch: 229810**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene	ND		1.04	0.853		ug/L		82	47 - 143	5	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
Benzo(a)pyrene-d12 (Surr)	94		10 - 110								
1-Methylnaphthalene-d10 (Surr)	76		36 - 111								
Fluoranthene-d10 (Surr)	94		47 - 128								

**Lab Sample ID: MB 410-229996/1-A**

**Matrix: Water**

**Analysis Batch: 230971**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 229996**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/07/22 20:45	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/07/22 20:45	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/07/22 20:45	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/07/22 20:45	1
Chrysene	ND		0.050	0.010	ug/L		03/04/22 09:04	03/07/22 20:45	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/04/22 09:04	03/07/22 20:45	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/04/22 09:04	03/07/22 20:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	81		10 - 110				03/04/22 09:04	03/07/22 20:45	1
1-Methylnaphthalene-d10 (Surr)	85		36 - 111				03/04/22 09:04	03/07/22 20:45	1
Fluoranthene-d10 (Surr)	90		47 - 128				03/04/22 09:04	03/07/22 20:45	1

**Lab Sample ID: LCS 410-229996/2-A**

**Matrix: Water**

**Analysis Batch: 230971**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 229996**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	1.00	0.870		ug/L		87	61 - 122
Benzo[a]pyrene	1.00	0.797		ug/L		80	60 - 120
Benzo[b]fluoranthene	1.00	0.816		ug/L		82	58 - 122
Benzo[k]fluoranthene	1.00	0.882		ug/L		88	57 - 128
Chrysene	1.00	0.815		ug/L		81	55 - 123
Dibenz(a,h)anthracene	1.00	0.765		ug/L		77	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.846		ug/L		85	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
Benzo(a)pyrene-d12 (Surr)	83		10 - 110				
1-Methylnaphthalene-d10 (Surr)	75		36 - 111				
Fluoranthene-d10 (Surr)	89		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID:** LCSD 410-229996/3-A  
**Matrix:** Water  
**Analysis Batch:** 230971

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 229996

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
							Lower	Upper	RPD	Limit
Benzo[a]anthracene	1.00	0.924		ug/L		92	61	122	6	30
Benzo[a]pyrene	1.00	0.843		ug/L		84	60	120	6	30
Benzo[b]fluoranthene	1.00	0.867		ug/L		87	58	122	6	30
Benzo[k]fluoranthene	1.00	0.931		ug/L		93	57	128	5	30
Chrysene	1.00	0.873		ug/L		87	55	123	7	30
Dibenz(a,h)anthracene	1.00	0.804		ug/L		80	50	121	5	30
Indeno[1,2,3-cd]pyrene	1.00	0.898		ug/L		90	47	143	6	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	87		10 - 110
1-Methylnaphthalene-d10 (Surr)	79		36 - 111
Fluoranthene-d10 (Surr)	97		47 - 128

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

**Lab Sample ID:** MB 410-229142/4  
**Matrix:** Water  
**Analysis Batch:** 229142

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	19	ug/L			03/02/22 11:36	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		03/02/22 11:36	1

**Lab Sample ID:** LCS 410-229142/5  
**Matrix:** Water  
**Analysis Batch:** 229142

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							Lower	Upper
C7-C12 (1C)	1100	1090		ug/L		99	64	131

Surrogate	LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	97		50 - 150

**Lab Sample ID:** LCSD 410-229142/6  
**Matrix:** Water  
**Analysis Batch:** 229142

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
							Lower	Upper	RPD	Limit
C7-C12 (1C)	1100	1100		ug/L		100	64	131	1	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

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

**Lab Sample ID: MB 410-230814/4**  
**Matrix: Water**  
**Analysis Batch: 230814**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 13:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	105		50 - 150					03/07/22 13:54	1

**Lab Sample ID: LCS 410-230814/5**  
**Matrix: Water**  
**Analysis Batch: 230814**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	1100	1020		ug/L		93	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150				

**Lab Sample ID: LCSD 410-230814/6**  
**Matrix: Water**  
**Analysis Batch: 230814**

**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
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131	6	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150						

**Lab Sample ID: 410-74489-4 MS**  
**Matrix: Water**  
**Analysis Batch: 230814**

**Client Sample ID: MW-515-MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	27	J	1120	1150		ug/L		100	80 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	95		50 - 150						

**Lab Sample ID: 410-74489-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 230814**

**Client Sample ID: MW-515-MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C7-C12 (1C)	27	J	1120	1170		ug/L		102	80 - 120	2	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
a,a,a-Trifluorotoluene (fid) (1C)	96		50 - 150								

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-230654/1-B**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		03/07/22 08:35	03/08/22 18:51	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/08/22 18:51	1
Surrogate	MB MB		Limits			D	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
<i>o</i> -terphenyl (Surr)	75		50 - 150				03/07/22 08:35	03/08/22 18:51	1

**Lab Sample ID: LCS 410-230654/2-B**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
C12-C24	600	194		ug/L		32	14 - 115
Surrogate	LCS LCS		Limits			%Rec	%Rec. Limits
%Recovery	Qualifier						
<i>o</i> -terphenyl (Surr)	70		50 - 150				

**Lab Sample ID: 410-74489-4 MS**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: MW-515-MS**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
C12-C24	ND	F1	604	158	F1	ug/L		26	30 - 115
Surrogate	MS MS		Limits			D	%Rec	%Rec. Limits	
%Recovery	Qualifier								
<i>o</i> -terphenyl (Surr)	61		50 - 150						

**Lab Sample ID: 410-74489-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: MW-515-MSD**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	Sample Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
C12-C24	ND	F1	619	157	F1	ug/L		25	30 - 115	1	20
Surrogate	MSD MSD		Limits			D	%Rec	%Rec. Limits	RPD		
%Recovery	Qualifier										
<i>o</i> -terphenyl (Surr)	63		50 - 150								

**Lab Sample ID: 410-74489-7 DU**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: MW-516**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	Sample Sample		DU DU		Unit	D	RPD	RPD	
	Result	Qualifier	Result	Qualifier				RPD	Limit
C12-C24	ND		ND		ug/L		NC	20	
C24-C40	ND		ND		ug/L		NC	20	
Surrogate	DU DU		Limits			D	RPD	Limit	
%Recovery	Qualifier								
<i>o</i> -terphenyl (Surr)	70		50 - 150						



# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74489-1

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

**Lab Sample ID: 410-74489-12 DU**

**Matrix: Water**

**Analysis Batch: 231399**

**Client Sample ID: MW-506**

**Prep Type: Total/NA**

**Prep Batch: 230654**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>DU DU</b>								
Surrogate	%Recovery	Qualifier			Limits			
<i>o-terphenyl (Surr)</i>	69				50 - 150			

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

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## GC/MS VOA

### Analysis Batch: 230927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	8260D	
410-74489-2	MW-126	Total/NA	Water	8260D	
410-74489-3	MW-511	Total/NA	Water	8260D	
410-74489-4	MW-515	Total/NA	Water	8260D	
410-74489-5	MW-139R	Total/NA	Water	8260D	
410-74489-6	MW-519	Total/NA	Water	8260D	
410-74489-7	MW-516	Total/NA	Water	8260D	
410-74489-8	MW-518	Total/NA	Water	8260D	
410-74489-9	MW-521	Total/NA	Water	8260D	
410-74489-10	MW-517	Total/NA	Water	8260D	
410-74489-11	MW-514	Total/NA	Water	8260D	
410-74489-12	MW-506	Total/NA	Water	8260D	
410-74489-13	DUP-1	Total/NA	Water	8260D	
410-74489-14	Trip Blank	Total/NA	Water	8260D	
410-74489-15	MW-512	Total/NA	Water	8260D	
MB 410-230927/7	Method Blank	Total/NA	Water	8260D	
LCS 410-230927/4	Lab Control Sample	Total/NA	Water	8260D	
LCS 410-230927/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-74489-4 MS	MW-515-MS	Total/NA	Water	8260D	
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	8260D	

### Analysis Batch: 231090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-16	MW-520	Total/NA	Water	8260D	
MB 410-231090/6	Method Blank	Total/NA	Water	8260D	
LCS 410-231090/4	Lab Control Sample	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 229810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	3510C	
410-74489-2	MW-126	Total/NA	Water	3510C	
410-74489-3	MW-511	Total/NA	Water	3510C	
410-74489-4	MW-515	Total/NA	Water	3510C	
410-74489-5	MW-139R	Total/NA	Water	3510C	
410-74489-6	MW-519	Total/NA	Water	3510C	
410-74489-7	MW-516	Total/NA	Water	3510C	
MB 410-229810/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-229810/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-74489-4 MS	MW-515-MS	Total/NA	Water	3510C	
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	3510C	

### Prep Batch: 229996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-8	MW-518	Total/NA	Water	3510C	
410-74489-9	MW-521	Total/NA	Water	3510C	
410-74489-10	MW-517	Total/NA	Water	3510C	
410-74489-11	MW-514	Total/NA	Water	3510C	
410-74489-12	MW-506	Total/NA	Water	3510C	
410-74489-13	DUP-1	Total/NA	Water	3510C	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## GC/MS Semi VOA (Continued)

### Prep Batch: 229996 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-15	MW-512	Total/NA	Water	3510C	
410-74489-16	MW-520	Total/NA	Water	3510C	
MB 410-229996/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-229996/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-229996/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 230371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	8270E SIM	229810
410-74489-2	MW-126	Total/NA	Water	8270E SIM	229810
410-74489-3	MW-511	Total/NA	Water	8270E SIM	229810
410-74489-4	MW-515	Total/NA	Water	8270E SIM	229810
410-74489-5	MW-139R	Total/NA	Water	8270E SIM	229810
410-74489-6	MW-519	Total/NA	Water	8270E SIM	229810
410-74489-7	MW-516	Total/NA	Water	8270E SIM	229810
MB 410-229810/1-A	Method Blank	Total/NA	Water	8270E SIM	229810
LCS 410-229810/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	229810
410-74489-4 MS	MW-515-MS	Total/NA	Water	8270E SIM	229810
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	8270E SIM	229810

### Analysis Batch: 230971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-8	MW-518	Total/NA	Water	8270E SIM	229996
410-74489-9	MW-521	Total/NA	Water	8270E SIM	229996
410-74489-10	MW-517	Total/NA	Water	8270E SIM	229996
410-74489-11	MW-514	Total/NA	Water	8270E SIM	229996
410-74489-12	MW-506	Total/NA	Water	8270E SIM	229996
410-74489-13	DUP-1	Total/NA	Water	8270E SIM	229996
410-74489-15	MW-512	Total/NA	Water	8270E SIM	229996
410-74489-16	MW-520	Total/NA	Water	8270E SIM	229996
MB 410-229996/1-A	Method Blank	Total/NA	Water	8270E SIM	229996
LCS 410-229996/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	229996
LCSD 410-229996/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	229996

## GC VOA

### Analysis Batch: 229142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	NWTPH-Gx	
410-74489-2	MW-126	Total/NA	Water	NWTPH-Gx	
410-74489-3	MW-511	Total/NA	Water	NWTPH-Gx	
410-74489-5	MW-139R	Total/NA	Water	NWTPH-Gx	
410-74489-6	MW-519	Total/NA	Water	NWTPH-Gx	
410-74489-7	MW-516	Total/NA	Water	NWTPH-Gx	
410-74489-8	MW-518	Total/NA	Water	NWTPH-Gx	
410-74489-9	MW-521	Total/NA	Water	NWTPH-Gx	
410-74489-10	MW-517	Total/NA	Water	NWTPH-Gx	
410-74489-11	MW-514	Total/NA	Water	NWTPH-Gx	
410-74489-12	MW-506	Total/NA	Water	NWTPH-Gx	
410-74489-13	DUP-1	Total/NA	Water	NWTPH-Gx	
410-74489-14	Trip Blank	Total/NA	Water	NWTPH-Gx	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## GC VOA (Continued)

### Analysis Batch: 229142 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-15	MW-512	Total/NA	Water	NWTPH-Gx	
410-74489-16	MW-520	Total/NA	Water	NWTPH-Gx	
MB 410-229142/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-229142/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-229142/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 230814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-4	MW-515	Total/NA	Water	NWTPH-Gx	
MB 410-230814/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-230814/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-230814/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-74489-4 MS	MW-515-MS	Total/NA	Water	NWTPH-Gx	
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 230654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	3510C	
410-74489-2	MW-126	Total/NA	Water	3510C	
410-74489-3	MW-511	Total/NA	Water	3510C	
410-74489-4	MW-515	Total/NA	Water	3510C	
410-74489-5	MW-139R	Total/NA	Water	3510C	
410-74489-6	MW-519	Total/NA	Water	3510C	
410-74489-7	MW-516	Total/NA	Water	3510C	
410-74489-8	MW-518	Total/NA	Water	3510C	
410-74489-9	MW-521	Total/NA	Water	3510C	
410-74489-10	MW-517	Total/NA	Water	3510C	
410-74489-11	MW-514	Total/NA	Water	3510C	
410-74489-12	MW-506	Total/NA	Water	3510C	
410-74489-13	DUP-1	Total/NA	Water	3510C	
410-74489-15	MW-512	Total/NA	Water	3510C	
410-74489-16	MW-520	Total/NA	Water	3510C	
MB 410-230654/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-74489-4 MS	MW-515-MS	Total/NA	Water	3510C	
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	3510C	
410-74489-7 DU	MW-516	Total/NA	Water	3510C	
410-74489-12 DU	MW-506	Total/NA	Water	3510C	

### Cleanup Batch: 231324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	3630C	230654
410-74489-2	MW-126	Total/NA	Water	3630C	230654
410-74489-3	MW-511	Total/NA	Water	3630C	230654
410-74489-4	MW-515	Total/NA	Water	3630C	230654
410-74489-5	MW-139R	Total/NA	Water	3630C	230654
410-74489-6	MW-519	Total/NA	Water	3630C	230654
410-74489-7	MW-516	Total/NA	Water	3630C	230654
410-74489-8	MW-518	Total/NA	Water	3630C	230654

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## GC Semi VOA (Continued)

### Cleanup Batch: 231324 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-9	MW-521	Total/NA	Water	3630C	230654
410-74489-10	MW-517	Total/NA	Water	3630C	230654
410-74489-11	MW-514	Total/NA	Water	3630C	230654
410-74489-12	MW-506	Total/NA	Water	3630C	230654
410-74489-13	DUP-1	Total/NA	Water	3630C	230654
410-74489-15	MW-512	Total/NA	Water	3630C	230654
410-74489-16	MW-520	Total/NA	Water	3630C	230654
MB 410-230654/1-B	Method Blank	Total/NA	Water	3630C	230654
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	3630C	230654
410-74489-4 MS	MW-515-MS	Total/NA	Water	3630C	230654
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	3630C	230654
410-74489-7 DU	MW-516	Total/NA	Water	3630C	230654
410-74489-12 DU	MW-506	Total/NA	Water	3630C	230654

### Analysis Batch: 231324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74489-1	MW-509	Total/NA	Water	NWTPH-Dx	231324
410-74489-2	MW-126	Total/NA	Water	NWTPH-Dx	231324
410-74489-3	MW-511	Total/NA	Water	NWTPH-Dx	231324
410-74489-4	MW-515	Total/NA	Water	NWTPH-Dx	231324
410-74489-5	MW-139R	Total/NA	Water	NWTPH-Dx	231324
410-74489-6	MW-519	Total/NA	Water	NWTPH-Dx	231324
410-74489-7	MW-516	Total/NA	Water	NWTPH-Dx	231324
410-74489-8	MW-518	Total/NA	Water	NWTPH-Dx	231324
410-74489-9	MW-521	Total/NA	Water	NWTPH-Dx	231324
410-74489-10	MW-517	Total/NA	Water	NWTPH-Dx	231324
410-74489-11	MW-514	Total/NA	Water	NWTPH-Dx	231324
410-74489-12	MW-506	Total/NA	Water	NWTPH-Dx	231324
410-74489-13	DUP-1	Total/NA	Water	NWTPH-Dx	231324
410-74489-15	MW-512	Total/NA	Water	NWTPH-Dx	231324
410-74489-16	MW-520	Total/NA	Water	NWTPH-Dx	231324
MB 410-230654/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	231324
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	231324
410-74489-4 MS	MW-515-MS	Total/NA	Water	NWTPH-Dx	231324
410-74489-4 MSD	MW-515-MSD	Total/NA	Water	NWTPH-Dx	231324
410-74489-7 DU	MW-516	Total/NA	Water	NWTPH-Dx	231324
410-74489-12 DU	MW-506	Total/NA	Water	NWTPH-Dx	231324

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-509

Lab Sample ID: 410-74489-1

Date Collected: 02/28/22 10:15

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/07/22 23:02	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 02:42	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 16:20	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 19:36	KP5X	ELLE

## Client Sample ID: MW-126

Lab Sample ID: 410-74489-2

Date Collected: 02/28/22 10:15

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/07/22 23:22	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 03:12	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 16:48	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 19:58	KP5X	ELLE

## Client Sample ID: MW-511

Lab Sample ID: 410-74489-3

Date Collected: 02/28/22 10:21

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/07/22 23:42	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 03:42	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 17:16	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 20:21	KP5X	ELLE

## Client Sample ID: MW-515

Lab Sample ID: 410-74489-4

Date Collected: 02/28/22 11:10

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/07/22 22:03	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 04:12	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230814	03/07/22 16:52	JJT8	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-515

Lab Sample ID: 410-74489-4

Date Collected: 02/28/22 11:10

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 20:44	KP5X	ELLE

## Client Sample ID: MW-139R

Lab Sample ID: 410-74489-5

Date Collected: 02/28/22 11:22

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 00:02	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 05:42	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 17:45	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 21:51	KP5X	ELLE

## Client Sample ID: MW-519

Lab Sample ID: 410-74489-6

Date Collected: 02/28/22 11:34

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 00:22	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 06:12	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 18:13	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 22:14	KP5X	ELLE

## Client Sample ID: MW-516

Lab Sample ID: 410-74489-7

Date Collected: 02/28/22 12:40

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 00:42	K4WN	ELLE
Total/NA	Prep	3510C			229810	03/03/22 17:40	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230371	03/05/22 06:42	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 19:38	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 22:37	KP5X	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-518

Lab Sample ID: 410-74489-8

Date Collected: 02/28/22 12:42

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 01:02	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/07/22 23:21	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 20:07	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/08/22 23:44	KP5X	ELLE

## Client Sample ID: MW-521

Lab Sample ID: 410-74489-9

Date Collected: 02/28/22 11:34

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 01:21	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/07/22 23:43	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 20:35	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 00:07	KP5X	ELLE

## Client Sample ID: MW-517

Lab Sample ID: 410-74489-10

Date Collected: 02/28/22 13:30

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 01:41	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 00:06	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 21:04	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 00:30	KP5X	ELLE

## Client Sample ID: MW-514

Lab Sample ID: 410-74489-11

Date Collected: 02/28/22 13:36

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 02:01	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 00:28	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 21:32	NND8	ELLE



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Client Sample ID: MW-514

Lab Sample ID: 410-74489-11

Date Collected: 02/28/22 13:36

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 00:52	KP5X	ELLE

## Client Sample ID: MW-506

Lab Sample ID: 410-74489-12

Date Collected: 02/28/22 14:00

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 02:21	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 00:50	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 22:01	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 01:15	KP5X	ELLE

## Client Sample ID: DUP-1

Lab Sample ID: 410-74489-13

Date Collected: 02/28/22 00:00

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 02:41	K4WN	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 01:12	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 22:29	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 02:00	KP5X	ELLE

## Client Sample ID: Trip Blank

Lab Sample ID: 410-74489-14

Date Collected: 02/28/22 00:00

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/07/22 21:03	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 13:29	NND8	ELLE

## Client Sample ID: MW-512

Lab Sample ID: 410-74489-15

Date Collected: 02/28/22 11:56

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230927	03/08/22 03:00	K4WN	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74489-1

**Client Sample ID: MW-512**

**Lab Sample ID: 410-74489-15**

Date Collected: 02/28/22 11:56

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 01:34	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 22:58	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 02:23	KP5X	ELLE

**Client Sample ID: MW-520**

**Lab Sample ID: 410-74489-16**

Date Collected: 02/28/22 12:14

Matrix: Water

Date Received: 03/01/22 10:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 16:12	ULCP	ELLE
Total/NA	Prep	3510C			229996	03/04/22 09:04	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 01:57	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	229142	03/02/22 23:26	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 02:45	KP5X	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

## Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-12-22

- 1
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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74489-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-74489-1	MW-509	Water	02/28/22 10:15	03/01/22 10:13
410-74489-2	MW-126	Water	02/28/22 10:15	03/01/22 10:13
410-74489-3	MW-511	Water	02/28/22 10:21	03/01/22 10:13
410-74489-4	MW-515	Water	02/28/22 11:10	03/01/22 10:13
410-74489-5	MW-139R	Water	02/28/22 11:22	03/01/22 10:13
410-74489-6	MW-519	Water	02/28/22 11:34	03/01/22 10:13
410-74489-7	MW-516	Water	02/28/22 12:40	03/01/22 10:13
410-74489-8	MW-518	Water	02/28/22 12:42	03/01/22 10:13
410-74489-9	MW-521	Water	02/28/22 11:34	03/01/22 10:13
410-74489-10	MW-517	Water	02/28/22 13:30	03/01/22 10:13
410-74489-11	MW-514	Water	02/28/22 13:36	03/01/22 10:13
410-74489-12	MW-506	Water	02/28/22 14:00	03/01/22 10:13
410-74489-13	DUP-1	Water	02/28/22 00:00	03/01/22 10:13
410-74489-14	Trip Blank	Water	02/28/22 00:00	03/01/22 10:13
410-74489-15	MW-512	Water	02/28/22 11:56	03/01/22 10:13
410-74489-16	MW-520	Water	02/28/22 12:14	03/01/22 10:13

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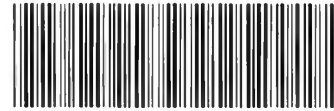
15

# Chevron Northwest Region



Lancaster Laboratories  
Environmental

Acct. # \_\_\_\_\_ For Euro Group in \_\_\_\_\_



410-74489 Chain of Custody

# Chain of Custody

1 OF 2

SCR #: \_\_\_\_\_

1 Client Information			4 Matrix				5 Analyses Requested										6 Remarks	
Facility # _____ WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b> Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b> Chevron PM <b>KIM JOLITZ</b> Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. <b>SAMUEL MILES</b> Consultant Phone # _____			<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPAH BY 8270D SIM										8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits <input type="checkbox"/>	
2 Sample Identification Collected Date Time Grab Composite 3																		
7 Turnaround Time Requested (TAT) (please circle) 1336 Standard 5 day 4 day 72 hour 48 hour 24 hour			Relinquished by J. SEPIOL Date 02/28/22 Time 1515 Received by _____ Date _____ Time _____														9	
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)			EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____				Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt 0.8-2.0 °C Custody Seals Intact? (Yes) No										Date 3/1/22 Time 10:13	
MW-509 02/28/22 1015 MW-126 02/28/22 1015 MW-511 02/28/22 1021 MW-515 02/28/22 1110 MW-515-MS 02/28/22 1111 MW-515-MSD 02/28/22 1113 MW-139 R 02/28/22 1122 MW-519 02/28/22 1134 MW-516 02/28/22 1240 MW-518 02/28/22 1242 MW-521 02/28/22 1134 MW-517 02/28/22 1330 MW-514 02/28/22 1400																	USE STANDARD SGC	

# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories Environmental**

Acct. # \_\_\_\_\_ For Eurofins Lancaster Laboratories Environmental use only  
 Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
Instructions on reverse side correspond with circled numbers.

2 of 2

1 Client Information			4 Matrix			5 Analyses Requested											6 Remarks
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b> Site Address <b>11700 UNOCO ROAD, EDMONDS, WA</b> Chevron PM Lead Consultant <b>KIM JOLITZ</b> Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. <b>SAMUEL MILES</b> Consultant Phone #			Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>	Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ CPAH BY 8260D SIM	SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits											6 USE STANDARD SGC	
2 Sample Identification		3 Collected															
		Date	Time	Grab	Composite												
Sampler J. SEPIOL D. GILBERT M. ANDREWS R. BRAULHA																	
MW-506 DUP-1 TRIP BLANK		02/28/22 02/28/22 ---	1400 --- ---	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>												
7 Turnaround Time Requested (TAT) (please circle)			Relinquished by			Date	Time	Received by			Date	Time					
Standard <input checked="" type="checkbox"/> 5 day 4 day 72 hour 48 hour 24 hour			JOE SEPIOL <i>[Signature]</i>			02/28/22	1515	<del>_____</del>									
8 Data Package (circle if required)			Relinquished by Commercial Carrier:			Received by			Date	Time							
Type I - Full Type VI (Raw Data)			UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			<i>[Signature]</i>			3/1/22	10:13							
EDD (circle if required)			Temperature Upon Receipt			Custody Seals Intact?											
CVX-RTBU-FI_05 (default) Other: _____			08-2.0 °C			(Yes)			No								



## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-74489-1

**Login Number: 74489**

**List Source: Eurofins Lancaster Laboratories Env, LLC**

**List Number: 1**

**Creator: Renner, Melissa**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-74645-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



---

Authorized for release by:  
3/17/2022 1:28:18 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@eurofinset.com](mailto:Loran.Carter@eurofinset.com)

### LINKS

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results through  
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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in black ink that reads "Amek Carter".

---

Amek Carter  
Project Manager  
3/17/2022 1:28:18 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
S1-	Surrogate recovery exceeds control limits, low biased.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

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## Job ID: 410-74645-1

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Laboratory: Eurofins Lancaster Laboratories Env, LLC

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### Narrative

#### Job Narrative 410-74645-1

#### Receipt

The samples were received on 3/2/2022 10:48 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.6°C, 0.6°C and 1.1°C

#### GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): Trip Blank (410-74645-12). The sample container was received with headspace.

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: Surrogate recovery for the following sample was outside control limits: MW-503 (410-74645-5). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results. Data is reported from the first trial.

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



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-8R**

**Lab Sample ID: 410-74645-1**

No Detections.

**Client Sample ID: MW-20R**

**Lab Sample ID: 410-74645-2**

No Detections.

**Client Sample ID: MW-143**

**Lab Sample ID: 410-74645-3**

No Detections.

**Client Sample ID: MW-502**

**Lab Sample ID: 410-74645-4**

No Detections.

**Client Sample ID: MW-503**

**Lab Sample ID: 410-74645-5**

No Detections.

**Client Sample ID: MW-504**

**Lab Sample ID: 410-74645-6**

No Detections.

**Client Sample ID: MW-505**

**Lab Sample ID: 410-74645-7**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.010	J	0.051	0.010	ug/L	1		8270E SIM	Total/NA
C7-C12 (1C)	19	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

**Client Sample ID: MW-507**

**Lab Sample ID: 410-74645-8**

No Detections.

**Client Sample ID: MW-513**

**Lab Sample ID: 410-74645-9**

No Detections.

**Client Sample ID: MW-522**

**Lab Sample ID: 410-74645-10**

No Detections.

**Client Sample ID: DUP-2**

**Lab Sample ID: 410-74645-11**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	190	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74645-12**

No Detections.

**Client Sample ID: MW-101**

**Lab Sample ID: 410-74645-13**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	210	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-8R**  
Date Collected: 03/01/22 13:50  
Date Received: 03/02/22 10:48

**Lab Sample ID: 410-74645-1**  
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 02:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120					03/05/22 02:20	1
Dibromofluoromethane (Surr)	93		80 - 120					03/05/22 02:20	1
4-Bromofluorobenzene (Surr)	90		80 - 120					03/05/22 02:20	1
Toluene-d8 (Surr)	93		80 - 120					03/05/22 02:20	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 13:48	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 13:48	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 13:48	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 13:48	1
Chrysene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 13:48	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/06/22 17:30	03/07/22 13:48	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/06/22 17:30	03/07/22 13:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110				03/06/22 17:30	03/07/22 13:48	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				03/06/22 17:30	03/07/22 13:48	1
Fluoranthene-d10 (Surr)	94		47 - 128				03/06/22 17:30	03/07/22 13:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 15:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					03/04/22 15:49	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/07/22 08:35	03/09/22 03:08	1
C24-C40	ND		260	100	ug/L		03/07/22 08:35	03/09/22 03:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150				03/07/22 08:35	03/09/22 03:08	1

**Client Sample ID: MW-20R**  
Date Collected: 03/01/22 12:45  
Date Received: 03/02/22 10:48

**Lab Sample ID: 410-74645-2**  
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 02:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120					03/05/22 02:42	1
Dibromofluoromethane (Surr)	92		80 - 120					03/05/22 02:42	1
4-Bromofluorobenzene (Surr)	88		80 - 120					03/05/22 02:42	1
Toluene-d8 (Surr)	93		80 - 120					03/05/22 02:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-20R**

**Lab Sample ID: 410-74645-2**

Date Collected: 03/01/22 12:45

Matrix: Water

Date Received: 03/02/22 10:48

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 14:18	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 14:18	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 14:18	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 14:18	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 14:18	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 14:18	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 14:18	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	61		10 - 110				03/06/22 17:30	03/07/22 14:18	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				03/06/22 17:30	03/07/22 14:18	1
Fluoranthene-d10 (Surr)	92		47 - 128				03/06/22 17:30	03/07/22 14:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 16:15	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					03/04/22 16:15	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/07/22 08:35	03/09/22 03:31	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/09/22 03:31	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	70		50 - 150				03/07/22 08:35	03/09/22 03:31	1

**Client Sample ID: MW-143**

**Lab Sample ID: 410-74645-3**

Date Collected: 03/01/22 14:14

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 03:04	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					03/05/22 03:04	1
Dibromofluoromethane (Surr)	93		80 - 120					03/05/22 03:04	1
4-Bromofluorobenzene (Surr)	89		80 - 120					03/05/22 03:04	1
Toluene-d8 (Surr)	92		80 - 120					03/05/22 03:04	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		03/06/22 17:30	03/07/22 14:48	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		03/06/22 17:30	03/07/22 14:48	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		03/06/22 17:30	03/07/22 14:48	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		03/06/22 17:30	03/07/22 14:48	1
Chrysene	ND		0.054	0.011	ug/L		03/06/22 17:30	03/07/22 14:48	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		03/06/22 17:30	03/07/22 14:48	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		03/06/22 17:30	03/07/22 14:48	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-143**

**Lab Sample ID: 410-74645-3**

Date Collected: 03/01/22 14:14

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	03/06/22 17:30	03/07/22 14:48	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	03/06/22 17:30	03/07/22 14:48	1
Fluoranthene-d10 (Surr)	104		47 - 128	03/06/22 17:30	03/07/22 14:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		03/04/22 16:41	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	50	ug/L		03/07/22 08:35	03/09/22 03:53	1
C24-C40	ND		280	110	ug/L		03/07/22 08:35	03/09/22 03:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70		50 - 150	03/07/22 08:35	03/09/22 03:53	1

**Client Sample ID: MW-502**

**Lab Sample ID: 410-74645-4**

Date Collected: 03/01/22 11:04

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 03:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		03/05/22 03:26	1
Dibromofluoromethane (Surr)	91		80 - 120		03/05/22 03:26	1
4-Bromofluorobenzene (Surr)	88		80 - 120		03/05/22 03:26	1
Toluene-d8 (Surr)	92		80 - 120		03/05/22 03:26	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 15:18	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 15:18	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 15:18	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 15:18	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 15:18	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		03/06/22 17:30	03/07/22 15:18	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		03/06/22 17:30	03/07/22 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	03/06/22 17:30	03/07/22 15:18	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	03/06/22 17:30	03/07/22 15:18	1
Fluoranthene-d10 (Surr)	98		47 - 128	03/06/22 17:30	03/07/22 15:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 17:07	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-502**

**Lab Sample ID: 410-74645-4**

Date Collected: 03/01/22 11:04

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> ) (1C)	103		50 - 150		03/04/22 17:07	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		03/11/22 17:30	03/15/22 17:50	1
C24-C40	ND		270	110	ug/L		03/11/22 17:30	03/15/22 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Decanoic Acid ( <i>Surr</i> )	0.0003		0 - 1	03/11/22 17:30	03/15/22 17:50	1
<i>o</i> -terphenyl ( <i>Surr</i> )	68		50 - 150	03/11/22 17:30	03/15/22 17:50	1

**Client Sample ID: MW-503**

**Lab Sample ID: 410-74645-5**

Date Collected: 03/01/22 12:40

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 03:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 ( <i>Surr</i> )	94		80 - 120		03/05/22 03:49	1
Dibromofluoromethane ( <i>Surr</i> )	92		80 - 120		03/05/22 03:49	1
4-Bromofluorobenzene ( <i>Surr</i> )	89		80 - 120		03/05/22 03:49	1
Toluene-d8 ( <i>Surr</i> )	92		80 - 120		03/05/22 03:49	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/07/22 15:49	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/07/22 15:49	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/07/22 15:49	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/07/22 15:49	1
Chrysene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/07/22 15:49	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/06/22 17:30	03/07/22 15:49	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/06/22 17:30	03/07/22 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 ( <i>Surr</i> )	81		10 - 110	03/06/22 17:30	03/07/22 15:49	1
1-Methylnaphthalene-d10 ( <i>Surr</i> )	78		36 - 111	03/06/22 17:30	03/07/22 15:49	1
Fluoranthene-d10 ( <i>Surr</i> )	103		47 - 128	03/06/22 17:30	03/07/22 15:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 17:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> ) (1C)	103		50 - 150		03/04/22 17:32	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	100	46	ug/L		03/11/22 17:30	03/15/22 18:13	1
C24-C40	ND	cn	260	100	ug/L		03/11/22 17:30	03/15/22 18:13	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Client Sample ID: MW-503

Lab Sample ID: 410-74645-5

Date Collected: 03/01/22 12:40

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Decanoic Acid (Surr)	0.0001	cn	0 - 1	03/11/22 17:30	03/15/22 18:13	1
<i>o</i> -terphenyl (Surr)	47	S1- cn	50 - 150	03/11/22 17:30	03/15/22 18:13	1

## Client Sample ID: MW-504

Lab Sample ID: 410-74645-6

Date Collected: 03/01/22 12:16

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 04:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120		03/05/22 04:11	1
Dibromofluoromethane (Surr)	92		80 - 120		03/05/22 04:11	1
4-Bromofluorobenzene (Surr)	87		80 - 120		03/05/22 04:11	1
Toluene-d8 (Surr)	92		80 - 120		03/05/22 04:11	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:19	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:19	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:19	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:19	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:19	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 16:19	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 16:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	84		10 - 110	03/06/22 17:30	03/07/22 16:19	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	03/06/22 17:30	03/07/22 16:19	1
Fluoranthene-d10 (Surr)	92		47 - 128	03/06/22 17:30	03/07/22 16:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 18:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	103		50 - 150		03/04/22 18:24	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/11/22 17:30	03/15/22 18:35	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/15/22 18:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Decanoic Acid (Surr)	0.0001		0 - 1	03/11/22 17:30	03/15/22 18:35	1
<i>o</i> -terphenyl (Surr)	56		50 - 150	03/11/22 17:30	03/15/22 18:35	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-505**

**Lab Sample ID: 410-74645-7**

Date Collected: 03/01/22 13:26

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 04:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					03/05/22 04:33	1
Dibromofluoromethane (Surr)	93		80 - 120					03/05/22 04:33	1
4-Bromofluorobenzene (Surr)	88		80 - 120					03/05/22 04:33	1
Toluene-d8 (Surr)	92		80 - 120					03/05/22 04:33	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzo[a]anthracene</b>	<b>0.010</b>	<b>J</b>	0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:49	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:49	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:49	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:49	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 16:49	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 16:49	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 16:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	21		10 - 110				03/06/22 17:30	03/07/22 16:49	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				03/06/22 17:30	03/07/22 16:49	1
Fluoranthene-d10 (Surr)	92		47 - 128				03/06/22 17:30	03/07/22 16:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>19</b>	<b>J</b>	250	19	ug/L			03/04/22 18:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					03/04/22 18:49	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/11/22 17:30	03/15/22 19:21	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/15/22 19:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.0003		0 - 1				03/11/22 17:30	03/15/22 19:21	1
o-terphenyl (Surr)	61		50 - 150				03/11/22 17:30	03/15/22 19:21	1

**Client Sample ID: MW-507**

**Lab Sample ID: 410-74645-8**

Date Collected: 03/01/22 11:20

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 04:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					03/05/22 04:55	1
Dibromofluoromethane (Surr)	93		80 - 120					03/05/22 04:55	1
4-Bromofluorobenzene (Surr)	88		80 - 120					03/05/22 04:55	1
Toluene-d8 (Surr)	91		80 - 120					03/05/22 04:55	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-507**

**Lab Sample ID: 410-74645-8**

Date Collected: 03/01/22 11:20

Matrix: Water

Date Received: 03/02/22 10:48

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 17:19	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 17:19	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 17:19	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 17:19	1
Chrysene	ND		0.052	0.010	ug/L		03/06/22 17:30	03/07/22 17:19	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		03/06/22 17:30	03/07/22 17:19	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		03/06/22 17:30	03/07/22 17:19	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	88		10 - 110				03/06/22 17:30	03/07/22 17:19	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111				03/06/22 17:30	03/07/22 17:19	1
Fluoranthene-d10 (Surr)	99		47 - 128				03/06/22 17:30	03/07/22 17:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 19:14	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					03/04/22 19:14	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/15/22 19:53	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/15/22 19:53	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Decanoic Acid (Surr)	0.0005		0 - 1				03/11/22 17:30	03/15/22 19:53	1
o-terphenyl (Surr)	67		50 - 150				03/11/22 17:30	03/15/22 19:53	1

**Client Sample ID: MW-513**

**Lab Sample ID: 410-74645-9**

Date Collected: 03/01/22 11:36

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 05:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					03/05/22 05:17	1
Dibromofluoromethane (Surr)	94		80 - 120					03/05/22 05:17	1
4-Bromofluorobenzene (Surr)	87		80 - 120					03/05/22 05:17	1
Toluene-d8 (Surr)	92		80 - 120					03/05/22 05:17	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 17:50	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 17:50	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 17:50	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 17:50	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 17:50	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 17:50	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 17:50	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-513**

**Lab Sample ID: 410-74645-9**

Date Collected: 03/01/22 11:36

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110	03/06/22 17:30	03/07/22 17:50	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111	03/06/22 17:30	03/07/22 17:50	1
Fluoranthene-d10 (Surr)	95		47 - 128	03/06/22 17:30	03/07/22 17:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 19:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		03/04/22 19:39	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/11/22 17:30	03/14/22 16:41	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/14/22 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.0002		0 - 1	03/11/22 17:30	03/14/22 16:41	1
o-terphenyl (Surr)	54		50 - 150	03/11/22 17:30	03/14/22 16:41	1

**Client Sample ID: MW-522**

**Lab Sample ID: 410-74645-10**

Date Collected: 03/01/22 13:45

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 05:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		03/05/22 05:39	1
Dibromofluoromethane (Surr)	92		80 - 120		03/05/22 05:39	1
4-Bromofluorobenzene (Surr)	88		80 - 120		03/05/22 05:39	1
Toluene-d8 (Surr)	92		80 - 120		03/05/22 05:39	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 18:20	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 18:20	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 18:20	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 18:20	1
Chrysene	ND		0.051	0.010	ug/L		03/06/22 17:30	03/07/22 18:20	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 18:20	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		03/06/22 17:30	03/07/22 18:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110	03/06/22 17:30	03/07/22 18:20	1
1-Methylnaphthalene-d10 (Surr)	65		36 - 111	03/06/22 17:30	03/07/22 18:20	1
Fluoranthene-d10 (Surr)	91		47 - 128	03/06/22 17:30	03/07/22 18:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 20:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-522**

**Lab Sample ID: 410-74645-10**

Date Collected: 03/01/22 13:45

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150		03/04/22 20:05	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/11/22 17:30	03/14/22 17:03	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.00009		0 - 1	03/11/22 17:30	03/14/22 17:03	1
o-terphenyl (Surr)	54		50 - 150	03/11/22 17:30	03/14/22 17:03	1

**Client Sample ID: DUP-2**

**Lab Sample ID: 410-74645-11**

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 06:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		03/05/22 06:01	1
Dibromofluoromethane (Surr)	94		80 - 120		03/05/22 06:01	1
4-Bromofluorobenzene (Surr)	91		80 - 120		03/05/22 06:01	1
Toluene-d8 (Surr)	92		80 - 120		03/05/22 06:01	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/08/22 04:33	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/08/22 04:33	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/08/22 04:33	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/08/22 04:33	1
Chrysene	ND		0.053	0.011	ug/L		03/06/22 17:30	03/08/22 04:33	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/06/22 17:30	03/08/22 04:33	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/06/22 17:30	03/08/22 04:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	03/06/22 17:30	03/08/22 04:33	1
1-Methylnaphthalene-d10 (Surr)	122	S1+	36 - 111	03/06/22 17:30	03/08/22 04:33	1
Fluoranthene-d10 (Surr)	92		47 - 128	03/06/22 17:30	03/08/22 04:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	190	J	250	19	ug/L			03/04/22 20:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		03/04/22 20:30	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/11/22 17:30	03/14/22 17:26	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 17:26	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: DUP-2**

**Lab Sample ID: 410-74645-11**

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Decanoic Acid (Surr)	0.003		0 - 1	03/11/22 17:30	03/14/22 17:26	1
<i>o</i> -terphenyl (Surr)	52		50 - 150	03/11/22 17:30	03/14/22 17:26	1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74645-12**

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			03/04/22 22:40	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	93	cn	80 - 120		03/04/22 22:40	1			
Dibromofluoromethane (Surr)	91	cn	80 - 120		03/04/22 22:40	1			
4-Bromofluorobenzene (Surr)	88	cn	80 - 120		03/04/22 22:40	1			
Toluene-d8 (Surr)	92	cn	80 - 120		03/04/22 22:40	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 14:07	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	102		50 - 150		03/04/22 14:07	1			

**Client Sample ID: MW-101**

**Lab Sample ID: 410-74645-13**

Date Collected: 03/01/22 12:14

Matrix: Water

Date Received: 03/02/22 10:48

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/05/22 06:23	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		03/05/22 06:23	1			
Dibromofluoromethane (Surr)	94		80 - 120		03/05/22 06:23	1			
4-Bromofluorobenzene (Surr)	90		80 - 120		03/05/22 06:23	1			
Toluene-d8 (Surr)	93		80 - 120		03/05/22 06:23	1			

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		03/06/22 17:30	03/08/22 04:55	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		03/06/22 17:30	03/08/22 04:55	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		03/06/22 17:30	03/08/22 04:55	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		03/06/22 17:30	03/08/22 04:55	1
Chrysene	ND		0.056	0.011	ug/L		03/06/22 17:30	03/08/22 04:55	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		03/06/22 17:30	03/08/22 04:55	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		03/06/22 17:30	03/08/22 04:55	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	59		10 - 110		03/06/22 17:30	03/08/22 04:55	1		
1-Methylnaphthalene-d10 (Surr)	117	S1+	36 - 111		03/06/22 17:30	03/08/22 04:55	1		
Fluoranthene-d10 (Surr)	79		47 - 128		03/06/22 17:30	03/08/22 04:55	1		



# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: MW-101**  
 Date Collected: 03/01/22 12:14  
 Date Received: 03/02/22 10:48

**Lab Sample ID: 410-74645-13**  
 Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	210	J	250	19	ug/L			03/04/22 20:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	104		50 - 150					03/04/22 20:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		03/11/22 17:30	03/14/22 17:48	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 17:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.004		0 - 1				03/11/22 17:30	03/14/22 17:48	1
o-terphenyl (Surr)	66		50 - 150				03/11/22 17:30	03/14/22 17:48	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-74645-1	MW-8R	92	93	90	93
410-74645-2	MW-20R	92	92	88	93
410-74645-3	MW-143	93	93	89	92
410-74645-4	MW-502	93	91	88	92
410-74645-5	MW-503	94	92	89	92
410-74645-6	MW-504	92	92	87	92
410-74645-7	MW-505	94	93	88	92
410-74645-8	MW-507	93	93	88	91
410-74645-9	MW-513	94	94	87	92
410-74645-10	MW-522	93	92	88	92
410-74645-11	DUP-2	93	94	91	92
410-74645-12	Trip Blank	93 cn	91 cn	88 cn	92 cn
410-74645-13	MW-101	96	94	90	93
LCS 410-230359/4	Lab Control Sample	90	90	94	94
MB 410-230359/6	Method Blank	93	91	88	92

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-74645-1	MW-8R	86	72	94
410-74645-2	MW-20R	61	72	92
410-74645-3	MW-143	85	76	104
410-74645-4	MW-502	59	76	98
410-74645-5	MW-503	81	78	103
410-74645-6	MW-504	84	72	92
410-74645-7	MW-505	21	72	92
410-74645-8	MW-507	88	71	99
410-74645-9	MW-513	86	68	95
410-74645-10	MW-522	82	65	91
410-74645-11	DUP-2	53	122 S1+	92
410-74645-13	MW-101	59	117 S1+	79
LCS 410-230552/2-A	Lab Control Sample	95	53	90
MB 410-230552/1-A	Method Blank	99	65	98

### Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## 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	TFT-F1 (50-150)	
410-74645-1	MW-8R	103	
410-74645-2	MW-20R	102	
410-74645-3	MW-143	102	
410-74645-4	MW-502	103	
410-74645-5	MW-503	103	
410-74645-6	MW-504	103	
410-74645-7	MW-505	102	
410-74645-8	MW-507	102	
410-74645-9	MW-513	102	
410-74645-10	MW-522	103	
410-74645-11	DUP-2	102	
410-74645-12	Trip Blank	102	
410-74645-13	MW-101	104	
LCS 410-230115/5	Lab Control Sample	94	
LCSD 410-230115/6	Lab Control Sample Dup	95	
MB 410-230115/4	Method Blank	103	

**Surrogate Legend**  
TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	NDA (0-1)	OTP (50-150)
410-74645-1	MW-8R		64
410-74645-2	MW-20R		70
410-74645-3	MW-143		70
410-74645-4	MW-502	0.0003	68
410-74645-5	MW-503	0.0001 cn	47 S1- cn
410-74645-6	MW-504	0.0001	56
410-74645-6 DU	MW-504	0.0001	64
410-74645-7	MW-505	0.0003	61
410-74645-8	MW-507	0.0005	67
410-74645-9	MW-513	0.0002	54
410-74645-10	MW-522	0.00009	54
410-74645-11	DUP-2	0.003	52
410-74645-13	MW-101	0.004	66
LCS 410-230654/2-B	Lab Control Sample		70
LCS 410-232789/2-B	Lab Control Sample	0.1	53
MB 410-230654/1-B	Method Blank		75
MB 410-232789/1-B	Method Blank	0.0006	70

**Surrogate Legend**  
NDA = n-Decanoic Acid (Surr)  
OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

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

Lab Sample ID: MB 410-230359/6

Matrix: Water

Analysis Batch: 230359

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/04/22 21:56	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					03/04/22 21:56	1
Dibromofluoromethane (Surr)	91		80 - 120					03/04/22 21:56	1
4-Bromofluorobenzene (Surr)	88		80 - 120					03/04/22 21:56	1
Toluene-d8 (Surr)	92		80 - 120					03/04/22 21:56	1

Lab Sample ID: LCS 410-230359/4

Matrix: Water

Analysis Batch: 230359

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	20.7		ug/L		104	80 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	90		80 - 120				
Dibromofluoromethane (Surr)	90		80 - 120				
4-Bromofluorobenzene (Surr)	94		80 - 120				
Toluene-d8 (Surr)	94		80 - 120				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-230552/1-A

Matrix: Water

Analysis Batch: 230611

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 230552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/06/22 17:30	03/07/22 07:46	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/06/22 17:30	03/07/22 07:46	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/06/22 17:30	03/07/22 07:46	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/06/22 17:30	03/07/22 07:46	1
Chrysene	ND		0.050	0.010	ug/L		03/06/22 17:30	03/07/22 07:46	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/06/22 17:30	03/07/22 07:46	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/06/22 17:30	03/07/22 07:46	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	99		10 - 110				03/06/22 17:30	03/07/22 07:46	1
1-Methylnaphthalene-d10 (Surr)	65		36 - 111				03/06/22 17:30	03/07/22 07:46	1
Fluoranthene-d10 (Surr)	98		47 - 128				03/06/22 17:30	03/07/22 07:46	1

Lab Sample ID: LCS 410-230552/2-A

Matrix: Water

Analysis Batch: 230611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 230552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	1.00	0.896		ug/L		90	61 - 122
Benzo[a]pyrene	1.00	0.811		ug/L		81	60 - 120

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 410-230552/2-A

Matrix: Water

Analysis Batch: 230611

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 230552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[b]fluoranthene	1.00	0.924		ug/L		92	58 - 122
Benzo[k]fluoranthene	1.00	0.828		ug/L		83	57 - 128
Chrysene	1.00	0.789		ug/L		79	55 - 123
Dibenz(a,h)anthracene	1.00	0.761		ug/L		76	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.708		ug/L		71	47 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	95		10 - 110
1-Methylnaphthalene-d10 (Surr)	53		36 - 111
Fluoranthene-d10 (Surr)	90		47 - 128

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

Lab Sample ID: MB 410-230115/4

Matrix: Water

Analysis Batch: 230115

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/04/22 12:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150		03/04/22 12:24	1

Lab Sample ID: LCS 410-230115/5

Matrix: Water

Analysis Batch: 230115

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	1100	1000		ug/L		91	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150

Lab Sample ID: LCSD 410-230115/6

Matrix: Water

Analysis Batch: 230115

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
C7-C12 (1C)	1100	942		ug/L		86	64 - 131	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	95		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-230654/1-B**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		03/07/22 08:35	03/08/22 18:51	1
C24-C40	ND		250	100	ug/L		03/07/22 08:35	03/08/22 18:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
<i>o-terphenyl (Surr)</i>	75		50 - 150			03/07/22 08:35	03/08/22 18:51	1	

**Lab Sample ID: LCS 410-230654/2-B**  
**Matrix: Water**  
**Analysis Batch: 231399**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 230654**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
C12-C24	600	194		ug/L		32	14 - 115
Surrogate	%Recovery	Qualifier	Limits				
<i>o-terphenyl (Surr)</i>	70		50 - 150				

**Lab Sample ID: MB 410-232789/1-B**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		03/11/22 17:30	03/15/22 17:05	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/15/22 17:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
<i>n-Decanoic Acid (Surr)</i>	0.0006		0 - 1			03/11/22 17:30	03/15/22 17:05	1	
<i>o-terphenyl (Surr)</i>	70		50 - 150			03/11/22 17:30	03/15/22 17:05	1	

**Lab Sample ID: LCS 410-232789/2-B**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
C12-C24	600	186		ug/L		31	14 - 115
Surrogate	%Recovery	Qualifier	Limits				
<i>n-Decanoic Acid (Surr)</i>	0.1		0 - 1				
<i>o-terphenyl (Surr)</i>	53		50 - 150				

**Lab Sample ID: 410-74645-6 DU**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: MW-504**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

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

Lab Sample ID: 410-74645-6 DU

Matrix: Water

Analysis Batch: 233188

Client Sample ID: MW-504

Prep Type: Total/NA

Prep Batch: 232789

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
<i>n-Decanoic Acid (Surr)</i>	0.0001		0 - 1
<i>o-terphenyl (Surr)</i>	64		50 - 150

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## GC/MS VOA

### Analysis Batch: 230359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	8260D	
410-74645-2	MW-20R	Total/NA	Water	8260D	
410-74645-3	MW-143	Total/NA	Water	8260D	
410-74645-4	MW-502	Total/NA	Water	8260D	
410-74645-5	MW-503	Total/NA	Water	8260D	
410-74645-6	MW-504	Total/NA	Water	8260D	
410-74645-7	MW-505	Total/NA	Water	8260D	
410-74645-8	MW-507	Total/NA	Water	8260D	
410-74645-9	MW-513	Total/NA	Water	8260D	
410-74645-10	MW-522	Total/NA	Water	8260D	
410-74645-11	DUP-2	Total/NA	Water	8260D	
410-74645-12	Trip Blank	Total/NA	Water	8260D	
410-74645-13	MW-101	Total/NA	Water	8260D	
MB 410-230359/6	Method Blank	Total/NA	Water	8260D	
LCS 410-230359/4	Lab Control Sample	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 230552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	3510C	
410-74645-2	MW-20R	Total/NA	Water	3510C	
410-74645-3	MW-143	Total/NA	Water	3510C	
410-74645-4	MW-502	Total/NA	Water	3510C	
410-74645-5	MW-503	Total/NA	Water	3510C	
410-74645-6	MW-504	Total/NA	Water	3510C	
410-74645-7	MW-505	Total/NA	Water	3510C	
410-74645-8	MW-507	Total/NA	Water	3510C	
410-74645-9	MW-513	Total/NA	Water	3510C	
410-74645-10	MW-522	Total/NA	Water	3510C	
410-74645-11	DUP-2	Total/NA	Water	3510C	
410-74645-13	MW-101	Total/NA	Water	3510C	
MB 410-230552/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-230552/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 230611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	8270E SIM	230552
410-74645-2	MW-20R	Total/NA	Water	8270E SIM	230552
410-74645-3	MW-143	Total/NA	Water	8270E SIM	230552
410-74645-4	MW-502	Total/NA	Water	8270E SIM	230552
410-74645-5	MW-503	Total/NA	Water	8270E SIM	230552
410-74645-6	MW-504	Total/NA	Water	8270E SIM	230552
410-74645-7	MW-505	Total/NA	Water	8270E SIM	230552
410-74645-8	MW-507	Total/NA	Water	8270E SIM	230552
410-74645-9	MW-513	Total/NA	Water	8270E SIM	230552
410-74645-10	MW-522	Total/NA	Water	8270E SIM	230552
MB 410-230552/1-A	Method Blank	Total/NA	Water	8270E SIM	230552
LCS 410-230552/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	230552



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## GC/MS Semi VOA

### Analysis Batch: 230971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-11	DUP-2	Total/NA	Water	8270E SIM	230552
410-74645-13	MW-101	Total/NA	Water	8270E SIM	230552

## GC VOA

### Analysis Batch: 230115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	NWTPH-Gx	
410-74645-2	MW-20R	Total/NA	Water	NWTPH-Gx	
410-74645-3	MW-143	Total/NA	Water	NWTPH-Gx	
410-74645-4	MW-502	Total/NA	Water	NWTPH-Gx	
410-74645-5	MW-503	Total/NA	Water	NWTPH-Gx	
410-74645-6	MW-504	Total/NA	Water	NWTPH-Gx	
410-74645-7	MW-505	Total/NA	Water	NWTPH-Gx	
410-74645-8	MW-507	Total/NA	Water	NWTPH-Gx	
410-74645-9	MW-513	Total/NA	Water	NWTPH-Gx	
410-74645-10	MW-522	Total/NA	Water	NWTPH-Gx	
410-74645-11	DUP-2	Total/NA	Water	NWTPH-Gx	
410-74645-12	Trip Blank	Total/NA	Water	NWTPH-Gx	
410-74645-13	MW-101	Total/NA	Water	NWTPH-Gx	
MB 410-230115/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-230115/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-230115/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 230654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	3510C	
410-74645-2	MW-20R	Total/NA	Water	3510C	
410-74645-3	MW-143	Total/NA	Water	3510C	
MB 410-230654/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	3510C	

### Cleanup Batch: 231324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	3630C	230654
410-74645-2	MW-20R	Total/NA	Water	3630C	230654
410-74645-3	MW-143	Total/NA	Water	3630C	230654
MB 410-230654/1-B	Method Blank	Total/NA	Water	3630C	230654
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	3630C	230654

### Analysis Batch: 231399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-1	MW-8R	Total/NA	Water	NWTPH-Dx	231324
410-74645-2	MW-20R	Total/NA	Water	NWTPH-Dx	231324
410-74645-3	MW-143	Total/NA	Water	NWTPH-Dx	231324
MB 410-230654/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	231324
LCS 410-230654/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	231324

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## GC Semi VOA

### Prep Batch: 232789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-4	MW-502	Total/NA	Water	3510C	
410-74645-5	MW-503	Total/NA	Water	3510C	
410-74645-6	MW-504	Total/NA	Water	3510C	
410-74645-7	MW-505	Total/NA	Water	3510C	
410-74645-8	MW-507	Total/NA	Water	3510C	
410-74645-9	MW-513	Total/NA	Water	3510C	
410-74645-10	MW-522	Total/NA	Water	3510C	
410-74645-11	DUP-2	Total/NA	Water	3510C	
410-74645-13	MW-101	Total/NA	Water	3510C	
MB 410-232789/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-74645-6 DU	MW-504	Total/NA	Water	3510C	

### Cleanup Batch: 232947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-4	MW-502	Total/NA	Water	3630C	232789
410-74645-5	MW-503	Total/NA	Water	3630C	232789
410-74645-6	MW-504	Total/NA	Water	3630C	232789
410-74645-7	MW-505	Total/NA	Water	3630C	232789
410-74645-8	MW-507	Total/NA	Water	3630C	232789
410-74645-9	MW-513	Total/NA	Water	3630C	232789
410-74645-10	MW-522	Total/NA	Water	3630C	232789
410-74645-11	DUP-2	Total/NA	Water	3630C	232789
410-74645-13	MW-101	Total/NA	Water	3630C	232789
MB 410-232789/1-B	Method Blank	Total/NA	Water	3630C	232789
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	3630C	232789
410-74645-6 DU	MW-504	Total/NA	Water	3630C	232789

### Analysis Batch: 233188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74645-4	MW-502	Total/NA	Water	NWTPH-Dx	232947
410-74645-5	MW-503	Total/NA	Water	NWTPH-Dx	232947
410-74645-6	MW-504	Total/NA	Water	NWTPH-Dx	232947
410-74645-7	MW-505	Total/NA	Water	NWTPH-Dx	232947
410-74645-8	MW-507	Total/NA	Water	NWTPH-Dx	232947
410-74645-9	MW-513	Total/NA	Water	NWTPH-Dx	232947
410-74645-10	MW-522	Total/NA	Water	NWTPH-Dx	232947
410-74645-11	DUP-2	Total/NA	Water	NWTPH-Dx	232947
410-74645-13	MW-101	Total/NA	Water	NWTPH-Dx	232947
MB 410-232789/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	232947
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	232947
410-74645-6 DU	MW-504	Total/NA	Water	NWTPH-Dx	232947

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Client Sample ID: MW-8R

Lab Sample ID: 410-74645-1

Date Collected: 03/01/22 13:50

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 02:20	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 13:48	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 15:49	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 03:08	KP5X	ELLE

## Client Sample ID: MW-20R

Lab Sample ID: 410-74645-2

Date Collected: 03/01/22 12:45

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 02:42	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 14:18	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 16:15	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 03:31	KP5X	ELLE

## Client Sample ID: MW-143

Lab Sample ID: 410-74645-3

Date Collected: 03/01/22 14:14

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 03:04	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 14:48	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 16:41	NND8	ELLE
Total/NA	Prep	3510C			230654	03/07/22 08:35	YDF5	ELLE
Total/NA	Cleanup	3630C			231324	03/08/22 14:10	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	231399	03/09/22 03:53	KP5X	ELLE

## Client Sample ID: MW-502

Lab Sample ID: 410-74645-4

Date Collected: 03/01/22 11:04

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 03:26	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 15:18	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 17:07	NND8	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Client Sample ID: MW-502

Lab Sample ID: 410-74645-4

Date Collected: 03/01/22 11:04

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 17:50	IUSB	ELLE

## Client Sample ID: MW-503

Lab Sample ID: 410-74645-5

Date Collected: 03/01/22 12:40

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 03:49	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 15:49	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 17:32	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 18:13	IUSB	ELLE

## Client Sample ID: MW-504

Lab Sample ID: 410-74645-6

Date Collected: 03/01/22 12:16

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 04:11	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 16:19	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 18:24	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 18:35	IUSB	ELLE

## Client Sample ID: MW-505

Lab Sample ID: 410-74645-7

Date Collected: 03/01/22 13:26

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 04:33	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 16:49	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 18:49	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 19:21	IUSB	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Client Sample ID: MW-507

Lab Sample ID: 410-74645-8

Date Collected: 03/01/22 11:20

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 04:55	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 17:19	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 19:14	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 19:53	IUSB	ELLE

## Client Sample ID: MW-513

Lab Sample ID: 410-74645-9

Date Collected: 03/01/22 11:36

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 05:17	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 17:50	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 19:39	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 16:41	IUSB	ELLE

## Client Sample ID: MW-522

Lab Sample ID: 410-74645-10

Date Collected: 03/01/22 13:45

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 05:39	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230611	03/07/22 18:20	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 20:05	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 17:03	IUSB	ELLE

## Client Sample ID: DUP-2

Lab Sample ID: 410-74645-11

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 06:01	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 04:33	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 20:30	NND8	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

**Client Sample ID: DUP-2**

**Lab Sample ID: 410-74645-11**

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 17:26	IUSB	ELLE

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74645-12**

Date Collected: 03/01/22 00:00

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/04/22 22:40	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 14:07	NND8	ELLE

**Client Sample ID: MW-101**

**Lab Sample ID: 410-74645-13**

Date Collected: 03/01/22 12:14

Matrix: Water

Date Received: 03/02/22 10:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	230359	03/05/22 06:23	K4WN	ELLE
Total/NA	Prep	3510C			230552	03/06/22 17:30	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	230971	03/08/22 04:55	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230115	03/04/22 20:56	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 17:48	IUSB	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

## Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-12-22

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300





# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74645-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-74645-1	MW-8R	Water	03/01/22 13:50	03/02/22 10:48
410-74645-2	MW-20R	Water	03/01/22 12:45	03/02/22 10:48
410-74645-3	MW-143	Water	03/01/22 14:14	03/02/22 10:48
410-74645-4	MW-502	Water	03/01/22 11:04	03/02/22 10:48
410-74645-5	MW-503	Water	03/01/22 12:40	03/02/22 10:48
410-74645-6	MW-504	Water	03/01/22 12:16	03/02/22 10:48
410-74645-7	MW-505	Water	03/01/22 13:26	03/02/22 10:48
410-74645-8	MW-507	Water	03/01/22 11:20	03/02/22 10:48
410-74645-9	MW-513	Water	03/01/22 11:36	03/02/22 10:48
410-74645-10	MW-522	Water	03/01/22 13:45	03/02/22 10:48
410-74645-11	DUP-2	Water	03/01/22 00:00	03/02/22 10:48
410-74645-12	Trip Blank	Water	03/01/22 00:00	03/02/22 10:48
410-74645-13	MW-101	Water	03/01/22 12:14	03/02/22 10:48

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Lancaster Laboratories Environmental

Acct. # 410-74645 Chain of Custody

For Environmental use only  
Sample # \_\_\_\_\_  
and with circled numbers.

1 of 1

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks							
Facility # <u>Edmonds Former Bulk Fuel Terminal</u> WBS Site Address <u>11720 Unoco Road, Edmonds WA</u> Chevron PM <u>Kim Jolitz</u> Lead Consultant Consultant/Office <u>1100 Olive Way, Suite 800, Seattle, WA</u> Consultant Project Mgr. <u>Samuel Miles</u> Consultant Phone # _____				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Potable Ground <input type="checkbox"/> NPDES Surface <input type="checkbox"/> Oil Air				Total Number of Containers _____ BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan _____ Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ <u>PAH by 8270D SIM</u>										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits							
Sampler <u>J. SEPIOL M. ANDREWS R. BRUCHLA P. BRUNO</u>				<input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				PAH by 8270D SIM										USE STANDARD SGC							
2 Sample Identification		3 Collected																							
Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8021	8260	Naphth	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method			
MW-8R	3/1/22	1350	X		X		10	X					X	X						X					
MW-20R	3/1/22	1245	X		X		10	X					X	X						X					
MW-143	3/1/22	1414	X		X		10	X					X	X						X					
MW-502	3/1/22	1104	X		X		10	X					X	X						X					
MW-503	3/1/22	1240	X		X		10	X					X	X						X					
MW-504	3/1/22	1216	X		X		10	X					X	X						X					
MW-505	3/1/22	1326	X		X		10	X					X	X						X					
MW-507	3/1/22	1120	X		X		10	X					X	X						X					
MW-513	3/1/22	1136	X		X		10	X					X	X						X					
MW-522	3/1/22	1345	X		X		10	X					X	X						X					
DUP-2	3/1/22	-	X		X		10	X					X	X						X					
Trip Blank	-	-	-		-		-	X					X	X						X					
MW-101	3/1/22	1214	X		X		10	X					X	X						X					
7 Turnaround Time Requested (TAT) (please circle) Standard <u>5 day</u> 4 day 72 hour 48 hour 24 hour				Relinquished by <u>Ryan Bruchla</u> Date <u>3-1-22</u> Time _____ Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____				Received by _____ Date _____ Time _____													
8 Data Package (circle if required) Type I - Full _____ Type VI (Raw Data) _____				EDD (circle if required) CVX-RTBU-FL_05 (default) _____ Other: _____				Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____				Received by <u>MR</u> Date <u>3/2/22</u> Time <u>1048</u>													
				Temperature Upon Receipt <u>0.6-1.1 °C</u>				Custody Seals Intact? <u>Yes</u>																	

# Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-74645-1

**Login Number: 74645**

**List Source: Eurofins Lancaster Laboratories Env, LLC**

**List Number: 1**

**Creator: Renner, Melissa**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-74855-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



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Authorized for release by:  
3/17/2022 1:28:34 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@eurofinset.com](mailto:Loran.Carter@eurofinset.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in cursive script that reads "Amek Carter".

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Amek Carter  
Project Manager  
3/17/2022 1:28:34 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
cn	Refer to Case Narrative for further detail
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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## Job ID: 410-74855-1

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### Laboratory: Eurofins Lancaster Laboratories Env, LLC

#### Narrative

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#### Job Narrative 410-74855-1

#### Receipt

The samples were received on 3/3/2022 10:29 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.4°C, 1.0°C and 1.4°C

#### Receipt Exceptions

A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): MW-525 (410-74855-5), MW-530 (410-74855-6), MW-129R (410-74855-7), LM-2 (410-74855-8), MW-532 (410-74855-9), MW-526 (410-74855-10), DUP-3 (410-74855-11), MW-533 (410-74855-12), MW-533 (410-74855-12[MS]), MW-533 (410-74855-12[MSD]) and MW-531 (410-74855-13). The container labels list 03/02/22, while the COC lists 03/03/22.

#### GC/MS VOA

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

#### GC/MS Semi VOA

Method 8270E\_SIM: The continuing calibration verification (CCV) associated with batch 410-231042 recovered above the upper control limit for Dibenz(a,h)anthracene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E\_SIM: Surrogate recovery for the following samples were outside the upper control limit: DUP-4 (410-74855-2) and MW-ER (410-74855-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E\_SIM: Internal standard responses were outside of acceptance limits for the following sample: MW-104 (410-74855-1). Re-analysis was performed with concurring results.

Method 8270E\_SIM: The continuing calibration verification (CCV) associated with batch 410-231504 recovered above the upper control limit for Dibenz(a,h)anthracene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: The method blank for preparation batch 410-232993 and 410-233790 and analytical batch 410-233188 contained C24-C40 above the method detection limit (MDL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

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



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: MW-104

Lab Sample ID: 410-74855-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	110	J	250	19	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: DUP-4

Lab Sample ID: 410-74855-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	770		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	100		100	46	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-ER

Lab Sample ID: 410-74855-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	840		250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	110		100	46	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-535

Lab Sample ID: 410-74855-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C12-C24	83	J	100	46	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-525

Lab Sample ID: 410-74855-5

No Detections.

## Client Sample ID: MW-530

Lab Sample ID: 410-74855-6

No Detections.

## Client Sample ID: MW-129R

Lab Sample ID: 410-74855-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	40	J	250	19	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	56	J	110	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: LM-2

Lab Sample ID: 410-74855-8

No Detections.

## Client Sample ID: MW-532

Lab Sample ID: 410-74855-9

No Detections.

## Client Sample ID: MW-526

Lab Sample ID: 410-74855-10

No Detections.

## Client Sample ID: DUP-3

Lab Sample ID: 410-74855-11

No Detections.

## Client Sample ID: MW-533

Lab Sample ID: 410-74855-12

No Detections.

## Client Sample ID: MW-531

Lab Sample ID: 410-74855-13

No Detections.

## Client Sample ID: Trip Blank

Lab Sample ID: 410-74855-14

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-104**

**Lab Sample ID: 410-74855-1**

Date Collected: 03/02/22 14:06

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 12:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 12:15	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 12:15	1
4-Bromofluorobenzene (Surr)	101		80 - 120					03/08/22 12:15	1
Toluene-d8 (Surr)	95		80 - 120					03/08/22 12:15	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 15:49	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 15:49	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 15:49	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 15:49	1
Chrysene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 15:49	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 15:49	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 15:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	57	cn	10 - 110				03/07/22 08:31	03/08/22 15:49	1
1-Methylnaphthalene-d10 (Surr)	72	cn	36 - 111				03/07/22 08:31	03/08/22 15:49	1
Fluoranthene-d10 (Surr)	93	*3 cn	47 - 128				03/07/22 08:31	03/08/22 15:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	110	J	250	19	ug/L			03/07/22 17:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	104		50 - 150					03/07/22 17:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/14/22 18:11	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/14/22 18:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.005		0 - 1				03/11/22 17:30	03/14/22 18:11	1
o-terphenyl (Surr)	50		50 - 150				03/11/22 17:30	03/14/22 18:11	1

**Client Sample ID: DUP-4**

**Lab Sample ID: 410-74855-2**

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 12:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					03/08/22 12:35	1
Dibromofluoromethane (Surr)	101		80 - 120					03/08/22 12:35	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/08/22 12:35	1
Toluene-d8 (Surr)	94		80 - 120					03/08/22 12:35	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: DUP-4**

**Lab Sample ID: 410-74855-2**

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:09	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:09	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:09	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:09	1
Chrysene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:09	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 21:09	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 21:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71	cn	10 - 110	03/07/22 08:31	03/08/22 21:09	1
1-Methylnaphthalene-d10 (Surr)	131	S1+ cn	36 - 111	03/07/22 08:31	03/08/22 21:09	1
Fluoranthene-d10 (Surr)	102	cn	47 - 128	03/07/22 08:31	03/08/22 21:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	770		250	19	ug/L			03/07/22 19:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150		03/07/22 19:55	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	100		100	46	ug/L		03/11/22 17:30	03/14/22 18:34	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 18:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.01		0 - 1	03/11/22 17:30	03/14/22 18:34	1
o-terphenyl (Surr)	65		50 - 150	03/11/22 17:30	03/14/22 18:34	1

**Client Sample ID: MW-ER**

**Lab Sample ID: 410-74855-3**

Date Collected: 03/02/22 12:16

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 12:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		03/08/22 12:55	1
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 12:55	1
4-Bromofluorobenzene (Surr)	99		80 - 120		03/08/22 12:55	1
Toluene-d8 (Surr)	94		80 - 120		03/08/22 12:55	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:31	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:31	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:31	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:31	1
Chrysene	ND	cn	0.051	0.010	ug/L		03/07/22 08:31	03/08/22 21:31	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 21:31	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		03/07/22 08:31	03/08/22 21:31	1

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-ER**

**Lab Sample ID: 410-74855-3**

Date Collected: 03/02/22 12:16

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	73	cn	10 - 110	03/07/22 08:31	03/08/22 21:31	1
1-Methylnaphthalene-d10 (Surr)	125	S1+ cn	36 - 111	03/07/22 08:31	03/08/22 21:31	1
Fluoranthene-d10 (Surr)	100	cn	47 - 128	03/07/22 08:31	03/08/22 21:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	840		250	19	ug/L			03/07/22 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	109		50 - 150		03/07/22 20:21	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	110		100	46	ug/L		03/11/22 17:30	03/14/22 18:56	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/14/22 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.01		0 - 1	03/11/22 17:30	03/14/22 18:56	1
o-terphenyl (Surr)	66		50 - 150	03/11/22 17:30	03/14/22 18:56	1

**Client Sample ID: MW-535**

**Lab Sample ID: 410-74855-4**

Date Collected: 03/02/22 10:56

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 13:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		03/08/22 13:15	1
Dibromofluoromethane (Surr)	100		80 - 120		03/08/22 13:15	1
4-Bromofluorobenzene (Surr)	98		80 - 120		03/08/22 13:15	1
Toluene-d8 (Surr)	93		80 - 120		03/08/22 13:15	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 21:53	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 21:53	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 21:53	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 21:53	1
Chrysene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 21:53	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 21:53	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	63		10 - 110	03/07/22 08:31	03/08/22 21:53	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111	03/07/22 08:31	03/08/22 21:53	1
Fluoranthene-d10 (Surr)	89		47 - 128	03/07/22 08:31	03/08/22 21:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 20:46	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-535**

**Lab Sample ID: 410-74855-4**

Date Collected: 03/02/22 10:56

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150		03/07/22 20:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	83	J	100	46	ug/L		03/11/22 17:30	03/14/22 19:19	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.001		0 - 1	03/11/22 17:30	03/14/22 19:19	1
o-terphenyl (Surr)	71		50 - 150	03/11/22 17:30	03/14/22 19:19	1

**Client Sample ID: MW-525**

**Lab Sample ID: 410-74855-5**

Date Collected: 03/02/22 09:56

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 13:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		03/08/22 13:35	1
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 13:35	1
4-Bromofluorobenzene (Surr)	99		80 - 120		03/08/22 13:35	1
Toluene-d8 (Surr)	95		80 - 120		03/08/22 13:35	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 22:16	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 22:16	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 22:16	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 22:16	1
Chrysene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 22:16	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 22:16	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 22:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	61		10 - 110	03/07/22 08:31	03/08/22 22:16	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111	03/07/22 08:31	03/08/22 22:16	1
Fluoranthene-d10 (Surr)	85		47 - 128	03/07/22 08:31	03/08/22 22:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150		03/07/22 21:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/16/22 17:16	03/17/22 14:15	1
C24-C40	ND		250	100	ug/L		03/16/22 17:16	03/17/22 14:15	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: MW-525

Lab Sample ID: 410-74855-5

Date Collected: 03/02/22 09:56

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	52		50 - 150	03/16/22 17:16	03/17/22 14:15	1

## Client Sample ID: MW-530

Lab Sample ID: 410-74855-6

Date Collected: 03/02/22 11:30

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 13:54	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		03/08/22 13:54	1			
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 13:54	1			
4-Bromofluorobenzene (Surr)	98		80 - 120		03/08/22 13:54	1			
Toluene-d8 (Surr)	97		80 - 120		03/08/22 13:54	1			

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		03/07/22 08:31	03/08/22 22:38	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		03/07/22 08:31	03/08/22 22:38	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		03/07/22 08:31	03/08/22 22:38	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		03/07/22 08:31	03/08/22 22:38	1
Chrysene	ND		0.051	0.010	ug/L		03/07/22 08:31	03/08/22 22:38	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		03/07/22 08:31	03/08/22 22:38	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		03/07/22 08:31	03/08/22 22:38	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	62		10 - 110		03/08/22 22:38	1			
1-Methylnaphthalene-d10 (Surr)	74		36 - 111		03/08/22 22:38	1			
Fluoranthene-d10 (Surr)	79		47 - 128		03/08/22 22:38	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 21:38	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	105		50 - 150		03/07/22 21:38	1			

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/14/22 20:04	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/14/22 20:04	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
<i>n</i> -Decanoic Acid (Surr)	0.00005		0 - 1		03/14/22 20:04	1			
<i>o</i> -terphenyl (Surr)	66		50 - 150		03/14/22 20:04	1			

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-129R**

**Lab Sample ID: 410-74855-7**

Date Collected: 03/02/22 10:34

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 14:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					03/08/22 14:14	1
Dibromofluoromethane (Surr)	102		80 - 120					03/08/22 14:14	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/08/22 14:14	1
Toluene-d8 (Surr)	96		80 - 120					03/08/22 14:14	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:00	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:00	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:00	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:00	1
Chrysene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:00	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		03/07/22 08:31	03/08/22 23:00	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		03/07/22 08:31	03/08/22 23:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	70		10 - 110				03/07/22 08:31	03/08/22 23:00	1
1-Methylnaphthalene-d10 (Surr)	101		36 - 111				03/07/22 08:31	03/08/22 23:00	1
Fluoranthene-d10 (Surr)	77		47 - 128				03/07/22 08:31	03/08/22 23:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	40	J	250	19	ug/L			03/07/22 22:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150					03/07/22 22:03	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	56	J	110	47	ug/L		03/11/22 17:30	03/14/22 20:27	1
C24-C40	ND		260	110	ug/L		03/11/22 17:30	03/14/22 20:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.006		0 - 1				03/11/22 17:30	03/14/22 20:27	1
o-terphenyl (Surr)	63		50 - 150				03/11/22 17:30	03/14/22 20:27	1

**Client Sample ID: LM-2**

**Lab Sample ID: 410-74855-8**

Date Collected: 03/02/22 11:54

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 14:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					03/08/22 14:34	1
Dibromofluoromethane (Surr)	102		80 - 120					03/08/22 14:34	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/08/22 14:34	1
Toluene-d8 (Surr)	94		80 - 120					03/08/22 14:34	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: LM-2**

**Lab Sample ID: 410-74855-8**

Date Collected: 03/02/22 11:54

Matrix: Water

Date Received: 03/03/22 10:29

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:22	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:22	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:22	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:22	1
Chrysene	ND		0.054	0.011	ug/L		03/07/22 08:31	03/08/22 23:22	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		03/07/22 08:31	03/08/22 23:22	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		03/07/22 08:31	03/08/22 23:22	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	69		10 - 110				03/07/22 08:31	03/08/22 23:22	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				03/07/22 08:31	03/08/22 23:22	1
Fluoranthene-d10 (Surr)	85		47 - 128				03/07/22 08:31	03/08/22 23:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 22:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150					03/07/22 22:29	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/14/22 20:49	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/14/22 20:49	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Decanoic Acid (Surr)	0.0001		0 - 1				03/11/22 17:30	03/14/22 20:49	1
o-terphenyl (Surr)	55		50 - 150				03/11/22 17:30	03/14/22 20:49	1

**Client Sample ID: MW-532**

**Lab Sample ID: 410-74855-9**

Date Collected: 03/02/22 13:00

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 14:53	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					03/08/22 14:53	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 14:53	1
4-Bromofluorobenzene (Surr)	102		80 - 120					03/08/22 14:53	1
Toluene-d8 (Surr)	96		80 - 120					03/08/22 14:53	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		03/07/22 08:31	03/08/22 23:45	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		03/07/22 08:31	03/08/22 23:45	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		03/07/22 08:31	03/08/22 23:45	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		03/07/22 08:31	03/08/22 23:45	1
Chrysene	ND		0.053	0.011	ug/L		03/07/22 08:31	03/08/22 23:45	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		03/07/22 08:31	03/08/22 23:45	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		03/07/22 08:31	03/08/22 23:45	1

Eurofins Lancaster Laboratories Env, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-532**

**Lab Sample ID: 410-74855-9**

Date Collected: 03/02/22 13:00

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	80		10 - 110	03/07/22 08:31	03/08/22 23:45	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111	03/07/22 08:31	03/08/22 23:45	1
Fluoranthene-d10 (Surr)	87		47 - 128	03/07/22 08:31	03/08/22 23:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 22:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150		03/07/22 22:54	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/14/22 21:12	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/14/22 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.0002		0 - 1	03/11/22 17:30	03/14/22 21:12	1
o-terphenyl (Surr)	64		50 - 150	03/11/22 17:30	03/14/22 21:12	1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-74855-10**

Date Collected: 03/02/22 13:04

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 15:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		03/08/22 15:13	1
Dibromofluoromethane (Surr)	100		80 - 120		03/08/22 15:13	1
4-Bromofluorobenzene (Surr)	98		80 - 120		03/08/22 15:13	1
Toluene-d8 (Surr)	95		80 - 120		03/08/22 15:13	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.057	0.011	ug/L		03/07/22 08:31	03/09/22 00:07	1
Benzo[a]pyrene	ND		0.057	0.011	ug/L		03/07/22 08:31	03/09/22 00:07	1
Benzo[b]fluoranthene	ND		0.057	0.011	ug/L		03/07/22 08:31	03/09/22 00:07	1
Benzo[k]fluoranthene	ND		0.057	0.011	ug/L		03/07/22 08:31	03/09/22 00:07	1
Chrysene	ND		0.057	0.011	ug/L		03/07/22 08:31	03/09/22 00:07	1
Dibenz(a,h)anthracene	ND		0.057	0.023	ug/L		03/07/22 08:31	03/09/22 00:07	1
Indeno[1,2,3-cd]pyrene	ND		0.057	0.023	ug/L		03/07/22 08:31	03/09/22 00:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	03/07/22 08:31	03/09/22 00:07	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111	03/07/22 08:31	03/09/22 00:07	1
Fluoranthene-d10 (Surr)	88		47 - 128	03/07/22 08:31	03/09/22 00:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 23:20	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-74855-10**

Date Collected: 03/02/22 13:04

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	105		50 - 150		03/07/22 23:20	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		03/11/22 17:30	03/14/22 21:57	1
C24-C40	ND		270	110	ug/L		03/11/22 17:30	03/14/22 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Decanoic Acid (Surr)	0.0005		0 - 1	03/11/22 17:30	03/14/22 21:57	1
<i>o</i> -terphenyl (Surr)	63		50 - 150	03/11/22 17:30	03/14/22 21:57	1

**Client Sample ID: DUP-3**

**Lab Sample ID: 410-74855-11**

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		03/08/22 15:32	1
Dibromofluoromethane (Surr)	98		80 - 120		03/08/22 15:32	1
4-Bromofluorobenzene (Surr)	100		80 - 120		03/08/22 15:32	1
Toluene-d8 (Surr)	95		80 - 120		03/08/22 15:32	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.056	0.011	ug/L		03/07/22 17:15	03/09/22 06:01	1
Benzo[a]pyrene	ND	cn	0.056	0.011	ug/L		03/07/22 17:15	03/09/22 06:01	1
Benzo[b]fluoranthene	ND	cn	0.056	0.011	ug/L		03/07/22 17:15	03/09/22 06:01	1
Benzo[k]fluoranthene	ND	cn	0.056	0.011	ug/L		03/07/22 17:15	03/09/22 06:01	1
Chrysene	ND	cn	0.056	0.011	ug/L		03/07/22 17:15	03/09/22 06:01	1
Dibenz(a,h)anthracene	ND	cn	0.056	0.023	ug/L		03/07/22 17:15	03/09/22 06:01	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.056	0.023	ug/L		03/07/22 17:15	03/09/22 06:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	89	cn	10 - 110	03/07/22 17:15	03/09/22 06:01	1
1-Methylnaphthalene-d10 (Surr)	66	cn	36 - 111	03/07/22 17:15	03/09/22 06:01	1
Fluoranthene-d10 (Surr)	113	cn	47 - 128	03/07/22 17:15	03/09/22 06:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 23:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	106		50 - 150		03/07/22 23:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	48	ug/L		03/13/22 18:00	03/15/22 23:16	1
C24-C40	ND	cn	270	110	ug/L		03/13/22 18:00	03/15/22 23:16	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: DUP-3

Lab Sample ID: 410-74855-11

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	57	cn	50 - 150	03/13/22 18:00	03/15/22 23:16	1

## Client Sample ID: MW-533

Lab Sample ID: 410-74855-12

Date Collected: 03/02/22 14:20

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 11:16	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		03/08/22 11:16	1			
Dibromofluoromethane (Surr)	100		80 - 120		03/08/22 11:16	1			
4-Bromofluorobenzene (Surr)	98		80 - 120		03/08/22 11:16	1			
Toluene-d8 (Surr)	95		80 - 120		03/08/22 11:16	1			

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		03/07/22 17:15	03/08/22 06:50	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		03/07/22 17:15	03/08/22 06:50	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		03/07/22 17:15	03/08/22 06:50	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		03/07/22 17:15	03/08/22 06:50	1
Chrysene	ND	cn	0.052	0.010	ug/L		03/07/22 17:15	03/08/22 06:50	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		03/07/22 17:15	03/08/22 06:50	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		03/07/22 17:15	03/08/22 06:50	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	83	cn	10 - 110		03/07/22 17:15	03/08/22 06:50	1		
1-Methylnaphthalene-d10 (Surr)	66	cn	36 - 111		03/07/22 17:15	03/08/22 06:50	1		
Fluoranthene-d10 (Surr)	85	cn	47 - 128		03/07/22 17:15	03/08/22 06:50	1		

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 18:12	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	105		50 - 150		03/07/22 18:12	1			

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		03/11/22 17:30	03/15/22 20:15	1
C24-C40	ND		260	100	ug/L		03/11/22 17:30	03/15/22 20:15	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
<i>n</i> -Decanoic Acid (Surr)	0.00008		0 - 1		03/11/22 17:30	03/15/22 20:15	1		
<i>o</i> -terphenyl (Surr)	60		50 - 150		03/11/22 17:30	03/15/22 20:15	1		

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: MW-531**

**Lab Sample ID: 410-74855-13**

Date Collected: 03/02/22 14:24

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 15:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					03/08/22 15:52	1
Dibromofluoromethane (Surr)	99		80 - 120					03/08/22 15:52	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/08/22 15:52	1
Toluene-d8 (Surr)	97		80 - 120					03/08/22 15:52	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.053	0.011	ug/L		03/07/22 17:15	03/08/22 09:20	1
Benzo[a]pyrene	ND	cn	0.053	0.011	ug/L		03/07/22 17:15	03/08/22 09:20	1
Benzo[b]fluoranthene	ND	cn	0.053	0.011	ug/L		03/07/22 17:15	03/08/22 09:20	1
Benzo[k]fluoranthene	ND	cn	0.053	0.011	ug/L		03/07/22 17:15	03/08/22 09:20	1
Chrysene	ND	cn	0.053	0.011	ug/L		03/07/22 17:15	03/08/22 09:20	1
Dibenz(a,h)anthracene	ND	cn	0.053	0.021	ug/L		03/07/22 17:15	03/08/22 09:20	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.053	0.021	ug/L		03/07/22 17:15	03/08/22 09:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	48	cn	10 - 110				03/07/22 17:15	03/08/22 09:20	1
1-Methylnaphthalene-d10 (Surr)	62	cn	36 - 111				03/07/22 17:15	03/08/22 09:20	1
Fluoranthene-d10 (Surr)	107	cn	47 - 128				03/07/22 17:15	03/08/22 09:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/08/22 00:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	105		50 - 150					03/08/22 00:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	48	ug/L		03/13/22 18:00	03/15/22 23:39	1
C24-C40	ND	cn	270	110	ug/L		03/13/22 18:00	03/15/22 23:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	59	cn	50 - 150				03/13/22 18:00	03/15/22 23:39	1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74855-14**

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/08/22 10:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					03/08/22 10:56	1
Dibromofluoromethane (Surr)	100		80 - 120					03/08/22 10:56	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/08/22 10:56	1
Toluene-d8 (Surr)	96		80 - 120					03/08/22 10:56	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74855-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74855-14**

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 15:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150					03/07/22 15:13	1

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

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-74855-1	MW-104	98	100	101	95
410-74855-2	DUP-4	99	101	99	94
410-74855-3	MW-ER	101	101	99	94
410-74855-4	MW-535	102	100	98	93
410-74855-5	MW-525	100	101	99	95
410-74855-6	MW-530	100	101	98	97
410-74855-7	MW-129R	97	102	100	96
410-74855-8	LM-2	104	102	98	94
410-74855-9	MW-532	99	100	102	96
410-74855-10	MW-526	99	100	98	95
410-74855-11	DUP-3	99	98	100	95
410-74855-12	MW-533	98	100	98	95
410-74855-12 MS	MW-533	99	99	98	96
410-74855-12 MSD	MW-533	99	100	100	95
410-74855-13	MW-531	97	99	100	97
410-74855-14	Trip Blank	98	100	99	96
LCS 410-231090/4	Lab Control Sample	102	100	99	96
MB 410-231090/6	Method Blank	98	101	99	95

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-74855-1	MW-104	57 cn	72 cn	93 *3 cn
410-74855-2	DUP-4	71 cn	131 S1+ cn	102 cn
410-74855-3	MW-ER	73 cn	125 S1+ cn	100 cn
410-74855-4	MW-535	63	86	89
410-74855-5	MW-525	61	82	85
410-74855-6	MW-530	62	74	79
410-74855-7	MW-129R	70	101	77
410-74855-8	LM-2	69	76	85
410-74855-9	MW-532	80	82	87
410-74855-10	MW-526	53	75	88
410-74855-11	DUP-3	89 cn	66 cn	113 cn
410-74855-12	MW-533	83 cn	66 cn	85 cn
410-74855-12 MS	MW-533	83	69	87
410-74855-12 MSD	MW-533	84	70	89
410-74855-13	MW-531	48 cn	62 cn	107 cn
LCS 410-230638/2-A	Lab Control Sample	96	76	84
LCS 410-230887/2-A	Lab Control Sample	91	53	81
MB 410-230638/1-A	Method Blank	79	62	69

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
MB 410-230887/1-A	Method Blank	89	56	86
<b>Surrogate Legend</b>				
BAPd12 = Benzo(a)pyrene-d12 (Surr)				
MNPd10 = 1-Methylnaphthalene-d10 (Surr)				
FLN10 = Fluoranthene-d10 (Surr)				

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-74855-1	MW-104	104
410-74855-2	DUP-4	106
410-74855-3	MW-ER	109
410-74855-4	MW-535	106
410-74855-5	MW-525	106
410-74855-6	MW-530	105
410-74855-7	MW-129R	106
410-74855-8	LM-2	106
410-74855-9	MW-532	106
410-74855-10	MW-526	105
410-74855-11	DUP-3	106
410-74855-12	MW-533	105
410-74855-12 MS	MW-533	99
410-74855-12 MSD	MW-533	99
410-74855-13	MW-531	105
410-74855-14	Trip Blank	106
LCS 410-230806/5	Lab Control Sample	98
LCSD 410-230806/6	Lab Control Sample Dup	98
MB 410-230806/4	Method Blank	104
<b>Surrogate Legend</b>		
TFT-F = a,a,a-Trifluorotoluene (fid)		

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		NDA (0-1)	OTP (50-150)
410-74855-1	MW-104	0.005	50
410-74855-2	DUP-4	0.01	65
410-74855-3	MW-ER	0.01	66
410-74855-4	MW-535	0.001	71
410-74855-5	MW-525		52
410-74855-6	MW-530	0.00005	66
410-74855-7	MW-129R	0.006	63
410-74855-8	LM-2	0.0001	55
410-74855-9	MW-532	0.0002	64
410-74855-9 DU	MW-532	0.0002	64

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		NDA (0-1)	OTP (50-150)
410-74855-10	MW-526	0.0005	63
410-74855-11	DUP-3		57 cn
410-74855-12	MW-533	0.00008	60
410-74855-12 MS	MW-533	0.2	62
410-74855-12 MSD	MW-533	0.2	66
410-74855-13	MW-531		59 cn
LCS 410-232789/2-B	Lab Control Sample	0.1	53
LCS 410-232993/2-B	Lab Control Sample		56
LCS 410-234347/2-B	Lab Control Sample		71
LCSD 410-232993/3-B	Lab Control Sample Dup		64
LCSD 410-234347/3-B	Lab Control Sample Dup		66
MB 410-232789/1-B	Method Blank	0.0006	70
MB 410-232993/1-B	Method Blank		62
MB 410-234347/1-B	Method Blank		73

**Surrogate Legend**

NDA = n-Decanoic Acid (Surr)

OTP = o- terphenyl (Surr)





# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

**Lab Sample ID: MB 410-231090/6**  
**Matrix: Water**  
**Analysis Batch: 231090**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		1.0	0.30	ug/L			03/08/22 10:36	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		03/08/22 10:36	1			
Dibromofluoromethane (Surr)	101		80 - 120		03/08/22 10:36	1			
4-Bromofluorobenzene (Surr)	99		80 - 120		03/08/22 10:36	1			
Toluene-d8 (Surr)	95		80 - 120		03/08/22 10:36	1			

**Lab Sample ID: LCS 410-231090/4**  
**Matrix: Water**  
**Analysis Batch: 231090**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzene	20.0	19.9		ug/L		99	80 - 120
Surrogate	LCS	LCS	Limits				
	%Recovery	Qualifier					
1,2-Dichloroethane-d4 (Surr)	102		80 - 120				
Dibromofluoromethane (Surr)	100		80 - 120				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Toluene-d8 (Surr)	96		80 - 120				

**Lab Sample ID: 410-74855-12 MS**  
**Matrix: Water**  
**Analysis Batch: 231090**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Benzene	ND		20.0	22.3		ug/L		112	80 - 120
Surrogate	MS	MS	Limits						
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	99		80 - 120						
Dibromofluoromethane (Surr)	99		80 - 120						
4-Bromofluorobenzene (Surr)	98		80 - 120						
Toluene-d8 (Surr)	96		80 - 120						

**Lab Sample ID: 410-74855-12 MSD**  
**Matrix: Water**  
**Analysis Batch: 231090**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Benzene	ND		20.0	21.5		ug/L		107	80 - 120	4	30
Surrogate	MSD	MSD	Limits								
	%Recovery	Qualifier									
1,2-Dichloroethane-d4 (Surr)	99		80 - 120								
Dibromofluoromethane (Surr)	100		80 - 120								
4-Bromofluorobenzene (Surr)	100		80 - 120								
Toluene-d8 (Surr)	95		80 - 120								

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-230638/1-A**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 230638**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 04:50	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 04:50	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 04:50	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 04:50	1
Chrysene	ND		0.050	0.010	ug/L		03/07/22 08:31	03/08/22 04:50	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 04:50	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/07/22 08:31	03/08/22 04:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Benzo(a)pyrene-d12 (Surr)	79		10 - 110			03/07/22 08:31	03/08/22 04:50	1	
1-Methylnaphthalene-d10 (Surr)	62		36 - 111			03/07/22 08:31	03/08/22 04:50	1	
Fluoranthene-d10 (Surr)	69		47 - 128			03/07/22 08:31	03/08/22 04:50	1	

**Lab Sample ID: LCS 410-230638/2-A**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 230638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	1.00	0.930		ug/L		93	61 - 122	
Benzo[a]pyrene	1.00	0.837		ug/L		84	60 - 120	
Benzo[b]fluoranthene	1.00	0.891		ug/L		89	58 - 122	
Benzo[k]fluoranthene	1.00	0.861		ug/L		86	57 - 128	
Chrysene	1.00	0.833		ug/L		83	55 - 123	
Dibenz(a,h)anthracene	1.00	1.02		ug/L		102	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	1.01		ug/L		101	47 - 143	
Surrogate	%Recovery	Qualifier	Limits					
Benzo(a)pyrene-d12 (Surr)	96		10 - 110					
1-Methylnaphthalene-d10 (Surr)	76		36 - 111					
Fluoranthene-d10 (Surr)	84		47 - 128					

**Lab Sample ID: MB 410-230887/1-A**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/07/22 17:15	03/08/22 05:50	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/07/22 17:15	03/08/22 05:50	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 17:15	03/08/22 05:50	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/07/22 17:15	03/08/22 05:50	1
Chrysene	ND		0.050	0.010	ug/L		03/07/22 17:15	03/08/22 05:50	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/07/22 17:15	03/08/22 05:50	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/07/22 17:15	03/08/22 05:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Benzo(a)pyrene-d12 (Surr)	89		10 - 110			03/07/22 17:15	03/08/22 05:50	1	
1-Methylnaphthalene-d10 (Surr)	56		36 - 111			03/07/22 17:15	03/08/22 05:50	1	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: MB 410-230887/1-A**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Fluoranthene-d10 (Surr)	86		47 - 128	03/07/22 17:15	03/08/22 05:50	1

**Lab Sample ID: LCS 410-230887/2-A**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	1.00	0.842		ug/L		84	61 - 122	
Benzo[a]pyrene	1.00	0.789		ug/L		79	60 - 120	
Benzo[b]fluoranthene	1.00	0.875		ug/L		87	58 - 122	
Benzo[k]fluoranthene	1.00	0.835		ug/L		83	57 - 128	
Chrysene	1.00	0.816		ug/L		82	55 - 123	
Dibenz(a,h)anthracene	1.00	1.00		ug/L		100	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.972		ug/L		97	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	91		10 - 110
1-Methylnaphthalene-d10 (Surr)	53		36 - 111
Fluoranthene-d10 (Surr)	81		47 - 128

**Lab Sample ID: 410-74855-12 MS**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	ND	cn	1.00	0.889		ug/L		89	61 - 122	
Benzo[a]pyrene	ND	cn	1.00	0.729		ug/L		73	60 - 120	
Benzo[b]fluoranthene	ND	cn	1.00	0.768		ug/L		77	58 - 122	
Benzo[k]fluoranthene	ND	cn	1.00	0.739		ug/L		74	57 - 128	
Chrysene	ND	cn	1.00	0.829		ug/L		83	55 - 123	
Dibenz(a,h)anthracene	ND	cn	1.00	0.857		ug/L		86	50 - 121	
Indeno[1,2,3-cd]pyrene	ND	cn	1.00	0.829		ug/L		83	47 - 143	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	83		10 - 110
1-Methylnaphthalene-d10 (Surr)	69		36 - 111
Fluoranthene-d10 (Surr)	87		47 - 128

**Lab Sample ID: 410-74855-12 MSD**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
											RPD	Limit
Benzo[a]anthracene	ND	cn	1.00	0.870		ug/L		87	61 - 122	2	30	
Benzo[a]pyrene	ND	cn	1.00	0.735		ug/L		73	60 - 120	1	30	
Benzo[b]fluoranthene	ND	cn	1.00	0.782		ug/L		78	58 - 122	2	30	
Benzo[k]fluoranthene	ND	cn	1.00	0.757		ug/L		76	57 - 128	2	30	
Chrysene	ND	cn	1.00	0.815		ug/L		82	55 - 123	2	30	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: 410-74855-12 MSD**  
**Matrix: Water**  
**Analysis Batch: 231042**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**  
**Prep Batch: 230887**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibenz(a,h)anthracene	ND	cn	1.00	0.865		ug/L		87	50 - 121	1	30
Indeno[1,2,3-cd]pyrene	ND	cn	1.00	0.823		ug/L		82	47 - 143	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
Benzo(a)pyrene-d12 (Surr)	84		10 - 110								
1-Methylnaphthalene-d10 (Surr)	70		36 - 111								
Fluoranthene-d10 (Surr)	89		47 - 128								

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

**Lab Sample ID: MB 410-230806/4**  
**Matrix: Water**  
**Analysis Batch: 230806**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/07/22 13:56	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	104		50 - 150					03/07/22 13:56	1

**Lab Sample ID: LCS 410-230806/5**  
**Matrix: Water**  
**Analysis Batch: 230806**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	1100	975		ug/L		89	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150				

**Lab Sample ID: LCSD 410-230806/6**  
**Matrix: Water**  
**Analysis Batch: 230806**

**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
C7-C12 (1C)	1100	956		ug/L		87	64 - 131	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150						

**Lab Sample ID: 410-74855-12 MS**  
**Matrix: Water**  
**Analysis Batch: 230806**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
C7-C12 (1C)	ND		1120	1040		ug/L		93	80 - 120

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

**Lab Sample ID: 410-74855-12 MS**  
**Matrix: Water**  
**Analysis Batch: 230806**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	99		50 - 150

**Lab Sample ID: 410-74855-12 MSD**  
**Matrix: Water**  
**Analysis Batch: 230806**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
C7-C12 (1C)	ND		1120	1000		ug/L		90	80 - 120	4	30

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	99		50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-232789/1-B**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
C12-C24	ND		100	45	ug/L		03/11/22 17:30	03/15/22 17:05	1
C24-C40	ND		250	100	ug/L		03/11/22 17:30	03/15/22 17:05	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>n-Decanoic Acid (Surr)</i>	0.0006		0 - 1	03/11/22 17:30	03/15/22 17:05	1
<i>o-terphenyl (Surr)</i>	70		50 - 150	03/11/22 17:30	03/15/22 17:05	1

**Lab Sample ID: LCS 410-232789/2-B**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
C12-C24	600	186		ug/L		31	14 - 115

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>n-Decanoic Acid (Surr)</i>	0.1		0 - 1
<i>o-terphenyl (Surr)</i>	53		50 - 150

**Lab Sample ID: 410-74855-12 MS**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: MW-533**  
**Prep Type: Total/NA**  
**Prep Batch: 232789**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>
C12-C24	ND		627	189		ug/L		30	30 - 115

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>n-Decanoic Acid (Surr)</i>	0.2		0 - 1
<i>o-terphenyl (Surr)</i>	62		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

**Lab Sample ID: 410-74855-12 MSD**

**Matrix: Water**

**Analysis Batch: 233188**

**Client Sample ID: MW-533**

**Prep Type: Total/NA**

**Prep Batch: 232789**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C12-C24	ND		633	192		ug/L		30	30 - 115	1	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
<i>n-Decanoic Acid (Surr)</i>	0.2		0 - 1								
<i>o-terphenyl (Surr)</i>	66		50 - 150								

**Lab Sample ID: 410-74855-9 DU**

**Matrix: Water**

**Analysis Batch: 233188**

**Client Sample ID: MW-532**

**Prep Type: Total/NA**

**Prep Batch: 232789**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>n-Decanoic Acid (Surr)</i>	0.00002		0 - 1					
<i>o-terphenyl (Surr)</i>	64		50 - 150					

**Lab Sample ID: MB 410-232993/1-B**

**Matrix: Water**

**Analysis Batch: 233188**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 232993**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		03/13/22 18:00	03/15/22 22:08	1
C24-C40	170	J	250	100	ug/L		03/13/22 18:00	03/15/22 22:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>	62		50 - 150				03/13/22 18:00	03/15/22 22:08	1

**Lab Sample ID: LCS 410-232993/2-B**

**Matrix: Water**

**Analysis Batch: 233188**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 232993**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C12-C24	600	206		ug/L		34	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-terphenyl (Surr)</i>	56		50 - 150				

**Lab Sample ID: LCSD 410-232993/3-B**

**Matrix: Water**

**Analysis Batch: 233188**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 232993**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C12-C24	600	218		ug/L		36	14 - 115	6	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

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

**Lab Sample ID: LCSD 410-232993/3-B**  
**Matrix: Water**  
**Analysis Batch: 233188**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 232993**

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o-terphenyl (Surr)</i>	64		50 - 150

**Lab Sample ID: MB 410-234347/1-B**  
**Matrix: Water**  
**Analysis Batch: 234689**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 234347**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		03/16/22 17:16	03/17/22 12:45	1
C24-C40	ND		250	100	ug/L		03/16/22 17:16	03/17/22 12:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o-terphenyl (Surr)</i>	73		50 - 150	03/16/22 17:16	03/17/22 12:45	1

**Lab Sample ID: LCS 410-234347/2-B**  
**Matrix: Water**  
**Analysis Batch: 234689**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 234347**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
C12-C24	600	242		ug/L		40	14 - 115

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o-terphenyl (Surr)</i>	71		50 - 150

**Lab Sample ID: LCSD 410-234347/3-B**  
**Matrix: Water**  
**Analysis Batch: 234689**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 234347**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
C12-C24	600	200		ug/L		33	14 - 115	19	20

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o-terphenyl (Surr)</i>	66		50 - 150

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## GC/MS VOA

### Analysis Batch: 231090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	8260D	
410-74855-2	DUP-4	Total/NA	Water	8260D	
410-74855-3	MW-ER	Total/NA	Water	8260D	
410-74855-4	MW-535	Total/NA	Water	8260D	
410-74855-5	MW-525	Total/NA	Water	8260D	
410-74855-6	MW-530	Total/NA	Water	8260D	
410-74855-7	MW-129R	Total/NA	Water	8260D	
410-74855-8	LM-2	Total/NA	Water	8260D	
410-74855-9	MW-532	Total/NA	Water	8260D	
410-74855-10	MW-526	Total/NA	Water	8260D	
410-74855-11	DUP-3	Total/NA	Water	8260D	
410-74855-12	MW-533	Total/NA	Water	8260D	
410-74855-13	MW-531	Total/NA	Water	8260D	
410-74855-14	Trip Blank	Total/NA	Water	8260D	
MB 410-231090/6	Method Blank	Total/NA	Water	8260D	
LCS 410-231090/4	Lab Control Sample	Total/NA	Water	8260D	
410-74855-12 MS	MW-533	Total/NA	Water	8260D	
410-74855-12 MSD	MW-533	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 230638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	3510C	
410-74855-2	DUP-4	Total/NA	Water	3510C	
410-74855-3	MW-ER	Total/NA	Water	3510C	
410-74855-4	MW-535	Total/NA	Water	3510C	
410-74855-5	MW-525	Total/NA	Water	3510C	
410-74855-6	MW-530	Total/NA	Water	3510C	
410-74855-7	MW-129R	Total/NA	Water	3510C	
410-74855-8	LM-2	Total/NA	Water	3510C	
410-74855-9	MW-532	Total/NA	Water	3510C	
410-74855-10	MW-526	Total/NA	Water	3510C	
MB 410-230638/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-230638/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Prep Batch: 230887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-11	DUP-3	Total/NA	Water	3510C	
410-74855-12	MW-533	Total/NA	Water	3510C	
410-74855-13	MW-531	Total/NA	Water	3510C	
MB 410-230887/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-230887/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-74855-12 MS	MW-533	Total/NA	Water	3510C	
410-74855-12 MSD	MW-533	Total/NA	Water	3510C	

### Analysis Batch: 231042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	8270E SIM	230638
410-74855-12	MW-533	Total/NA	Water	8270E SIM	230887
410-74855-13	MW-531	Total/NA	Water	8270E SIM	230887



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 231042 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-230638/1-A	Method Blank	Total/NA	Water	8270E SIM	230638
MB 410-230887/1-A	Method Blank	Total/NA	Water	8270E SIM	230887
LCS 410-230638/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	230638
LCS 410-230887/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	230887
410-74855-12 MS	MW-533	Total/NA	Water	8270E SIM	230887
410-74855-12 MSD	MW-533	Total/NA	Water	8270E SIM	230887

### Analysis Batch: 231352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-2	DUP-4	Total/NA	Water	8270E SIM	230638
410-74855-3	MW-ER	Total/NA	Water	8270E SIM	230638
410-74855-4	MW-535	Total/NA	Water	8270E SIM	230638
410-74855-5	MW-525	Total/NA	Water	8270E SIM	230638
410-74855-6	MW-530	Total/NA	Water	8270E SIM	230638
410-74855-7	MW-129R	Total/NA	Water	8270E SIM	230638
410-74855-8	LM-2	Total/NA	Water	8270E SIM	230638
410-74855-9	MW-532	Total/NA	Water	8270E SIM	230638
410-74855-10	MW-526	Total/NA	Water	8270E SIM	230638

### Analysis Batch: 231504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-11	DUP-3	Total/NA	Water	8270E SIM	230887

## GC VOA

### Analysis Batch: 230806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	NWTPH-Gx	
410-74855-2	DUP-4	Total/NA	Water	NWTPH-Gx	
410-74855-3	MW-ER	Total/NA	Water	NWTPH-Gx	
410-74855-4	MW-535	Total/NA	Water	NWTPH-Gx	
410-74855-5	MW-525	Total/NA	Water	NWTPH-Gx	
410-74855-6	MW-530	Total/NA	Water	NWTPH-Gx	
410-74855-7	MW-129R	Total/NA	Water	NWTPH-Gx	
410-74855-8	LM-2	Total/NA	Water	NWTPH-Gx	
410-74855-9	MW-532	Total/NA	Water	NWTPH-Gx	
410-74855-10	MW-526	Total/NA	Water	NWTPH-Gx	
410-74855-11	DUP-3	Total/NA	Water	NWTPH-Gx	
410-74855-12	MW-533	Total/NA	Water	NWTPH-Gx	
410-74855-13	MW-531	Total/NA	Water	NWTPH-Gx	
410-74855-14	Trip Blank	Total/NA	Water	NWTPH-Gx	
MB 410-230806/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-230806/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-230806/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-74855-12 MS	MW-533	Total/NA	Water	NWTPH-Gx	
410-74855-12 MSD	MW-533	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 232789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	3510C	

Eurofins Lancaster Laboratories Env, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## GC Semi VOA (Continued)

### Prep Batch: 232789 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-2	DUP-4	Total/NA	Water	3510C	
410-74855-3	MW-ER	Total/NA	Water	3510C	
410-74855-4	MW-535	Total/NA	Water	3510C	
410-74855-6	MW-530	Total/NA	Water	3510C	
410-74855-7	MW-129R	Total/NA	Water	3510C	
410-74855-8	LM-2	Total/NA	Water	3510C	
410-74855-9	MW-532	Total/NA	Water	3510C	
410-74855-10	MW-526	Total/NA	Water	3510C	
410-74855-12	MW-533	Total/NA	Water	3510C	
MB 410-232789/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-74855-12 MS	MW-533	Total/NA	Water	3510C	
410-74855-12 MSD	MW-533	Total/NA	Water	3510C	
410-74855-9 DU	MW-532	Total/NA	Water	3510C	

### Cleanup Batch: 232947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	3630C	232789
410-74855-2	DUP-4	Total/NA	Water	3630C	232789
410-74855-3	MW-ER	Total/NA	Water	3630C	232789
410-74855-4	MW-535	Total/NA	Water	3630C	232789
410-74855-6	MW-530	Total/NA	Water	3630C	232789
410-74855-7	MW-129R	Total/NA	Water	3630C	232789
410-74855-8	LM-2	Total/NA	Water	3630C	232789
410-74855-9	MW-532	Total/NA	Water	3630C	232789
410-74855-10	MW-526	Total/NA	Water	3630C	232789
410-74855-12	MW-533	Total/NA	Water	3630C	232789
MB 410-232789/1-B	Method Blank	Total/NA	Water	3630C	232789
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	3630C	232789
410-74855-12 MS	MW-533	Total/NA	Water	3630C	232789
410-74855-12 MSD	MW-533	Total/NA	Water	3630C	232789
410-74855-9 DU	MW-532	Total/NA	Water	3630C	232789

### Prep Batch: 232993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-11	DUP-3	Total/NA	Water	3510C	
410-74855-13	MW-531	Total/NA	Water	3510C	
MB 410-232993/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCS 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 233188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-1	MW-104	Total/NA	Water	NWTPH-Dx	232947
410-74855-2	DUP-4	Total/NA	Water	NWTPH-Dx	232947
410-74855-3	MW-ER	Total/NA	Water	NWTPH-Dx	232947
410-74855-4	MW-535	Total/NA	Water	NWTPH-Dx	232947
410-74855-6	MW-530	Total/NA	Water	NWTPH-Dx	232947
410-74855-7	MW-129R	Total/NA	Water	NWTPH-Dx	232947
410-74855-8	LM-2	Total/NA	Water	NWTPH-Dx	232947
410-74855-9	MW-532	Total/NA	Water	NWTPH-Dx	232947

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## GC Semi VOA (Continued)

### Analysis Batch: 233188 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-10	MW-526	Total/NA	Water	NWTPH-Dx	232947
410-74855-11	DUP-3	Total/NA	Water	NWTPH-Dx	233790
410-74855-12	MW-533	Total/NA	Water	NWTPH-Dx	232947
410-74855-13	MW-531	Total/NA	Water	NWTPH-Dx	233790
MB 410-232789/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	232947
MB 410-232993/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	233790
LCS 410-232789/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	232947
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	233790
LCSD 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	233790
410-74855-12 MS	MW-533	Total/NA	Water	NWTPH-Dx	232947
410-74855-12 MSD	MW-533	Total/NA	Water	NWTPH-Dx	232947
410-74855-9 DU	MW-532	Total/NA	Water	NWTPH-Dx	232947

### Cleanup Batch: 233790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-11	DUP-3	Total/NA	Water	3630C	232993
410-74855-13	MW-531	Total/NA	Water	3630C	232993
MB 410-232993/1-B	Method Blank	Total/NA	Water	3630C	232993
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	3630C	232993
LCSD 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	232993

### Prep Batch: 234347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-5	MW-525	Total/NA	Water	3510C	
MB 410-234347/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-234347/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-234347/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

### Cleanup Batch: 234679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-5	MW-525	Total/NA	Water	3630C	234347
MB 410-234347/1-B	Method Blank	Total/NA	Water	3630C	234347
LCS 410-234347/2-B	Lab Control Sample	Total/NA	Water	3630C	234347
LCSD 410-234347/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	234347

### Analysis Batch: 234689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74855-5	MW-525	Total/NA	Water	NWTPH-Dx	234679
MB 410-234347/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	234679
LCS 410-234347/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	234679
LCSD 410-234347/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	234679

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: MW-104

Lab Sample ID: 410-74855-1

Date Collected: 03/02/22 14:06

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 12:15	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231042	03/08/22 15:49	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 17:46	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 18:11	IUSB	ELLE

## Client Sample ID: DUP-4

Lab Sample ID: 410-74855-2

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 12:35	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 21:09	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 19:55	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 18:34	IUSB	ELLE

## Client Sample ID: MW-ER

Lab Sample ID: 410-74855-3

Date Collected: 03/02/22 12:16

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 12:55	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 21:31	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 20:21	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 18:56	IUSB	ELLE

## Client Sample ID: MW-535

Lab Sample ID: 410-74855-4

Date Collected: 03/02/22 10:56

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 13:15	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 21:53	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 20:46	NND8	ELLE

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

### Client Sample ID: MW-535

Lab Sample ID: 410-74855-4

Date Collected: 03/02/22 10:56

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 19:19	IUSB	ELLE

### Client Sample ID: MW-525

Lab Sample ID: 410-74855-5

Date Collected: 03/02/22 09:56

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 13:35	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 22:16	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 21:12	NND8	ELLE
Total/NA	Prep	3510C			234347	03/16/22 17:16	MD4W	ELLE
Total/NA	Cleanup	3630C			234679	03/17/22 09:57	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	234689	03/17/22 14:15	UHEW	ELLE

### Client Sample ID: MW-530

Lab Sample ID: 410-74855-6

Date Collected: 03/02/22 11:30

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 13:54	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 22:38	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 21:38	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 20:04	IUSB	ELLE

### Client Sample ID: MW-129R

Lab Sample ID: 410-74855-7

Date Collected: 03/02/22 10:34

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 14:14	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 23:00	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 22:03	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 20:27	IUSB	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: LM-2

Lab Sample ID: 410-74855-8

Date Collected: 03/02/22 11:54

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 14:34	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 23:22	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 22:29	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 20:49	IUSB	ELLE

## Client Sample ID: MW-532

Lab Sample ID: 410-74855-9

Date Collected: 03/02/22 13:00

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 14:53	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/08/22 23:45	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 22:54	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 21:12	IUSB	ELLE

## Client Sample ID: MW-526

Lab Sample ID: 410-74855-10

Date Collected: 03/02/22 13:04

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 15:13	ULCP	ELLE
Total/NA	Prep	3510C			230638	03/07/22 08:31	YDF5	ELLE
Total/NA	Analysis	8270E SIM		1	231352	03/09/22 00:07	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 23:20	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/14/22 21:57	IUSB	ELLE

## Client Sample ID: DUP-3

Lab Sample ID: 410-74855-11

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 15:32	ULCP	ELLE
Total/NA	Prep	3510C			230887	03/07/22 17:15	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	231504	03/09/22 06:01	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 23:46	NND8	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Client Sample ID: DUP-3

Lab Sample ID: 410-74855-11

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			232993	03/13/22 18:00	L2TS	ELLE
Total/NA	Cleanup	3630C			233790	03/15/22 13:34	YDF5	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 23:16	IUSB	ELLE

## Client Sample ID: MW-533

Lab Sample ID: 410-74855-12

Date Collected: 03/02/22 14:20

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 11:16	ULCP	ELLE
Total/NA	Prep	3510C			230887	03/07/22 17:15	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	231042	03/08/22 06:50	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 18:12	NND8	ELLE
Total/NA	Prep	3510C			232789	03/11/22 17:30	L2TS	ELLE
Total/NA	Cleanup	3630C			232947	03/13/22 05:25	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 20:15	IUSB	ELLE

## Client Sample ID: MW-531

Lab Sample ID: 410-74855-13

Date Collected: 03/02/22 14:24

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 15:52	ULCP	ELLE
Total/NA	Prep	3510C			230887	03/07/22 17:15	L2TS	ELLE
Total/NA	Analysis	8270E SIM		1	231042	03/08/22 09:20	SJ89	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/08/22 00:11	NND8	ELLE
Total/NA	Prep	3510C			232993	03/13/22 18:00	L2TS	ELLE
Total/NA	Cleanup	3630C			233790	03/15/22 13:34	YDF5	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/15/22 23:39	IUSB	ELLE

## Client Sample ID: Trip Blank

Lab Sample ID: 410-74855-14

Date Collected: 03/02/22 00:00

Matrix: Water

Date Received: 03/03/22 10:29

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	231090	03/08/22 10:56	ULCP	ELLE
Total/NA	Analysis	NWTPH-Gx		1	230806	03/07/22 15:13	NND8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

## Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-12-22

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



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74855-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-74855-1	MW-104	Water	03/02/22 14:06	03/03/22 10:29
410-74855-2	DUP-4	Water	03/02/22 00:00	03/03/22 10:29
410-74855-3	MW-ER	Water	03/02/22 12:16	03/03/22 10:29
410-74855-4	MW-535	Water	03/02/22 10:56	03/03/22 10:29
410-74855-5	MW-525	Water	03/02/22 09:56	03/03/22 10:29
410-74855-6	MW-530	Water	03/02/22 11:30	03/03/22 10:29
410-74855-7	MW-129R	Water	03/02/22 10:34	03/03/22 10:29
410-74855-8	LM-2	Water	03/02/22 11:54	03/03/22 10:29
410-74855-9	MW-532	Water	03/02/22 13:00	03/03/22 10:29
410-74855-10	MW-526	Water	03/02/22 13:04	03/03/22 10:29
410-74855-11	DUP-3	Water	03/02/22 00:00	03/03/22 10:29
410-74855-12	MW-533	Water	03/02/22 14:20	03/03/22 10:29
410-74855-13	MW-531	Water	03/02/22 14:24	03/03/22 10:29
410-74855-14	Trip Blank	Water	03/02/22 00:00	03/03/22 10:29



# Chevron Northwest Region A



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_ For Eurofins Group # \_\_\_\_\_ Instruct



410-74855 Chain of Custody

# Chain of Custody

<b>1 Client Information</b>				<b>4 Matrix</b>				<b>5 Analyses Requested</b>										SCR #: _____		
Facility # <u>WBS</u> <u>Edmonds Former Bulk Fuel Terminal</u>				Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>	Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>	Soil <input type="checkbox"/>	Water <input type="checkbox"/>	Oil <input type="checkbox"/>	Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/>	Oxygenates <input type="checkbox"/>	NWTPH-Gx <input type="checkbox"/>	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/>	CPAH by 8270 D SIM	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits			
Site Address <u>11720 Unoco Rd Edmonds, WA</u>																				
Chevron PM <u>Kim Jolitz</u> Lead Consultant																				
Consultant/Office <u>1100 Olive Way, Suite 800 Seattle, WA</u>																				
Consultant Project Mgr. <u>Samuel Miles</u>																				
Consultant Phone # _____																				
Sampler <u>J. Sepiol, M. Andrews, R. Brauchla</u>				<b>3</b>		Composite														
<b>2 Sample Identification</b>		Collected		Grab	Composite											<b>6 Remarks</b>				
		Date	Time													Use Standard SGC  MW-530, MW-532, MW-533, MW-533-MS, & MW-533-MSD use amber HCl VOA's - cleared with Amek Carter				
<u>MW-104</u>	<u>3/2/22</u>	<u>1406</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>DUP-4</u>	<u>3/2/22</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-ER</u>	<u>3/2/22</u>	<u>1216</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-535</u>	<u>3/2/22</u>	<u>1056</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-525</u>	<u>3/3/22</u>	<u>0956</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-530</u>	<u>3/3/22</u>	<u>10130</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>129R MW-129R</u>	<u>3/3/22</u>	<u>1034</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>LM-2</u>	<u>3/3/22</u>	<u>1154</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-532</u>	<u>3/3/22</u>	<u>1300</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-526</u>	<u>3/3/22</u>	<u>1304</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<del>MW-104</del>	<del>3/3/22</del>	<del>1406</del>	<del><input checked="" type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input checked="" type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input checked="" type="checkbox"/></del>	<del><input checked="" type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>			<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>
<u>DUP-3</u>	<u>3/3/22</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>MW-533</u>	<u>3/3/22</u>	<u>1420</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<b>7 Turnaround Time Requested (TAT) (please circle)</b>				Relinquished by <u>[Signature]</u>		Date <u>3/3/22</u>		Time _____		Received by _____		Date _____		Time _____						
(Standard) 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by _____		Date _____		Time _____		Received by _____		Date _____		Time _____						
<b>8 Data Package (circle if required)</b>		<b>EDD (circle if required)</b>		Relinquished by Commercial Carrier:						Received by <u>[Signature]</u>		Date <u>3/3/22</u>		Time <u>1029</u>						
Type I - Full		CVX-RTBU-FI_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____						Custody Seals Intact? <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No _____								
Type VI (Raw Data)		Other: _____		Temperature Upon Receipt <u>0.4-1.4 °C</u>																

# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories Environmental**

Acct. # \_\_\_\_\_ For Eurofins Lancaster Laboratories Environmental use only  
 Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks	
Facility # <span style="float: right;">WBS</span> Edmonds Former Bulk Fuel Terminal				Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>				Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ cPAT by 8270.D SIM												SCR #: _____	
Site Address 11720 Unoco Rd Edmonds, WA																					
Chevron PM Kim Jolitz <span style="float: right;">Lead Consultant</span>																					
Consultant/Office 1100 Olive Way, Suite 800 Seattle, WA																					
Consultant Project Mgr. Samuel Miles																					
Consultant Phone # _____				3 Grab <input type="checkbox"/> Composite <input type="checkbox"/>																	
2 Sample Identification																					
		Collected																			
		Date	Time																		
MW-533 MS		3/3/22	1421																	6 Use Standard 56C	
MW-533 MSD		3/3/22	1423																		
MW-531		3/3/22	1424																		
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by _____				Date _____ Time _____		Received by _____				Date _____ Time _____							
Standard 5 day 4 day 72 hour 48 hour 24 hour							Date _____ Time _____						Date _____ Time _____								
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Received by _____				Date _____ Time _____									
Type I - Full Type VI (Raw Data)		EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____				Temperature Upon Receipt <u>0.4-1.4 °C</u>				Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-74998-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
3/17/2022 1:27:53 AM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@eurofinset.com](mailto:Loran.Carter@eurofinset.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

A handwritten signature in cursive script that reads "Amek Carter".

---

Amek Carter  
Project Manager  
3/17/2022 1:27:53 AM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

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## Job ID: 410-74998-1

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### Laboratory: Eurofins Lancaster Laboratories Env, LLC

#### Narrative

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#### Job Narrative 410-74998-1

#### Receipt

The samples were received on 3/4/2022 10:58 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C

#### Receipt Exceptions

A 500ml amber glass unpreserved container was received for 8270SIM. The analysis is not marked on the COC. Entered per container.

MW-534 (410-74998-1)

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

Method NWTPH\_Gx: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): Trip Blank (410-74998-2). The sample container was received with headspace.

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

#### GC Semi VOA

Method NWTPH\_Dx: The method blank for preparation batch 410-232993 and 410-233790 and analytical batch 410-233188 contained C24-C40 above the method detection limit (MDL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

---

**Client Sample ID: MW-534**

**Lab Sample ID: 410-74998-1**

No Detections.

---

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74998-2**

No Detections.

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

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

**Client Sample ID: MW-534**

**Lab Sample ID: 410-74998-1**

Date Collected: 03/03/22 10:34

Matrix: Water

Date Received: 03/04/22 10:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/10/22 11:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					03/10/22 11:33	1
Dibromofluoromethane (Surr)	101		80 - 120					03/10/22 11:33	1
4-Bromofluorobenzene (Surr)	99		80 - 120					03/10/22 11:33	1
Toluene-d8 (Surr)	93		80 - 120					03/10/22 11:33	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 22:30	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 22:30	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 22:30	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 22:30	1
Chrysene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 22:30	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/10/22 09:51	03/10/22 22:30	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/10/22 09:51	03/10/22 22:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	30		10 - 110				03/10/22 09:51	03/10/22 22:30	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				03/10/22 09:51	03/10/22 22:30	1
Fluoranthene-d10 (Surr)	89		47 - 128				03/10/22 09:51	03/10/22 22:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	19	ug/L			03/09/22 19:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	111		50 - 150					03/09/22 19:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	50	ug/L		03/13/22 18:00	03/16/22 00:01	1
C24-C40	ND	cn	280	110	ug/L		03/13/22 18:00	03/16/22 00:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	58	cn	50 - 150				03/13/22 18:00	03/16/22 00:01	1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74998-2**

Date Collected: 03/03/22 00:00

Matrix: Water

Date Received: 03/04/22 10:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/10/22 10:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					03/10/22 10:33	1
Dibromofluoromethane (Surr)	103		80 - 120					03/10/22 10:33	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/10/22 10:33	1
Toluene-d8 (Surr)	94		80 - 120					03/10/22 10:33	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-74998-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74998-2**

Date Collected: 03/03/22 00:00

Matrix: Water

Date Received: 03/04/22 10:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	cn	250	19	ug/L			03/09/22 12:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	110	cn	50 - 150					03/09/22 12:45	1

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-74998-1	MW-534	101	101	99	93
410-74998-2	Trip Blank	103	103	100	94
LCS 410-232012/4	Lab Control Sample	100	102	99	93
LCSD 410-232012/5	Lab Control Sample Dup	102	102	101	94
MB 410-232012/7	Method Blank	103	101	98	92

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-74998-1	MW-534	30	77	89
LCS 410-232068/2-A	Lab Control Sample	87	70	86
MB 410-232068/1-A	Method Blank	76	69	83

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-74998-1	MW-534	111
410-74998-2	Trip Blank	110 cn
LCS 410-231647/5	Lab Control Sample	113
LCSD 410-231647/6	Lab Control Sample Dup	112
MB 410-231647/4	Method Blank	110

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		OTP (50-150)
410-74998-1	MW-534	58 cn
LCS 410-232993/2-B	Lab Control Sample	56
LCSD 410-232993/3-B	Lab Control Sample Dup	64
MB 410-232993/1-B	Method Blank	62

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

## Surrogate Legend

OTP = o- terphenyl (Surr)

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

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

Lab Sample ID: MB 410-232012/7

Matrix: Water

Analysis Batch: 232012

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			03/10/22 10:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					03/10/22 10:13	1
Dibromofluoromethane (Surr)	101		80 - 120					03/10/22 10:13	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/10/22 10:13	1
Toluene-d8 (Surr)	92		80 - 120					03/10/22 10:13	1

Lab Sample ID: LCS 410-232012/4

Matrix: Water

Analysis Batch: 232012

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	21.3		ug/L		106	80 - 120
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	100		80 - 120				
Dibromofluoromethane (Surr)	102		80 - 120				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Toluene-d8 (Surr)	93		80 - 120				

Lab Sample ID: LCSD 410-232012/5

Matrix: Water

Analysis Batch: 232012

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	20.0	21.5		ug/L		107	80 - 120	1	30
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	102		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Toluene-d8 (Surr)	94		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-232068/1-A

Matrix: Water

Analysis Batch: 232390

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 232068

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 20:31	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 20:31	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 20:31	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 20:31	1
Chrysene	ND		0.050	0.010	ug/L		03/10/22 09:51	03/10/22 20:31	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		03/10/22 09:51	03/10/22 20:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		03/10/22 09:51	03/10/22 20:31	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	76		10 - 110	03/10/22 09:51	03/10/22 20:31	1
1-Methylnaphthalene-d10 (Surr)	69		36 - 111	03/10/22 09:51	03/10/22 20:31	1
Fluoranthene-d10 (Surr)	83		47 - 128	03/10/22 09:51	03/10/22 20:31	1

Lab Sample ID: LCS 410-232068/2-A

Matrix: Water

Analysis Batch: 232390

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 232068

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Benzo[a]anthracene	1.00	0.868		ug/L		87	61 - 122	
Benzo[a]pyrene	1.00	0.813		ug/L		81	60 - 120	
Benzo[b]fluoranthene	1.00	0.831		ug/L		83	58 - 122	
Benzo[k]fluoranthene	1.00	0.868		ug/L		87	57 - 128	
Chrysene	1.00	0.797		ug/L		80	55 - 123	
Dibenz(a,h)anthracene	1.00	0.928		ug/L		93	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.933		ug/L		93	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	87		10 - 110
1-Methylnaphthalene-d10 (Surr)	70		36 - 111
Fluoranthene-d10 (Surr)	86		47 - 128

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

Lab Sample ID: MB 410-231647/4

Matrix: Water

Analysis Batch: 231647

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	19	ug/L			03/09/22 11:34	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	110		50 - 150		03/09/22 11:34	1

Lab Sample ID: LCS 410-231647/5

Matrix: Water

Analysis Batch: 231647

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
C7-C12 (1C)	1100	1000		ug/L		91	64 - 131	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	113		50 - 150

Lab Sample ID: LCSD 410-231647/6

Matrix: Water

Analysis Batch: 231647

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	Limit
C7-C12 (1C)	1100	969		ug/L		88	64 - 131	3	30	



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

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

Lab Sample ID: LCSD 410-231647/6  
Matrix: Water  
Analysis Batch: 231647

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

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	112		50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-232993/1-B  
Matrix: Water  
Analysis Batch: 233188

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 232993

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		03/13/22 18:00	03/15/22 22:08	1
C24-C40	170	J	250	100	ug/L		03/13/22 18:00	03/15/22 22:08	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
o-terphenyl (Surr)	62		50 - 150	03/13/22 18:00	03/15/22 22:08	1

Lab Sample ID: LCS 410-232993/2-B  
Matrix: Water  
Analysis Batch: 233188

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 232993

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
C12-C24	600	206		ug/L		34	14 - 115

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
o-terphenyl (Surr)	56		50 - 150

Lab Sample ID: LCSD 410-232993/3-B  
Matrix: Water  
Analysis Batch: 233188

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 232993

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
C12-C24	600	218		ug/L		36	14 - 115	6	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
o-terphenyl (Surr)	64		50 - 150

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

## GC/MS VOA

### Analysis Batch: 232012

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	8260D	
410-74998-2	Trip Blank	Total/NA	Water	8260D	
MB 410-232012/7	Method Blank	Total/NA	Water	8260D	
LCS 410-232012/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-232012/5	Lab Control Sample Dup	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 232068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	3510C	
MB 410-232068/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-232068/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 232390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	8270E SIM	232068
MB 410-232068/1-A	Method Blank	Total/NA	Water	8270E SIM	232068
LCS 410-232068/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	232068

## GC VOA

### Analysis Batch: 231647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	NWTPH-Gx	
410-74998-2	Trip Blank	Total/NA	Water	NWTPH-Gx	
MB 410-231647/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-231647/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-231647/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 232993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	3510C	
MB 410-232993/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 233188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	NWTPH-Dx	233790
MB 410-232993/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	233790
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	233790
LCSD 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	233790

### Cleanup Batch: 233790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-74998-1	MW-534	Total/NA	Water	3630C	232993
MB 410-232993/1-B	Method Blank	Total/NA	Water	3630C	232993
LCS 410-232993/2-B	Lab Control Sample	Total/NA	Water	3630C	232993
LCSD 410-232993/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	232993

Eurofins Lancaster Laboratories Env, LLC

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

**Client Sample ID: MW-534**

**Lab Sample ID: 410-74998-1**

**Date Collected: 03/03/22 10:34**

**Matrix: Water**

**Date Received: 03/04/22 10:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	232012	03/10/22 11:33	ULCP	ELLE
Total/NA	Prep	3510C			232068	03/10/22 09:51	XPN5	ELLE
Total/NA	Analysis	8270E SIM		1	232390	03/10/22 22:30	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	231647	03/09/22 19:11	JJT8	ELLE
Total/NA	Prep	3510C			232993	03/13/22 18:00	L2TS	ELLE
Total/NA	Cleanup	3630C			233790	03/15/22 13:34	YDF5	ELLE
Total/NA	Analysis	NWTPH-Dx		1	233188	03/16/22 00:01	IUSB	ELLE

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-74998-2**

**Date Collected: 03/03/22 00:00**

**Matrix: Water**

**Date Received: 03/04/22 10:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	232012	03/10/22 10:33	ULCP	ELLE
Total/NA	Analysis	NWTPH-Gx		1	231647	03/09/22 12:45	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

## Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-12-22

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

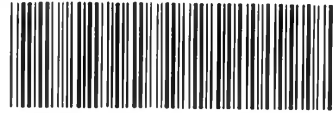
Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-74998-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-74998-1	MW-534	Water	03/03/22 10:34	03/04/22 10:58
410-74998-2	Trip Blank	Water	03/03/22 00:00	03/04/22 10:58

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Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_ For Eurofins Lancaster  
 Group # \_\_\_\_\_ Instructions on r

410-74998 Chain of Custody

1 OF 1

1 Client Information				4 Matrix			5 Analyses Requested											6 Remarks					
Facility # _____ WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b> Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b> Chevron PM <b>KIM JOLITE</b> Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. <b>SAMUEL MILES</b> Consultant Phone # _____ Sampler <b>J. SEPIOL</b>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil			Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPAH <b>8270 SIM</b>											SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits					
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	CPAH	
Date	Time																						
MW-534	03/03/22	1034	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TRIP BLANK	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by  J. SEPIOL		Date 3/3/2022		Time 1400		Received by 		Date 3/4/22		Time 10:58		Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____		Received by 		Date 3/4/22		Time 10:58	
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____		Temperature Upon Receipt <b>1.7</b> °C		Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Remarks * USE STANDARD SGC													



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-87390-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
7/14/2022 2:28:04 AM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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





Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in black ink that reads "Amek Carter".

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Amek Carter  
Project Manager  
7/14/2022 2:28:04 AM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.

### Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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

## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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

- 1
- 2
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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

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## Job ID: 410-87390-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

#### Job Narrative 410-87390-1

#### Receipt

The samples were received on 6/14/2022 10:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C

#### Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: MW-534-W-220613 (410-87390-3). Entered per container labels

COC does not request metals analysis for the following samples, but nitric bottles were received. Entered for dissolved Mn MW-526-W-220613 (410-87390-1), MW-533-W-220613 (410-87390-2), MW-534-W-220613 (410-87390-3) and DUP-1-WD-220613 (410-87390-4).

#### GC/MS VOA

Method 8260D: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-526-W-220613 (410-87390-1) and DUP-1-WD-220613 (410-87390-4). Elevated reporting limits (RLs) are provided.

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

#### GC/MS Semi VOA

Method 8270E\_SIM: Internal standard (ISTD) response for Acenaphthene-d10 in the following samples was outside of acceptance limits: MW-526-W-220613 (410-87390-1) and DUP-1-WD-220613 (410-87390-4). None of the compounds reported in the sample are associated with this ISTD; therefore, the data is reported.

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

#### GC VOA

Method NWTPH\_Gx: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): QA-T-220613 (410-87390-5). The sample container was received with headspace.

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

#### GC Semi VOA

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

#### HPLC/IC

Method 300\_ORGFMS: The following sample was diluted due to the nature of the sample matrix: MW-533-W-220613 (410-87390-2) at 50.0. Elevated reporting limits (RLs) are provided.

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

#### Metals

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Client Sample ID: MW-526-W-220613

Lab Sample ID: 410-87390-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	490		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	12		5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	61	J	100	47	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	7300	F1	5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	500	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-533-W-220613

Lab Sample ID: 410-87390-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	300000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA

## Client Sample ID: MW-534-W-220613

Lab Sample ID: 410-87390-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	480		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	59000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	1500	B ^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: DUP-1-WD-220613

Lab Sample ID: 410-87390-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	510		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	13		5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	69	J	100	47	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	7200		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	520		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-220613

Lab Sample ID: 410-87390-5

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: MW-526-W-220613**

**Lab Sample ID: 410-87390-1**

Date Collected: 06/13/22 13:40

Matrix: Water

Date Received: 06/14/22 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			06/17/22 13:42	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97	cn	80 - 120					06/17/22 13:42	5
Dibromofluoromethane (Surr)	91	cn	80 - 120					06/17/22 13:42	5
4-Bromofluorobenzene (Surr)	100	cn	80 - 120					06/17/22 13:42	5
Toluene-d8 (Surr)	103	cn	80 - 120					06/17/22 13:42	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:34	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:34	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:34	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:34	1
Chrysene	ND	cn	0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:34	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.021	ug/L		06/20/22 15:52	06/21/22 13:34	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.021	ug/L		06/20/22 15:52	06/21/22 13:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	68	cn	10 - 110				06/20/22 15:52	06/21/22 13:34	1
1-Methylnaphthalene-d10 (Surr)	92	cn	36 - 111				06/20/22 15:52	06/21/22 13:34	1
Fluoranthene-d10 (Surr)	95	cn	47 - 128				06/20/22 15:52	06/21/22 13:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	490		250	22	ug/L			06/15/22 20:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/15/22 20:18	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	12		5.0	3.0	ug/L		06/15/22 09:45	06/15/22 22:25	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	61	J	100	47	ug/L		06/25/22 10:00	06/27/22 14:28	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 14:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150				06/25/22 10:00	06/27/22 14:28	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	F1	500	250	ug/L			06/14/22 20:09	5
Sulfate	7300	F1	5000	1500	ug/L			06/14/22 20:09	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	500	^2	2.1	0.98	ug/L		06/30/22 10:46	07/01/22 15:11	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: MW-533-W-220613**

**Lab Sample ID: 410-87390-2**

Date Collected: 06/13/22 13:25

Matrix: Water

Date Received: 06/14/22 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					06/17/22 14:09	1
Dibromofluoromethane (Surr)	94		80 - 120					06/17/22 14:09	1
4-Bromofluorobenzene (Surr)	99		80 - 120					06/17/22 14:09	1
Toluene-d8 (Surr)	103		80 - 120					06/17/22 14:09	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:56	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:56	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:56	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:56	1
Chrysene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 13:56	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		06/20/22 15:52	06/21/22 13:56	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		06/20/22 15:52	06/21/22 13:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	72		10 - 110				06/20/22 15:52	06/21/22 13:56	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111				06/20/22 15:52	06/21/22 13:56	1
Fluoranthene-d10 (Surr)	91		47 - 128				06/20/22 15:52	06/21/22 13:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/15/22 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/15/22 20:44	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/15/22 09:45	06/15/22 22:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/25/22 10:00	06/27/22 14:51	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 14:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150				06/25/22 10:00	06/27/22 14:51	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	5000	2500	ug/L			06/14/22 19:26	50
Sulfate	300000		50000	15000	ug/L			06/14/22 19:26	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/28/22 12:08	07/13/22 14:03	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: MW-534-W-220613**

**Lab Sample ID: 410-87390-3**

Date Collected: 06/13/22 14:22

Matrix: Water

Date Received: 06/14/22 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 14:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					06/17/22 14:35	1
Dibromofluoromethane (Surr)	93		80 - 120					06/17/22 14:35	1
4-Bromofluorobenzene (Surr)	99		80 - 120					06/17/22 14:35	1
Toluene-d8 (Surr)	103		80 - 120					06/17/22 14:35	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.062	0.012	ug/L		06/20/22 15:52	06/21/22 14:17	1
Benzo[a]pyrene	ND		0.062	0.012	ug/L		06/20/22 15:52	06/21/22 14:17	1
Benzo[b]fluoranthene	ND		0.062	0.012	ug/L		06/20/22 15:52	06/21/22 14:17	1
Benzo[k]fluoranthene	ND		0.062	0.012	ug/L		06/20/22 15:52	06/21/22 14:17	1
Chrysene	ND		0.062	0.012	ug/L		06/20/22 15:52	06/21/22 14:17	1
Dibenz(a,h)anthracene	ND		0.062	0.025	ug/L		06/20/22 15:52	06/21/22 14:17	1
Indeno[1,2,3-cd]pyrene	ND		0.062	0.025	ug/L		06/20/22 15:52	06/21/22 14:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	46		10 - 110				06/20/22 15:52	06/21/22 14:17	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				06/20/22 15:52	06/21/22 14:17	1
Fluoranthene-d10 (Surr)	92		47 - 128				06/20/22 15:52	06/21/22 14:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/15/22 21:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/15/22 21:10	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	480		5.0	3.0	ug/L		06/15/22 09:45	06/15/22 22:58	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/25/22 10:00	06/27/22 15:14	1
C24-C40	ND		270	110	ug/L		06/25/22 10:00	06/27/22 15:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	68		50 - 150				06/25/22 10:00	06/27/22 15:14	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/14/22 20:41	5
Sulfate	59000		5000	1500	ug/L			06/14/22 20:41	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1500	B ^2	2.1	0.98	ug/L		06/30/22 10:19	07/05/22 20:20	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: DUP-1-WD-220613**

**Lab Sample ID: 410-87390-4**

Date Collected: 06/13/22 00:00

Matrix: Water

Date Received: 06/14/22 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			06/17/22 15:01	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	98	cn	80 - 120					06/17/22 15:01	5
Dibromofluoromethane (Surr)	93	cn	80 - 120					06/17/22 15:01	5
4-Bromofluorobenzene (Surr)	100	cn	80 - 120					06/17/22 15:01	5
Toluene-d8 (Surr)	102	cn	80 - 120					06/17/22 15:01	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		06/20/22 15:52	06/21/22 14:39	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		06/20/22 15:52	06/21/22 14:39	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		06/20/22 15:52	06/21/22 14:39	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		06/20/22 15:52	06/21/22 14:39	1
Chrysene	ND	cn	0.052	0.010	ug/L		06/20/22 15:52	06/21/22 14:39	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		06/20/22 15:52	06/21/22 14:39	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		06/20/22 15:52	06/21/22 14:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	69	cn	10 - 110				06/20/22 15:52	06/21/22 14:39	1
1-Methylnaphthalene-d10 (Surr)	91	cn	36 - 111				06/20/22 15:52	06/21/22 14:39	1
Fluoranthene-d10 (Surr)	116	cn	47 - 128				06/20/22 15:52	06/21/22 14:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>510</b>		250	22	ug/L			06/15/22 21:35	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					06/15/22 21:35	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>13</b>		5.0	3.0	ug/L		06/15/22 09:45	06/15/22 23:32	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>69</b>	<b>J</b>	100	47	ug/L		06/25/22 10:00	06/27/22 15:36	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 15:36	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	57		50 - 150				06/25/22 10:00	06/27/22 15:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/14/22 19:15	5
<b>Sulfate</b>	<b>7200</b>		5000	1500	ug/L			06/14/22 19:15	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>520</b>		2.1	0.98	ug/L		06/30/22 11:20	07/01/22 16:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: QA-T-220613**

**Lab Sample ID: 410-87390-5**

Date Collected: 06/13/22 00:00

Matrix: Water

Date Received: 06/14/22 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 13:16	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					06/17/22 13:16	1
Dibromofluoromethane (Surr)	95		80 - 120					06/17/22 13:16	1
4-Bromofluorobenzene (Surr)	100		80 - 120					06/17/22 13:16	1
Toluene-d8 (Surr)	105		80 - 120					06/17/22 13:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	cn	250	22	ug/L			06/15/22 15:34	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100	cn	50 - 150					06/15/22 15:34	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87390-1	MW-526-W-220613	97 cn	91 cn	100 cn	103 cn
410-87390-2	MW-533-W-220613	101	94	99	103
410-87390-3	MW-534-W-220613	97	93	99	103
410-87390-4	DUP-1-WD-220613	98 cn	93 cn	100 cn	102 cn
410-87390-5	QA-T-220613	101	95	100	105
LCS 410-266691/4	Lab Control Sample	98	97	102	104
LCS 410-266691/5	Lab Control Sample Dup	97	96	101	104
MB 410-266691/7	Method Blank	104	94	100	104

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87390-1	MW-526-W-220613	68 cn	92 cn	95 cn
410-87390-2	MW-533-W-220613	72	71	91
410-87390-3	MW-534-W-220613	46	79	92
410-87390-4	DUP-1-WD-220613	69 cn	91 cn	116 cn
LCS 410-267387/2-A	Lab Control Sample	82	41	80
MB 410-267387/1-A	Method Blank	70	60	68

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-87390-1	MW-526-W-220613	101
410-87390-2	MW-533-W-220613	101
410-87390-3	MW-534-W-220613	101
410-87390-4	DUP-1-WD-220613	103
410-87390-5	QA-T-220613	100 cn
LCS 410-265817/5	Lab Control Sample	92
LCS 410-265817/6	Lab Control Sample Dup	93
MB 410-265817/4	Method Blank	99

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-87390-1	MW-526-W-220613	67
410-87390-2	MW-533-W-220613	63
410-87390-3	MW-534-W-220613	68
410-87390-4	DUP-1-WD-220613	57
410-87390-4 DU	DUP-1-WD-220613	53
LCS 410-269290/2-B	Lab Control Sample	58
MB 410-269290/1-B	Method Blank	69

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

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

**Lab Sample ID: MB 410-266691/7**  
**Matrix: Water**  
**Analysis Batch: 266691**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 11:58	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					06/17/22 11:58	1
Dibromofluoromethane (Surr)	94		80 - 120					06/17/22 11:58	1
4-Bromofluorobenzene (Surr)	100		80 - 120					06/17/22 11:58	1
Toluene-d8 (Surr)	104		80 - 120					06/17/22 11:58	1

**Lab Sample ID: LCS 410-266691/4**  
**Matrix: Water**  
**Analysis Batch: 266691**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.2		ug/L		106	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
4-Bromofluorobenzene (Surr)	102		80 - 120					
Toluene-d8 (Surr)	104		80 - 120					

**Lab Sample ID: LCSD 410-266691/5**  
**Matrix: Water**  
**Analysis Batch: 266691**

**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	20.0	21.0		ug/L		105	80 - 120	1	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Toluene-d8 (Surr)	104		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-267387/1-A**  
**Matrix: Water**  
**Analysis Batch: 267508**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 267387**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Chrysene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/20/22 15:52	06/21/22 09:58	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/20/22 15:52	06/21/22 09:58	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	70		10 - 110	06/20/22 15:52	06/21/22 09:58	1
1-Methylnaphthalene-d10 (Surr)	60		36 - 111	06/20/22 15:52	06/21/22 09:58	1
Fluoranthene-d10 (Surr)	68		47 - 128	06/20/22 15:52	06/21/22 09:58	1

Lab Sample ID: LCS 410-267387/2-A

Matrix: Water

Analysis Batch: 267508

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 267387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	1.00	0.912		ug/L		91	61 - 122	
Benzo[a]pyrene	1.00	0.861		ug/L		86	60 - 120	
Benzo[b]fluoranthene	1.00	0.884		ug/L		88	58 - 122	
Benzo[k]fluoranthene	1.00	0.952		ug/L		95	57 - 128	
Chrysene	1.00	0.866		ug/L		87	55 - 123	
Dibenz(a,h)anthracene	1.00	0.874		ug/L		87	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.880		ug/L		88	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	82		10 - 110
1-Methylnaphthalene-d10 (Surr)	41		36 - 111
Fluoranthene-d10 (Surr)	80		47 - 128

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

Lab Sample ID: MB 410-265817/4

Matrix: Water

Analysis Batch: 265817

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	22	ug/L			06/15/22 13:52	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		06/15/22 13:52	1

Lab Sample ID: LCS 410-265817/5

Matrix: Water

Analysis Batch: 265817

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
C7-C12 (1C)	1100	1070		ug/L		97	64 - 131	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

Lab Sample ID: LCSD 410-265817/6

Matrix: Water

Analysis Batch: 265817

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	Limit
C7-C12 (1C)	1100	1070		ug/L		97	64 - 131	0	30	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

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

Lab Sample ID: LCSD 410-265817/6  
Matrix: Water  
Analysis Batch: 265817

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

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150

## Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 410-265756/1-A  
Matrix: Water  
Analysis Batch: 265698

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 265756

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/15/22 09:45	06/15/22 20:27	1

Lab Sample ID: LCS 410-265756/2-A  
Matrix: Water  
Analysis Batch: 265698

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 265756

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	56.1		ug/L		94	85 - 115

Lab Sample ID: LCSD 410-265756/3-A  
Matrix: Water  
Analysis Batch: 265698

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 265756

Analyte	Spike Added	LCS D Result	LCS D Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	56.4		ug/L		94	85 - 115	0	20

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-269290/1-B  
Matrix: Water  
Analysis Batch: 269714

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 269290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/25/22 10:00	06/27/22 13:42	1
C24-C40	ND		250	100	ug/L		06/25/22 10:00	06/27/22 13:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150	06/25/22 10:00	06/27/22 13:42	1

Lab Sample ID: LCS 410-269290/2-B  
Matrix: Water  
Analysis Batch: 269714

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 269290

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	187		ug/L		31	14 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-terphenyl (Surr)	58		50 - 150



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

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

**Lab Sample ID: 410-87390-4 DU**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: DUP-1-WD-220613**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	69	J	62.8	J	ug/L		9	20
C24-C40	ND		ND		ug/L		NC	20
<b>DU DU</b>								
Surrogate	%Recovery	Qualifier	Limits					
<i>o</i> -terphenyl (Surr)	53		50 - 150					

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-265473/5**  
**Matrix: Water**  
**Analysis Batch: 265473**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrogen, Nitrate	ND		100	50	ug/L			06/14/22 10:32	1

**Lab Sample ID: LCS 410-265473/3**  
**Matrix: Water**  
**Analysis Batch: 265473**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrogen, Nitrate	755	754		ug/L		100	90 - 110		

**Lab Sample ID: LCSD 410-265473/4**  
**Matrix: Water**  
**Analysis Batch: 265473**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit

**Lab Sample ID: 410-87390-1 MS**  
**Matrix: Water**  
**Analysis Batch: 265473**

**Client Sample ID: MW-526-W-220613**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result	Qualifier							
Nitrogen, Nitrate	ND	F1	2520	2930	F1	ug/L		117	90 - 110

**Lab Sample ID: 410-87390-1 DU**  
**Matrix: Water**  
**Analysis Batch: 265473**

**Client Sample ID: MW-526-W-220613**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Nitrogen, Nitrate	ND	F1	ND		ug/L		NC	15

**Lab Sample ID: MB 410-265474/5**  
**Matrix: Water**  
**Analysis Batch: 265474**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfate	ND		1000	300	ug/L			06/14/22 10:32	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 410-265474/3**  
**Matrix: Water**  
**Analysis Batch: 265474**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7180		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-265474/4**  
**Matrix: Water**  
**Analysis Batch: 265474**

**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
Sulfate	7510	7240		ug/L		96	90 - 110	1	20

**Lab Sample ID: 410-87390-1 MS**  
**Matrix: Water**  
**Analysis Batch: 265474**

**Client Sample ID: MW-526-W-220613**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7300	F1	25000	37700	F1	ug/L		122	90 - 110

**Lab Sample ID: 410-87390-1 DU**  
**Matrix: Water**  
**Analysis Batch: 265474**

**Client Sample ID: MW-526-W-220613**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	7300	F1	25000	7290		ug/L				0.3	15

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-270261/1-A**  
**Matrix: Water**  
**Analysis Batch: 275241**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 270261**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/28/22 12:08	07/13/22 12:28	1

**Lab Sample ID: LCS 410-270261/2-A**  
**Matrix: Water**  
**Analysis Batch: 275241**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 270261**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	542		ug/L		108	85 - 115

**Lab Sample ID: MB 410-271149/1-A**  
**Matrix: Water**  
**Analysis Batch: 272482**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271149**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.71	J	2.1	0.98	ug/L		06/30/22 10:19	07/05/22 19:41	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 410-271149/2-A**  
**Matrix: Water**  
**Analysis Batch: 272482**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271149**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	524		ug/L		105	85 - 115

**Lab Sample ID: MB 410-271166/1-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 10:46	07/01/22 14:49	1

**Lab Sample ID: LCS 410-271166/2-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	483		ug/L		97	85 - 115

**Lab Sample ID: MB 410-271190/1-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 11:20	07/01/22 15:48	1

**Lab Sample ID: LCS 410-271190/2-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	490		ug/L		98	85 - 115

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## GC/MS VOA

### Analysis Batch: 266691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	8260D	
410-87390-2	MW-533-W-220613	Total/NA	Water	8260D	
410-87390-3	MW-534-W-220613	Total/NA	Water	8260D	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	8260D	
410-87390-5	QA-T-220613	Total/NA	Water	8260D	
MB 410-266691/7	Method Blank	Total/NA	Water	8260D	
LCS 410-266691/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-266691/5	Lab Control Sample Dup	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 267387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	3510C	
410-87390-2	MW-533-W-220613	Total/NA	Water	3510C	
410-87390-3	MW-534-W-220613	Total/NA	Water	3510C	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	3510C	
MB 410-267387/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-267387/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 267508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	8270E SIM	267387
410-87390-2	MW-533-W-220613	Total/NA	Water	8270E SIM	267387
410-87390-3	MW-534-W-220613	Total/NA	Water	8270E SIM	267387
410-87390-4	DUP-1-WD-220613	Total/NA	Water	8270E SIM	267387
MB 410-267387/1-A	Method Blank	Total/NA	Water	8270E SIM	267387
LCS 410-267387/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	267387

## GC VOA

### Analysis Batch: 265698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	RSK-175	265756
410-87390-2	MW-533-W-220613	Total/NA	Water	RSK-175	265756
410-87390-3	MW-534-W-220613	Total/NA	Water	RSK-175	265756
410-87390-4	DUP-1-WD-220613	Total/NA	Water	RSK-175	265756
MB 410-265756/1-A	Method Blank	Total/NA	Water	RSK-175	265756
LCS 410-265756/2-A	Lab Control Sample	Total/NA	Water	RSK-175	265756
LCSD 410-265756/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	265756

### Prep Batch: 265756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	RSK-175	
410-87390-2	MW-533-W-220613	Total/NA	Water	RSK-175	
410-87390-3	MW-534-W-220613	Total/NA	Water	RSK-175	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	RSK-175	
MB 410-265756/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-265756/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-265756/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## GC VOA

### Analysis Batch: 265817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	NWTPH-Gx	
410-87390-2	MW-533-W-220613	Total/NA	Water	NWTPH-Gx	
410-87390-3	MW-534-W-220613	Total/NA	Water	NWTPH-Gx	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	NWTPH-Gx	
410-87390-5	QA-T-220613	Total/NA	Water	NWTPH-Gx	
MB 410-265817/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-265817/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-265817/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 269290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	3510C	
410-87390-2	MW-533-W-220613	Total/NA	Water	3510C	
410-87390-3	MW-534-W-220613	Total/NA	Water	3510C	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	3510C	
MB 410-269290/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-87390-4 DU	DUP-1-WD-220613	Total/NA	Water	3510C	

### Cleanup Batch: 269379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	3630C	269290
410-87390-2	MW-533-W-220613	Total/NA	Water	3630C	269290
410-87390-3	MW-534-W-220613	Total/NA	Water	3630C	269290
410-87390-4	DUP-1-WD-220613	Total/NA	Water	3630C	269290
MB 410-269290/1-B	Method Blank	Total/NA	Water	3630C	269290
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3630C	269290
410-87390-4 DU	DUP-1-WD-220613	Total/NA	Water	3630C	269290

### Analysis Batch: 269714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	NWTPH-Dx	269379
410-87390-2	MW-533-W-220613	Total/NA	Water	NWTPH-Dx	269379
410-87390-3	MW-534-W-220613	Total/NA	Water	NWTPH-Dx	269379
410-87390-4	DUP-1-WD-220613	Total/NA	Water	NWTPH-Dx	269379
MB 410-269290/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	269379
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	269379
410-87390-4 DU	DUP-1-WD-220613	Total/NA	Water	NWTPH-Dx	269379

## HPLC/IC

### Analysis Batch: 265473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-2	MW-533-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-3	MW-534-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	EPA 300.0 R2.1	
MB 410-265473/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-265473/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-265473/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## HPLC/IC (Continued)

### Analysis Batch: 265473 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1 MS	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-1 DU	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 265474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-2	MW-533-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-3	MW-534-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-4	DUP-1-WD-220613	Total/NA	Water	EPA 300.0 R2.1	
MB 410-265474/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-265474/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-265474/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87390-1 MS	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	
410-87390-1 DU	MW-526-W-220613	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 270261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-2	MW-533-W-220613	Dissolved	Water	Non-Digest Prep	
MB 410-270261/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-270261/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 271149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-3	MW-534-W-220613	Dissolved	Water	Non-Digest Prep	
MB 410-271149/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271149/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 271166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Dissolved	Water	Non-Digest Prep	
MB 410-271166/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271166/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 271190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-4	DUP-1-WD-220613	Dissolved	Water	Non-Digest Prep	
MB 410-271190/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271190/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 271973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-1	MW-526-W-220613	Dissolved	Water	200.8 Rev 5.4	271166
410-87390-4	DUP-1-WD-220613	Dissolved	Water	200.8 Rev 5.4	271190
MB 410-271166/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271166
MB 410-271190/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271190
LCS 410-271166/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271166
LCS 410-271190/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271190

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Metals

### Analysis Batch: 272482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-3	MW-534-W-220613	Dissolved	Water	200.8 Rev 5.4	271149
MB 410-271149/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271149
LCS 410-271149/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271149

### Analysis Batch: 275241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87390-2	MW-533-W-220613	Dissolved	Water	200.8 Rev 5.4	270261
MB 410-270261/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	270261
LCS 410-270261/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	270261



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: MW-526-W-220613**

**Lab Sample ID: 410-87390-1**

**Date Collected: 06/13/22 13:40**

**Matrix: Water**

**Date Received: 06/14/22 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	266691	06/17/22 13:42	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 13:34	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	265817	06/15/22 20:18	JJT8	ELLE
Total/NA	Prep	RSK-175			265756	06/15/22 09:45	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	265698	06/15/22 22:25	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XP5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 14:28	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265473	06/14/22 20:09	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265474	06/14/22 20:09	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271166	06/30/22 10:46	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271973	07/01/22 15:11	S4PD	ELLE

**Client Sample ID: MW-533-W-220613**

**Lab Sample ID: 410-87390-2**

**Date Collected: 06/13/22 13:25**

**Matrix: Water**

**Date Received: 06/14/22 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 14:09	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 13:56	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	265817	06/15/22 20:44	JJT8	ELLE
Total/NA	Prep	RSK-175			265756	06/15/22 09:45	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	265698	06/15/22 22:42	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XP5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 14:51	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	265473	06/14/22 19:26	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	265474	06/14/22 19:26	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			270261	06/28/22 12:08	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	275241	07/13/22 14:03	UCIG	ELLE

**Client Sample ID: MW-534-W-220613**

**Lab Sample ID: 410-87390-3**

**Date Collected: 06/13/22 14:22**

**Matrix: Water**

**Date Received: 06/14/22 10:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 14:35	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 14:17	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	265817	06/15/22 21:10	JJT8	ELLE
Total/NA	Prep	RSK-175			265756	06/15/22 09:45	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	265698	06/15/22 22:58	SE2A	ELLE



## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

**Client Sample ID: MW-534-W-220613**

**Lab Sample ID: 410-87390-3**

Date Collected: 06/13/22 14:22

Matrix: Water

Date Received: 06/14/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 15:14	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265473	06/14/22 20:41	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265474	06/14/22 20:41	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271149	06/30/22 10:19	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	272482	07/05/22 20:20	UCIG	ELLE

**Client Sample ID: DUP-1-WD-220613**

**Lab Sample ID: 410-87390-4**

Date Collected: 06/13/22 00:00

Matrix: Water

Date Received: 06/14/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	266691	06/17/22 15:01	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 14:39	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	265817	06/15/22 21:35	JJT8	ELLE
Total/NA	Prep	RSK-175			265756	06/15/22 09:45	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	265698	06/15/22 23:32	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 15:36	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265473	06/14/22 19:15	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	265474	06/14/22 19:15	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271190	06/30/22 11:20	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271973	07/01/22 16:22	S4PD	ELLE

**Client Sample ID: QA-T-220613**

**Lab Sample ID: 410-87390-5**

Date Collected: 06/13/22 00:00

Matrix: Water

Date Received: 06/14/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 13:16	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	265817	06/15/22 15:34	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87390-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-87390-1	MW-526-W-220613	Water	06/13/22 13:40	06/14/22 10:40
410-87390-2	MW-533-W-220613	Water	06/13/22 13:25	06/14/22 10:40
410-87390-3	MW-534-W-220613	Water	06/13/22 14:22	06/14/22 10:40
410-87390-4	DUP-1-WD-220613	Water	06/13/22 00:00	06/14/22 10:40
410-87390-5	QA-T-220613	Water	06/13/22 00:00	06/14/22 10:40

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# Chevron Northwest Region Analysis Request/Order



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental use only

Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.



410-87390 Chain of Custody

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks				
Facility # <b>Edmonds Terminal</b> WBS Site Address <b>1720 Union Oil Company Road, Edmonds, WA</b> Chevron PM <b>Kim Jolitz</b> Lead Consultant <b>Arcadis</b> Consultant/Office <b>1100 Olive Way, Suite 800, Seattle, WA 98101</b> Consultant Project Mgr. <b>Samuel Miles</b> Consultant Phone # _____ Sampler <b>J Sepiol, M Andrews, P Bruno</b>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Total Number of Containers				<input type="checkbox"/> BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input checked="" type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <b>MPAHs by 8270 SIM</b> <b>USEPA 300.0 sulfete r n/kat</b> <b>US RSK 175 Dissolved methan</b> <b>Benzene 8260</b>										SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits				
2 Sample Identification		3 Collected		Grab		Composite																
Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method			
MW-526	6/13/22	1340	X		X		15				X	X				X				X	Dissolved manganese field filtered	
MW-533	6/13/22	1325	X		X		15				X	X				X				X	use standard SGC	
MW-534	6/13/22		X		X		15				X	X				X				X		
DUPT	6/13/22	-	X		X		15				X	X				X				X		
TRIP BLANK	6/13/22	-					2				X									X		
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by		Date		Time		Received by		Date		Time						9		
<input checked="" type="radio"/> Standard    5 day    4 day 72 hour    48 hour    24 hour				D Gilbert		6/13/22		1530														
8 Data Package (circle if required)				EDD (circle if required)		Relinquished by Commercial Carrier:				Received by		Date		Time								
<input type="checkbox"/> Type I - Full <input type="checkbox"/> Type VI (Raw Data)				<input type="checkbox"/> CVX-RTBU-FL_05 (default) Other: _____		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt <b>1.7</b> °C				mmp		6/14/22		1040		Custody Seals Intact? <input checked="" type="checkbox"/> Yes    No						

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-87390-1

Login Number: 87390

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Hess, Anna

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-87540-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
7/11/2022 12:03:24 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in black ink that reads "Amek Carter".

---

Amek Carter  
Project Manager  
7/11/2022 12:03:24 PM





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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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)

Eurofins Lancaster Laboratories Environment Testing, LLC

## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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## Job ID: 410-87540-1

---

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

---

#### Job Narrative 410-87540-1

#### Receipt

The samples were received on 6/15/2022 10:25 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.9°C, 4.4°C and 4.9°C

#### GC/MS VOA

Method 8260D: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-532-W-220614 (410-87540-4), LM-2-W-220614 (410-87540-5), DUP-2-WD-220614 (410-87540-9) and MW-ER-W-220614 (410-87540-12). Elevated reporting limits (RLs) are provided.

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

#### GC/MS Semi VOA

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

#### GC VOA

Method NWTPH\_Gx: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: LM-2-W-220614 (410-87540-5). Elevated reporting limits (RLs) are provided.

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

#### GC Semi VOA

Method NWTPH\_Dx: o- terphenyl (Surr) recovery for the following sample was below the lower control limit: LM-2-W-220614 (410-87540-5). Re-extraction could not be performed within the method required holding time, therefore the data is reported.

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

#### HPLC/IC

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

#### Metals

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Client Sample ID: MW-531-W-220614

Lab Sample ID: 410-87540-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	80		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	63000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	520		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-535-W-220614

Lab Sample ID: 410-87540-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C24-C40	140	J	260	100	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	340000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	19	B	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-503-W-220614

Lab Sample ID: 410-87540-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	110		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	24000	F1	5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	450	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-532-W-220614

Lab Sample ID: 410-87540-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	8100		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	7.5	B	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: LM-2-W-220614

Lab Sample ID: 410-87540-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	1500		50	30	ug/L	10		RSK-175	Total/NA
Sulfate	180000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	100	B	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-530-W-220614

Lab Sample ID: 410-87540-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	640		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	600000		100000	30000	ug/L	100		EPA 300.0 R2.1	Total/NA
Manganese	130	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-525-W-220614

Lab Sample ID: 410-87540-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	40	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	610		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	79000		10000	3000	ug/L	10		EPA 300.0 R2.1	Total/NA
Manganese	420	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-104-W-220614

Lab Sample ID: 410-87540-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	140	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	550		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	11000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	460	B	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Client Sample ID: DUP-2-WD-220614

Lab Sample ID: 410-87540-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	9600		500	300	ug/L	100		RSK-175	Total/NA
C12-C24	93	J	110	51	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	4900	J	5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	6600		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-129R-W-220614

Lab Sample ID: 410-87540-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	30	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	4000		100	60	ug/L	20		RSK-175	Total/NA
Sulfate	410000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	4700		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-220614

Lab Sample ID: 410-87540-11

No Detections.

## Client Sample ID: MW-ER-W-220614

Lab Sample ID: 410-87540-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	18000		500	300	ug/L	100		RSK-175	Total/NA
C12-C24	57	J	110	48	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	5200		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	5900		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-531-W-220614**

**Lab Sample ID: 410-87540-1**

Date Collected: 06/14/22 10:16

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 15:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					06/17/22 15:53	1
Dibromofluoromethane (Surr)	92		80 - 120					06/17/22 15:53	1
4-Bromofluorobenzene (Surr)	102		80 - 120					06/17/22 15:53	1
Toluene-d8 (Surr)	104		80 - 120					06/17/22 15:53	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/21/22 16:05	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/21/22 16:05	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/21/22 16:05	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/21/22 16:05	1
Chrysene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/21/22 16:05	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/21/22 16:05	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/21/22 16:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	64		10 - 110				06/20/22 15:52	06/21/22 16:05	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				06/20/22 15:52	06/21/22 16:05	1
Fluoranthene-d10 (Surr)	90		47 - 128				06/20/22 15:52	06/21/22 16:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 15:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					06/16/22 15:54	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	80		5.0	3.0	ug/L		06/17/22 08:13	06/17/22 13:13	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/25/22 10:00	06/27/22 16:23	1
C24-C40	ND		260	110	ug/L		06/25/22 10:00	06/27/22 16:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150				06/25/22 10:00	06/27/22 16:23	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 09:58	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	63000		5000	1500	ug/L			06/16/22 09:58	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-531-W-220614**

**Lab Sample ID: 410-87540-1**

Date Collected: 06/14/22 10:16

Matrix: Water

Date Received: 06/15/22 10:25

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	520		2.1	0.98	ug/L		06/22/22 13:05	06/23/22 19:07	1

**Client Sample ID: MW-535-W-220614**

**Lab Sample ID: 410-87540-2**

Date Collected: 06/14/22 11:16

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 16:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		06/17/22 16:19	1
Dibromofluoromethane (Surr)	92		80 - 120		06/17/22 16:19	1
4-Bromofluorobenzene (Surr)	99		80 - 120		06/17/22 16:19	1
Toluene-d8 (Surr)	102		80 - 120		06/17/22 16:19	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		06/20/22 15:52	06/21/22 16:27	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		06/20/22 15:52	06/21/22 16:27	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		06/20/22 15:52	06/21/22 16:27	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		06/20/22 15:52	06/21/22 16:27	1
Chrysene	ND		0.055	0.011	ug/L		06/20/22 15:52	06/21/22 16:27	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		06/20/22 15:52	06/21/22 16:27	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		06/20/22 15:52	06/21/22 16:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110	06/20/22 15:52	06/21/22 16:27	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	06/20/22 15:52	06/21/22 16:27	1
Fluoranthene-d10 (Surr)	84		47 - 128	06/20/22 15:52	06/21/22 16:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/16/22 16:18	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/17/22 08:13	06/17/22 13:33	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/25/22 10:00	06/27/22 16:45	1
<b>C24-C40</b>	<b>140</b>	<b>J</b>	260	100	ug/L		06/25/22 10:00	06/27/22 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	66		50 - 150	06/25/22 10:00	06/27/22 16:45	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-535-W-220614**

**Lab Sample ID: 410-87540-2**

Date Collected: 06/14/22 11:16

Matrix: Water

Date Received: 06/15/22 10:25

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 12:07	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	340000		50000	15000	ug/L			06/29/22 13:22	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	19	B	2.1	0.98	ug/L		06/30/22 10:09	07/09/22 19:50	1

**Client Sample ID: MW-503-W-220614**

**Lab Sample ID: 410-87540-3**

Date Collected: 06/14/22 12:56

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		06/17/22 16:45	1
Dibromofluoromethane (Surr)	94		80 - 120		06/17/22 16:45	1
4-Bromofluorobenzene (Surr)	100		80 - 120		06/17/22 16:45	1
Toluene-d8 (Surr)	104		80 - 120		06/17/22 16:45	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/21/22 12:29	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/21/22 12:29	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/21/22 12:29	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/21/22 12:29	1
Chrysene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/21/22 12:29	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		06/20/22 15:52	06/21/22 12:29	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		06/20/22 15:52	06/21/22 12:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110	06/20/22 15:52	06/21/22 12:29	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	06/20/22 15:52	06/21/22 12:29	1
Fluoranthene-d10 (Surr)	84		47 - 128	06/20/22 15:52	06/21/22 12:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	F1	250	22	ug/L			06/16/22 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		06/16/22 19:19	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	110		5.0	3.0	ug/L		06/17/22 08:13	06/17/22 13:53	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-503-W-220614**

**Lab Sample ID: 410-87540-3**

Date Collected: 06/14/22 12:56

Matrix: Water

Date Received: 06/15/22 10:25

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	F1	100	47	ug/L		06/25/22 10:00	06/27/22 17:31	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 17:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	51		50 - 150				06/25/22 10:00	06/27/22 17:31	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 13:43	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	24000	F1	5000	1500	ug/L			06/16/22 13:43	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	450	^2	2.1	0.98	ug/L		06/22/22 12:45	06/23/22 18:35	1

**Client Sample ID: MW-532-W-220614**

**Lab Sample ID: 410-87540-4**

Date Collected: 06/14/22 10:14

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			06/17/22 18:03	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	101	cn	80 - 120					06/17/22 18:03	5
<i>Dibromofluoromethane</i> (Surr)	93	cn	80 - 120					06/17/22 18:03	5
<i>4</i> -Bromofluorobenzene (Surr)	101	cn	80 - 120					06/17/22 18:03	5
<i>Toluene-d</i> 8 (Surr)	103	cn	80 - 120					06/17/22 18:03	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/20/22 15:52	06/21/22 16:49	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/20/22 15:52	06/21/22 16:49	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/20/22 15:52	06/21/22 16:49	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/20/22 15:52	06/21/22 16:49	1
Chrysene	ND		0.052	0.010	ug/L		06/20/22 15:52	06/21/22 16:49	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/20/22 15:52	06/21/22 16:49	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/20/22 15:52	06/21/22 16:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d</i> 12 (Surr)	70		10 - 110				06/20/22 15:52	06/21/22 16:49	1
<i>1</i> -Methylnaphthalene- <i>d</i> 10 (Surr)	67		36 - 111				06/20/22 15:52	06/21/22 16:49	1
<i>Fluoranthene-d</i> 10 (Surr)	80		47 - 128				06/20/22 15:52	06/21/22 16:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 16:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-532-W-220614**

**Lab Sample ID: 410-87540-4**

Date Collected: 06/14/22 10:14

Matrix: Water

Date Received: 06/15/22 10:25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid) (1C)	104		50 - 150		06/16/22 16:42	1			
<b>Method: RSK-175 - Dissolved Gases (GC)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/17/22 08:13	06/17/22 14:54	1
<b>Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/25/22 10:00	06/27/22 18:40	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 18:40	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-terphenyl (Surr)	62		50 - 150	06/25/22 10:00	06/27/22 18:40	1			
<b>Method: EPA 300.0 R2.1 - Anions, Ion Chromatography</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 09:47	5
<b>Method: EPA 300.0 R2.1 - Anions, Ion Chromatography</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8100		5000	1500	ug/L			06/16/22 09:47	5
<b>Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	7.5	B	2.1	0.98	ug/L		06/30/22 10:09	07/09/22 19:48	1

**Client Sample ID: LM-2-W-220614**

**Lab Sample ID: 410-87540-5**

Date Collected: 06/14/22 11:54

Matrix: Water

Date Received: 06/15/22 10:25

<b>Method: 8260D - Volatile Organic Compounds by GC/MS</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	50	15	ug/L			06/17/22 18:30	50
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	101	cn	80 - 120		06/17/22 18:30	50			
Dibromofluoromethane (Surr)	92	cn	80 - 120		06/17/22 18:30	50			
4-Bromofluorobenzene (Surr)	99	cn	80 - 120		06/17/22 18:30	50			
Toluene-d8 (Surr)	103	cn	80 - 120		06/17/22 18:30	50			
<b>Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 17:11	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 17:11	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 17:11	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 17:11	1
Chrysene	ND		0.051	0.010	ug/L		06/20/22 15:52	06/21/22 17:11	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		06/20/22 15:52	06/21/22 17:11	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		06/20/22 15:52	06/21/22 17:11	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	48		10 - 110	06/20/22 15:52	06/21/22 17:11	1			
1-Methylnaphthalene-d10 (Surr)	62		36 - 111	06/20/22 15:52	06/21/22 17:11	1			

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: LM-2-W-220614**

**Lab Sample ID: 410-87540-5**

Date Collected: 06/14/22 11:54

Matrix: Water

Date Received: 06/15/22 10:25

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Fluoranthene-d10 (Surr)	108		47 - 128	06/20/22 15:52	06/21/22 17:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	cn	2500	220	ug/L			06/21/22 00:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101	cn	50 - 150		06/21/22 00:35	10

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	1500		50	30	ug/L		06/20/22 08:20	06/20/22 13:09	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/25/22 10:00	06/27/22 19:03	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/27/22 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	48	S1- cn	50 - 150	06/25/22 10:00	06/27/22 19:03	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 13:00	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	180000		50000	15000	ug/L			06/29/22 13:31	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	100	B	2.1	0.98	ug/L		06/30/22 10:09	07/01/22 13:54	1

**Client Sample ID: MW-530-W-220614**

**Lab Sample ID: 410-87540-6**

Date Collected: 06/14/22 11:32

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 18:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120		06/17/22 18:55	1
Dibromofluoromethane (Surr)	92		80 - 120		06/17/22 18:55	1
4-Bromofluorobenzene (Surr)	101		80 - 120		06/17/22 18:55	1
Toluene-d8 (Surr)	105		80 - 120		06/17/22 18:55	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 09:47	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 09:47	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 09:47	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-530-W-220614**

**Lab Sample ID: 410-87540-6**

Date Collected: 06/14/22 11:32

Matrix: Water

Date Received: 06/15/22 10:25

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 09:47	1
Chrysene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 09:47	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/22/22 09:47	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/22/22 09:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	61		10 - 110				06/20/22 15:52	06/22/22 09:47	1
1-Methylnaphthalene-d10 (Surr)	66		36 - 111				06/20/22 15:52	06/22/22 09:47	1
Fluoranthene-d10 (Surr)	89		47 - 128				06/20/22 15:52	06/22/22 09:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 17:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150					06/16/22 17:21	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	640		25	15	ug/L		06/20/22 08:20	06/20/22 13:27	5

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/25/22 10:00	06/27/22 19:26	1
C24-C40	ND		270	110	ug/L		06/25/22 10:00	06/27/22 19:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150				06/25/22 10:00	06/27/22 19:26	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 12:17	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	600000		100000	30000	ug/L			06/29/22 13:14	100

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	130	^2	2.1	0.98	ug/L		06/30/22 10:46	07/01/22 15:25	1

**Client Sample ID: MW-525-W-220614**

**Lab Sample ID: 410-87540-7**

Date Collected: 06/14/22 13:22

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 19:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					06/17/22 19:22	1
Dibromofluoromethane (Surr)	94		80 - 120					06/17/22 19:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-525-W-220614**

**Lab Sample ID: 410-87540-7**

Date Collected: 06/14/22 13:22

Matrix: Water

Date Received: 06/15/22 10:25

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120		06/17/22 19:22	1
Toluene-d8 (Surr)	103		80 - 120		06/17/22 19:22	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:09	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:09	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:09	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:09	1
Chrysene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:09	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		06/20/22 15:52	06/22/22 10:09	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		06/20/22 15:52	06/22/22 10:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	69		10 - 110	06/20/22 15:52	06/22/22 10:09	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	06/20/22 15:52	06/22/22 10:09	1
Fluoranthene-d10 (Surr)	84		47 - 128	06/20/22 15:52	06/22/22 10:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	40	J	250	22	ug/L			06/16/22 17:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	105		50 - 150		06/16/22 17:45	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	610		25	15	ug/L		06/20/22 08:20	06/20/22 13:51	5

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/25/22 10:00	06/27/22 19:49	1
C24-C40	ND		270	110	ug/L		06/25/22 10:00	06/27/22 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150	06/25/22 10:00	06/27/22 19:49	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 14:15	5

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	79000		10000	3000	ug/L			06/29/22 13:05	10

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	420	^2	2.1	0.98	ug/L		06/30/22 10:46	07/01/22 15:19	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-104-W-220614**

**Lab Sample ID: 410-87540-8**

Date Collected: 06/14/22 13:38

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 19:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					06/17/22 19:48	1
Dibromofluoromethane (Surr)	91		80 - 120					06/17/22 19:48	1
4-Bromofluorobenzene (Surr)	102		80 - 120					06/17/22 19:48	1
Toluene-d8 (Surr)	103		80 - 120					06/17/22 19:48	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:31	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:31	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:31	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:31	1
Chrysene	ND		0.054	0.011	ug/L		06/20/22 15:52	06/22/22 10:31	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		06/20/22 15:52	06/22/22 10:31	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		06/20/22 15:52	06/22/22 10:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110				06/20/22 15:52	06/22/22 10:31	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111				06/20/22 15:52	06/22/22 10:31	1
Fluoranthene-d10 (Surr)	94		47 - 128				06/20/22 15:52	06/22/22 10:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	140	J	250	22	ug/L			06/16/22 18:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					06/16/22 18:08	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	550		25	15	ug/L		06/20/22 08:20	06/20/22 14:09	5

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/25/22 10:00	06/27/22 20:12	1
C24-C40	ND		270	110	ug/L		06/25/22 10:00	06/27/22 20:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150				06/25/22 10:00	06/27/22 20:12	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 14:26	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	11000		5000	1500	ug/L			06/16/22 14:26	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-104-W-220614**

**Lab Sample ID: 410-87540-8**

Date Collected: 06/14/22 13:38

Matrix: Water

Date Received: 06/15/22 10:25

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	460	B	2.1	0.98	ug/L		06/30/22 10:09	07/01/22 14:11	1

**Client Sample ID: DUP-2-WD-220614**

**Lab Sample ID: 410-87540-9**

Date Collected: 06/14/22 00:00

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			06/17/22 20:14	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103	cn	80 - 120		06/17/22 20:14	5
Dibromofluoromethane (Surr)	94	cn	80 - 120		06/17/22 20:14	5
4-Bromofluorobenzene (Surr)	102	cn	80 - 120		06/17/22 20:14	5
Toluene-d8 (Surr)	106	cn	80 - 120		06/17/22 20:14	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 10:52	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 10:52	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 10:52	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 10:52	1
Chrysene	ND		0.053	0.011	ug/L		06/20/22 15:52	06/22/22 10:52	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/22/22 10:52	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/20/22 15:52	06/22/22 10:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	77		10 - 110	06/20/22 15:52	06/22/22 10:52	1
1-Methylnaphthalene-d10 (Surr)	105		36 - 111	06/20/22 15:52	06/22/22 10:52	1
Fluoranthene-d10 (Surr)	107		47 - 128	06/20/22 15:52	06/22/22 10:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	22	ug/L			06/16/22 18:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		06/16/22 18:32	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	9600		500	300	ug/L		06/20/22 08:20	06/20/22 14:28	100

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	93	J	110	51	ug/L		06/25/22 10:00	06/27/22 20:35	1
C24-C40	ND		280	110	ug/L		06/25/22 10:00	06/27/22 20:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	66		50 - 150	06/25/22 10:00	06/27/22 20:35	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: DUP-2-WD-220614**

**Lab Sample ID: 410-87540-9**

Date Collected: 06/14/22 00:00

Matrix: Water

Date Received: 06/15/22 10:25

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/15/22 17:48	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4900	J	5000	1500	ug/L			06/15/22 17:48	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6600		21	9.8	ug/L		06/30/22 11:20	07/07/22 13:39	10

**Client Sample ID: MW-129R-W-220614**

**Lab Sample ID: 410-87540-10**

Date Collected: 06/14/22 13:54

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		80 - 120		06/17/22 20:40	1
Dibromofluoromethane (Surr)	93		80 - 120		06/17/22 20:40	1
4-Bromofluorobenzene (Surr)	99		80 - 120		06/17/22 20:40	1
Toluene-d8 (Surr)	103		80 - 120		06/17/22 20:40	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/21/22 15:41	06/22/22 11:14	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/21/22 15:41	06/22/22 11:14	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/21/22 15:41	06/22/22 11:14	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/21/22 15:41	06/22/22 11:14	1
Chrysene	ND		0.052	0.010	ug/L		06/21/22 15:41	06/22/22 11:14	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/21/22 15:41	06/22/22 11:14	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/21/22 15:41	06/22/22 11:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	74		10 - 110	06/21/22 15:41	06/22/22 11:14	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111	06/21/22 15:41	06/22/22 11:14	1
Fluoranthene-d10 (Surr)	88		47 - 128	06/21/22 15:41	06/22/22 11:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	30	J	250	22	ug/L			06/16/22 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		06/16/22 20:29	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4000		100	60	ug/L		06/20/22 08:20	06/20/22 14:47	20

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-129R-W-220614**

**Lab Sample ID: 410-87540-10**

Date Collected: 06/14/22 13:54

Matrix: Water

Date Received: 06/15/22 10:25

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/25/22 10:00	06/28/22 03:51	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/28/22 03:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	65		50 - 150				06/25/22 10:00	06/28/22 03:51	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 14:37	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	410000		50000	15000	ug/L			06/29/22 13:39	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	4700		21	9.8	ug/L		06/30/22 10:46	07/07/22 13:25	10

**Client Sample ID: QA-T-220614**

**Lab Sample ID: 410-87540-11**

Date Collected: 06/14/22 00:00

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 15:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	100		80 - 120					06/17/22 15:27	1
<i>Dibromofluoromethane</i> (Surr)	94		80 - 120					06/17/22 15:27	1
<i>4</i> -Bromofluorobenzene (Surr)	101		80 - 120					06/17/22 15:27	1
<i>Toluene-d</i> 8 (Surr)	105		80 - 120					06/17/22 15:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 15:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> ) (1C)	103		50 - 150					06/16/22 15:07	1

**Client Sample ID: MW-ER-W-220614**

**Lab Sample ID: 410-87540-12**

Date Collected: 06/14/22 10:02

Matrix: Water

Date Received: 06/15/22 10:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			06/17/22 21:06	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	101	cn	80 - 120					06/17/22 21:06	5
<i>Dibromofluoromethane</i> (Surr)	93	cn	80 - 120					06/17/22 21:06	5
<i>4</i> -Bromofluorobenzene (Surr)	101	cn	80 - 120					06/17/22 21:06	5
<i>Toluene-d</i> 8 (Surr)	104	cn	80 - 120					06/17/22 21:06	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-ER-W-220614**

**Lab Sample ID: 410-87540-12**

Date Collected: 06/14/22 10:02

Matrix: Water

Date Received: 06/15/22 10:25

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/21/22 15:41	06/22/22 11:36	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/21/22 15:41	06/22/22 11:36	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/21/22 15:41	06/22/22 11:36	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/21/22 15:41	06/22/22 11:36	1
Chrysene	ND		0.053	0.011	ug/L		06/21/22 15:41	06/22/22 11:36	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/21/22 15:41	06/22/22 11:36	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/21/22 15:41	06/22/22 11:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	80		10 - 110	06/21/22 15:41	06/22/22 11:36	1
1-Methylnaphthalene-d10 (Surr)	121	S1+	36 - 111	06/21/22 15:41	06/22/22 11:36	1
Fluoranthene-d10 (Surr)	101		47 - 128	06/21/22 15:41	06/22/22 11:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	22	ug/L			06/16/22 20:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/16/22 20:52	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	18000		500	300	ug/L		06/20/22 12:56	06/20/22 16:22	100

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	57	J	110	48	ug/L		06/25/22 10:00	06/28/22 04:14	1
C24-C40	ND		260	110	ug/L		06/25/22 10:00	06/28/22 04:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	69		50 - 150	06/25/22 10:00	06/28/22 04:14	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/16/22 09:36	5

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5200		5000	1500	ug/L			06/16/22 09:36	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5900		21	9.8	ug/L		06/30/22 11:20	07/07/22 13:37	10

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87540-1	MW-531-W-220614	100	92	102	104
410-87540-2	MW-535-W-220614	101	92	99	102
410-87540-3	MW-503-W-220614	100	94	100	104
410-87540-3 MS	MW-503-MS-W-220614	96	96	101	104
410-87540-3 MSD	MW-503-MSD-W-220614	98	96	102	104
410-87540-4	MW-532-W-220614	101 cn	93 cn	101 cn	103 cn
410-87540-5	LM-2-W-220614	101 cn	92 cn	99 cn	103 cn
410-87540-6	MW-530-W-220614	99	92	101	105
410-87540-7	MW-525-W-220614	101	94	100	103
410-87540-8	MW-104-W-220614	99	91	102	103
410-87540-9	DUP-2-WD-220614	103 cn	94 cn	102 cn	106 cn
410-87540-10	MW-129R-W-220614	102	93	99	103
410-87540-11	QA-T-220614	100	94	101	105
410-87540-12	MW-ER-W-220614	101 cn	93 cn	101 cn	104 cn
LCS 410-266691/4	Lab Control Sample	98	97	102	104
LCS 410-266691/5	Lab Control Sample Dup	97	96	101	104
MB 410-266691/7	Method Blank	104	94	100	104

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87540-1	MW-531-W-220614	64	79	90
410-87540-2	MW-535-W-220614	65	72	84
410-87540-3	MW-503-W-220614	65	71	84
410-87540-3 MS	MW-503-MS-W-220614	69	57	81
410-87540-3 MSD	MW-503-MSD-W-220614	69	60	82
410-87540-4	MW-532-W-220614	70	67	80
410-87540-5	LM-2-W-220614	48	62	108
410-87540-6	MW-530-W-220614	61	66	89
410-87540-7	MW-525-W-220614	69	74	84
410-87540-8	MW-104-W-220614	58	70	94
410-87540-9	DUP-2-WD-220614	77	105	107
410-87540-10	MW-129R-W-220614	74	82	88
410-87540-12	MW-ER-W-220614	80	121 S1+	101
LCS 410-267387/2-A	Lab Control Sample	82	41	80
LCS 410-267799/2-A	Lab Control Sample	90	74	92
LCS 410-267799/3-A	Lab Control Sample Dup	89	76	93
MB 410-267387/1-A	Method Blank	70	60	68
MB 410-267799/1-A	Method Blank	85	79	88

### Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)

# Surrogate Summary

Client: ARCADIS U.S., Inc.

Job ID: 410-87540-1

Project/Site: Edmonds Terminal

MNPd10 = 1-Methylnaphthalene-d10 (Surr)

FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TFT-F1 (50-150)	
410-87540-1	MW-531-W-220614	100	
410-87540-2	MW-535-W-220614	101	
410-87540-3	MW-503-W-220614	102	
410-87540-3 MS	MW-503-MS-W-220614	109	
410-87540-3 MSD	MW-503-MSD-W-220614	107	
410-87540-4	MW-532-W-220614	104	
410-87540-5	LM-2-W-220614	101 cn	
410-87540-6	MW-530-W-220614	106	
410-87540-7	MW-525-W-220614	105	
410-87540-8	MW-104-W-220614	100	
410-87540-9	DUP-2-WD-220614	102	
410-87540-10	MW-129R-W-220614	100	
410-87540-11	QA-T-220614	103	
410-87540-12	MW-ER-W-220614	101	
LCS 410-266286/6	Lab Control Sample	108	
LCS 410-267323/5	Lab Control Sample	93	
LCSD 410-266286/7	Lab Control Sample Dup	110	
LCSD 410-267323/6	Lab Control Sample Dup	93	
MB 410-266286/5	Method Blank	106	
MB 410-267323/4	Method Blank	101	

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		OTP (50-150)	
410-87540-1	MW-531-W-220614	67	
410-87540-2	MW-535-W-220614	66	
410-87540-3	MW-503-W-220614	51	
410-87540-3 MS	MW-503-MS-W-220614	60	
410-87540-3 MSD	MW-503-MSD-W-220614	58	
410-87540-4	MW-532-W-220614	62	
410-87540-5	LM-2-W-220614	48 S1- cn	
410-87540-6	MW-530-W-220614	64	
410-87540-7	MW-525-W-220614	57	
410-87540-8	MW-104-W-220614	63	
410-87540-9	DUP-2-WD-220614	66	
410-87540-10	MW-129R-W-220614	65	
410-87540-12	MW-ER-W-220614	69	
LCS 410-269290/2-B	Lab Control Sample	58	
MB 410-269290/1-B	Method Blank	69	

**Surrogate Legend**

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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

**Lab Sample ID: MB 410-266691/7**  
**Matrix: Water**  
**Analysis Batch: 266691**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/17/22 11:58	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					06/17/22 11:58	1
Dibromofluoromethane (Surr)	94		80 - 120					06/17/22 11:58	1
4-Bromofluorobenzene (Surr)	100		80 - 120					06/17/22 11:58	1
Toluene-d8 (Surr)	104		80 - 120					06/17/22 11:58	1

**Lab Sample ID: LCS 410-266691/4**  
**Matrix: Water**  
**Analysis Batch: 266691**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.2		ug/L		106	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
4-Bromofluorobenzene (Surr)	102		80 - 120					
Toluene-d8 (Surr)	104		80 - 120					

**Lab Sample ID: LCSD 410-266691/5**  
**Matrix: Water**  
**Analysis Batch: 266691**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	20.0	21.0		ug/L		105	80 - 120	1	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Toluene-d8 (Surr)	104		80 - 120						

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 266691**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	22.5		ug/L		112	80 - 120
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Toluene-d8 (Surr)	104		80 - 120						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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

Lab Sample ID: 410-87540-3 MSD

Matrix: Water

Analysis Batch: 266691

Client Sample ID: MW-503-MSD-W-220614

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	22.2		ug/L		111	80 - 120	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	98		80 - 120								
Dibromofluoromethane (Surr)	96		80 - 120								
4-Bromofluorobenzene (Surr)	102		80 - 120								
Toluene-d8 (Surr)	104		80 - 120								

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-267387/1-A

Matrix: Water

Analysis Batch: 267508

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 267387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Chrysene	ND		0.050	0.010	ug/L		06/20/22 15:52	06/21/22 09:58	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/20/22 15:52	06/21/22 09:58	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/20/22 15:52	06/21/22 09:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	70		10 - 110				06/20/22 15:52	06/21/22 09:58	1
1-Methylnaphthalene-d10 (Surr)	60		36 - 111				06/20/22 15:52	06/21/22 09:58	1
Fluoranthene-d10 (Surr)	68		47 - 128				06/20/22 15:52	06/21/22 09:58	1

Lab Sample ID: LCS 410-267387/2-A

Matrix: Water

Analysis Batch: 267508

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 267387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	0.912		ug/L		91	61 - 122
Benzo[a]pyrene	1.00	0.861		ug/L		86	60 - 120
Benzo[b]fluoranthene	1.00	0.884		ug/L		88	58 - 122
Benzo[k]fluoranthene	1.00	0.952		ug/L		95	57 - 128
Chrysene	1.00	0.866		ug/L		87	55 - 123
Dibenz(a,h)anthracene	1.00	0.874		ug/L		87	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.880		ug/L		88	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Benzo(a)pyrene-d12 (Surr)	82		10 - 110				
1-Methylnaphthalene-d10 (Surr)	41		36 - 111				
Fluoranthene-d10 (Surr)	80		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 410-87540-3 MS

Matrix: Water

Analysis Batch: 267508

Client Sample ID: MW-503-MS-W-220614

Prep Type: Total/NA

Prep Batch: 267387

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Benzo[a]anthracene	ND		1.06	0.932		ug/L		88	61 - 122	
Benzo[a]pyrene	ND		1.06	0.710		ug/L		67	60 - 120	
Benzo[b]fluoranthene	ND		1.06	0.778		ug/L		73	58 - 122	
Benzo[k]fluoranthene	ND		1.06	0.834		ug/L		78	57 - 128	
Chrysene	ND		1.06	0.847		ug/L		80	55 - 123	
Dibenz(a,h)anthracene	ND		1.06	0.736		ug/L		69	50 - 121	
Indeno[1,2,3-cd]pyrene	ND		1.06	0.759		ug/L		71	47 - 143	
<b>MS MS</b>										
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>							
Benzo(a)pyrene-d12 (Surr)	69		10 - 110							
1-Methylnaphthalene-d10 (Surr)	57		36 - 111							
Fluoranthene-d10 (Surr)	81		47 - 128							

Lab Sample ID: 410-87540-3 MSD

Matrix: Water

Analysis Batch: 267508

Client Sample ID: MW-503-MSD-W-220614

Prep Type: Total/NA

Prep Batch: 267387

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	ND		1.04	0.899		ug/L		86	61 - 122		4	30
Benzo[a]pyrene	ND		1.04	0.688		ug/L		66	60 - 120		3	30
Benzo[b]fluoranthene	ND		1.04	0.802		ug/L		77	58 - 122		3	30
Benzo[k]fluoranthene	ND		1.04	0.763		ug/L		73	57 - 128		9	30
Chrysene	ND		1.04	0.827		ug/L		79	55 - 123		2	30
Dibenz(a,h)anthracene	ND		1.04	0.759		ug/L		73	50 - 121		3	30
Indeno[1,2,3-cd]pyrene	ND		1.04	0.806		ug/L		77	47 - 143		6	30
<b>MSD MSD</b>												
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>									
Benzo(a)pyrene-d12 (Surr)	69		10 - 110									
1-Methylnaphthalene-d10 (Surr)	60		36 - 111									
Fluoranthene-d10 (Surr)	82		47 - 128									

Lab Sample ID: MB 410-267799/1-A

Matrix: Water

Analysis Batch: 267924

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 267799

Analyte	MB	MB	RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier									
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/21/22 15:41	06/22/22 06:12			1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/21/22 15:41	06/22/22 06:12			1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/21/22 15:41	06/22/22 06:12			1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/21/22 15:41	06/22/22 06:12			1
Chrysene	ND		0.050	0.010	ug/L		06/21/22 15:41	06/22/22 06:12			1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/21/22 15:41	06/22/22 06:12			1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/21/22 15:41	06/22/22 06:12			1
<b>MB MB</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>		
Benzo(a)pyrene-d12 (Surr)	85		10 - 110				06/21/22 15:41	06/22/22 06:12	1		
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				06/21/22 15:41	06/22/22 06:12	1		



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 410-267799/1-A  
Matrix: Water  
Analysis Batch: 267924

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 267799

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Fluoranthene-d10 (Surr)	88		47 - 128	06/21/22 15:41	06/22/22 06:12	1

Lab Sample ID: LCS 410-267799/2-A  
Matrix: Water  
Analysis Batch: 267924

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 267799

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	
Benzo[a]anthracene	1.00	1.02		ug/L		102	61 - 122	
Benzo[a]pyrene	1.00	0.877		ug/L		88	60 - 120	
Benzo[b]fluoranthene	1.00	0.950		ug/L		95	58 - 122	
Benzo[k]fluoranthene	1.00	0.895		ug/L		89	57 - 128	
Chrysene	1.00	0.908		ug/L		91	55 - 123	
Dibenz(a,h)anthracene	1.00	1.03		ug/L		103	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	1.08		ug/L		108	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	90		10 - 110
1-Methylnaphthalene-d10 (Surr)	74		36 - 111
Fluoranthene-d10 (Surr)	92		47 - 128

Lab Sample ID: LCSD 410-267799/3-A  
Matrix: Water  
Analysis Batch: 267924

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 267799

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	1.00	0.984		ug/L		98	61 - 122	3	30	
Benzo[a]pyrene	1.00	0.875		ug/L		87	60 - 120	0	30	
Benzo[b]fluoranthene	1.00	0.881		ug/L		88	58 - 122	8	30	
Benzo[k]fluoranthene	1.00	0.953		ug/L		95	57 - 128	6	30	
Chrysene	1.00	0.885		ug/L		89	55 - 123	3	30	
Dibenz(a,h)anthracene	1.00	0.932		ug/L		93	50 - 121	10	30	
Indeno[1,2,3-cd]pyrene	1.00	0.985		ug/L		99	47 - 143	9	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	89		10 - 110
1-Methylnaphthalene-d10 (Surr)	76		36 - 111
Fluoranthene-d10 (Surr)	93		47 - 128

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

Lab Sample ID: MB 410-266286/5  
Matrix: Water  
Analysis Batch: 266286

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	22	ug/L			06/16/22 13:56	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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

Lab Sample ID: MB 410-266286/5

Matrix: Water

Analysis Batch: 266286

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	106		50 - 150		06/16/22 13:56	1

Lab Sample ID: LCS 410-266286/6

Matrix: Water

Analysis Batch: 266286

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1230		ug/L		112	64 - 131

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	108		50 - 150

Lab Sample ID: LCSD 410-266286/7

Matrix: Water

Analysis Batch: 266286

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C7-C12 (1C)	1100	1260		ug/L		115	64 - 131	2	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	110		50 - 150

Lab Sample ID: 410-87540-3 MS

Matrix: Water

Analysis Batch: 266286

Client Sample ID: MW-503-MS-W-220614

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	ND	F1	1120	1320		ug/L		118	80 - 120

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	109		50 - 150

Lab Sample ID: 410-87540-3 MSD

Matrix: Water

Analysis Batch: 266286

Client Sample ID: MW-503-MSD-W-220614

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C7-C12 (1C)	ND	F1	1120	1380	F1	ug/L		123	80 - 120	4	30

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	107		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

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

**Lab Sample ID: MB 410-267323/4**  
**Matrix: Water**  
**Analysis Batch: 267323**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 14:19	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/20/22 14:19	1

**Lab Sample ID: LCS 410-267323/5**  
**Matrix: Water**  
**Analysis Batch: 267323**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1030		ug/L		94	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150				

**Lab Sample ID: LCSD 410-267323/6**  
**Matrix: Water**  
**Analysis Batch: 267323**

**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
C7-C12 (1C)	1100	1050		ug/L		96	64 - 131	2	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150						

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-266665/1-A**  
**Matrix: Water**  
**Analysis Batch: 266671**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 266665**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/17/22 08:13	06/17/22 08:49	1

**Lab Sample ID: LCS 410-266665/2-A**  
**Matrix: Water**  
**Analysis Batch: 266671**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 266665**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	58.4		ug/L		97	85 - 115

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 266671**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Total/NA**  
**Prep Batch: 266665**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	110		59.9	159		ug/L		88	85 - 115

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: 410-87540-3 MSD**

**Matrix: Water**

**Analysis Batch: 266671**

**Client Sample ID: MW-503-MSD-W-220614**

**Prep Type: Total/NA**

**Prep Batch: 266665**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	110		59.9	159		ug/L		88	85 - 115	0	30

**Lab Sample ID: MB 410-267179/1-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 267179**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/20/22 08:20	06/20/22 08:52	1

**Lab Sample ID: LCS 410-267179/2-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 267179**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	59.7		ug/L		100	85 - 115

**Lab Sample ID: LCSD 410-267179/3-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 267179**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	60.3		ug/L		101	85 - 115	1	20

**Lab Sample ID: MB 410-267343/1-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 267343**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/20/22 12:56	06/20/22 15:24	1

**Lab Sample ID: LCS 410-267343/2-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 267343**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	61.7		ug/L		103	85 - 115

**Lab Sample ID: LCSD 410-267343/3-A**

**Matrix: Water**

**Analysis Batch: 267186**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 267343**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	61.1		ug/L		102	85 - 115	1	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-269290/1-B**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		06/25/22 10:00	06/27/22 13:42	1
C24-C40	ND		250	100	ug/L		06/25/22 10:00	06/27/22 13:42	1
Surrogate	MB MB		Limits			D	Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
<i>o</i> -terphenyl (Surr)	69		50 - 150				06/25/22 10:00	06/27/22 13:42	1

**Lab Sample ID: LCS 410-269290/2-B**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
C12-C24	600	187		ug/L		31	14 - 115
Surrogate	LCS LCS		Limits			%Rec	Limits
%Recovery	Qualifier						
<i>o</i> -terphenyl (Surr)	58		50 - 150				

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
C12-C24	ND	F1	618	165	F1	ug/L		27	30 - 115
Surrogate	MS MS		Limits			D	%Rec	Limits	
%Recovery	Qualifier								
<i>o</i> -terphenyl (Surr)	60		50 - 150						

**Lab Sample ID: 410-87540-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: MW-503-MSD-W-220614**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Sample Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
C12-C24	ND	F1	620	151	F1	ug/L		24	30 - 115	9	20
Surrogate	MSD MSD		Limits			D	%Rec	Limits			
%Recovery	Qualifier										
<i>o</i> -terphenyl (Surr)	58		50 - 150								

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-266182/12**  
**Matrix: Water**  
**Analysis Batch: 266182**

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrogen, Nitrate	ND		100	50	ug/L			06/16/22 10:30	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 410-266182/10**  
**Matrix: Water**  
**Analysis Batch: 266182**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	731		ug/L		97	90 - 110

**Lab Sample ID: LCSD 410-266182/11**  
**Matrix: Water**  
**Analysis Batch: 266182**

**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
Nitrogen, Nitrate	755	730		ug/L		97	90 - 110	0	20

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 266182**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND		2520	2750		ug/L		109	90 - 110

**Lab Sample ID: 410-87540-3 DU**  
**Matrix: Water**  
**Analysis Batch: 266182**

**Client Sample ID: MW-503-DU-W-220614**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Nitrate	ND			ND		ug/L				NC	15

**Lab Sample ID: MB 410-266444/5**  
**Matrix: Water**  
**Analysis Batch: 266444**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/15/22 13:09	1

**Lab Sample ID: LCS 410-266444/3**  
**Matrix: Water**  
**Analysis Batch: 266444**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	760		ug/L		101	90 - 110

**Lab Sample ID: LCSD 410-266444/4**  
**Matrix: Water**  
**Analysis Batch: 266444**

**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
Nitrogen, Nitrate	755	768		ug/L		102	90 - 110	NaN	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-266183/12**  
**Matrix: Water**  
**Analysis Batch: 266183**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/16/22 10:30	1

**Lab Sample ID: LCS 410-266183/10**  
**Matrix: Water**  
**Analysis Batch: 266183**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7160		ug/L		95	90 - 110

**Lab Sample ID: LCSD 410-266183/11**  
**Matrix: Water**  
**Analysis Batch: 266183**

**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
Sulfate	7510	7160		ug/L		95	90 - 110	0	20

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 266183**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	24000	F1	25000	54400	F1	ug/L		123	90 - 110

**Lab Sample ID: 410-87540-3 DU**  
**Matrix: Water**  
**Analysis Batch: 266183**

**Client Sample ID: MW-503-DU-W-220614**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	24000	F1	23800		ug/L		1	15

**Lab Sample ID: MB 410-266445/5**  
**Matrix: Water**  
**Analysis Batch: 266445**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/15/22 13:09	1

**Lab Sample ID: LCS 410-266445/3**  
**Matrix: Water**  
**Analysis Batch: 266445**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7380		ug/L		98	90 - 110

**Lab Sample ID: LCSD 410-266445/4**  
**Matrix: Water**  
**Analysis Batch: 266445**

**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
Sulfate	7510	7440		ug/L		99	90 - 110	1	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-270944/5**  
**Matrix: Water**  
**Analysis Batch: 270944**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/29/22 10:12	1

**Lab Sample ID: LCS 410-270944/3**  
**Matrix: Water**  
**Analysis Batch: 270944**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	6970		ug/L		93	90 - 110

**Lab Sample ID: LCSD 410-270944/4**  
**Matrix: Water**  
**Analysis Batch: 270944**

**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
Sulfate	7510	6950		ug/L		93	90 - 110	0	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-268225/1-A**  
**Matrix: Water**  
**Analysis Batch: 269064**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268225**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/22/22 12:45	06/23/22 17:40	1

**Lab Sample ID: LCS 410-268225/2-A**  
**Matrix: Water**  
**Analysis Batch: 269064**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268225**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	520		ug/L		104	85 - 115

**Lab Sample ID: MB 410-268236/1-A**  
**Matrix: Water**  
**Analysis Batch: 268795**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268236**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/22/22 13:05	06/23/22 18:15	1

**Lab Sample ID: LCS 410-268236/2-A**  
**Matrix: Water**  
**Analysis Batch: 268795**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268236**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	499		ug/L		100	85 - 115



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 410-271145/1-A**  
**Matrix: Water**  
**Analysis Batch: 271974**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271145**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.39		2.1	0.98	ug/L		06/30/22 10:09	07/01/22 13:44	1

**Lab Sample ID: MB 410-271145/1-A**  
**Matrix: Water**  
**Analysis Batch: 273990**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271145**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.90	J	2.1	0.98	ug/L		06/30/22 10:09	07/09/22 19:24	1

**Lab Sample ID: LCS 410-271145/2-A**  
**Matrix: Water**  
**Analysis Batch: 271974**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271145**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	536		ug/L		107	85 - 115

**Lab Sample ID: LCS 410-271145/2-A**  
**Matrix: Water**  
**Analysis Batch: 273990**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271145**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	544		ug/L		109	85 - 115

**Lab Sample ID: MB 410-271166/1-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 10:46	07/01/22 14:49	1

**Lab Sample ID: MB 410-271166/1-A**  
**Matrix: Water**  
**Analysis Batch: 273165**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 10:46	07/07/22 12:43	1

**Lab Sample ID: LCS 410-271166/2-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	483		ug/L		97	85 - 115

**Lab Sample ID: LCS 410-271166/2-A**  
**Matrix: Water**  
**Analysis Batch: 273165**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271166**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	524		ug/L		105	85 - 115

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-271190/1-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 11:20	07/01/22 15:48	1

**Lab Sample ID: MB 410-271190/1-A**  
**Matrix: Water**  
**Analysis Batch: 273165**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/30/22 11:20	07/07/22 13:33	1

**Lab Sample ID: LCS 410-271190/2-A**  
**Matrix: Water**  
**Analysis Batch: 271973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	490		ug/L		98	85 - 115

**Lab Sample ID: LCS 410-271190/2-A**  
**Matrix: Water**  
**Analysis Batch: 273165**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271190**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	523		ug/L		105	85 - 115

**Lab Sample ID: 410-87540-3 MS**  
**Matrix: Water**  
**Analysis Batch: 269064**

**Client Sample ID: MW-503-MS-W-220614**  
**Prep Type: Dissolved**  
**Prep Batch: 268225**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	450	^2	500	958		ug/L		102	70 - 130

**Lab Sample ID: 410-87540-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 269064**

**Client Sample ID: MW-503-MSD-W-220614**  
**Prep Type: Dissolved**  
**Prep Batch: 268225**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	450	^2	500	955		ug/L		101	70 - 130	0	20

**Lab Sample ID: 410-87540-3 DU**  
**Matrix: Water**  
**Analysis Batch: 269064**

**Client Sample ID: MW-503-DU-W-220614**  
**Prep Type: Dissolved**  
**Prep Batch: 268225**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	450	^2	436		ug/L		3	20

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## GC/MS VOA

### Analysis Batch: 266691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	8260D	
410-87540-2	MW-535-W-220614	Total/NA	Water	8260D	
410-87540-3	MW-503-W-220614	Total/NA	Water	8260D	
410-87540-4	MW-532-W-220614	Total/NA	Water	8260D	
410-87540-5	LM-2-W-220614	Total/NA	Water	8260D	
410-87540-6	MW-530-W-220614	Total/NA	Water	8260D	
410-87540-7	MW-525-W-220614	Total/NA	Water	8260D	
410-87540-8	MW-104-W-220614	Total/NA	Water	8260D	
410-87540-9	DUP-2-WD-220614	Total/NA	Water	8260D	
410-87540-10	MW-129R-W-220614	Total/NA	Water	8260D	
410-87540-11	QA-T-220614	Total/NA	Water	8260D	
410-87540-12	MW-ER-W-220614	Total/NA	Water	8260D	
MB 410-266691/7	Method Blank	Total/NA	Water	8260D	
LCS 410-266691/4	Lab Control Sample	Total/NA	Water	8260D	
LCS 410-266691/5	Lab Control Sample Dup	Total/NA	Water	8260D	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	8260D	
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 267387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	3510C	
410-87540-2	MW-535-W-220614	Total/NA	Water	3510C	
410-87540-3	MW-503-W-220614	Total/NA	Water	3510C	
410-87540-4	MW-532-W-220614	Total/NA	Water	3510C	
410-87540-5	LM-2-W-220614	Total/NA	Water	3510C	
410-87540-6	MW-530-W-220614	Total/NA	Water	3510C	
410-87540-7	MW-525-W-220614	Total/NA	Water	3510C	
410-87540-8	MW-104-W-220614	Total/NA	Water	3510C	
410-87540-9	DUP-2-WD-220614	Total/NA	Water	3510C	
MB 410-267387/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-267387/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	3510C	
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	3510C	

### Analysis Batch: 267508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-2	MW-535-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-3	MW-503-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-4	MW-532-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-5	LM-2-W-220614	Total/NA	Water	8270E SIM	267387
MB 410-267387/1-A	Method Blank	Total/NA	Water	8270E SIM	267387
LCS 410-267387/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	267387
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	8270E SIM	267387

### Prep Batch: 267799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-10	MW-129R-W-220614	Total/NA	Water	3510C	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## GC/MS Semi VOA (Continued)

### Prep Batch: 267799 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-12	MW-ER-W-220614	Total/NA	Water	3510C	
MB 410-267799/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-267799/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-267799/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 267924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-6	MW-530-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-7	MW-525-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-8	MW-104-W-220614	Total/NA	Water	8270E SIM	267387
410-87540-9	DUP-2-WD-220614	Total/NA	Water	8270E SIM	267387
410-87540-10	MW-129R-W-220614	Total/NA	Water	8270E SIM	267799
410-87540-12	MW-ER-W-220614	Total/NA	Water	8270E SIM	267799
MB 410-267799/1-A	Method Blank	Total/NA	Water	8270E SIM	267799
LCS 410-267799/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	267799
LCSD 410-267799/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	267799

## GC VOA

### Analysis Batch: 266286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-2	MW-535-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-3	MW-503-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-4	MW-532-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-6	MW-530-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-7	MW-525-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-8	MW-104-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-9	DUP-2-WD-220614	Total/NA	Water	NWTPH-Gx	
410-87540-10	MW-129R-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-11	QA-T-220614	Total/NA	Water	NWTPH-Gx	
410-87540-12	MW-ER-W-220614	Total/NA	Water	NWTPH-Gx	
MB 410-266286/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-266286/6	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-266286/7	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	NWTPH-Gx	
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	NWTPH-Gx	

### Prep Batch: 266665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	RSK-175	
410-87540-2	MW-535-W-220614	Total/NA	Water	RSK-175	
410-87540-3	MW-503-W-220614	Total/NA	Water	RSK-175	
410-87540-4	MW-532-W-220614	Total/NA	Water	RSK-175	
MB 410-266665/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-266665/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	RSK-175	
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	RSK-175	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## GC VOA

### Analysis Batch: 266671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	RSK-175	266665
410-87540-2	MW-535-W-220614	Total/NA	Water	RSK-175	266665
410-87540-3	MW-503-W-220614	Total/NA	Water	RSK-175	266665
410-87540-4	MW-532-W-220614	Total/NA	Water	RSK-175	266665
MB 410-266665/1-A	Method Blank	Total/NA	Water	RSK-175	266665
LCS 410-266665/2-A	Lab Control Sample	Total/NA	Water	RSK-175	266665
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	RSK-175	266665
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	RSK-175	266665

### Prep Batch: 267179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-5	LM-2-W-220614	Total/NA	Water	RSK-175	
410-87540-6	MW-530-W-220614	Total/NA	Water	RSK-175	
410-87540-7	MW-525-W-220614	Total/NA	Water	RSK-175	
410-87540-8	MW-104-W-220614	Total/NA	Water	RSK-175	
410-87540-9	DUP-2-WD-220614	Total/NA	Water	RSK-175	
410-87540-10	MW-129R-W-220614	Total/NA	Water	RSK-175	
MB 410-267179/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-267179/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-267179/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 267186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-5	LM-2-W-220614	Total/NA	Water	RSK-175	267179
410-87540-6	MW-530-W-220614	Total/NA	Water	RSK-175	267179
410-87540-7	MW-525-W-220614	Total/NA	Water	RSK-175	267179
410-87540-8	MW-104-W-220614	Total/NA	Water	RSK-175	267179
410-87540-9	DUP-2-WD-220614	Total/NA	Water	RSK-175	267179
410-87540-10	MW-129R-W-220614	Total/NA	Water	RSK-175	267179
410-87540-12	MW-ER-W-220614	Total/NA	Water	RSK-175	267343
MB 410-267179/1-A	Method Blank	Total/NA	Water	RSK-175	267179
MB 410-267343/1-A	Method Blank	Total/NA	Water	RSK-175	267343
LCS 410-267179/2-A	Lab Control Sample	Total/NA	Water	RSK-175	267179
LCS 410-267343/2-A	Lab Control Sample	Total/NA	Water	RSK-175	267343
LCSD 410-267179/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	267179
LCSD 410-267343/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	267343

### Analysis Batch: 267323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-5	LM-2-W-220614	Total/NA	Water	NWTPH-Gx	
MB 410-267323/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-267323/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-267323/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Prep Batch: 267343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-12	MW-ER-W-220614	Total/NA	Water	RSK-175	
MB 410-267343/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-267343/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-267343/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## GC Semi VOA

### Prep Batch: 269290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	3510C	
410-87540-2	MW-535-W-220614	Total/NA	Water	3510C	
410-87540-3	MW-503-W-220614	Total/NA	Water	3510C	
410-87540-4	MW-532-W-220614	Total/NA	Water	3510C	
410-87540-5	LM-2-W-220614	Total/NA	Water	3510C	
410-87540-6	MW-530-W-220614	Total/NA	Water	3510C	
410-87540-7	MW-525-W-220614	Total/NA	Water	3510C	
410-87540-8	MW-104-W-220614	Total/NA	Water	3510C	
410-87540-9	DUP-2-WD-220614	Total/NA	Water	3510C	
410-87540-10	MW-129R-W-220614	Total/NA	Water	3510C	
410-87540-12	MW-ER-W-220614	Total/NA	Water	3510C	
MB 410-269290/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	3510C	
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	3510C	

### Cleanup Batch: 269379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	3630C	269290
410-87540-2	MW-535-W-220614	Total/NA	Water	3630C	269290
410-87540-3	MW-503-W-220614	Total/NA	Water	3630C	269290
410-87540-4	MW-532-W-220614	Total/NA	Water	3630C	269290
410-87540-5	LM-2-W-220614	Total/NA	Water	3630C	269290
410-87540-6	MW-530-W-220614	Total/NA	Water	3630C	269290
410-87540-7	MW-525-W-220614	Total/NA	Water	3630C	269290
410-87540-8	MW-104-W-220614	Total/NA	Water	3630C	269290
410-87540-9	DUP-2-WD-220614	Total/NA	Water	3630C	269290
410-87540-10	MW-129R-W-220614	Total/NA	Water	3630C	269290
410-87540-12	MW-ER-W-220614	Total/NA	Water	3630C	269290
MB 410-269290/1-B	Method Blank	Total/NA	Water	3630C	269290
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3630C	269290
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	3630C	269290
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	3630C	269290

### Analysis Batch: 269669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-10	MW-129R-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-12	MW-ER-W-220614	Total/NA	Water	NWTPH-Dx	269379

### Analysis Batch: 269714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-2	MW-535-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-3	MW-503-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-4	MW-532-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-5	LM-2-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-6	MW-530-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-7	MW-525-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-8	MW-104-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-9	DUP-2-WD-220614	Total/NA	Water	NWTPH-Dx	269379
MB 410-269290/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	269379

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## GC Semi VOA (Continued)

### Analysis Batch: 269714 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	269379
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	NWTPH-Dx	269379
410-87540-3 MSD	MW-503-MSD-W-220614	Total/NA	Water	NWTPH-Dx	269379

## HPLC/IC

### Analysis Batch: 266182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-2	MW-535-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3	MW-503-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-4	MW-532-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-5	LM-2-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-6	MW-530-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-7	MW-525-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-8	MW-104-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-10	MW-129R-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-12	MW-ER-W-220614	Total/NA	Water	EPA 300.0 R2.1	
MB 410-266182/12	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266182/10	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266182/11	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3 DU	MW-503-DU-W-220614	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3	MW-503-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-4	MW-532-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-8	MW-104-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-12	MW-ER-W-220614	Total/NA	Water	EPA 300.0 R2.1	
MB 410-266183/12	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266183/10	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266183/11	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3 MS	MW-503-MS-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-3 DU	MW-503-DU-W-220614	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-9	DUP-2-WD-220614	Total/NA	Water	EPA 300.0 R2.1	
MB 410-266444/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266444/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266444/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-9	DUP-2-WD-220614	Total/NA	Water	EPA 300.0 R2.1	
MB 410-266445/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266445/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266445/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## HPLC/IC

### Analysis Batch: 270944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-2	MW-535-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-5	LM-2-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-6	MW-530-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-7	MW-525-W-220614	Total/NA	Water	EPA 300.0 R2.1	
410-87540-10	MW-129R-W-220614	Total/NA	Water	EPA 300.0 R2.1	
MB 410-270944/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-270944/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-270944/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 268225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-3	MW-503-W-220614	Dissolved	Water	Non-Digest Prep	
MB 410-268225/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-268225/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-87540-3 MS	MW-503-MS-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-3 MSD	MW-503-MSD-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-3 DU	MW-503-DU-W-220614	Dissolved	Water	Non-Digest Prep	

### Prep Batch: 268236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Dissolved	Water	Non-Digest Prep	
MB 410-268236/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-268236/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 268795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-1	MW-531-W-220614	Dissolved	Water	200.8 Rev 5.4	268236
MB 410-268236/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	268236
LCS 410-268236/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	268236

### Analysis Batch: 269064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-3	MW-503-W-220614	Dissolved	Water	200.8 Rev 5.4	268225
MB 410-268225/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	268225
LCS 410-268225/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	268225
410-87540-3 MS	MW-503-MS-W-220614	Dissolved	Water	200.8 Rev 5.4	268225
410-87540-3 MSD	MW-503-MSD-W-220614	Dissolved	Water	200.8 Rev 5.4	268225
410-87540-3 DU	MW-503-DU-W-220614	Dissolved	Water	200.8 Rev 5.4	268225

### Prep Batch: 271145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-2	MW-535-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-4	MW-532-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-5	LM-2-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-8	MW-104-W-220614	Dissolved	Water	Non-Digest Prep	
MB 410-271145/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271145/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Metals

### Prep Batch: 271166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-6	MW-530-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-7	MW-525-W-220614	Dissolved	Water	Non-Digest Prep	
410-87540-10	MW-129R-W-220614	Dissolved	Water	Non-Digest Prep	
MB 410-271166/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271166/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 271190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-9	DUP-2-WD-220614	Dissolved	Water	Non-Digest Prep	
410-87540-12	MW-ER-W-220614	Dissolved	Water	Non-Digest Prep	
MB 410-271190/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-271190/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 271973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-6	MW-530-W-220614	Dissolved	Water	200.8 Rev 5.4	271166
410-87540-7	MW-525-W-220614	Dissolved	Water	200.8 Rev 5.4	271166
MB 410-271166/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271166
MB 410-271190/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271190
LCS 410-271166/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271166
LCS 410-271190/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271190

### Analysis Batch: 271974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-5	LM-2-W-220614	Dissolved	Water	200.8 Rev 5.4	271145
410-87540-8	MW-104-W-220614	Dissolved	Water	200.8 Rev 5.4	271145
MB 410-271145/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271145
LCS 410-271145/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271145

### Analysis Batch: 273165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-9	DUP-2-WD-220614	Dissolved	Water	200.8 Rev 5.4	271190
410-87540-10	MW-129R-W-220614	Dissolved	Water	200.8 Rev 5.4	271166
410-87540-12	MW-ER-W-220614	Dissolved	Water	200.8 Rev 5.4	271190
MB 410-271166/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271166
MB 410-271190/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271190
LCS 410-271166/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271166
LCS 410-271190/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271190

### Analysis Batch: 273990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87540-2	MW-535-W-220614	Dissolved	Water	200.8 Rev 5.4	271145
410-87540-4	MW-532-W-220614	Dissolved	Water	200.8 Rev 5.4	271145
MB 410-271145/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	271145
LCS 410-271145/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	271145

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-531-W-220614**

**Lab Sample ID: 410-87540-1**

**Date Collected: 06/14/22 10:16**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 15:53	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 16:05	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 15:54	JJT8	ELLE
Total/NA	Prep	RSK-175			266665	06/17/22 08:13	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	266671	06/17/22 13:13	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 16:23	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 09:58	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266183	06/16/22 09:58	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			268236	06/22/22 13:05	UAMX	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	268795	06/23/22 19:07	S4PD	ELLE

**Client Sample ID: MW-535-W-220614**

**Lab Sample ID: 410-87540-2**

**Date Collected: 06/14/22 11:16**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 16:19	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 16:27	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 16:18	JJT8	ELLE
Total/NA	Prep	RSK-175			266665	06/17/22 08:13	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	266671	06/17/22 13:33	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 16:45	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 12:07	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	270944	06/29/22 13:22	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271145	06/30/22 10:09	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273990	07/09/22 19:50	S4PD	ELLE

**Client Sample ID: MW-503-W-220614**

**Lab Sample ID: 410-87540-3**

**Date Collected: 06/14/22 12:56**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 16:45	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 12:29	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 19:19	JJT8	ELLE
Total/NA	Prep	RSK-175			266665	06/17/22 08:13	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	266671	06/17/22 13:53	SE2A	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-503-W-220614**

**Lab Sample ID: 410-87540-3**

**Date Collected: 06/14/22 12:56**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 17:31	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 13:43	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266183	06/16/22 13:43	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			268225	06/22/22 12:45	UAMX	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	269064	06/23/22 18:35	SQ8U	ELLE

**Client Sample ID: MW-532-W-220614**

**Lab Sample ID: 410-87540-4**

**Date Collected: 06/14/22 10:14**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	266691	06/17/22 18:03	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 16:49	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 16:42	JJT8	ELLE
Total/NA	Prep	RSK-175			266665	06/17/22 08:13	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	266671	06/17/22 14:54	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 18:40	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 09:47	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266183	06/16/22 09:47	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			271145	06/30/22 10:09	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273990	07/09/22 19:48	S4PD	ELLE

**Client Sample ID: LM-2-W-220614**

**Lab Sample ID: 410-87540-5**

**Date Collected: 06/14/22 11:54**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		50	266691	06/17/22 18:30	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267508	06/21/22 17:11	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		10	267323	06/21/22 00:35	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		10	267186	06/20/22 13:09	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 19:03	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 13:00	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	270944	06/29/22 13:31	W5UX	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Client Sample ID: LM-2-W-220614

Lab Sample ID: 410-87540-5

Date Collected: 06/14/22 11:54

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	Non-Digest Prep			271145	06/30/22 10:09	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271974	07/01/22 13:54	S4PD	ELLE

## Client Sample ID: MW-530-W-220614

Lab Sample ID: 410-87540-6

Date Collected: 06/14/22 11:32

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 18:55	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 09:47	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 17:21	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	267186	06/20/22 13:27	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 19:26	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 12:17	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		100	270944	06/29/22 13:14	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271166	06/30/22 10:46	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271973	07/01/22 15:25	S4PD	ELLE

## Client Sample ID: MW-525-W-220614

Lab Sample ID: 410-87540-7

Date Collected: 06/14/22 13:22

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 19:22	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 10:09	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 17:45	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	267186	06/20/22 13:51	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 19:49	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 14:15	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		10	270944	06/29/22 13:05	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271166	06/30/22 10:46	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271973	07/01/22 15:19	S4PD	ELLE

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-104-W-220614**

**Lab Sample ID: 410-87540-8**

**Date Collected: 06/14/22 13:38**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 19:48	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 10:31	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 18:08	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	267186	06/20/22 14:09	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 20:12	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 14:26	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266183	06/16/22 14:26	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			271145	06/30/22 10:09	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271974	07/01/22 14:11	S4PD	ELLE

**Client Sample ID: DUP-2-WD-220614**

**Lab Sample ID: 410-87540-9**

**Date Collected: 06/14/22 00:00**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	266691	06/17/22 20:14	K4WN	ELLE
Total/NA	Prep	3510C			267387	06/20/22 15:52	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 10:52	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 18:32	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		100	267186	06/20/22 14:28	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269714	06/27/22 20:35	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266444	06/15/22 17:48	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266445	06/15/22 17:48	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271190	06/30/22 11:20	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		10	273165	07/07/22 13:39	S4PD	ELLE

**Client Sample ID: MW-129R-W-220614**

**Lab Sample ID: 410-87540-10**

**Date Collected: 06/14/22 13:54**

**Matrix: Water**

**Date Received: 06/15/22 10:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 20:40	K4WN	ELLE
Total/NA	Prep	3510C			267799	06/21/22 15:41	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 11:14	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 20:29	JJT8	ELLE
Total/NA	Prep	RSK-175			267179	06/20/22 08:20	SE2A	ELLE
Total/NA	Analysis	RSK-175		20	267186	06/20/22 14:47	SE2A	ELLE

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

**Client Sample ID: MW-129R-W-220614**

**Lab Sample ID: 410-87540-10**

Date Collected: 06/14/22 13:54

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPNS	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 03:51	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 14:37	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	270944	06/29/22 13:39	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			271166	06/30/22 10:46	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		10	273165	07/07/22 13:25	S4PD	ELLE

**Client Sample ID: QA-T-220614**

**Lab Sample ID: 410-87540-11**

Date Collected: 06/14/22 00:00

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	266691	06/17/22 15:27	K4WN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 15:07	JJT8	ELLE

**Client Sample ID: MW-ER-W-220614**

**Lab Sample ID: 410-87540-12**

Date Collected: 06/14/22 10:02

Matrix: Water

Date Received: 06/15/22 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		5	266691	06/17/22 21:06	K4WN	ELLE
Total/NA	Prep	3510C			267799	06/21/22 15:41	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	267924	06/22/22 11:36	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	266286	06/16/22 20:52	JJT8	ELLE
Total/NA	Prep	RSK-175			267343	06/20/22 12:56	SE2A	ELLE
Total/NA	Analysis	RSK-175		100	267186	06/20/22 16:22	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPNS	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 04:14	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266182	06/16/22 09:36	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266183	06/16/22 09:36	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			271190	06/30/22 11:20	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		10	273165	07/07/22 13:37	S4PD	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87540-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-87540-1	MW-531-W-220614	Water	06/14/22 10:16	06/15/22 10:25
410-87540-2	MW-535-W-220614	Water	06/14/22 11:16	06/15/22 10:25
410-87540-3	MW-503-W-220614	Water	06/14/22 12:56	06/15/22 10:25
410-87540-4	MW-532-W-220614	Water	06/14/22 10:14	06/15/22 10:25
410-87540-5	LM-2-W-220614	Water	06/14/22 11:54	06/15/22 10:25
410-87540-6	MW-530-W-220614	Water	06/14/22 11:32	06/15/22 10:25
410-87540-7	MW-525-W-220614	Water	06/14/22 13:22	06/15/22 10:25
410-87540-8	MW-104-W-220614	Water	06/14/22 13:38	06/15/22 10:25
410-87540-9	DUP-2-WD-220614	Water	06/14/22 00:00	06/15/22 10:25
410-87540-10	MW-129R-W-220614	Water	06/14/22 13:54	06/15/22 10:25
410-87540-11	QA-T-220614	Water	06/14/22 00:00	06/15/22 10:25
410-87540-12	MW-ER-W-220614	Water	06/14/22 10:02	06/15/22 10:25



# Chevron Northwest Region Analysis Request/Order



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.



410-87540 Chain of Custody

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks	
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b>				Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>				<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits										SCR #: _____	
Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b>				Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>				8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAH BY 8270 SIM USEPA 300.0 Sulfate + Nitrate US RSK 175 Dissolved Methane US EPA 200.8 Dissolved Manganese											
Chevron PM Lead Consultant <b>KIM JOLITE</b>				Total Number of Containers															
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>				Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>															
Consultant Project Mgr. <b>SAMUEL MILES</b>				Composite <input type="checkbox"/>															
Consultant Phone #				Grab <input type="checkbox"/>															
Sampler <b>J. SEPIOL M. ANDREWS P. BRUNO D. GILBERT</b>				Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>															
2 Sample Identification		3 Collected																	
		Date	Time																
MW-531		6/14	1016																
MW-535		6/14	1116																
MW-503		6/14	1256																
MW-532		6/14	1014																
LM-2		6/14	1154																
MW-530		6/14	1132																
MW-525		6/14	1322																
MW-104		6/14	1338																
DUP-2		6/14	---																
MW-503-MS		6/14	1256																
MW-503-MSD		6/14	1256																
MW-129R		6/14	1354																
TRIP BLANK																			
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by				Date		Time	
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				D. GILBERT				6/14/22		1500									
				Relinquished by				Date		Time		Received by				Date		Time	
8 Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier:				Received by				Date		Time					
Type I - Full		CVX-RTBU-FL_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____				MP				6/15/22		1026					
Type VI (Raw Data)		Other: _____		Temperature Upon Receipt 19-4, 9 °C				Custody Seals Intact?				Yes <input checked="" type="checkbox"/>		No					

A EH

# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.

2 of 2

1 Client Information			4 Matrix			5 Analyses Requested												6 Remarks	
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b>			<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface			<input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input checked="" type="checkbox"/> WA VPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> EPA BY 8270 SIM USEPA 3000.0 US RSK 175 DISSOLVED METHANE US EPA 200.8 DISSOLVED MANGANESE												SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits	
Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b>			<input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air			Total Number of Containers <b>15</b>												6 Remarks <b>DISSOLVED MANGANESE FIELD FILTERED</b> <b>USE STANDARD SGC</b>	
Chevron PM <b>KIM JOLITZ</b>			<input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil			B <input checked="" type="checkbox"/> 8021 <input type="checkbox"/> 8260													
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>			Composite <input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite			C <input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite												7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard    5 day    4 day 72 hour    48 hour    24 hour	
Consultant Project Mgr. <b>SAMUEL MILES</b>			Date Collected <b>6/14</b> Time <b>1002Z</b>			Date Relinquished by <b>6/14/22</b> Time <b>1500</b> Relinquished by <b>D. GILBERT</b>													
Consultant Phone # _____			Date Relinquished by _____ Date _____ Time _____			Date Relinquished by Commercial Carrier:												Received by _____ Date _____ Time _____	
Sampler <b>J. SEPIOL    M. ANDREWS</b> <b>P. BRUND    D. GILBERT</b>			Date Relinquished by _____ Date _____ Time _____			Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____												Received by <b>[Signature]</b> Date <b>6/15/22</b> Time <b>1025</b>	
2 Sample Identification <b>MW-ER</b>			Date Relinquished by _____ Date _____ Time _____			Temperature Upon Receipt _____ °C												Custody Seals Intact? <input checked="" type="checkbox"/> Yes    No	
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)			EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____			9												9	

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-87540-1

**Login Number: 87540**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Hess, Anna**

Question	Answer	Comment
The cooler's custody seal is 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 (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-87910-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
7/20/2022 5:08:21 AM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in cursive script that reads "Amek Carter".

---

Amek Carter  
Project Manager  
7/20/2022 5:08:21 AM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past holding time.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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



## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Job ID: 410-87910-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

#### Job Narrative 410-87910-1

#### Receipt

The samples were received on 6/17/2022 10:55 AM and 6/18/2022 9:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 7.0°C, 9.5°C and 21.1°C

#### Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-101-W-220615 (410-87910-1), MW-515-W-220615 (410-87910-5), MW-502-W-220615 (410-87910-6), MW-126-W-220615 (410-87910-7), MW-143-W-220615 (410-87910-8), MW-143-DU-W-220615 (410-87910-8[DU]), MW-143-MS-W-220615 (410-87910-8[MS]), MW-143-MSD-W-220615 (410-87910-8[MSD]), MW-511-W-220615 (410-87910-10), DUP-4-WD-220615 (410-87910-12), QA-T-220615 (410-87910-13) and MW-516-W-220615 (410-87910-14). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

One 40mL HCl vial for the following samples were received broken: MW-143-MSD-W-220615 (410-87910-8[MSD]) and MW-511-W-220615 (410-87910-10).

The following sample(s) was listed on the Chain-of-Custody (COC); however, due to a shipping delay, the sample was not received. Only 2 of 3 coolers were received. The third cooler was received on 06/18/22.

The number of containers for the following sample did not match the information listed on the Chain-of-Custody (COC): QA-T-220615 (410-87910-13). Received 4, while the COC lists 6. Remaining 2 believed to be in missing cooler.

Sample listed twice on COC, but only received 1 sample's worth. Entered only once

MW-511-W-220615 (410-87910-10)

One 250mL UP amber, one 250mL HCl amber for the following samples were received broken or leaking: MW-518-W-220615 (410-87910-2) and MW-139R-W-220615 (410-87910-4).

One 250mL HCl amber for the following sample was received broken: MW-519-W-220615 (410-87910-9).

Two 250mL HCl ambers for the following sample was received broken: DUP-3-WD-220615 (410-87910-11). No containers are available for NWTDPH-Dx, analysis canceled.

The following samples were received at the laboratory outside the required temperature criteria: MW-518-W-220615 (410-87910-2), MW-20R-W-220615 (410-87910-3), MW-139R-W-220615 (410-87910-4), MW-143-MSD-W-220615 (410-87910-8[MSD]), MW-519-W-220615 (410-87910-9) and DUP-3-WD-220615 (410-87910-11). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

#### GC/MS VOA

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): MW-511-W-220615 (410-87910-10). The sample container was received with headspace.

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

#### GC/MS Semi VOA

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

#### GC VOA

Method RSK\_175: The method requirement for no headspace was not met. The following volatile sample was analyzed with significant

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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## Job ID: 410-87910-1 (Continued)

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### Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

headspace in the sample container(s): DUP-4-WD-220615 (410-87910-12). Significant headspace is defined as a bubble greater than 6 mm in diameter.

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

#### GC Semi VOA

Method NWTPH\_Dx: Surrogate recovery was outside acceptance limits (low) for the following matrix spike duplicate (MSD) sample: MW-143-MSD-W-220615 (410-87910-8[MSD]). The parent sample's surrogate recovery was within limits. The MS/MSD sample has been qualified and reported.

Method NWTPH\_Dx: The o- terphenyl surrogate recovery for the following sample was outside the lower control limits: DUP-4-WD-220615 (410-87910-12). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

#### HPLC/IC

Method 300\_ORGFMS: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-101-W-220615 (410-87910-1), MW-515-W-220615 (410-87910-5) and MW-143-W-220615 (410-87910-8).

Method 300\_ORGFMS: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-502-W-220615 (410-87910-6) and MW-126-W-220615 (410-87910-7).

Method 300\_ORGFMS: The following sample was diluted due to the nature of the sample matrix: MW-20R-W-220615 (410-87910-3) at 50.0. Elevated reporting limits (RLs) are provided.

Method 300\_ORGFMS: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-143-W-220615 (410-87910-8).

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

#### Metals

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-101-W-220615

Lab Sample ID: 410-87910-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	990		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	1300		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	21000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	2600		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-518-W-220615

Lab Sample ID: 410-87910-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	470		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	150		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	14000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	320		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-20R-W-220615

Lab Sample ID: 410-87910-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	26		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	1000000		500000	150000	ug/L	500		EPA 300.0 R2.1	Total/NA
Manganese	200		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-139R-W-220615

Lab Sample ID: 410-87910-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	800	H H3	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	180000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	2.2		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-515-W-220615

Lab Sample ID: 410-87910-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	310	J H cn	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	57000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	12		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-502-W-220615

Lab Sample ID: 410-87910-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	19000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	240	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-126-W-220615

Lab Sample ID: 410-87910-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	11000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	1.3	J	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-143-W-220615

Lab Sample ID: 410-87910-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	10000		250	150	ug/L	50		RSK-175	Total/NA
Manganese	4500		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-519-W-220615

Lab Sample ID: 410-87910-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	3.9	J	5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	530	H H3	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	34000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	14		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-511-W-220615

Lab Sample ID: 410-87910-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	330	J	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	18000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA

## Client Sample ID: DUP-3-WD-220615

Lab Sample ID: 410-87910-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	430		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	140		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	15000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	360		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: DUP-4-WD-220615

Lab Sample ID: 410-87910-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	360	cn	25	15	ug/L	5		RSK-175	Total/NA
Sulfate	21000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	2500	^2	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-220615

Lab Sample ID: 410-87910-13

No Detections.

## Client Sample ID: MW-516-W-220615

Lab Sample ID: 410-87910-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	8.7		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	43000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	180		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-220615

Lab Sample ID: 410-87910-15

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-101-W-220615**

**Lab Sample ID: 410-87910-1**

Date Collected: 06/15/22 10:40

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 21:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		80 - 120					06/23/22 21:42	1
Dibromofluoromethane (Surr)	114		80 - 120					06/23/22 21:42	1
4-Bromofluorobenzene (Surr)	92		80 - 120					06/23/22 21:42	1
Toluene-d8 (Surr)	93		80 - 120					06/23/22 21:42	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:11	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:11	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:11	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:11	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:11	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:11	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	42		10 - 110				06/22/22 15:31	06/23/22 11:11	1
1-Methylnaphthalene-d10 (Surr)	102		36 - 111				06/22/22 15:31	06/23/22 11:11	1
Fluoranthene-d10 (Surr)	80		47 - 128				06/22/22 15:31	06/23/22 11:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>990</b>		250	22	ug/L			06/20/22 16:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	104		50 - 150					06/20/22 16:28	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>1300</b>		25	15	ug/L		06/23/22 09:21	06/23/22 13:01	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	92		43 - 133				06/23/22 09:21	06/23/22 13:01	5

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	51	ug/L		06/25/22 10:00	06/28/22 04:37	1
C24-C40	ND		280	110	ug/L		06/25/22 10:00	06/28/22 04:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150				06/25/22 10:00	06/28/22 04:37	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	500	250	ug/L			06/18/22 02:25	5
<b>Sulfate</b>	<b>21000</b>		5000	1500	ug/L			06/18/22 02:25	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-101-W-220615

Lab Sample ID: 410-87910-1

Date Collected: 06/15/22 10:40

Matrix: Groundwater

Date Received: 06/17/22 10:55

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2600		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:24	1

## Client Sample ID: MW-518-W-220615

Lab Sample ID: 410-87910-2

Date Collected: 06/15/22 10:14

Matrix: Groundwater

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		80 - 120		06/23/22 22:04	1
Dibromofluoromethane (Surr)	115		80 - 120		06/23/22 22:04	1
4-Bromofluorobenzene (Surr)	94		80 - 120		06/23/22 22:04	1
Toluene-d8 (Surr)	95		80 - 120		06/23/22 22:04	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:32	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:32	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:32	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:32	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:32	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:32	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	60		10 - 110	06/22/22 15:31	06/23/22 11:32	1
1-Methylnaphthalene-d10 (Surr)	64		36 - 111	06/22/22 15:31	06/23/22 11:32	1
Fluoranthene-d10 (Surr)	77		47 - 128	06/22/22 15:31	06/23/22 11:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	470		250	22	ug/L			06/21/22 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		06/21/22 00:09	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	150		5.0	3.0	ug/L		06/22/22 08:02	06/22/22 15:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	92		43 - 133	06/22/22 08:02	06/22/22 15:09	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/25/22 10:00	06/28/22 05:00	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/28/22 05:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150	06/25/22 10:00	06/28/22 05:00	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-518-W-220615

Lab Sample ID: 410-87910-2

Date Collected: 06/15/22 10:14

Matrix: Groundwater

Date Received: 06/18/22 09:55

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3	500	250	ug/L			06/30/22 18:44	5
<b>Sulfate</b>	<b>14000</b>		5000	1500	ug/L			06/30/22 18:44	5

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>320</b>		2.1	0.98	ug/L		06/27/22 08:59	07/19/22 09:22	1

## Client Sample ID: MW-20R-W-220615

Lab Sample ID: 410-87910-3

Date Collected: 06/15/22 12:28

Matrix: Groundwater

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 22:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	112		80 - 120					06/23/22 22:26	1
Dibromofluoromethane (Surr)	114		80 - 120					06/23/22 22:26	1
4-Bromofluorobenzene (Surr)	86		80 - 120					06/23/22 22:26	1
Toluene-d8 (Surr)	95		80 - 120					06/23/22 22:26	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:54	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:54	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:54	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:54	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 11:54	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:54	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 11:54	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	32		10 - 110				06/22/22 15:31	06/23/22 11:54	1
1-Methylnaphthalene-d10 (Surr)	67		36 - 111				06/22/22 15:31	06/23/22 11:54	1
Fluoranthene-d10 (Surr)	81		47 - 128				06/22/22 15:31	06/23/22 11:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 16:54	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					06/20/22 16:54	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>26</b>		5.0	3.0	ug/L		06/22/22 08:03	06/22/22 15:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	91		43 - 133				06/22/22 08:03	06/22/22 15:26	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-20R-W-220615**

**Lab Sample ID: 410-87910-3**

Date Collected: 06/15/22 12:28

Matrix: Groundwater

Date Received: 06/18/22 09:55

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	47	ug/L		06/25/22 10:00	06/28/22 05:23	1
C24-C40	ND		260	110	ug/L		06/25/22 10:00	06/28/22 05:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	58		50 - 150				06/25/22 10:00	06/28/22 05:23	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3 cn	5000	2500	ug/L			06/30/22 18:10	50
Sulfate	1000000		500000	150000	ug/L			06/30/22 18:18	500

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	200		2.1	0.98	ug/L		06/27/22 08:59	07/19/22 09:14	1

**Client Sample ID: MW-139R-W-220615**

**Lab Sample ID: 410-87910-4**

Date Collected: 06/15/22 13:14

Matrix: Groundwater

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 22:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	111		80 - 120					06/23/22 22:47	1
<i>Dibromofluoromethane</i> (Surr)	114		80 - 120					06/23/22 22:47	1
<i>4</i> -Bromofluorobenzene (Surr)	87		80 - 120					06/23/22 22:47	1
<i>Toluene-d</i> 8 (Surr)	95		80 - 120					06/23/22 22:47	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:16	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:16	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:16	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:16	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:16	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 12:16	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 12:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d</i> 12 (Surr)	72		10 - 110				06/22/22 15:31	06/23/22 12:16	1
<i>1</i> -Methylnaphthalene- <i>d</i> 10 (Surr)	64		36 - 111				06/22/22 15:31	06/23/22 12:16	1
<i>Fluoranthene-d</i> 10 (Surr)	87		47 - 128				06/22/22 15:31	06/23/22 12:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 17:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	99		50 - 150					06/20/22 17:20	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-139R-W-220615**

**Lab Sample ID: 410-87910-4**

Date Collected: 06/15/22 13:14

Matrix: Groundwater

Date Received: 06/18/22 09:55

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 16:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	96		43 - 133				06/22/22 12:08	06/22/22 16:33	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/25/22 10:00	06/28/22 05:46	1
C24-C40	ND		260	100	ug/L		06/25/22 10:00	06/28/22 05:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	59		50 - 150				06/25/22 10:00	06/28/22 05:46	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	800	H H3	500	250	ug/L			07/06/22 17:49	5
Sulfate	180000		50000	15000	ug/L			06/30/22 18:27	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.2		2.1	0.98	ug/L		06/27/22 08:59	07/19/22 09:24	1

**Client Sample ID: MW-515-W-220615**

**Lab Sample ID: 410-87910-5**

Date Collected: 06/15/22 12:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 23:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					06/23/22 23:10	1
Dibromofluoromethane (Surr)	112		80 - 120					06/23/22 23:10	1
4-Bromofluorobenzene (Surr)	87		80 - 120					06/23/22 23:10	1
Toluene-d8 (Surr)	95		80 - 120					06/23/22 23:10	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:38	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:38	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:38	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:38	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 12:38	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 12:38	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 12:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110				06/22/22 15:31	06/23/22 12:38	1
1-Methylnaphthalene-d10 (Surr)	83		36 - 111				06/22/22 15:31	06/23/22 12:38	1
Fluoranthene-d10 (Surr)	81		47 - 128				06/22/22 15:31	06/23/22 12:38	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-515-W-220615**

**Lab Sample ID: 410-87910-5**

Date Collected: 06/15/22 12:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/20/22 17:45	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 19:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	92		43 - 133				06/21/22 12:14	06/21/22 19:40	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	52	ug/L		06/25/22 10:00	06/28/22 06:09	1
C24-C40	ND		290	120	ug/L		06/25/22 10:00	06/28/22 06:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150				06/25/22 10:00	06/28/22 06:09	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	310	J H cn	500	250	ug/L			06/18/22 01:53	5
Sulfate	57000		5000	1500	ug/L			06/18/22 01:53	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	12		2.1	0.98	ug/L		06/27/22 10:13	06/30/22 19:36	1

**Client Sample ID: MW-502-W-220615**

**Lab Sample ID: 410-87910-6**

Date Collected: 06/15/22 09:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 23:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		80 - 120					06/23/22 23:32	1
Dibromofluoromethane (Surr)	114		80 - 120					06/23/22 23:32	1
4-Bromofluorobenzene (Surr)	86		80 - 120					06/23/22 23:32	1
Toluene-d8 (Surr)	95		80 - 120					06/23/22 23:32	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:00	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:00	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:00	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:00	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:00	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:00	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:00	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-502-W-220615**

**Lab Sample ID: 410-87910-6**

Date Collected: 06/15/22 09:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	46		10 - 110	06/22/22 15:31	06/23/22 13:00	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111	06/22/22 15:31	06/23/22 13:00	1
Fluoranthene-d10 (Surr)	85		47 - 128	06/22/22 15:31	06/23/22 13:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/20/22 18:11	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 19:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	87		43 - 133	06/21/22 12:14	06/21/22 19:55	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/28/22 16:28	06/30/22 17:37	1
C24-C40	ND		260	100	ug/L		06/28/22 16:28	06/30/22 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	72		50 - 150	06/28/22 16:28	06/30/22 17:37	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	500	250	ug/L			06/27/22 11:56	5
Sulfate	19000		5000	1500	ug/L			06/27/22 11:56	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	240	^2	2.1	0.98	ug/L		06/27/22 10:13	06/29/22 13:11	1

**Client Sample ID: MW-126-W-220615**

**Lab Sample ID: 410-87910-7**

Date Collected: 06/15/22 10:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 23:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		06/23/22 23:54	1
Dibromofluoromethane (Surr)	114		80 - 120		06/23/22 23:54	1
4-Bromofluorobenzene (Surr)	86		80 - 120		06/23/22 23:54	1
Toluene-d8 (Surr)	92		80 - 120		06/23/22 23:54	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:23	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:23	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-126-W-220615**

**Lab Sample ID: 410-87910-7**

Date Collected: 06/15/22 10:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:23	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:23	1
Chrysene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:23	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/22/22 15:36	06/23/22 12:23	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/22/22 15:36	06/23/22 12:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	80		10 - 110				06/22/22 15:36	06/23/22 12:23	1
1-Methylnaphthalene-d10 (Surr)	87		36 - 111				06/22/22 15:36	06/23/22 12:23	1
Fluoranthene-d10 (Surr)	97		47 - 128				06/22/22 15:36	06/23/22 12:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 18:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/20/22 18:37	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 20:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	90		43 - 133				06/21/22 12:14	06/21/22 20:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/29/22 16:26	07/07/22 13:49	1
C24-C40	ND		260	100	ug/L		06/29/22 16:26	07/07/22 13:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150				06/29/22 16:26	07/07/22 13:49	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	500	250	ug/L			06/27/22 12:30	5
Sulfate	11000		5000	1500	ug/L			06/27/22 12:30	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.3	J	2.1	0.98	ug/L		06/27/22 10:13	06/30/22 19:34	1

**Client Sample ID: MW-143-W-220615**

**Lab Sample ID: 410-87910-8**

Date Collected: 06/15/22 12:02

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/24/22 00:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		80 - 120					06/24/22 00:16	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-143-W-220615**

**Lab Sample ID: 410-87910-8**

Date Collected: 06/15/22 12:02

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	117		80 - 120		06/24/22 00:16	1
4-Bromofluorobenzene (Surr)	86		80 - 120		06/24/22 00:16	1
Toluene-d8 (Surr)	95		80 - 120		06/24/22 00:16	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	F1	0.053	0.011	ug/L		06/22/22 15:36	06/23/22 11:18	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/22/22 15:36	06/23/22 11:18	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/22/22 15:36	06/23/22 11:18	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/22/22 15:36	06/23/22 11:18	1
Chrysene	ND		0.053	0.011	ug/L		06/22/22 15:36	06/23/22 11:18	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/22/22 15:36	06/23/22 11:18	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/22/22 15:36	06/23/22 11:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110	06/22/22 15:36	06/23/22 11:18	1
1-Methylnaphthalene-d10 (Surr)	92		36 - 111	06/22/22 15:36	06/23/22 11:18	1
Fluoranthene-d10 (Surr)	69		47 - 128	06/22/22 15:36	06/23/22 11:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 19:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/20/22 19:02	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	10000		250	150	ug/L		06/22/22 07:56	06/22/22 13:13	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	101		43 - 133	06/22/22 07:56	06/22/22 13:13	50

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	F1 F2	110	48	ug/L		06/29/22 16:26	07/07/22 14:12	1
C24-C40	ND		270	110	ug/L		06/29/22 16:26	07/07/22 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	88		50 - 150	06/29/22 16:26	07/07/22 14:12	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	500	250	ug/L			06/30/22 18:52	5
Sulfate	ND		5000	1500	ug/L			06/30/22 18:52	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	4500		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 11:39	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-519-W-220615**

**Lab Sample ID: 410-87910-9**

Date Collected: 06/15/22 13:32

Matrix: Groundwater

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/24/22 01:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					06/24/22 01:22	1
Dibromofluoromethane (Surr)	112		80 - 120					06/24/22 01:22	1
4-Bromofluorobenzene (Surr)	88		80 - 120					06/24/22 01:22	1
Toluene-d8 (Surr)	96		80 - 120					06/24/22 01:22	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:44	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:44	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:44	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:44	1
Chrysene	ND		0.052	0.010	ug/L		06/22/22 15:36	06/23/22 12:44	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/22/22 15:36	06/23/22 12:44	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/22/22 15:36	06/23/22 12:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	76		10 - 110				06/22/22 15:36	06/23/22 12:44	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111				06/22/22 15:36	06/23/22 12:44	1
Fluoranthene-d10 (Surr)	92		47 - 128				06/22/22 15:36	06/23/22 12:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 20:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/20/22 20:45	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	3.9	J	5.0	3.0	ug/L		06/21/22 12:14	06/21/22 21:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	85		43 - 133				06/21/22 12:14	06/21/22 21:37	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		06/29/22 16:26	07/07/22 15:21	1
C24-C40	ND		260	100	ug/L		06/29/22 16:26	07/07/22 15:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150				06/29/22 16:26	07/07/22 15:21	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	530	H H3	500	250	ug/L			06/30/22 16:27	5
Sulfate	34000		5000	1500	ug/L			06/30/22 16:27	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-519-W-220615

Lab Sample ID: 410-87910-9

Date Collected: 06/15/22 13:32

Matrix: Groundwater

Date Received: 06/18/22 09:55

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	14		2.1	0.98	ug/L		06/27/22 08:59	07/19/22 09:26	1

## Client Sample ID: MW-511-W-220615

Lab Sample ID: 410-87910-10

Date Collected: 06/15/22 13:58

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			06/24/22 01:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107	cn	80 - 120		06/24/22 01:44	1
Dibromofluoromethane (Surr)	112	cn	80 - 120		06/24/22 01:44	1
4-Bromofluorobenzene (Surr)	87	cn	80 - 120		06/24/22 01:44	1
Toluene-d8 (Surr)	96	cn	80 - 120		06/24/22 01:44	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:21	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:21	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:21	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:21	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:21	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110	06/22/22 15:31	06/23/22 13:21	1
1-Methylnaphthalene-d10 (Surr)	85		36 - 111	06/22/22 15:31	06/23/22 13:21	1
Fluoranthene-d10 (Surr)	87		47 - 128	06/22/22 15:31	06/23/22 13:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 21:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/20/22 21:11	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 21:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	83		43 - 133	06/21/22 12:14	06/21/22 21:54	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/29/22 16:26	07/07/22 15:44	1
C24-C40	ND		270	110	ug/L		06/29/22 16:26	07/07/22 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	81		50 - 150	06/29/22 16:26	07/07/22 15:44	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: MW-511-W-220615

Lab Sample ID: 410-87910-10

Date Collected: 06/15/22 13:58

Matrix: Groundwater

Date Received: 06/17/22 10:55

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	330	J	500	250	ug/L			06/17/22 13:50	5
Sulfate	18000		5000	1500	ug/L			06/17/22 13:50	5

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 10:13	06/29/22 13:13	1

## Client Sample ID: DUP-3-WD-220615

Lab Sample ID: 410-87910-11

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/24/22 02:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		80 - 120		06/24/22 02:07	1
Dibromofluoromethane (Surr)	113		80 - 120		06/24/22 02:07	1
4-Bromofluorobenzene (Surr)	90		80 - 120		06/24/22 02:07	1
Toluene-d8 (Surr)	94		80 - 120		06/24/22 02:07	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:43	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:43	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:43	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:43	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 13:43	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:43	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 13:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	62		10 - 110	06/22/22 15:31	06/23/22 13:43	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111	06/22/22 15:31	06/23/22 13:43	1
Fluoranthene-d10 (Surr)	84		47 - 128	06/22/22 15:31	06/23/22 13:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	430		250	22	ug/L			06/20/22 21:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/20/22 21:36	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	140		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 22:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	89		43 - 133	06/21/22 12:14	06/21/22 22:11	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Client Sample ID: DUP-3-WD-220615

Lab Sample ID: 410-87910-11

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/18/22 09:55

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3	500	250	ug/L			06/30/22 16:18	5
<b>Sulfate</b>	<b>15000</b>		5000	1500	ug/L			06/30/22 16:18	5

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>360</b>		2.1	0.98	ug/L		06/27/22 08:50	06/29/22 16:00	1

## Client Sample ID: DUP-4-WD-220615

Lab Sample ID: 410-87910-12

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/24/22 02:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	110		80 - 120					06/24/22 02:29	1
Dibromofluoromethane (Surr)	115		80 - 120					06/24/22 02:29	1
4-Bromofluorobenzene (Surr)	92		80 - 120					06/24/22 02:29	1
Toluene-d8 (Surr)	94		80 - 120					06/24/22 02:29	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:05	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:05	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:05	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:05	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:05	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 14:05	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 14:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	34		10 - 110				06/22/22 15:31	06/23/22 14:05	1
1-Methylnaphthalene-d10 (Surr)	115	S1+	36 - 111				06/22/22 15:31	06/23/22 14:05	1
Fluoranthene-d10 (Surr)	73		47 - 128				06/22/22 15:31	06/23/22 14:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>1100</b>		250	22	ug/L			06/20/22 22:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					06/20/22 22:02	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>360</b>	<b>cn</b>	25	15	ug/L		06/23/22 09:21	06/23/22 12:04	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	92	cn	43 - 133				06/23/22 09:21	06/23/22 12:04	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: DUP-4-WD-220615**

**Lab Sample ID: 410-87910-12**

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/17/22 10:55

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	51	ug/L		06/29/22 16:26	07/07/22 16:30	1
C24-C40	ND	cn	290	110	ug/L		06/29/22 16:26	07/07/22 16:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	2	S1- cn	50 - 150				06/29/22 16:26	07/07/22 16:30	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3	500	250	ug/L			06/17/22 14:12	5
Sulfate	21000		5000	1500	ug/L			06/17/22 14:12	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2500	^2	2.1	0.98	ug/L		06/27/22 10:13	06/29/22 13:00	1

**Client Sample ID: QA-T-220615**

**Lab Sample ID: 410-87910-13**

Date Collected: 06/15/22 00:00

Matrix: Water

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 20:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane-d4 (Surr)	109		80 - 120					06/23/22 20:58	1
<i>Dibromofluoromethane</i> (Surr)	114		80 - 120					06/23/22 20:58	1
<i>4</i> -Bromofluorobenzene (Surr)	86		80 - 120					06/23/22 20:58	1
<i>Toluene-d8</i> (Surr)	95		80 - 120					06/23/22 20:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 15:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	102		50 - 150					06/20/22 15:37	1

**Client Sample ID: MW-516-W-220615**

**Lab Sample ID: 410-87910-14**

Date Collected: 06/15/22 14:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/24/22 02:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane-d4 (Surr)	107		80 - 120					06/24/22 02:50	1
<i>Dibromofluoromethane</i> (Surr)	112		80 - 120					06/24/22 02:50	1
<i>4</i> -Bromofluorobenzene (Surr)	88		80 - 120					06/24/22 02:50	1
<i>Toluene-d8</i> (Surr)	96		80 - 120					06/24/22 02:50	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-516-W-220615**

**Lab Sample ID: 410-87910-14**

Date Collected: 06/15/22 14:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:27	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:27	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:27	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:27	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 14:27	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 14:27	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 14:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	48		10 - 110	06/22/22 15:31	06/23/22 14:27	1
1-Methylnaphthalene-d10 (Surr)	85		36 - 111	06/22/22 15:31	06/23/22 14:27	1
Fluoranthene-d10 (Surr)	84		47 - 128	06/22/22 15:31	06/23/22 14:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/20/22 22:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	8.7		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 22:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	91		43 - 133	06/21/22 12:14	06/21/22 22:45	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	52	ug/L		06/29/22 16:26	07/07/22 16:53	1
C24-C40	ND		290	110	ug/L		06/29/22 16:26	07/07/22 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	91		50 - 150	06/29/22 16:26	07/07/22 16:53	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 14:01	5
Sulfate	43000		5000	1500	ug/L			06/17/22 14:01	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	180		2.1	0.98	ug/L		06/27/22 10:00	06/29/22 13:12	1

**Client Sample ID: QA-T-220615**

**Lab Sample ID: 410-87910-15**

Date Collected: 06/15/22 00:00

Matrix: Water

Date Received: 06/18/22 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/23/22 21:20	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: QA-T-220615**

**Lab Sample ID: 410-87910-15**

Date Collected: 06/15/22 00:00

Matrix: Water

Date Received: 06/18/22 09:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		80 - 120		06/23/22 21:20	1
Dibromofluoromethane (Surr)	114		80 - 120		06/23/22 21:20	1
4-Bromofluorobenzene (Surr)	87		80 - 120		06/23/22 21:20	1
Toluene-d8 (Surr)	95		80 - 120		06/23/22 21:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 16:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		06/20/22 16:02	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87910-1	MW-101-W-220615	111	114	92	93
410-87910-2	MW-518-W-220615	110	115	94	95
410-87910-3	MW-20R-W-220615	112	114	86	95
410-87910-4	MW-139R-W-220615	111	114	87	95
410-87910-5	MW-515-W-220615	109	112	87	95
410-87910-6	MW-502-W-220615	111	114	86	95
410-87910-7	MW-126-W-220615	108	114	86	92
410-87910-8	MW-143-W-220615	112	117	86	95
410-87910-8 MS	MW-143-MS-W-220615	106	106	95	100
410-87910-8 MSD	MW-143-MSD-W-220615	105	106	96	100
410-87910-9	MW-519-W-220615	109	112	88	96
410-87910-10	MW-511-W-220615	107 cn	112 cn	87 cn	96 cn
410-87910-11	DUP-3-WD-220615	111	113	90	94
410-87910-12	DUP-4-WD-220615	110	115	92	94
410-87910-14	MW-516-W-220615	107	112	88	96

### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87910-13	QA-T-220615	109	114	86	95
410-87910-15	QA-T-220615	111	114	87	95
LCS 410-268765/4	Lab Control Sample	104	105	96	102
MB 410-268765/6	Method Blank	109	112	87	98

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87910-1	MW-101-W-220615	42	102	80
410-87910-2	MW-518-W-220615	60	64	77
410-87910-3	MW-20R-W-220615	32	67	81
410-87910-4	MW-139R-W-220615	72	64	87
410-87910-5	MW-515-W-220615	59	83	81
410-87910-6	MW-502-W-220615	46	81	85

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87910-7	MW-126-W-220615	80	87	97
410-87910-8	MW-143-W-220615	71	92	69
410-87910-8 MS	MW-143-MS-W-220615	79	86	80
410-87910-8 MSD	MW-143-MSD-W-220615	82	92	86
410-87910-9	MW-519-W-220615	76	86	92
410-87910-10	MW-511-W-220615	71	85	87
410-87910-11	DUP-3-WD-220615	62	77	84
410-87910-12	DUP-4-WD-220615	34	115 S1+	73
410-87910-14	MW-516-W-220615	48	85	84

### Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)

MNPd10 = 1-Methylnaphthalene-d10 (Surr)

FLN10 = Fluoranthene-d10 (Surr)

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
LCS 410-268282/2-A	Lab Control Sample	88	70	84
LCS 410-268283/2-A	Lab Control Sample	86	79	87
MB 410-268282/1-A	Method Blank	93	70	83
MB 410-268283/1-A	Method Blank	75	77	79

### Surrogate Legend

BAPd12 = Benzo(a)pyrene-d12 (Surr)

MNPd10 = 1-Methylnaphthalene-d10 (Surr)

FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-87910-1	MW-101-W-220615	104
410-87910-2	MW-518-W-220615	99
410-87910-3	MW-20R-W-220615	102
410-87910-4	MW-139R-W-220615	99
410-87910-5	MW-515-W-220615	101
410-87910-6	MW-502-W-220615	101
410-87910-7	MW-126-W-220615	101
410-87910-8	MW-143-W-220615	101
410-87910-8 MS	MW-143-MS-W-220615	92
410-87910-8 MSD	MW-143-MSD-W-220615	92
410-87910-9	MW-519-W-220615	101
410-87910-10	MW-511-W-220615	101
410-87910-11	DUP-3-WD-220615	101
410-87910-12	DUP-4-WD-220615	102
410-87910-14	MW-516-W-220615	101

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

## 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	TFT-F1 (50-150)
410-87910-13	QA-T-220615	102
410-87910-15	QA-T-220615	100
LCS 410-267323/5	Lab Control Sample	93
LCSD 410-267323/6	Lab Control Sample Dup	93
MB 410-267323/4	Method Blank	101

## Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Groundwater

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Propene1 (43-133)
410-87910-1	MW-101-W-220615	92
410-87910-2	MW-518-W-220615	92
410-87910-3	MW-20R-W-220615	91
410-87910-4	MW-139R-W-220615	96
410-87910-5	MW-515-W-220615	92
410-87910-6	MW-502-W-220615	87
410-87910-7	MW-126-W-220615	90
410-87910-8	MW-143-W-220615	101
410-87910-8 MS	MW-143-MS-W-220615	105
410-87910-8 MSD	MW-143-MSD-W-220615	104
410-87910-9	MW-519-W-220615	85
410-87910-10	MW-511-W-220615	83
410-87910-11	DUP-3-WD-220615	89
410-87910-12	DUP-4-WD-220615	92 cn
410-87910-14	MW-516-W-220615	91

## Surrogate Legend

Propene = Propene

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Propene1 (43-133)
LCS 410-267719/2-A	Lab Control Sample	101
LCS 410-268011/2-A	Lab Control Sample	99
LCS 410-268014/2-A	Lab Control Sample	104
LCS 410-268199/2-A	Lab Control Sample	107
LCS 410-268520/2-A	Lab Control Sample	99
LCSD 410-268199/3-A	Lab Control Sample Dup	104
LCSD 410-268520/3-A	Lab Control Sample Dup	104
MB 410-267719/1-A	Method Blank	103
MB 410-268011/1-A	Method Blank	102



## Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

### Method: RSK-175 - Dissolved Gases (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	Propene1 (43-133)
MB 410-268014/1-A	Method Blank	103
MB 410-268199/1-A	Method Blank	106
MB 410-268520/1-A	Method Blank	100
<b>Surrogate Legend</b>		
Propene = Propene		

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Groundwater

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	OTP (50-150)
410-87910-1	MW-101-W-220615	69
410-87910-2	MW-518-W-220615	67
410-87910-3	MW-20R-W-220615	58
410-87910-4	MW-139R-W-220615	59
410-87910-5	MW-515-W-220615	63
410-87910-5 DU	MW-515-W-220615	70
410-87910-6	MW-502-W-220615	72
410-87910-6 DU	MW-502-W-220615	66
410-87910-7	MW-126-W-220615	63
410-87910-8	MW-143-W-220615	88
410-87910-8 MS	MW-143-MS-W-220615	54
410-87910-8 MSD	MW-143-MSD-W-220615	15 S1- cn
410-87910-9	MW-519-W-220615	69
410-87910-10	MW-511-W-220615	81
410-87910-10 DU	MW-511-W-220615	77
410-87910-12	DUP-4-WD-220615	2 S1- cn
410-87910-14	MW-516-W-220615	91
<b>Surrogate Legend</b>		
OTP = o- terphenyl (Surr)		

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	OTP (50-150)
LCS 410-269290/2-B	Lab Control Sample	58
LCS 410-270368/2-B	Lab Control Sample	62
LCS 410-270884/2-B	Lab Control Sample	74
LCSD 410-270368/3-B	Lab Control Sample Dup	64
MB 410-269290/1-B	Method Blank	69
MB 410-270368/1-B	Method Blank	76
MB 410-270884/1-B	Method Blank	87
<b>Surrogate Legend</b>		
OTP = o- terphenyl (Surr)		

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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

**Lab Sample ID: MB 410-268765/6**  
**Matrix: Water**  
**Analysis Batch: 268765**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		1.0	0.30	ug/L			06/23/22 20:36	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	109		80 - 120				06/23/22 20:36	1	
Dibromofluoromethane (Surr)	112		80 - 120				06/23/22 20:36	1	
4-Bromofluorobenzene (Surr)	87		80 - 120				06/23/22 20:36	1	
Toluene-d8 (Surr)	98		80 - 120				06/23/22 20:36	1	

**Lab Sample ID: LCS 410-268765/4**  
**Matrix: Water**  
**Analysis Batch: 268765**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	20.0	18.6		ug/L		93	80 - 120
Surrogate	LCS	LCS	Limits			%Rec	
	%Recovery	Qualifier					
1,2-Dichloroethane-d4 (Surr)	104		80 - 120				
Dibromofluoromethane (Surr)	105		80 - 120				
4-Bromofluorobenzene (Surr)	96		80 - 120				
Toluene-d8 (Surr)	102		80 - 120				

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 268765**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Benzene	ND		20.0	21.3		ug/L		107	80 - 120
Surrogate	MS	MS	Limits			%Rec			
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	106		80 - 120						
Dibromofluoromethane (Surr)	106		80 - 120						
4-Bromofluorobenzene (Surr)	95		80 - 120						
Toluene-d8 (Surr)	100		80 - 120						

**Lab Sample ID: 410-87910-8 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 268765**

**Client Sample ID: MW-143-MSD-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier					1	30
Benzene	ND		20.0	21.2		ug/L		106	80 - 120	1	30
Surrogate	MSD	MSD	Limits			%Rec					
	%Recovery	Qualifier									
1,2-Dichloroethane-d4 (Surr)	105		80 - 120								
Dibromofluoromethane (Surr)	106		80 - 120								
4-Bromofluorobenzene (Surr)	96		80 - 120								
Toluene-d8 (Surr)	100		80 - 120								

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-268282/1-A**  
**Matrix: Water**  
**Analysis Batch: 268438**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268282**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 08:38	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 08:38	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 08:38	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 08:38	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:31	06/23/22 08:38	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 08:38	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:31	06/23/22 08:38	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	93		10 - 110	06/22/22 15:31	06/23/22 08:38	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111	06/22/22 15:31	06/23/22 08:38	1
Fluoranthene-d10 (Surr)	83		47 - 128	06/22/22 15:31	06/23/22 08:38	1

**Lab Sample ID: LCS 410-268282/2-A**  
**Matrix: Water**  
**Analysis Batch: 268438**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	1.00	1.01		ug/L		101	60 - 120
Benzo[b]fluoranthene	1.00	1.16		ug/L		116	58 - 122
Benzo[k]fluoranthene	1.00	1.05		ug/L		105	57 - 128
Chrysene	1.00	0.941		ug/L		94	55 - 123
Dibenz(a,h)anthracene	1.00	1.14		ug/L		114	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.20		ug/L		120	47 - 143

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	88		10 - 110
1-Methylnaphthalene-d10 (Surr)	70		36 - 111
Fluoranthene-d10 (Surr)	84		47 - 128

**Lab Sample ID: MB 410-268283/1-A**  
**Matrix: Water**  
**Analysis Batch: 268399**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268283**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/22/22 15:36	06/23/22 08:25	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/22/22 15:36	06/23/22 08:25	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:36	06/23/22 08:25	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/22/22 15:36	06/23/22 08:25	1
Chrysene	ND		0.050	0.010	ug/L		06/22/22 15:36	06/23/22 08:25	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/22/22 15:36	06/23/22 08:25	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/22/22 15:36	06/23/22 08:25	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	75		10 - 110	06/22/22 15:36	06/23/22 08:25	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111	06/22/22 15:36	06/23/22 08:25	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 410-268283/1-A

Matrix: Water

Analysis Batch: 268399

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 268283

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Fluoranthene-d10 (Surr)	79		47 - 128	06/22/22 15:36	06/23/22 08:25	1

Lab Sample ID: LCS 410-268283/2-A

Matrix: Water

Analysis Batch: 268399

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 268283

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	1.00	1.12		ug/L		112	61 - 122	
Benzo[a]pyrene	1.00	1.01		ug/L		101	60 - 120	
Benzo[b]fluoranthene	1.00	1.03		ug/L		103	58 - 122	
Benzo[k]fluoranthene	1.00	1.00		ug/L		100	57 - 128	
Chrysene	1.00	0.975		ug/L		98	55 - 123	
Dibenz(a,h)anthracene	1.00	1.15		ug/L		115	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	1.20		ug/L		120	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	86		10 - 110
1-Methylnaphthalene-d10 (Surr)	79		36 - 111
Fluoranthene-d10 (Surr)	87		47 - 128

Lab Sample ID: 410-87910-8 MS

Matrix: Groundwater

Analysis Batch: 268399

Client Sample ID: MW-143-MS-W-220615

Prep Type: Total/NA

Prep Batch: 268283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	ND	F1	1.09	1.33		ug/L		122	61 - 122	
Benzo[a]pyrene	ND		1.09	0.956		ug/L		88	60 - 120	
Benzo[b]fluoranthene	ND		1.09	1.09		ug/L		100	58 - 122	
Benzo[k]fluoranthene	ND		1.09	1.09		ug/L		100	57 - 128	
Chrysene	ND		1.09	1.16		ug/L		107	55 - 123	
Dibenz(a,h)anthracene	ND		1.09	1.14		ug/L		105	50 - 121	
Indeno[1,2,3-cd]pyrene	ND		1.09	1.23		ug/L		113	47 - 143	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	79		10 - 110
1-Methylnaphthalene-d10 (Surr)	86		36 - 111
Fluoranthene-d10 (Surr)	80		47 - 128

Lab Sample ID: 410-87910-8 MSD

Matrix: Groundwater

Analysis Batch: 268399

Client Sample ID: MW-143-MSD-W-220615

Prep Type: Total/NA

Prep Batch: 268283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	ND	F1	1.08	1.38	F1	ug/L		128	61 - 122	4	30	
Benzo[a]pyrene	ND		1.08	1.02		ug/L		94	60 - 120	6	30	
Benzo[b]fluoranthene	ND		1.08	1.11		ug/L		102	58 - 122	2	30	
Benzo[k]fluoranthene	ND		1.08	1.13		ug/L		104	57 - 128	3	30	
Chrysene	ND		1.08	1.20		ug/L		111	55 - 123	3	30	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 410-87910-8 MSD

Client Sample ID: MW-143-MSD-W-220615

Matrix: Groundwater

Prep Type: Total/NA

Analysis Batch: 268399

Prep Batch: 268283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Dibenz(a,h)anthracene	ND		1.08	1.14		ug/L		105	50 - 121	1	30
Indeno[1,2,3-cd]pyrene	ND		1.08	1.24		ug/L		114	47 - 143	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
Benzo(a)pyrene-d12 (Surr)	82		10 - 110								
1-Methylnaphthalene-d10 (Surr)	92		36 - 111								
Fluoranthene-d10 (Surr)	86		47 - 128								

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

Lab Sample ID: MB 410-267323/4

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 267323

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/20/22 14:19	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150						

Lab Sample ID: LCS 410-267323/5

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 267323

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1030		ug/L		94	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150				

Lab Sample ID: LCSD 410-267323/6

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 267323

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C7-C12 (1C)	1100	1050		ug/L		96	64 - 131	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150						

Lab Sample ID: 410-87910-8 MS

Client Sample ID: MW-143-MS-W-220615

Matrix: Groundwater

Prep Type: Total/NA

Analysis Batch: 267323

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	ND		1120	1100		ug/L		98	80 - 120

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 267323**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**

	<i>MS</i>	<i>MS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	92		50 - 150

**Lab Sample ID: 410-87910-8 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 267323**

**Client Sample ID: MW-143-MSD-W-220615**  
**Prep Type: Total/NA**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
C7-C12 (1C)	ND		1120	1100		ug/L		99	80 - 120	0	30

	<i>MSD</i>	<i>MSD</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	92		50 - 150

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-267719/1-A**  
**Matrix: Water**  
**Analysis Batch: 267726**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 267719**

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane (1C)	ND		5.0	3.0	ug/L		06/21/22 12:14	06/21/22 18:07	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Propene (1C)</i>	103		43 - 133	06/21/22 12:14	06/21/22 18:07	1

**Lab Sample ID: LCS 410-267719/2-A**  
**Matrix: Water**  
**Analysis Batch: 267726**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 267719**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
Methane (1C)	59.9	56.3		ug/L		94	85 - 115

	<i>LCS</i>	<i>LCS</i>	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Propene (1C)</i>	101		43 - 133

**Lab Sample ID: MB 410-268011/1-A**  
**Matrix: Water**  
**Analysis Batch: 268015**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268011**

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 07:56	06/22/22 08:28	1

	<i>MB</i>	<i>MB</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Propene (1C)</i>	102		43 - 133	06/22/22 07:56	06/22/22 08:28	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCS 410-268011/2-A**  
**Matrix: Water**  
**Analysis Batch: 268015**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268011**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	59.7		ug/L		100	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	99		43 - 133				

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 268015**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 268011**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	10000		2990	12700		ug/L		90	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
Propene (1C)	105		43 - 133						

**Lab Sample ID: 410-87910-8 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 268015**

**Client Sample ID: MW-143-MSD-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 268011**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	10000		2990	13000		ug/L		100	85 - 115	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
Propene (1C)	104		43 - 133								

**Lab Sample ID: MB 410-268014/1-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268014**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 08:02	06/22/22 08:25	1	
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>				
Propene (1C)	103		43 - 133	06/22/22 08:02	06/22/22 08:25	1				

**Lab Sample ID: LCS 410-268014/2-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268014**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	56.1		ug/L		94	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	104		43 - 133				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: MB 410-268199/1-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 15:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	106		43 - 133				06/22/22 12:08	06/22/22 15:43	1

**Lab Sample ID: LCS 410-268199/2-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Methane (1C)	59.9	57.9		ug/L		97	85 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Propene (1C)	107		43 - 133					

**Lab Sample ID: LCSD 410-268199/3-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	57.2		ug/L		95	85 - 115	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Propene (1C)	104		43 - 133						

**Lab Sample ID: MB 410-268520/1-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268520**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/23/22 09:21	06/23/22 10:30	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	100		43 - 133				06/23/22 09:21	06/23/22 10:30	1

**Lab Sample ID: LCS 410-268520/2-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268520**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Methane (1C)	59.9	58.6		ug/L		98	85 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Propene (1C)	99		43 - 133					



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCSD 410-268520/3-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 268520**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Methane (1C)	59.9	60.8		ug/L		102	85 - 115	4	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	104		43 - 133						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-269290/1-B**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/25/22 10:00	06/27/22 13:42	1
C24-C40	ND		250	100	ug/L		06/25/22 10:00	06/27/22 13:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	69		50 - 150				06/25/22 10:00	06/27/22 13:42	1

**Lab Sample ID: LCS 410-269290/2-B**  
**Matrix: Water**  
**Analysis Batch: 269714**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C12-C24	600	187		ug/L		31	14 - 115		
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>						
o-terphenyl (Surr)	58		50 - 150						

**Lab Sample ID: 410-87910-5 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 269669**

**Client Sample ID: MW-515-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 269290**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>DU Qualifier</b>	<b>Limits</b>					
o-terphenyl (Surr)	70		50 - 150					

**Lab Sample ID: MB 410-270368/1-B**  
**Matrix: Water**  
**Analysis Batch: 271264**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 270368**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/28/22 16:28	06/30/22 16:28	1
C24-C40	ND		250	100	ug/L		06/28/22 16:28	06/30/22 16:28	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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

**Lab Sample ID: MB 410-270368/1-B**  
**Matrix: Water**  
**Analysis Batch: 271264**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 270368**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -terphenyl (Surr)	76		50 - 150	06/28/22 16:28	06/30/22 16:28	1

**Lab Sample ID: LCS 410-270368/2-B**  
**Matrix: Water**  
**Analysis Batch: 271264**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 270368**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
C12-C24	600	183		ug/L		31	14 - 115

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -terphenyl (Surr)	62		50 - 150

**Lab Sample ID: LCSD 410-270368/3-B**  
**Matrix: Water**  
**Analysis Batch: 271264**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 270368**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec Limits	RPD	
		Result	Qualifier					RPD	Limit
C12-C24	600	181		ug/L		30	14 - 115	1	20

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -terphenyl (Surr)	64		50 - 150

**Lab Sample ID: 410-87910-6 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 271264**

**Client Sample ID: MW-502-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 270368**

Analyte	Sample Result	Sample Qualifier	DU DU		Unit	D	RPD	RPD	
			Result	Qualifier				RPD	Limit
C12-C24	ND		ND		ug/L		NC	20	
C24-C40	ND		ND		ug/L		NC	20	

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
<i>o</i> -terphenyl (Surr)	66		50 - 150

**Lab Sample ID: MB 410-270884/1-B**  
**Matrix: Water**  
**Analysis Batch: 273075**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 270884**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		06/29/22 16:26	07/07/22 11:55	1
C24-C40	ND		250	100	ug/L		06/29/22 16:26	07/07/22 11:55	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -terphenyl (Surr)	87		50 - 150	06/29/22 16:26	07/07/22 11:55	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

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

**Lab Sample ID: LCS 410-270884/2-B**  
**Matrix: Water**  
**Analysis Batch: 273075**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 270884**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	213		ug/L		36	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
<i>o-terphenyl (Surr)</i>	74		50 - 150				

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 273075**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 270884**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	ND	F1 F2	634	149	F1	ug/L		23	30 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	54		50 - 150						

**Lab Sample ID: 410-87910-8 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 273075**

**Client Sample ID: MW-143-MSD-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 270884**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	ND	F1 F2	636	65.7	J F1 F2	ug/L		10	30 - 115	77	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
<i>o-terphenyl (Surr)</i>	15	S1- cn	50 - 150								

**Lab Sample ID: 410-87910-10 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 273075**

**Client Sample ID: MW-511-W-220615**  
**Prep Type: Total/NA**  
**Prep Batch: 270884**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>DU Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	77		50 - 150					

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-266889/8**  
**Matrix: Water**  
**Analysis Batch: 266889**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/17/22 14:44	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCS 410-266889/6  
**Matrix:** Water  
**Analysis Batch:** 266889

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	764		ug/L		101	90 - 110

**Lab Sample ID:** LCSD 410-266889/7  
**Matrix:** Water  
**Analysis Batch:** 266889

**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
Nitrogen, Nitrate	755	762		ug/L		101	90 - 110	0	20

**Lab Sample ID:** MB 410-266890/8  
**Matrix:** Water  
**Analysis Batch:** 266890

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/17/22 14:44	1

**Lab Sample ID:** LCS 410-266890/6  
**Matrix:** Water  
**Analysis Batch:** 266890

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7320		ug/L		97	90 - 110

**Lab Sample ID:** LCSD 410-266890/7  
**Matrix:** Water  
**Analysis Batch:** 266890

**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
Sulfate	7510	7220		ug/L		96	90 - 110	1	20

**Lab Sample ID:** MB 410-266940/5  
**Matrix:** Water  
**Analysis Batch:** 266940

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/17/22 20:31	1

**Lab Sample ID:** LCS 410-266940/3  
**Matrix:** Water  
**Analysis Batch:** 266940

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7130		ug/L		95	90 - 110

**Lab Sample ID:** LCSD 410-266940/4  
**Matrix:** Water  
**Analysis Batch:** 266940

**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
Sulfate	7510	7110		ug/L		95	90 - 110	0	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: 410-87910-1 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 266940**

**Client Sample ID: MW-101-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	21000		25000	45700		ug/L		99	90 - 110

**Lab Sample ID: 410-87910-1 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 266940**

**Client Sample ID: MW-101-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	21000		21000		ug/L		0.4	15

**Lab Sample ID: MB 410-266941/5**  
**Matrix: Water**  
**Analysis Batch: 266941**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/17/22 20:31	1

**Lab Sample ID: LCS 410-266941/3**  
**Matrix: Water**  
**Analysis Batch: 266941**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	750		ug/L		99	90 - 110

**Lab Sample ID: LCSD 410-266941/4**  
**Matrix: Water**  
**Analysis Batch: 266941**

**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
Nitrogen, Nitrate	755	740		ug/L		98	90 - 110	1	20

**Lab Sample ID: 410-87910-1 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 266941**

**Client Sample ID: MW-101-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	H cn	2520	2530		ug/L		101	90 - 110

**Lab Sample ID: 410-87910-1 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 266941**

**Client Sample ID: MW-101-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	H cn	ND		ug/L		NC	15

**Lab Sample ID: MB 410-269917/5**  
**Matrix: Water**  
**Analysis Batch: 269917**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/27/22 10:22	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID:** LCS 410-269917/3  
**Matrix:** Water  
**Analysis Batch:** 269917

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	715		ug/L		95	90 - 110

**Lab Sample ID:** LCSD 410-269917/4  
**Matrix:** Water  
**Analysis Batch:** 269917

**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
Nitrogen, Nitrate	755	709		ug/L		94	90 - 110	1	20

**Lab Sample ID:** MB 410-269918/5  
**Matrix:** Water  
**Analysis Batch:** 269918

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/27/22 10:22	1

**Lab Sample ID:** LCS 410-269918/3  
**Matrix:** Water  
**Analysis Batch:** 269918

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7130		ug/L		95	90 - 110

**Lab Sample ID:** LCSD 410-269918/4  
**Matrix:** Water  
**Analysis Batch:** 269918

**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
Sulfate	7510	7040		ug/L		94	90 - 110	1	20

**Lab Sample ID:** MB 410-271435/5  
**Matrix:** Water  
**Analysis Batch:** 271435

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/30/22 15:52	1

**Lab Sample ID:** LCS 410-271435/3  
**Matrix:** Water  
**Analysis Batch:** 271435

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	696		ug/L		92	90 - 110

**Lab Sample ID:** LCSD 410-271435/4  
**Matrix:** Water  
**Analysis Batch:** 271435

**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
Nitrogen, Nitrate	755	694		ug/L		92	90 - 110	0	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 271435**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	H cn	2520	2290	H	ug/L		91	90 - 110

**Lab Sample ID: 410-87910-8 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 271435**

**Client Sample ID: MW-143-DU-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	H cn	ND	H	ug/L		NC	15

**Lab Sample ID: MB 410-271436/5**  
**Matrix: Water**  
**Analysis Batch: 271436**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/30/22 15:52	1

**Lab Sample ID: LCS 410-271436/3**  
**Matrix: Water**  
**Analysis Batch: 271436**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	6870		ug/L		91	90 - 110

**Lab Sample ID: LCSD 410-271436/4**  
**Matrix: Water**  
**Analysis Batch: 271436**

**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
Sulfate	7510	6900		ug/L		92	90 - 110	0	20

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 271436**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	ND		25000	24900		ug/L		100	90 - 110

**Lab Sample ID: 410-87910-8 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 271436**

**Client Sample ID: MW-143-DU-W-220615**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	ND		ND		ug/L		NC	15

**Lab Sample ID: MB 410-273125/5**  
**Matrix: Water**  
**Analysis Batch: 273125**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			07/06/22 10:28	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCS 410-273125/3  
Matrix: Water  
Analysis Batch: 273125

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	731		ug/L		97	90 - 110

Lab Sample ID: LCSD 410-273125/4  
Matrix: Water  
Analysis Batch: 273125

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
Nitrogen, Nitrate	755	721		ug/L		96	90 - 110	1	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

Lab Sample ID: MB 410-269641/1-A  
Matrix: Water  
Analysis Batch: 277081

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 269641

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 08:59	07/19/22 08:38	1

Lab Sample ID: LCS 410-269641/2-A  
Matrix: Water  
Analysis Batch: 277081

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 269641

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	490		ug/L		98	85 - 115

Lab Sample ID: MB 410-269665/1-A  
Matrix: Water  
Analysis Batch: 273238

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 269665

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 11:35	1

Lab Sample ID: MB 410-269665/1-A  
Matrix: Water  
Analysis Batch: 273576

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 269665

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:23	07/08/22 10:31	1

Lab Sample ID: LCS 410-269665/2-A  
Matrix: Water  
Analysis Batch: 273238

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 269665

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	569		ug/L		114	85 - 115



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 410-269720/1-A**  
**Matrix: Water**  
**Analysis Batch: 270954**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269720**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 10:13	06/29/22 12:32	1

**Lab Sample ID: MB 410-269720/1-A**  
**Matrix: Water**  
**Analysis Batch: 271453**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269720**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 10:13	06/30/22 19:26	1

**Lab Sample ID: LCS 410-269720/2-A**  
**Matrix: Water**  
**Analysis Batch: 270954**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269720**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	511		ug/L		102	85 - 115

**Lab Sample ID: LCS 410-269720/2-A**  
**Matrix: Water**  
**Analysis Batch: 271453**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269720**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	510		ug/L		102	85 - 115

**Lab Sample ID: 410-87910-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 273238**

**Client Sample ID: MW-143-MS-W-220615**  
**Prep Type: Dissolved**  
**Prep Batch: 269665**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	4500		500	5030	E 4	ug/L		110	70 - 130

**Lab Sample ID: 410-87910-8 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 273238**

**Client Sample ID: MW-143-MSD-W-220615**  
**Prep Type: Dissolved**  
**Prep Batch: 269665**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	4500		500	5000	E 4	ug/L		105	70 - 130	1	20

**Lab Sample ID: 410-87910-8 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 273238**

**Client Sample ID: MW-143-DU-W-220615**  
**Prep Type: Dissolved**  
**Prep Batch: 269665**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	4500		4540		ug/L		1	20

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC/MS VOA

### Analysis Batch: 268765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	8260D	
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	8260D	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	8260D	
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	8260D	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	8260D	
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	8260D	
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	8260D	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	8260D	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	8260D	
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	8260D	
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	8260D	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	8260D	
410-87910-13	QA-T-220615	Total/NA	Water	8260D	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	8260D	
410-87910-15	QA-T-220615	Total/NA	Water	8260D	
MB 410-268765/6	Method Blank	Total/NA	Water	8260D	
LCS 410-268765/4	Lab Control Sample	Total/NA	Water	8260D	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	8260D	
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	8260D	

## GC/MS Semi VOA

### Prep Batch: 268282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	3510C	
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	3510C	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	3510C	
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	3510C	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	3510C	
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	3510C	
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	3510C	
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	3510C	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	3510C	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	3510C	
MB 410-268282/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-268282/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Prep Batch: 268283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	3510C	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	3510C	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	3510C	
MB 410-268283/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-268283/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	3510C	
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	3510C	

### Analysis Batch: 268399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	8270E SIM	268283
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	8270E SIM	268283

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 268399 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	8270E SIM	268283
MB 410-268283/1-A	Method Blank	Total/NA	Water	8270E SIM	268283
LCS 410-268283/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	268283
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	8270E SIM	268283
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	8270E SIM	268283

### Analysis Batch: 268438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	8270E SIM	268282
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	8270E SIM	268282
MB 410-268282/1-A	Method Blank	Total/NA	Water	8270E SIM	268282
LCS 410-268282/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	268282

## GC VOA

### Analysis Batch: 267323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-13	QA-T-220615	Total/NA	Water	NWTPH-Gx	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-15	QA-T-220615	Total/NA	Water	NWTPH-Gx	
MB 410-267323/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-267323/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-267323/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	NWTPH-Gx	
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	NWTPH-Gx	

### Prep Batch: 267719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	RSK-175	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC VOA (Continued)

### Prep Batch: 267719 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	RSK-175	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	RSK-175	
MB 410-267719/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-267719/2-A	Lab Control Sample	Total/NA	Water	RSK-175	

### Analysis Batch: 267726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	RSK-175	267719
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	RSK-175	267719
MB 410-267719/1-A	Method Blank	Total/NA	Water	RSK-175	267719
LCS 410-267719/2-A	Lab Control Sample	Total/NA	Water	RSK-175	267719

### Prep Batch: 268011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	RSK-175	
MB 410-268011/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268011/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	RSK-175	

### Prep Batch: 268014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	RSK-175	
MB 410-268014/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268014/2-A	Lab Control Sample	Total/NA	Water	RSK-175	

### Analysis Batch: 268015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	RSK-175	268011
MB 410-268011/1-A	Method Blank	Total/NA	Water	RSK-175	268011
LCS 410-268011/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268011
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	RSK-175	268011
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	RSK-175	268011

### Analysis Batch: 268023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	RSK-175	268014
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	RSK-175	268014
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	RSK-175	268199
MB 410-268014/1-A	Method Blank	Total/NA	Water	RSK-175	268014
MB 410-268199/1-A	Method Blank	Total/NA	Water	RSK-175	268199
LCS 410-268014/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268014
LCS 410-268199/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268199

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC VOA (Continued)

### Analysis Batch: 268023 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-268199/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	268199

### Prep Batch: 268199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	RSK-175	
MB 410-268199/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268199/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-268199/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 268470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	RSK-175	268520
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	RSK-175	268520
MB 410-268520/1-A	Method Blank	Total/NA	Water	RSK-175	268520
LCS 410-268520/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268520
LCSD 410-268520/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	268520

### Prep Batch: 268520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	RSK-175	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	RSK-175	
MB 410-268520/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268520/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-268520/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 269290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	3510C	
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	3510C	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	3510C	
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	3510C	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	3510C	
MB 410-269290/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-87910-5 DU	MW-515-W-220615	Total/NA	Groundwater	3510C	

### Cleanup Batch: 269379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	3630C	269290
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	3630C	269290
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	3630C	269290
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	3630C	269290
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	3630C	269290
MB 410-269290/1-B	Method Blank	Total/NA	Water	3630C	269290
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	3630C	269290
410-87910-5 DU	MW-515-W-220615	Total/NA	Groundwater	3630C	269290

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC Semi VOA

### Analysis Batch: 269669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379
410-87910-5 DU	MW-515-W-220615	Total/NA	Groundwater	NWTPH-Dx	269379

### Analysis Batch: 269714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-269290/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	269379
LCS 410-269290/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	269379

### Prep Batch: 270368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	3510C	
MB 410-270368/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-270368/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCS 410-270368/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-87910-6 DU	MW-502-W-220615	Total/NA	Groundwater	3510C	

### Cleanup Batch: 270844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	3630C	270368
MB 410-270368/1-B	Method Blank	Total/NA	Water	3630C	270368
LCS 410-270368/2-B	Lab Control Sample	Total/NA	Water	3630C	270368
LCS 410-270368/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	270368
410-87910-6 DU	MW-502-W-220615	Total/NA	Groundwater	3630C	270368

### Prep Batch: 270884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	3510C	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	3510C	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	3510C	
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	3510C	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	3510C	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	3510C	
MB 410-270884/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-270884/2-B	Lab Control Sample	Total/NA	Water	3510C	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	3510C	
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	3510C	
410-87910-10 DU	MW-511-W-220615	Total/NA	Groundwater	3510C	

### Analysis Batch: 271264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	NWTPH-Dx	270844
MB 410-270368/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	270844
LCS 410-270368/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	270844
LCS 410-270368/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	270844
410-87910-6 DU	MW-502-W-220615	Total/NA	Groundwater	NWTPH-Dx	270844

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## GC Semi VOA

### Cleanup Batch: 272967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	3630C	270884
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	3630C	270884
MB 410-270884/1-B	Method Blank	Total/NA	Water	3630C	270884
LCS 410-270884/2-B	Lab Control Sample	Total/NA	Water	3630C	270884
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	3630C	270884
410-87910-10 DU	MW-511-W-220615	Total/NA	Groundwater	3630C	270884

### Analysis Batch: 273075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
MB 410-270884/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	272967
LCS 410-270884/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	272967
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-8 MSD	MW-143-MSD-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967
410-87910-10 DU	MW-511-W-220615	Total/NA	Groundwater	NWTPH-Dx	272967

## HPLC/IC

### Analysis Batch: 266889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266889/8	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266889/6	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266889/7	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-10	MW-511-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-12	DUP-4-WD-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-14	MW-516-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266890/8	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266890/6	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266890/7	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266940/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## HPLC/IC (Continued)

### Analysis Batch: 266940 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-266940/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266940/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87910-1 MS	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-1 DU	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 266941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-5	MW-515-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266941/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266941/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266941/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87910-1 MS	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-1 DU	MW-101-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 269917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-269917/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-269917/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-269917/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 269918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-7	MW-126-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-269918/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-269918/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-269918/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 271435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-271435/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-271435/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-271435/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-8 DU	MW-143-DU-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 271436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-3	MW-20R-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-8	MW-143-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-9	MW-519-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## HPLC/IC (Continued)

### Analysis Batch: 271436 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-11	DUP-3-WD-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-271436/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-271436/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-271436/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87910-8 MS	MW-143-MS-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87910-8 DU	MW-143-DU-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 273125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-4	MW-139R-W-220615	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-273125/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-273125/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-273125/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 269631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-11	DUP-3-WD-220615	Dissolved	Groundwater	Non-Digest Prep	

### Prep Batch: 269641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-3	MW-20R-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-4	MW-139R-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-9	MW-519-W-220615	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269641/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269641/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 269665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-8	MW-143-W-220615	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269665/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269665/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-87910-8 MS	MW-143-MS-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-8 MSD	MW-143-MSD-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-8 DU	MW-143-DU-W-220615	Dissolved	Groundwater	Non-Digest Prep	

### Prep Batch: 269709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-14	MW-516-W-220615	Dissolved	Groundwater	Non-Digest Prep	

### Prep Batch: 269720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-5	MW-515-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-6	MW-502-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-7	MW-126-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-10	MW-511-W-220615	Dissolved	Groundwater	Non-Digest Prep	
410-87910-12	DUP-4-WD-220615	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269720/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Metals (Continued)

### Prep Batch: 269720 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-269720/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 270912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-11	DUP-3-WD-220615	Dissolved	Groundwater	200.8 Rev 5.4	269631
410-87910-14	MW-516-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269709

### Analysis Batch: 270954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-6	MW-502-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269720
410-87910-10	MW-511-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269720
410-87910-12	DUP-4-WD-220615	Dissolved	Groundwater	200.8 Rev 5.4	269720
MB 410-269720/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269720
LCS 410-269720/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269720

### Analysis Batch: 271453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-5	MW-515-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269720
410-87910-7	MW-126-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269720
MB 410-269720/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269720
LCS 410-269720/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269720

### Analysis Batch: 273238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-1	MW-101-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87910-8	MW-143-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269665
MB 410-269665/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269665
LCS 410-269665/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269665
410-87910-8 MS	MW-143-MS-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87910-8 MSD	MW-143-MSD-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87910-8 DU	MW-143-DU-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269665

### Analysis Batch: 273576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-269665/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269665

### Analysis Batch: 277081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87910-2	MW-518-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269641
410-87910-3	MW-20R-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269641
410-87910-4	MW-139R-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269641
410-87910-9	MW-519-W-220615	Dissolved	Groundwater	200.8 Rev 5.4	269641
MB 410-269641/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269641
LCS 410-269641/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269641

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-101-W-220615**

**Lab Sample ID: 410-87910-1**

**Date Collected: 06/15/22 10:40**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 21:42	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 11:11	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 16:28	JJT8	ELLE
Total/NA	Prep	RSK-175			268520	06/23/22 09:21	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	268470	06/23/22 13:01	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 04:37	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 02:25	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 02:25	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:24	UCIG	ELLE

**Client Sample ID: MW-518-W-220615**

**Lab Sample ID: 410-87910-2**

**Date Collected: 06/15/22 10:14**

**Matrix: Groundwater**

**Date Received: 06/18/22 09:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 22:04	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 11:32	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/21/22 00:09	JJT8	ELLE
Total/NA	Prep	RSK-175			268014	06/22/22 08:02	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 15:09	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 05:00	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271435	06/30/22 18:44	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271436	06/30/22 18:44	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269641	06/27/22 08:59	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	277081	07/19/22 09:22	S4PD	ELLE

**Client Sample ID: MW-20R-W-220615**

**Lab Sample ID: 410-87910-3**

**Date Collected: 06/15/22 12:28**

**Matrix: Groundwater**

**Date Received: 06/18/22 09:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 22:26	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 11:54	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 16:54	JJT8	ELLE
Total/NA	Prep	RSK-175			268014	06/22/22 08:03	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 15:26	SE2A	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-20R-W-220615**

**Lab Sample ID: 410-87910-3**

**Date Collected: 06/15/22 12:28**

**Matrix: Groundwater**

**Date Received: 06/18/22 09:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 05:23	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271435	06/30/22 18:10	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		500	271436	06/30/22 18:18	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269641	06/27/22 08:59	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	277081	07/19/22 09:14	S4PD	ELLE

**Client Sample ID: MW-139R-W-220615**

**Lab Sample ID: 410-87910-4**

**Date Collected: 06/15/22 13:14**

**Matrix: Groundwater**

**Date Received: 06/18/22 09:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 22:47	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 12:16	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 17:20	JJT8	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 16:33	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 05:46	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271436	06/30/22 18:27	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	273125	07/06/22 17:49	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269641	06/27/22 08:59	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	277081	07/19/22 09:24	S4PD	ELLE

**Client Sample ID: MW-515-W-220615**

**Lab Sample ID: 410-87910-5**

**Date Collected: 06/15/22 12:30**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 23:10	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 12:38	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 17:45	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 19:40	SE2A	ELLE
Total/NA	Prep	3510C			269290	06/25/22 10:00	XPN5	ELLE
Total/NA	Cleanup	3630C			269379	06/25/22 22:16	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	269669	06/28/22 06:09	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 01:53	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 01:53	L4QM	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-515-W-220615**

**Lab Sample ID: 410-87910-5**

Date Collected: 06/15/22 12:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	Non-Digest Prep			269720	06/27/22 10:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271453	06/30/22 19:36	UCIG	ELLE

**Client Sample ID: MW-502-W-220615**

**Lab Sample ID: 410-87910-6**

Date Collected: 06/15/22 09:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 23:32	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 13:00	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 18:11	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 19:55	SE2A	ELLE
Total/NA	Prep	3510C			270368	06/28/22 16:28	QJZ6	ELLE
Total/NA	Cleanup	3630C			270844	06/29/22 15:31	UKQ8	ELLE
Total/NA	Analysis	NWTPH-Dx		1	271264	06/30/22 17:37	UHEW	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	269917	06/27/22 11:56	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	269918	06/27/22 11:56	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269720	06/27/22 10:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270954	06/29/22 13:11	UCIG	ELLE

**Client Sample ID: MW-126-W-220615**

**Lab Sample ID: 410-87910-7**

Date Collected: 06/15/22 10:32

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 23:54	Y6ZN	ELLE
Total/NA	Prep	3510C			268283	06/22/22 15:36	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268399	06/23/22 12:23	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 18:37	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 20:11	SE2A	ELLE
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 13:49	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	269917	06/27/22 12:30	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	269918	06/27/22 12:30	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269720	06/27/22 10:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	271453	06/30/22 19:34	UCIG	ELLE

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-143-W-220615**

**Lab Sample ID: 410-87910-8**

**Date Collected: 06/15/22 12:02**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 00:16	Y6ZN	ELLE
Total/NA	Prep	3510C			268283	06/22/22 15:36	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268399	06/23/22 11:18	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 19:02	JJT8	ELLE
Total/NA	Prep	RSK-175			268011	06/22/22 07:56	SE2A	ELLE
Total/NA	Analysis	RSK-175		50	268015	06/22/22 13:13	SE2A	ELLE
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 14:12	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271435	06/30/22 18:52	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271436	06/30/22 18:52	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 11:39	UCIG	ELLE

**Client Sample ID: MW-519-W-220615**

**Lab Sample ID: 410-87910-9**

**Date Collected: 06/15/22 13:32**

**Matrix: Groundwater**

**Date Received: 06/18/22 09:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 01:22	Y6ZN	ELLE
Total/NA	Prep	3510C			268283	06/22/22 15:36	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268399	06/23/22 12:44	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 20:45	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 21:37	SE2A	ELLE
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 15:21	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271435	06/30/22 16:27	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271436	06/30/22 16:27	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269641	06/27/22 08:59	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	277081	07/19/22 09:26	S4PD	ELLE

**Client Sample ID: MW-511-W-220615**

**Lab Sample ID: 410-87910-10**

**Date Collected: 06/15/22 13:58**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:55**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 01:44	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 13:21	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 21:11	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 21:54	SE2A	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: MW-511-W-220615**

**Lab Sample ID: 410-87910-10**

Date Collected: 06/15/22 13:58

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 15:44	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266889	06/17/22 13:50	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266890	06/17/22 13:50	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269720	06/27/22 10:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270954	06/29/22 13:13	UCIG	ELLE

**Client Sample ID: DUP-3-WD-220615**

**Lab Sample ID: 410-87910-11**

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/18/22 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 02:07	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 13:43	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 21:36	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 22:11	SE2A	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271435	06/30/22 16:18	W5UX	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	271436	06/30/22 16:18	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269631	06/27/22 08:50	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270912	06/29/22 16:00	UCIG	ELLE

**Client Sample ID: DUP-4-WD-220615**

**Lab Sample ID: 410-87910-12**

Date Collected: 06/15/22 00:00

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 02:29	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 14:05	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 22:02	JJT8	ELLE
Total/NA	Prep	RSK-175			268520	06/23/22 09:21	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	268470	06/23/22 12:04	SE2A	ELLE
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 16:30	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266889	06/17/22 14:12	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266890	06/17/22 14:12	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269720	06/27/22 10:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270954	06/29/22 13:00	UCIG	ELLE

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

**Client Sample ID: QA-T-220615**

**Lab Sample ID: 410-87910-13**

Date Collected: 06/15/22 00:00

Matrix: Water

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 20:58	Y6ZN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 15:37	JJT8	ELLE

**Client Sample ID: MW-516-W-220615**

**Lab Sample ID: 410-87910-14**

Date Collected: 06/15/22 14:30

Matrix: Groundwater

Date Received: 06/17/22 10:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/24/22 02:50	Y6ZN	ELLE
Total/NA	Prep	3510C			268282	06/22/22 15:31	QJZ6	ELLE
Total/NA	Analysis	8270E SIM		1	268438	06/23/22 14:27	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 22:27	JJT8	ELLE
Total/NA	Prep	RSK-175			267719	06/21/22 12:14	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	267726	06/21/22 22:45	SE2A	ELLE
Total/NA	Prep	3510C			270884	06/29/22 16:26	QJZ6	ELLE
Total/NA	Cleanup	3630C			272967	07/07/22 03:00	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	273075	07/07/22 16:53	KP5X	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266889	06/17/22 14:01	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266890	06/17/22 14:01	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269709	06/27/22 10:00	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270912	06/29/22 13:12	UCIG	ELLE

**Client Sample ID: QA-T-220615**

**Lab Sample ID: 410-87910-15**

Date Collected: 06/15/22 00:00

Matrix: Water

Date Received: 06/18/22 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	268765	06/23/22 21:20	Y6ZN	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267323	06/20/22 16:02	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

1

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87910-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-87910-1	MW-101-W-220615	Groundwater	06/15/22 10:40	06/17/22 10:55
410-87910-2	MW-518-W-220615	Groundwater	06/15/22 10:14	06/18/22 09:55
410-87910-3	MW-20R-W-220615	Groundwater	06/15/22 12:28	06/18/22 09:55
410-87910-4	MW-139R-W-220615	Groundwater	06/15/22 13:14	06/18/22 09:55
410-87910-5	MW-515-W-220615	Groundwater	06/15/22 12:30	06/17/22 10:55
410-87910-6	MW-502-W-220615	Groundwater	06/15/22 09:32	06/17/22 10:55
410-87910-7	MW-126-W-220615	Groundwater	06/15/22 10:32	06/17/22 10:55
410-87910-8	MW-143-W-220615	Groundwater	06/15/22 12:02	06/17/22 10:55
410-87910-9	MW-519-W-220615	Groundwater	06/15/22 13:32	06/18/22 09:55
410-87910-10	MW-511-W-220615	Groundwater	06/15/22 13:58	06/17/22 10:55
410-87910-11	DUP-3-WD-220615	Groundwater	06/15/22 00:00	06/18/22 09:55
410-87910-12	DUP-4-WD-220615	Groundwater	06/15/22 00:00	06/17/22 10:55
410-87910-13	QA-T-220615	Water	06/15/22 00:00	06/17/22 10:55
410-87910-14	MW-516-W-220615	Groundwater	06/15/22 14:30	06/17/22 10:55
410-87910-15	QA-T-220615	Water	06/15/22 00:00	06/18/22 09:55

# Chevron Northwest Region Analysis

of Custody



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_ For Eurofins Lancaster Laboratory Group # \_\_\_\_\_ Instructions on reverse side correspond



410-87910 Chain of Custody

1 OF 2

1 Client Information			4 Matrix			5 Analyses requested											6 Remarks
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b>			Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>			SCR #: _____											<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits
Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b>			Potable <input type="checkbox"/> Water NPDES <input type="checkbox"/> Air <input type="checkbox"/>			Total Number of Containers BTEX-MTBE 8021 <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAH BY 8270 SIM USEPA 300.0 SULFATE + NITRATE US RSK 175 DISSOLVED METHANE US EPA 200.8 DISSOLVED MANGANESE											
Chevron PM <b>KIM JOLITZ</b>			Composite <input type="checkbox"/>			Grab <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/>											
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>			Soil <input type="checkbox"/>			Date _____ Time _____ Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
Consultant Project Mgr. <b>SAMUEL MILES</b>			Water <input type="checkbox"/>			Date _____ Time _____ Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
Consultant Phone # _____			Oil <input type="checkbox"/>			Date _____ Time _____ Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
Sampler <b>J. SEPIOL P. BRUNO D. GILBERT E. SCHELLER</b>			Total Number of Containers			Date _____ Time _____ Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
Sample Identification			Soil <input type="checkbox"/>			Date _____ Time _____ Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-101			Soil <input type="checkbox"/>			Date 6/15 Time 1040 Relinquished by D. GILBERT Date 6/15 Time 1500 Received by _____ Date _____ Time _____											
MW-518			Soil <input type="checkbox"/>			Date 6/15 Time 1014 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-20R			Soil <input type="checkbox"/>			Date 6/15 Time 1228 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-139R			Soil <input type="checkbox"/>			Date 6/15 Time 1314 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-515			Soil <input type="checkbox"/>			Date 6/15 Time 1230 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-511			Soil <input type="checkbox"/>			Date 6/15 Time 1358 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-502			Soil <input type="checkbox"/>			Date 6/15 Time 0932 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-126			Soil <input type="checkbox"/>			Date 6/15 Time 1032 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-143			Soil <input type="checkbox"/>			Date 6/15 Time 1202 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-143-MS			Soil <input type="checkbox"/>			Date 6/15 Time 1202 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-143-MSD			Soil <input type="checkbox"/>			Date 6/15 Time 1202 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-519			Soil <input type="checkbox"/>			Date 6/15 Time 1332 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
MW-511			Soil <input type="checkbox"/>			Date 6/15 Time 1358 Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____											
7 Turnaround Time Requested (TAT) (please circle)			8 Data Package (circle if required)			Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Temperature Upon Receipt <b>7.0-9.5 °C</b> Custody Seals Intact? Yes No											
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour			EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____			Received by <b>MP</b> Date <b>6/17/22</b> Time <b>1055</b> Yes No											

# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 For Eurofins Lancaster Laboratories Environmental use only  
 Instructions on reverse side correspond with circled numbers.

2 of 2

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																																																																													
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b> Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b> Chevron PM Lead Consultant <b>KIM JOLITZ</b> Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. <b>SAMUEL MILES</b> Consultant Phone #				Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Soil <input type="checkbox"/> Water NPDES <input type="checkbox"/> Air <input type="checkbox"/> Composite <input type="checkbox"/>				Total Number of Containers 8260 full scan <input type="checkbox"/> 8260 <input checked="" type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> CPAH BY 8270 SIM USEPA 300.0 SULFATE + NITRATE US RSK 175 DISSOLVED METHANE US EPA 200.8 DISSOLVED MANGANESE												SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																																																																													
2 Sample Identification Collected Date Time DUP-3 6/15 -- DUP-4 6/15 -- TRIP BLANK -- -- MW-516 6/15 1430		3 Grab Composite J. SEPID P. BRUND D. GILBERT E. SCHELLER		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Sample</th> <th>Grab</th> <th>Soil</th> <th>Water</th> <th>Oil</th> <th>8260</th> <th>Oxygenates</th> <th>NWTPH-Gx</th> <th>NWTPH-Dx with Silica Gel Cleanup</th> <th>NWTPH-Dx without Silica Gel Cleanup</th> <th>WA VPH</th> <th>WA EPH</th> <th>Lead</th> <th>Total</th> <th>Diss.</th> <th>Method</th> </tr> <tr> <td>DUP-3</td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DUP-4</td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TRIP BLANK</td> <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MW-516</td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>												Sample	Grab	Soil	Water	Oil	8260	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	DUP-3	X		X		X		X	X	X							DUP-4	X		X		X		X	X	X							TRIP BLANK	-		-		-		-	-	-							MW-516	X		X		X		X	X	X							9 DISSOLVED MANGANESE FIELD FILTERED USE STANDARD SGC	
Sample	Grab	Soil	Water	Oil	8260	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method																																																																																		
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7 Turnaround Time Requested (TAT) (please circle) (Standard) 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by D. GILBERT Date 6/15/22 Time 1500				Received by D. GILBERT Date _____ Time _____				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____																																																																																	
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FL_05 (default) Other: _____				Relinquished by Commercial Carrier UPS _____ FedEx X Other _____				Received by _____ Date 6/15/22 Time 1055				Temperature Upon Receipt _____ °C Custody Seals Intact? Yes No																																																																																	

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## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-87910-1

**Login Number: 87910**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	



## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-87910-1

**Login Number: 87910**

**List Number: 2**

**Creator: Hess, Anna**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-87914-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
7/26/2022 8:38:17 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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





Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in cursive script that reads "Amek Carter".

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Amek Carter  
Project Manager  
7/26/2022 8:38:17 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### HPLC/IC

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

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## Job ID: 410-87914-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

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#### Job Narrative 410-87914-1

#### Receipt

The samples were received on 6/17/2022 10:28 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 4.7°C, 6.7°C and 10.1°C

#### Receipt Exceptions

One 40mL HCl vial for the following sample was received broken: MW-520-W-220616 (410-87914-1).

The following samples were received at the laboratory outside the required temperature criteria: MW-520-W-220616 (410-87914-1), MW-521-W-220616 (410-87914-2), MW-504-W-220616 (410-87914-3), MW-505-W-220616 (410-87914-4), MW-522-W-220616 (410-87914-5), MW-8R-W-220616 (410-87914-6), MW-506-W-220616 (410-87914-7), MW-507-W-220616 (410-87914-8) and MW-512-W-220616 (410-87914-13). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

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

#### HPLC/IC

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

#### Metals

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

## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

### Client Sample ID: MW-520-W-220616

Lab Sample ID: 410-87914-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.017	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.027	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.047	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.016	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Chrysene	0.021	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.025	J	0.054	0.021	ug/L	1		8270E SIM	Total/NA
Methane (1C)	9.9		5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	280	J	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	200000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	6.0		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-521-W-220616

Lab Sample ID: 410-87914-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	4.3	J	5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	47000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	3.0		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-504-W-220616

Lab Sample ID: 410-87914-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	99		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	120000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	980		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-505-W-220616

Lab Sample ID: 410-87914-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	1100		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	130000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	1100		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-522-W-220616

Lab Sample ID: 410-87914-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	110000		50000	15000	ug/L	50		EPA 300.0 R2.1	Total/NA

### Client Sample ID: MW-8R-W-220616

Lab Sample ID: 410-87914-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	48000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA

### Client Sample ID: MW-506-W-220616

Lab Sample ID: 410-87914-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.012	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
C7-C12 (1C)	22	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	5600		100	60	ug/L	20		RSK-175	Total/NA
Sulfate	51000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	6100		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Client Sample ID: MW-507-W-220616

Lab Sample ID: 410-87914-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.015	J	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Methane (1C)	48		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	110000		10000	3000	ug/L	10		EPA 300.0 R2.1	Total/NA
Manganese	370		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-509-W-220616

Lab Sample ID: 410-87914-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	7.2		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	660000		100000	30000	ug/L	100		EPA 300.0 R2.1	Total/NA
Manganese	35		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-517-W-220616

Lab Sample ID: 410-87914-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	11		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	26000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	130		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-513-W-220616

Lab Sample ID: 410-87914-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	100		5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	270	J	500	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	58000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	540		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-514-W-220616

Lab Sample ID: 410-87914-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	25	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	130		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	29000		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	700		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-512-W-220616

Lab Sample ID: 410-87914-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	0.011	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.016	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
C7-C12 (1C)	47	J	250	22	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	380		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	7600		5000	1500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	470		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-220616

Lab Sample ID: 410-87914-14

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-520-W-220616**

**Lab Sample ID: 410-87914-1**

Date Collected: 06/16/22 08:32

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 18:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					06/27/22 18:42	1
Dibromofluoromethane (Surr)	96		80 - 120					06/27/22 18:42	1
4-Bromofluorobenzene (Surr)	103		80 - 120					06/27/22 18:42	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 18:42	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.017	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 12:41	1
Benzo[a]pyrene	0.027	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 12:41	1
Benzo[b]fluoranthene	0.047	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 12:41	1
Benzo[k]fluoranthene	0.016	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 12:41	1
Chrysene	0.021	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 12:41	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		06/23/22 09:00	06/24/22 12:41	1
Indeno[1,2,3-cd]pyrene	0.025	J	0.054	0.021	ug/L		06/23/22 09:00	06/24/22 12:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110				06/23/22 09:00	06/24/22 12:41	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				06/23/22 09:00	06/24/22 12:41	1
Fluoranthene-d10 (Surr)	92		47 - 128				06/23/22 09:00	06/24/22 12:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 16:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					06/21/22 16:03	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	9.9		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 18:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	96		43 - 133				06/22/22 12:08	06/22/22 18:31	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/30/22 16:16	07/11/22 19:57	1
C24-C40	ND		270	110	ug/L		06/30/22 16:16	07/11/22 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	84		50 - 150				06/30/22 16:16	07/11/22 19:57	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	280	J	500	250	ug/L			06/17/22 21:46	5
Sulfate	200000		50000	15000	ug/L			07/01/22 22:28	50

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Client Sample ID: MW-520-W-220616

Lab Sample ID: 410-87914-1

Date Collected: 06/16/22 08:32

Matrix: Groundwater

Date Received: 06/17/22 10:28

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6.0		2.1	0.98	ug/L		06/27/22 10:23	06/29/22 14:48	1

## Client Sample ID: MW-521-W-220616

Lab Sample ID: 410-87914-2

Date Collected: 06/16/22 09:22

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		06/27/22 19:08	1
Dibromofluoromethane (Surr)	96		80 - 120		06/27/22 19:08	1
4-Bromofluorobenzene (Surr)	103		80 - 120		06/27/22 19:08	1
Toluene-d8 (Surr)	103		80 - 120		06/27/22 19:08	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 13:03	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 13:03	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 13:03	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 13:03	1
Chrysene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 13:03	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 13:03	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 13:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	81		10 - 110	06/23/22 09:00	06/24/22 13:03	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111	06/23/22 09:00	06/24/22 13:03	1
Fluoranthene-d10 (Surr)	85		47 - 128	06/23/22 09:00	06/24/22 13:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 16:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/21/22 16:29	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4.3	J	5.0	3.0	ug/L		06/22/22 12:08	06/22/22 18:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	95		43 - 133	06/22/22 12:08	06/22/22 18:48	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/30/22 16:16	07/11/22 20:20	1
C24-C40	ND		260	110	ug/L		06/30/22 16:16	07/11/22 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	94		50 - 150	06/30/22 16:16	07/11/22 20:20	1

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Client Sample ID: MW-521-W-220616

Lab Sample ID: 410-87914-2

Date Collected: 06/16/22 09:22

Matrix: Groundwater

Date Received: 06/17/22 10:28

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 22:18	5
<b>Sulfate</b>	<b>47000</b>		5000	1500	ug/L			06/17/22 22:18	5

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>3.0</b>		2.1	0.98	ug/L		06/27/22 10:35	07/26/22 08:58	1

## Client Sample ID: MW-504-W-220616

Lab Sample ID: 410-87914-3

Date Collected: 06/16/22 10:32

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 19:34	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	102		80 - 120					06/27/22 19:34	1
Dibromofluoromethane (Surr)	98		80 - 120					06/27/22 19:34	1
4-Bromofluorobenzene (Surr)	104		80 - 120					06/27/22 19:34	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 19:34	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 13:25	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 13:25	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 13:25	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 13:25	1
Chrysene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 13:25	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/23/22 09:00	06/24/22 13:25	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/23/22 09:00	06/24/22 13:25	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	80		10 - 110				06/23/22 09:00	06/24/22 13:25	1
1-Methylnaphthalene-d10 (Surr)	90		36 - 111				06/23/22 09:00	06/24/22 13:25	1
Fluoranthene-d10 (Surr)	95		47 - 128				06/23/22 09:00	06/24/22 13:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 16:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					06/21/22 16:55	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>99</b>		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 19:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	97		43 - 133				06/22/22 12:08	06/22/22 19:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-504-W-220616**

**Lab Sample ID: 410-87914-3**

Date Collected: 06/16/22 10:32

Matrix: Groundwater

Date Received: 06/17/22 10:28

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/30/22 16:16	07/11/22 20:43	1
C24-C40	ND		270	110	ug/L		06/30/22 16:16	07/11/22 20:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	98		50 - 150				06/30/22 16:16	07/11/22 20:43	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	F1	500	250	ug/L			06/17/22 23:33	5
Sulfate	120000		50000	15000	ug/L			06/30/22 16:33	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	980		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:30	1

**Client Sample ID: MW-505-W-220616**

**Lab Sample ID: 410-87914-4**

Date Collected: 06/16/22 11:42

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 20:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	101		80 - 120					06/27/22 20:00	1
<i>Dibromofluoromethane</i> (Surr)	97		80 - 120					06/27/22 20:00	1
<i>4</i> -Bromofluorobenzene (Surr)	104		80 - 120					06/27/22 20:00	1
<i>Toluene-d</i> 8 (Surr)	102		80 - 120					06/27/22 20:00	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		06/23/22 09:00	06/24/22 13:46	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		06/23/22 09:00	06/24/22 13:46	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		06/23/22 09:00	06/24/22 13:46	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		06/23/22 09:00	06/24/22 13:46	1
Chrysene	ND		0.056	0.011	ug/L		06/23/22 09:00	06/24/22 13:46	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		06/23/22 09:00	06/24/22 13:46	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		06/23/22 09:00	06/24/22 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d</i> 12 (Surr)	72		10 - 110				06/23/22 09:00	06/24/22 13:46	1
<i>1-Methylnaphthalene-d</i> 10 (Surr)	86		36 - 111				06/23/22 09:00	06/24/22 13:46	1
<i>Fluoranthene-d</i> 10 (Surr)	89		47 - 128				06/23/22 09:00	06/24/22 13:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 17:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	102		50 - 150					06/21/22 17:47	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-505-W-220616**

**Lab Sample ID: 410-87914-4**

Date Collected: 06/16/22 11:42

Matrix: Groundwater

Date Received: 06/17/22 10:28

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	1100		25	15	ug/L		06/23/22 11:58	06/23/22 18:35	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	90		43 - 133				06/23/22 11:58	06/23/22 18:35	5

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	50	ug/L		06/30/22 16:16	07/11/22 21:27	1
C24-C40	ND		280	110	ug/L		06/30/22 16:16	07/11/22 21:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	93		50 - 150				06/30/22 16:16	07/11/22 21:27	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/18/22 00:48	5
Sulfate	130000		50000	15000	ug/L			06/30/22 16:01	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1100		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:06	1

**Client Sample ID: MW-522-W-220616**

**Lab Sample ID: 410-87914-5**

Date Collected: 06/16/22 09:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		80 - 120					06/27/22 20:26	1
Dibromofluoromethane (Surr)	95		80 - 120					06/27/22 20:26	1
4-Bromofluorobenzene (Surr)	105		80 - 120					06/27/22 20:26	1
Toluene-d8 (Surr)	104		80 - 120					06/27/22 20:26	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:08	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:08	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:08	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:08	1
Chrysene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:08	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		06/23/22 09:00	06/24/22 14:08	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		06/23/22 09:00	06/24/22 14:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	89		10 - 110				06/23/22 09:00	06/24/22 14:08	1
1-Methylnaphthalene-d10 (Surr)	89		36 - 111				06/23/22 09:00	06/24/22 14:08	1
Fluoranthene-d10 (Surr)	94		47 - 128				06/23/22 09:00	06/24/22 14:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-522-W-220616**

**Lab Sample ID: 410-87914-5**

Date Collected: 06/16/22 09:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 18:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/21/22 18:13	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 19:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	95		43 - 133				06/22/22 12:08	06/22/22 19:39	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/30/22 16:16	07/11/22 21:50	1
C24-C40	ND		270	110	ug/L		06/30/22 16:16	07/11/22 21:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	96		50 - 150				06/30/22 16:16	07/11/22 21:50	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 22:07	5
Sulfate	110000		50000	15000	ug/L			06/30/22 16:09	50

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:13	07/20/22 19:23	1

**Client Sample ID: MW-8R-W-220616**

**Lab Sample ID: 410-87914-6**

Date Collected: 06/16/22 10:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 20:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					06/27/22 20:52	1
Dibromofluoromethane (Surr)	97		80 - 120					06/27/22 20:52	1
4-Bromofluorobenzene (Surr)	103		80 - 120					06/27/22 20:52	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 20:52	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 14:30	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 14:30	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 14:30	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 14:30	1
Chrysene	ND		0.053	0.011	ug/L		06/23/22 09:00	06/24/22 14:30	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		06/23/22 09:00	06/24/22 14:30	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		06/23/22 09:00	06/24/22 14:30	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-8R-W-220616**

**Lab Sample ID: 410-87914-6**

Date Collected: 06/16/22 10:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	77		10 - 110	06/23/22 09:00	06/24/22 14:30	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	06/23/22 09:00	06/24/22 14:30	1
Fluoranthene-d10 (Surr)	72		47 - 128	06/23/22 09:00	06/24/22 14:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		06/21/22 18:39	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	88		43 - 133	06/22/22 12:08	06/22/22 19:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	47	ug/L		06/30/22 16:16	07/11/22 22:13	1
C24-C40	ND		260	110	ug/L		06/30/22 16:16	07/11/22 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	85		50 - 150	06/30/22 16:16	07/11/22 22:13	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 23:22	5
Sulfate	48000		5000	1500	ug/L			06/17/22 23:22	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:28	1

**Client Sample ID: MW-506-W-220616**

**Lab Sample ID: 410-87914-7**

Date Collected: 06/16/22 11:30

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 21:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		06/27/22 21:17	1
Dibromofluoromethane (Surr)	96		80 - 120		06/27/22 21:17	1
4-Bromofluorobenzene (Surr)	103		80 - 120		06/27/22 21:17	1
Toluene-d8 (Surr)	102		80 - 120		06/27/22 21:17	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:52	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:52	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-506-W-220616**

**Lab Sample ID: 410-87914-7**

Date Collected: 06/16/22 11:30

Matrix: Groundwater

Date Received: 06/17/22 10:28

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	0.012	J	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:52	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:52	1
Chrysene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 14:52	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		06/23/22 09:00	06/24/22 14:52	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		06/23/22 09:00	06/24/22 14:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	74		10 - 110				06/23/22 09:00	06/24/22 14:52	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111				06/23/22 09:00	06/24/22 14:52	1
Fluoranthene-d10 (Surr)	108		47 - 128				06/23/22 09:00	06/24/22 14:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	22	J	250	22	ug/L			06/21/22 19:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					06/21/22 19:05	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	5600		100	60	ug/L		06/23/22 11:58	06/23/22 18:54	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	104		43 - 133				06/23/22 11:58	06/23/22 18:54	20

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		06/30/22 16:16	07/11/22 22:58	1
C24-C40	ND		260	110	ug/L		06/30/22 16:16	07/11/22 22:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	74		50 - 150				06/30/22 16:16	07/11/22 22:58	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/18/22 00:38	5
Sulfate	51000		5000	1500	ug/L			06/18/22 00:38	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6100		21	9.8	ug/L		06/27/22 09:23	07/07/22 13:29	10

**Client Sample ID: MW-507-W-220616**

**Lab Sample ID: 410-87914-8**

Date Collected: 06/16/22 13:00

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 21:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					06/27/22 21:43	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-507-W-220616**

**Lab Sample ID: 410-87914-8**

Date Collected: 06/16/22 13:00

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	95		80 - 120		06/27/22 21:43	1
4-Bromofluorobenzene (Surr)	103		80 - 120		06/27/22 21:43	1
Toluene-d8 (Surr)	103		80 - 120		06/27/22 21:43	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 15:14	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 15:14	1
<b>Benzo[b]fluoranthene</b>	<b>0.015</b>	<b>J</b>	0.054	0.011	ug/L		06/23/22 09:00	06/24/22 15:14	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 15:14	1
Chrysene	ND		0.054	0.011	ug/L		06/23/22 09:00	06/24/22 15:14	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		06/23/22 09:00	06/24/22 15:14	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		06/23/22 09:00	06/24/22 15:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110	06/23/22 09:00	06/24/22 15:14	1
1-Methylnaphthalene-d10 (Surr)	83		36 - 111	06/23/22 09:00	06/24/22 15:14	1
Fluoranthene-d10 (Surr)	120		47 - 128	06/23/22 09:00	06/24/22 15:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 19:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		06/21/22 19:31	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>48</b>		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 20:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	86		43 - 133	06/22/22 12:08	06/22/22 20:29	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	47	ug/L		06/30/22 16:16	07/11/22 23:20	1
C24-C40	ND		260	110	ug/L		06/30/22 16:16	07/11/22 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	91		50 - 150	06/30/22 16:16	07/11/22 23:20	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/18/22 01:31	5
<b>Sulfate</b>	<b>110000</b>		10000	3000	ug/L			06/30/22 17:38	10

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>370</b>		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-509-W-220616**

**Lab Sample ID: 410-87914-9**

Date Collected: 06/16/22 08:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 22:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					06/27/22 22:09	1
Dibromofluoromethane (Surr)	96		80 - 120					06/27/22 22:09	1
4-Bromofluorobenzene (Surr)	104		80 - 120					06/27/22 22:09	1
Toluene-d8 (Surr)	102		80 - 120					06/27/22 22:09	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:35	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:35	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:35	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:35	1
Chrysene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:35	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		06/23/22 09:00	06/24/22 15:35	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		06/23/22 09:00	06/24/22 15:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				06/23/22 09:00	06/24/22 15:35	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111				06/23/22 09:00	06/24/22 15:35	1
Fluoranthene-d10 (Surr)	98		47 - 128				06/23/22 09:00	06/24/22 15:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 19:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					06/21/22 19:57	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	7.2		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 20:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	87		43 - 133				06/22/22 12:08	06/22/22 20:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/30/22 16:16	07/11/22 23:43	1
C24-C40	ND		260	100	ug/L		06/30/22 16:16	07/11/22 23:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	79		50 - 150				06/30/22 16:16	07/11/22 23:43	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 21:57	5
Sulfate	660000		100000	30000	ug/L			06/30/22 16:58	100



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Client Sample ID: MW-509-W-220616

Lab Sample ID: 410-87914-9

Date Collected: 06/16/22 08:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	35		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:20	1

## Client Sample ID: MW-517-W-220616

Lab Sample ID: 410-87914-10

Date Collected: 06/16/22 09:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		06/27/22 22:35	1
Dibromofluoromethane (Surr)	96		80 - 120		06/27/22 22:35	1
4-Bromofluorobenzene (Surr)	102		80 - 120		06/27/22 22:35	1
Toluene-d8 (Surr)	102		80 - 120		06/27/22 22:35	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:57	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:57	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:57	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:57	1
Chrysene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 15:57	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		06/23/22 09:00	06/24/22 15:57	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		06/23/22 09:00	06/24/22 15:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110	06/23/22 09:00	06/24/22 15:57	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111	06/23/22 09:00	06/24/22 15:57	1
Fluoranthene-d10 (Surr)	90		47 - 128	06/23/22 09:00	06/24/22 15:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 20:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		06/21/22 20:22	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	11		5.0	3.0	ug/L		06/22/22 12:09	06/22/22 22:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	98		43 - 133	06/22/22 12:09	06/22/22 22:11	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/30/22 16:16	07/12/22 00:06	1
C24-C40	ND		260	100	ug/L		06/30/22 16:16	07/12/22 00:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	82		50 - 150	06/30/22 16:16	07/12/22 00:06	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Client Sample ID: MW-517-W-220616

Lab Sample ID: 410-87914-10

Date Collected: 06/16/22 09:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/17/22 22:29	5
<b>Sulfate</b>	<b>26000</b>		5000	1500	ug/L			06/17/22 22:29	5

### Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>130</b>		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:04	1

## Client Sample ID: MW-513-W-220616

Lab Sample ID: 410-87914-11

Date Collected: 06/16/22 10:54

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 23:01	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					06/27/22 23:01	1
Dibromofluoromethane (Surr)	96		80 - 120					06/27/22 23:01	1
4-Bromofluorobenzene (Surr)	103		80 - 120					06/27/22 23:01	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 23:01	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 16:19	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 16:19	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 16:19	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 16:19	1
Chrysene	ND		0.051	0.010	ug/L		06/23/22 09:00	06/24/22 16:19	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		06/23/22 09:00	06/24/22 16:19	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		06/23/22 09:00	06/24/22 16:19	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	73		10 - 110				06/23/22 09:00	06/24/22 16:19	1
1-Methylnaphthalene-d10 (Surr)	89		36 - 111				06/23/22 09:00	06/24/22 16:19	1
Fluoranthene-d10 (Surr)	99		47 - 128				06/23/22 09:00	06/24/22 16:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 20:48	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/21/22 20:48	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>100</b>		5.0	3.0	ug/L		06/22/22 12:09	06/22/22 22:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	94		43 - 133				06/22/22 12:09	06/22/22 22:27	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-513-W-220616**

**Lab Sample ID: 410-87914-11**

Date Collected: 06/16/22 10:54

Matrix: Groundwater

Date Received: 06/17/22 10:28

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/30/22 16:16	07/12/22 00:51	1
C24-C40	ND		260	100	ug/L		06/30/22 16:16	07/12/22 00:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	96		50 - 150				06/30/22 16:16	07/12/22 00:51	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	270	J	500	250	ug/L			06/18/22 00:06	5
Sulfate	58000		5000	1500	ug/L			06/18/22 00:06	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	540		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:18	1

**Client Sample ID: MW-514-W-220616**

**Lab Sample ID: 410-87914-12**

Date Collected: 06/16/22 13:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 23:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	96		80 - 120					06/27/22 23:27	1
<i>Dibromofluoromethane (Surr)</i>	93		80 - 120					06/27/22 23:27	1
<i>4-Bromofluorobenzene (Surr)</i>	104		80 - 120					06/27/22 23:27	1
<i>Toluene-d8 (Surr)</i>	104		80 - 120					06/27/22 23:27	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 16:41	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 16:41	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 16:41	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 16:41	1
Chrysene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 16:41	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 16:41	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 16:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	73		10 - 110				06/23/22 09:00	06/24/22 16:41	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	81		36 - 111				06/23/22 09:00	06/24/22 16:41	1
<i>Fluoranthene-d10 (Surr)</i>	85		47 - 128				06/23/22 09:00	06/24/22 16:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	25	J	250	22	ug/L			06/21/22 21:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	101		50 - 150					06/21/22 21:14	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-514-W-220616**

**Lab Sample ID: 410-87914-12**

Date Collected: 06/16/22 13:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	130		5.0	3.0	ug/L		06/22/22 12:09	06/22/22 22:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	94		43 - 133				06/22/22 12:09	06/22/22 22:44	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		06/30/22 16:16	07/12/22 01:14	1
C24-C40	ND		260	100	ug/L		06/30/22 16:16	07/12/22 01:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70		50 - 150				06/30/22 16:16	07/12/22 01:14	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/18/22 01:42	5
Sulfate	29000		5000	1500	ug/L			06/18/22 01:42	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	700		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 11:59	1

**Client Sample ID: MW-512-W-220616**

**Lab Sample ID: 410-87914-13**

Date Collected: 06/16/22 13:12

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 23:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					06/27/22 23:53	1
Dibromofluoromethane (Surr)	93		80 - 120					06/27/22 23:53	1
4-Bromofluorobenzene (Surr)	103		80 - 120					06/27/22 23:53	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 23:53	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 17:02	1
Benzo[a]pyrene	0.011	J	0.052	0.010	ug/L		06/23/22 09:00	06/24/22 17:02	1
Benzo[b]fluoranthene	0.016	J	0.052	0.010	ug/L		06/23/22 09:00	06/24/22 17:02	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 17:02	1
Chrysene	ND		0.052	0.010	ug/L		06/23/22 09:00	06/24/22 17:02	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 17:02	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		06/23/22 09:00	06/24/22 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	84		10 - 110				06/23/22 09:00	06/24/22 17:02	1
1-Methylnaphthalene-d10 (Surr)	87		36 - 111				06/23/22 09:00	06/24/22 17:02	1
Fluoranthene-d10 (Surr)	94		47 - 128				06/23/22 09:00	06/24/22 17:02	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-512-W-220616**

**Lab Sample ID: 410-87914-13**

Date Collected: 06/16/22 13:12

Matrix: Groundwater

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	47	J	250	22	ug/L			06/21/22 21:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/21/22 21:39	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	380		5.0	3.0	ug/L		06/22/22 12:09	06/22/22 23:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	86		43 - 133				06/22/22 12:09	06/22/22 23:05	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		06/30/22 16:16	07/12/22 01:36	1
C24-C40	ND		270	110	ug/L		06/30/22 16:16	07/12/22 01:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	87		50 - 150				06/30/22 16:16	07/12/22 01:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		500	250	ug/L			06/18/22 01:21	5
Sulfate	7600		5000	1500	ug/L			06/18/22 01:21	5

**Method: 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	470		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 12:26	1

**Client Sample ID: QA-T-220616**

**Lab Sample ID: 410-87914-14**

Date Collected: 06/16/22 00:00

Matrix: Water

Date Received: 06/17/22 10:28

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 18:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					06/27/22 18:16	1
Dibromofluoromethane (Surr)	94		80 - 120					06/27/22 18:16	1
4-Bromofluorobenzene (Surr)	103		80 - 120					06/27/22 18:16	1
Toluene-d8 (Surr)	104		80 - 120					06/27/22 18:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	22	ug/L			06/21/22 13:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					06/21/22 13:04	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

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

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87914-1	MW-520-W-220616	100	96	103	103
410-87914-2	MW-521-W-220616	98	96	103	103
410-87914-3	MW-504-W-220616	102	98	104	103
410-87914-4	MW-505-W-220616	101	97	104	102
410-87914-5	MW-522-W-220616	101	95	105	104
410-87914-6	MW-8R-W-220616	100	97	103	103
410-87914-7	MW-506-W-220616	100	96	103	102
410-87914-8	MW-507-W-220616	100	95	103	103
410-87914-9	MW-509-W-220616	100	96	104	102
410-87914-10	MW-517-W-220616	100	96	102	102
410-87914-11	MW-513-W-220616	99	96	103	103
410-87914-12	MW-514-W-220616	96	93	104	104
410-87914-13	MW-512-W-220616	95	93	103	103

**Surrogate Legend**

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	DBFM (80-120)	BFB (80-120)	TOL (80-120)
410-87914-14	QA-T-220616	98	94	103	104
LCS 410-269899/4	Lab Control Sample	97	98	103	103
LCS 410-269899/5	Lab Control Sample Dup	94	98	103	104
MB 410-269899/7	Method Blank	99	95	104	103

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87914-1	MW-520-W-220616	86	79	92
410-87914-2	MW-521-W-220616	81	70	85
410-87914-3	MW-504-W-220616	80	90	95
410-87914-4	MW-505-W-220616	72	86	89
410-87914-5	MW-522-W-220616	89	89	94
410-87914-6	MW-8R-W-220616	77	71	72
410-87914-7	MW-506-W-220616	74	81	108
410-87914-8	MW-507-W-220616	86	83	120

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-87914-9	MW-509-W-220616	65	86	98
410-87914-10	MW-517-W-220616	82	81	90
410-87914-11	MW-513-W-220616	73	89	99
410-87914-12	MW-514-W-220616	73	81	85
410-87914-13	MW-512-W-220616	84	87	94

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
 MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
 FLN10 = Fluoranthene-d10 (Surr)

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
LCS 410-268442/2-A	Lab Control Sample	91	74	96
LCSD 410-268442/3-A	Lab Control Sample Dup	89	69	93
MB 410-268442/1-A	Method Blank	75	72	78

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
 MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
 FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Groundwater

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-87914-1	MW-520-W-220616	102
410-87914-2	MW-521-W-220616	101
410-87914-3	MW-504-W-220616	100
410-87914-4	MW-505-W-220616	102
410-87914-5	MW-522-W-220616	101
410-87914-6	MW-8R-W-220616	100
410-87914-7	MW-506-W-220616	103
410-87914-8	MW-507-W-220616	100
410-87914-9	MW-509-W-220616	99
410-87914-10	MW-517-W-220616	102
410-87914-11	MW-513-W-220616	101
410-87914-12	MW-514-W-220616	101
410-87914-13	MW-512-W-220616	101

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## 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	TFT-F1 (50-150)
410-87914-14	QA-T-220616	101
LCS 410-267672/5	Lab Control Sample	92
LCSD 410-267672/6	Lab Control Sample Dup	93
MB 410-267672/4	Method Blank	101

#### Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Groundwater

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Propene1 (43-133)
410-87914-1	MW-520-W-220616	96
410-87914-2	MW-521-W-220616	95
410-87914-3	MW-504-W-220616	97
410-87914-4	MW-505-W-220616	90
410-87914-5	MW-522-W-220616	95
410-87914-6	MW-8R-W-220616	88
410-87914-7	MW-506-W-220616	104
410-87914-8	MW-507-W-220616	86
410-87914-9	MW-509-W-220616	87
410-87914-10	MW-517-W-220616	98
410-87914-11	MW-513-W-220616	94
410-87914-12	MW-514-W-220616	94
410-87914-13	MW-512-W-220616	86

#### Surrogate Legend

Propene = Propene

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Propene1 (43-133)
LCS 410-268199/2-A	Lab Control Sample	107
LCS 410-268203/2-A	Lab Control Sample	104
LCS 410-268638/2-A	Lab Control Sample	104
LCSD 410-268199/3-A	Lab Control Sample Dup	104
LCSD 410-268203/20-A	Lab Control Sample Dup	98
LCSD 410-268638/3-A	Lab Control Sample Dup	100
MB 410-268199/1-A	Method Blank	106
MB 410-268203/1-A	Method Blank	109
MB 410-268638/1-A	Method Blank	102

#### Surrogate Legend

Propene = Propene



# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Groundwater

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTP (50-150)	
410-87914-1	MW-520-W-220616	84	
410-87914-2	MW-521-W-220616	94	
410-87914-3	MW-504-W-220616	98	
410-87914-3 DU	MW-504-W-220616	92	
410-87914-4	MW-505-W-220616	93	
410-87914-5	MW-522-W-220616	96	
410-87914-6	MW-8R-W-220616	85	
410-87914-7	MW-506-W-220616	74	
410-87914-8	MW-507-W-220616	91	
410-87914-9	MW-509-W-220616	79	
410-87914-10	MW-517-W-220616	82	
410-87914-10 DU	MW-517-W-220616	92	
410-87914-11	MW-513-W-220616	96	
410-87914-12	MW-514-W-220616	70	
410-87914-13	MW-512-W-220616	87	

**Surrogate Legend**  
OTP = o- terphenyl (Surr)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTP (50-150)	
LCS 410-271348/2-B	Lab Control Sample	79	
LCS 410-271348/3-B	Lab Control Sample Dup	75	
MB 410-271348/1-B	Method Blank	89	

**Surrogate Legend**  
OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

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

**Lab Sample ID: MB 410-269899/7**  
**Matrix: Water**  
**Analysis Batch: 269899**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			06/27/22 17:50	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					06/27/22 17:50	1
Dibromofluoromethane (Surr)	95		80 - 120					06/27/22 17:50	1
4-Bromofluorobenzene (Surr)	104		80 - 120					06/27/22 17:50	1
Toluene-d8 (Surr)	103		80 - 120					06/27/22 17:50	1

**Lab Sample ID: LCS 410-269899/4**  
**Matrix: Water**  
**Analysis Batch: 269899**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.0		ug/L		105	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					
Dibromofluoromethane (Surr)	98		80 - 120					
4-Bromofluorobenzene (Surr)	103		80 - 120					
Toluene-d8 (Surr)	103		80 - 120					

**Lab Sample ID: LCSD 410-269899/5**  
**Matrix: Water**  
**Analysis Batch: 269899**

**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	20.0	21.0		ug/L		105	80 - 120	0	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	94		80 - 120						
Dibromofluoromethane (Surr)	98		80 - 120						
4-Bromofluorobenzene (Surr)	103		80 - 120						
Toluene-d8 (Surr)	104		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-268442/1-A**  
**Matrix: Water**  
**Analysis Batch: 268849**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268442**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		06/23/22 09:00	06/24/22 06:12	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		06/23/22 09:00	06/24/22 06:12	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		06/23/22 09:00	06/24/22 06:12	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		06/23/22 09:00	06/24/22 06:12	1
Chrysene	ND		0.050	0.010	ug/L		06/23/22 09:00	06/24/22 06:12	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		06/23/22 09:00	06/24/22 06:12	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		06/23/22 09:00	06/24/22 06:12	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	75		10 - 110	06/23/22 09:00	06/24/22 06:12	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	06/23/22 09:00	06/24/22 06:12	1
Fluoranthene-d10 (Surr)	78		47 - 128	06/23/22 09:00	06/24/22 06:12	1

Lab Sample ID: LCS 410-268442/2-A

Matrix: Water

Analysis Batch: 268849

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 268442

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	1.00	1.17		ug/L		117	61 - 122	
Benzo[a]pyrene	1.00	1.06		ug/L		106	60 - 120	
Benzo[b]fluoranthene	1.00	1.09		ug/L		109	58 - 122	
Benzo[k]fluoranthene	1.00	1.11		ug/L		111	57 - 128	
Chrysene	1.00	1.04		ug/L		104	55 - 123	
Dibenz(a,h)anthracene	1.00	1.02		ug/L		102	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	1.05		ug/L		105	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	91		10 - 110
1-Methylnaphthalene-d10 (Surr)	74		36 - 111
Fluoranthene-d10 (Surr)	96		47 - 128

Lab Sample ID: LCSD 410-268442/3-A

Matrix: Water

Analysis Batch: 268849

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 268442

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	1.00	1.18		ug/L		118	61 - 122	1	30	
Benzo[a]pyrene	1.00	1.07		ug/L		107	60 - 120	1	30	
Benzo[b]fluoranthene	1.00	1.12		ug/L		112	58 - 122	2	30	
Benzo[k]fluoranthene	1.00	1.13		ug/L		113	57 - 128	2	30	
Chrysene	1.00	1.04		ug/L		104	55 - 123	0	30	
Dibenz(a,h)anthracene	1.00	1.06		ug/L		106	50 - 121	4	30	
Indeno[1,2,3-cd]pyrene	1.00	1.12		ug/L		112	47 - 143	6	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	89		10 - 110
1-Methylnaphthalene-d10 (Surr)	69		36 - 111
Fluoranthene-d10 (Surr)	93		47 - 128

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

Lab Sample ID: MB 410-267672/4

Matrix: Water

Analysis Batch: 267672

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	22	ug/L		06/21/22 11:47	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		06/21/22 11:47	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

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

**Lab Sample ID: LCS 410-267672/5**  
**Matrix: Water**  
**Analysis Batch: 267672**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1130		ug/L		102	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150				

**Lab Sample ID: LCSD 410-267672/6**  
**Matrix: Water**  
**Analysis Batch: 267672**

**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
C7-C12 (1C)	1100	1030		ug/L		93	64 - 131	9	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150						

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-268199/1-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:08	06/22/22 15:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
Propene (1C)	106		43 - 133						

**Lab Sample ID: LCS 410-268199/2-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.9	57.9		ug/L		97	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	107		43 - 133				

**Lab Sample ID: LCSD 410-268199/3-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 268199**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	57.2		ug/L		95	85 - 115	1	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	104		43 - 133						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: MB 410-268203/1-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268203**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/22/22 12:09	06/22/22 21:20	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	109		43 - 133				06/22/22 12:09	06/22/22 21:20	1

**Lab Sample ID: LCS 410-268203/2-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268203**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Methane (1C)	59.9	55.7		ug/L		93	85 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Propene (1C)	104		43 - 133					

**Lab Sample ID: LCSD 410-268203/20-A**  
**Matrix: Water**  
**Analysis Batch: 268023**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 268203**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	55.6		ug/L		93	85 - 115	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Propene (1C)	98		43 - 133						

**Lab Sample ID: MB 410-268638/1-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268638**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		06/23/22 11:58	06/23/22 17:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	102		43 - 133				06/23/22 11:58	06/23/22 17:35	1

**Lab Sample ID: LCS 410-268638/2-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Methane (1C)	59.9	61.9		ug/L		103	85 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Propene (1C)	104		43 - 133					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCSD 410-268638/3-A**  
**Matrix: Water**  
**Analysis Batch: 268470**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 268638**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.9	59.8		ug/L		100	85 - 115	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	100		43 - 133						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-271348/1-B**  
**Matrix: Water**  
**Analysis Batch: 274171**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		06/30/22 16:16	07/11/22 19:35	1
C24-C40	ND		250	100	ug/L		06/30/22 16:16	07/11/22 19:35	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>	89		50 - 150				06/30/22 16:16	07/11/22 19:35	1

**Lab Sample ID: LCS 410-271348/2-B**  
**Matrix: Water**  
**Analysis Batch: 274171**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	233		ug/L		39	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
<i>o-terphenyl (Surr)</i>	79		50 - 150				

**Lab Sample ID: LCSD 410-271348/3-B**  
**Matrix: Water**  
**Analysis Batch: 274171**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	217		ug/L		36	14 - 115	7	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	75		50 - 150						

**Lab Sample ID: 410-87914-3 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 274171**

**Client Sample ID: MW-504-W-220616**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

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

**Lab Sample ID: 410-87914-3 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 274171**

**Client Sample ID: MW-504-W-220616**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Surrogate	%Recovery	DU Qualifier	DU Limits
<i>o-terphenyl (Surr)</i>	92		50 - 150

**Lab Sample ID: 410-87914-10 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 274171**

**Client Sample ID: MW-517-W-220616**  
**Prep Type: Total/NA**  
**Prep Batch: 271348**

Analyte	Sample Result	Sample Qualifier	DU		Unit	D	RPD	Limit
			Result	Qualifier				
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20

Surrogate	%Recovery	DU Qualifier	DU Limits
<i>o-terphenyl (Surr)</i>	92		50 - 150

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-266940/5**  
**Matrix: Water**  
**Analysis Batch: 266940**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/17/22 20:31	1

**Lab Sample ID: LCS 410-266940/3**  
**Matrix: Water**  
**Analysis Batch: 266940**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7130		ug/L		95	90 - 110

**Lab Sample ID: LCSD 410-266940/4**  
**Matrix: Water**  
**Analysis Batch: 266940**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Sulfate	7510	7110		ug/L		95	90 - 110	0	20

**Lab Sample ID: MB 410-266941/5**  
**Matrix: Water**  
**Analysis Batch: 266941**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		100	50	ug/L			06/17/22 20:31	1

**Lab Sample ID: LCS 410-266941/3**  
**Matrix: Water**  
**Analysis Batch: 266941**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	755	750		ug/L		99	90 - 110

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCSD 410-266941/4**  
**Matrix: Water**  
**Analysis Batch: 266941**

**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
Nitrogen, Nitrate	755	740		ug/L		98	90 - 110	1	20

**Lab Sample ID: 410-87914-3 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 266941**

**Client Sample ID: MW-504-W-220616**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	F1	2520	3400	F1	ug/L		135	90 - 110

**Lab Sample ID: 410-87914-3 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 266941**

**Client Sample ID: MW-504-W-220616**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	F1	ND		ug/L		NC	15

**Lab Sample ID: MB 410-271446/5**  
**Matrix: Water**  
**Analysis Batch: 271446**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			06/30/22 12:50	1

**Lab Sample ID: LCS 410-271446/3**  
**Matrix: Water**  
**Analysis Batch: 271446**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	7060		ug/L		94	90 - 110

**Lab Sample ID: LCSD 410-271446/4**  
**Matrix: Water**  
**Analysis Batch: 271446**

**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
Sulfate	7510	7170		ug/L		96	90 - 110	2	20

**Lab Sample ID: 410-87914-8 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 271446**

**Client Sample ID: MW-507-W-220616**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	110000		50100	158000	E	ug/L		105	90 - 110

**Lab Sample ID: 410-87914-8 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 271446**

**Client Sample ID: MW-507-W-220616**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	110000		103000		ug/L		2	15



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-271964/3**  
**Matrix: Water**  
**Analysis Batch: 271964**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1000	300	ug/L			07/01/22 20:18	1

**Lab Sample ID: LCS 410-271964/4**  
**Matrix: Water**  
**Analysis Batch: 271964**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7510	6930		ug/L		92	90 - 110

**Lab Sample ID: LCSD 410-271964/5**  
**Matrix: Water**  
**Analysis Batch: 271964**

**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
Sulfate	7510	6980		ug/L		93	90 - 110	1	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-269663/1-A**  
**Matrix: Water**  
**Analysis Batch: 277794**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269663**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:13	07/20/22 19:13	1

**Lab Sample ID: LCS 410-269663/2-A**  
**Matrix: Water**  
**Analysis Batch: 277794**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269663**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	518		ug/L		104	85 - 115

**Lab Sample ID: MB 410-269665/1-A**  
**Matrix: Water**  
**Analysis Batch: 273238**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269665**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 09:23	07/07/22 11:35	1

**Lab Sample ID: LCS 410-269665/2-A**  
**Matrix: Water**  
**Analysis Batch: 273238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269665**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	569		ug/L		114	85 - 115

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 410-269722/1-A**  
**Matrix: Water**  
**Analysis Batch: 270669**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269722**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 10:23	06/29/22 08:47	1

**Lab Sample ID: LCS 410-269722/2-A**  
**Matrix: Water**  
**Analysis Batch: 270669**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269722**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	511		ug/L		102	85 - 115

**Lab Sample ID: MB 410-269724/1-A**  
**Matrix: Water**  
**Analysis Batch: 279616**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269724**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		06/27/22 10:35	07/26/22 08:46	1

**Lab Sample ID: LCS 410-269724/2-A**  
**Matrix: Water**  
**Analysis Batch: 279616**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269724**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	529		ug/L		106	85 - 115

**Lab Sample ID: 410-87914-5 MS**  
**Matrix: Groundwater**  
**Analysis Batch: 277794**

**Client Sample ID: MW-522-W-220616**  
**Prep Type: Dissolved**  
**Prep Batch: 269663**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	ND		500	515		ug/L		103	70 - 130

**Lab Sample ID: 410-87914-5 MSD**  
**Matrix: Groundwater**  
**Analysis Batch: 277794**

**Client Sample ID: MW-522-W-220616**  
**Prep Type: Dissolved**  
**Prep Batch: 269663**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	ND		500	523		ug/L		105	70 - 130	2	20

**Lab Sample ID: 410-87914-5 DU**  
**Matrix: Groundwater**  
**Analysis Batch: 277794**

**Client Sample ID: MW-522-W-220616**  
**Prep Type: Dissolved**  
**Prep Batch: 269663**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	ND		ND		ug/L		NC	20

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## GC/MS VOA

### Analysis Batch: 269899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	8260D	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	8260D	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	8260D	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	8260D	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	8260D	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	8260D	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	8260D	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	8260D	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	8260D	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	8260D	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	8260D	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	8260D	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	8260D	
410-87914-14	QA-T-220616	Total/NA	Water	8260D	
MB 410-269899/7	Method Blank	Total/NA	Water	8260D	
LCS 410-269899/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-269899/5	Lab Control Sample Dup	Total/NA	Water	8260D	

## GC/MS Semi VOA

### Prep Batch: 268442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	3510C	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	3510C	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	3510C	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	3510C	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	3510C	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	3510C	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	3510C	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	3510C	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	3510C	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	3510C	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	3510C	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	3510C	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	3510C	
MB 410-268442/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-268442/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-268442/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 268849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	8270E SIM	268442

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 268849 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	8270E SIM	268442
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	8270E SIM	268442
MB 410-268442/1-A	Method Blank	Total/NA	Water	8270E SIM	268442
LCS 410-268442/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	268442
LCSD 410-268442/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	268442

## GC VOA

### Analysis Batch: 267672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	NWTPH-Gx	
410-87914-14	QA-T-220616	Total/NA	Water	NWTPH-Gx	
MB 410-267672/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-267672/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-267672/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 268023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	RSK-175	268199
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	RSK-175	268203
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	RSK-175	268203
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	RSK-175	268203
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	RSK-175	268203
MB 410-268199/1-A	Method Blank	Total/NA	Water	RSK-175	268199
MB 410-268203/1-A	Method Blank	Total/NA	Water	RSK-175	268203
LCS 410-268199/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268199
LCS 410-268203/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268203
LCSD 410-268199/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	268199
LCSD 410-268203/20-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	268203

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## GC VOA

### Prep Batch: 268199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	RSK-175	
MB 410-268199/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268199/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-268199/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Prep Batch: 268203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	RSK-175	
MB 410-268203/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268203/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-268203/20-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 268470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	RSK-175	268638
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	RSK-175	268638
MB 410-268638/1-A	Method Blank	Total/NA	Water	RSK-175	268638
LCS 410-268638/2-A	Lab Control Sample	Total/NA	Water	RSK-175	268638
LCSD 410-268638/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	268638

### Prep Batch: 268638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	RSK-175	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	RSK-175	
MB 410-268638/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-268638/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-268638/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 271348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	3510C	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	3510C	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	3510C	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	3510C	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	3510C	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	3510C	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	3510C	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	3510C	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	3510C	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	3510C	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## GC Semi VOA (Continued)

### Prep Batch: 271348 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	3510C	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	3510C	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	3510C	
MB 410-271348/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-271348/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-271348/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-87914-3 DU	MW-504-W-220616	Total/NA	Groundwater	3510C	
410-87914-10 DU	MW-517-W-220616	Total/NA	Groundwater	3510C	

### Cleanup Batch: 273926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	3630C	271348
MB 410-271348/1-B	Method Blank	Total/NA	Water	3630C	271348
LCS 410-271348/2-B	Lab Control Sample	Total/NA	Water	3630C	271348
LCSD 410-271348/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	271348
410-87914-3 DU	MW-504-W-220616	Total/NA	Groundwater	3630C	271348
410-87914-10 DU	MW-517-W-220616	Total/NA	Groundwater	3630C	271348

### Analysis Batch: 274171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
MB 410-271348/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	273926
LCS 410-271348/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	273926
LCSD 410-271348/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	273926
410-87914-3 DU	MW-504-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926
410-87914-10 DU	MW-517-W-220616	Total/NA	Groundwater	NWTPH-Dx	273926

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## HPLC/IC

### Analysis Batch: 266940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266940/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266940/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266940/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 266941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-2	MW-521-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-6	MW-8R-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-7	MW-506-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-10	MW-517-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-11	MW-513-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-12	MW-514-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-13	MW-512-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-266941/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-266941/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-266941/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87914-3 MS	MW-504-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-3 DU	MW-504-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 271446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-3	MW-504-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-4	MW-505-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-5	MW-522-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-8	MW-507-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-9	MW-509-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-271446/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-271446/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-271446/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-87914-8 MS	MW-507-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
410-87914-8 DU	MW-507-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	

### Analysis Batch: 271964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Total/NA	Groundwater	EPA 300.0 R2.1	
MB 410-271964/3	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-271964/4	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-271964/5	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Metals

### Prep Batch: 269663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-5	MW-522-W-220616	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269663/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269663/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-87914-5 MS	MW-522-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-5 MSD	MW-522-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-5 DU	MW-522-W-220616	Dissolved	Groundwater	Non-Digest Prep	

### Prep Batch: 269665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-3	MW-504-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-4	MW-505-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-6	MW-8R-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-7	MW-506-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-8	MW-507-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-9	MW-509-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-10	MW-517-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-11	MW-513-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-12	MW-514-W-220616	Dissolved	Groundwater	Non-Digest Prep	
410-87914-13	MW-512-W-220616	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269665/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269665/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 269722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269722/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269722/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Prep Batch: 269724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-2	MW-521-W-220616	Dissolved	Groundwater	Non-Digest Prep	
MB 410-269724/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-269724/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 270669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-269722/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269722
LCS 410-269722/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269722

### Analysis Batch: 270912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-1	MW-520-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269722

### Analysis Batch: 273238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-3	MW-504-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-4	MW-505-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-6	MW-8R-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-7	MW-506-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-8	MW-507-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-9	MW-509-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665



# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Metals (Continued)

### Analysis Batch: 273238 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-10	MW-517-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-11	MW-513-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-12	MW-514-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
410-87914-13	MW-512-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269665
MB 410-269665/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269665
LCS 410-269665/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269665

### Analysis Batch: 277794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-5	MW-522-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269663
MB 410-269663/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269663
LCS 410-269663/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269663
410-87914-5 MS	MW-522-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269663
410-87914-5 MSD	MW-522-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269663
410-87914-5 DU	MW-522-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269663

### Analysis Batch: 279616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-87914-2	MW-521-W-220616	Dissolved	Groundwater	200.8 Rev 5.4	269724
MB 410-269724/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	269724
LCS 410-269724/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	269724



## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-520-W-220616**

**Lab Sample ID: 410-87914-1**

**Date Collected: 06/16/22 08:32**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 18:42	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 12:41	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 16:03	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 18:31	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 19:57	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 21:46	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271964	07/01/22 22:28	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269722	06/27/22 10:23	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	270912	06/29/22 14:48	UCIG	ELLE

**Client Sample ID: MW-521-W-220616**

**Lab Sample ID: 410-87914-2**

**Date Collected: 06/16/22 09:22**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 19:08	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 13:03	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 16:29	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 18:48	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 20:20	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/17/22 22:18	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 22:18	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269724	06/27/22 10:35	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	279616	07/26/22 08:58	S4PD	ELLE

**Client Sample ID: MW-504-W-220616**

**Lab Sample ID: 410-87914-3**

**Date Collected: 06/16/22 10:32**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 19:34	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 13:25	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 16:55	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 19:05	SE2A	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-504-W-220616**

**Lab Sample ID: 410-87914-3**

**Date Collected: 06/16/22 10:32**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 20:43	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 23:33	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271446	06/30/22 16:33	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:30	UCIG	ELLE

**Client Sample ID: MW-505-W-220616**

**Lab Sample ID: 410-87914-4**

**Date Collected: 06/16/22 11:42**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 20:00	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 13:46	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 17:47	UMDJ	ELLE
Total/NA	Prep	RSK-175			268638	06/23/22 11:58	SE2A	ELLE
Total/NA	Analysis	RSK-175		5	268470	06/23/22 18:35	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 21:27	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 00:48	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271446	06/30/22 16:01	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:06	UCIG	ELLE

**Client Sample ID: MW-522-W-220616**

**Lab Sample ID: 410-87914-5**

**Date Collected: 06/16/22 09:10**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 20:26	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 14:08	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 18:13	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 19:39	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 21:50	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 22:07	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		50	271446	06/30/22 16:09	W5UX	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-522-W-220616**

**Lab Sample ID: 410-87914-5**

Date Collected: 06/16/22 09:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	Non-Digest Prep			269663	06/27/22 09:13	UJLA	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	277794	07/20/22 19:23	S4PD	ELLE

**Client Sample ID: MW-8R-W-220616**

**Lab Sample ID: 410-87914-6**

Date Collected: 06/16/22 10:10

Matrix: Groundwater

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 20:52	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 14:30	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 18:39	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 19:56	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 22:13	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/17/22 23:22	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 23:22	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:28	UCIG	ELLE

**Client Sample ID: MW-506-W-220616**

**Lab Sample ID: 410-87914-7**

Date Collected: 06/16/22 11:30

Matrix: Groundwater

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 21:17	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 14:52	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 19:05	UMDJ	ELLE
Total/NA	Prep	RSK-175			268638	06/23/22 11:58	SE2A	ELLE
Total/NA	Analysis	RSK-175		20	268470	06/23/22 18:54	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 22:58	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 00:38	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 00:38	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		10	273238	07/07/22 13:29	UCIG	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-507-W-220616**

**Lab Sample ID: 410-87914-8**

**Date Collected: 06/16/22 13:00**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 21:43	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 15:14	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 19:31	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 20:29	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 23:20	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 01:31	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		10	271446	06/30/22 17:38	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:22	UCIG	ELLE

**Client Sample ID: MW-509-W-220616**

**Lab Sample ID: 410-87914-9**

**Date Collected: 06/16/22 08:34**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 22:09	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 15:35	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 19:57	UMDJ	ELLE
Total/NA	Prep	RSK-175			268199	06/22/22 12:08	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 20:46	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/11/22 23:43	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 21:57	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		100	271446	06/30/22 16:58	W5UX	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:20	UCIG	ELLE

**Client Sample ID: MW-517-W-220616**

**Lab Sample ID: 410-87914-10**

**Date Collected: 06/16/22 09:34**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 22:35	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 15:57	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 20:22	UMDJ	ELLE
Total/NA	Prep	RSK-175			268203	06/22/22 12:09	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 22:11	SE2A	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-517-W-220616**

**Lab Sample ID: 410-87914-10**

**Date Collected: 06/16/22 09:34**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/12/22 00:06	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/17/22 22:29	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/17/22 22:29	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:04	UCIG	ELLE

**Client Sample ID: MW-513-W-220616**

**Lab Sample ID: 410-87914-11**

**Date Collected: 06/16/22 10:54**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 23:01	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 16:19	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 20:48	UMDJ	ELLE
Total/NA	Prep	RSK-175			268203	06/22/22 12:09	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 22:27	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/12/22 00:51	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 00:06	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 00:06	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:18	UCIG	ELLE

**Client Sample ID: MW-514-W-220616**

**Lab Sample ID: 410-87914-12**

**Date Collected: 06/16/22 13:34**

**Matrix: Groundwater**

**Date Received: 06/17/22 10:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 23:27	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 16:41	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 21:14	UMDJ	ELLE
Total/NA	Prep	RSK-175			268203	06/22/22 12:09	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 22:44	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/12/22 01:14	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 01:42	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 01:42	L4QM	ELLE

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

**Client Sample ID: MW-514-W-220616**

**Lab Sample ID: 410-87914-12**

Date Collected: 06/16/22 13:34

Matrix: Groundwater

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 11:59	UCIG	ELLE

**Client Sample ID: MW-512-W-220616**

**Lab Sample ID: 410-87914-13**

Date Collected: 06/16/22 13:12

Matrix: Groundwater

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 23:53	UKAD	ELLE
Total/NA	Prep	3510C			268442	06/23/22 09:00	DFX4	ELLE
Total/NA	Analysis	8270E SIM		1	268849	06/24/22 17:02	UJM0	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 21:39	UMDJ	ELLE
Total/NA	Prep	RSK-175			268203	06/22/22 12:09	SE2A	ELLE
Total/NA	Analysis	RSK-175		1	268023	06/22/22 23:05	SE2A	ELLE
Total/NA	Prep	3510C			271348	06/30/22 16:16	QJZ6	ELLE
Total/NA	Cleanup	3630C			273926	07/11/22 01:25	USL7	ELLE
Total/NA	Analysis	NWTPH-Dx		1	274171	07/12/22 01:36	IUSB	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266940	06/18/22 01:21	L4QM	ELLE
Total/NA	Analysis	EPA 300.0 R2.1		5	266941	06/18/22 01:21	L4QM	ELLE
Dissolved	Prep	Non-Digest Prep			269665	06/27/22 09:23	N2PU	ELLE
Dissolved	Analysis	200.8 Rev 5.4		1	273238	07/07/22 12:26	UCIG	ELLE

**Client Sample ID: QA-T-220616**

**Lab Sample ID: 410-87914-14**

Date Collected: 06/16/22 00:00

Matrix: Water

Date Received: 06/17/22 10:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	269899	06/27/22 18:16	UKAD	ELLE
Total/NA	Analysis	NWTPH-Gx		1	267672	06/21/22 13:04	UMDJ	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

1

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-87914-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-87914-1	MW-520-W-220616	Groundwater	06/16/22 08:32	06/17/22 10:28
410-87914-2	MW-521-W-220616	Groundwater	06/16/22 09:22	06/17/22 10:28
410-87914-3	MW-504-W-220616	Groundwater	06/16/22 10:32	06/17/22 10:28
410-87914-4	MW-505-W-220616	Groundwater	06/16/22 11:42	06/17/22 10:28
410-87914-5	MW-522-W-220616	Groundwater	06/16/22 09:10	06/17/22 10:28
410-87914-6	MW-8R-W-220616	Groundwater	06/16/22 10:10	06/17/22 10:28
410-87914-7	MW-506-W-220616	Groundwater	06/16/22 11:30	06/17/22 10:28
410-87914-8	MW-507-W-220616	Groundwater	06/16/22 13:00	06/17/22 10:28
410-87914-9	MW-509-W-220616	Groundwater	06/16/22 08:34	06/17/22 10:28
410-87914-10	MW-517-W-220616	Groundwater	06/16/22 09:34	06/17/22 10:28
410-87914-11	MW-513-W-220616	Groundwater	06/16/22 10:54	06/17/22 10:28
410-87914-12	MW-514-W-220616	Groundwater	06/16/22 13:34	06/17/22 10:28
410-87914-13	MW-512-W-220616	Groundwater	06/16/22 13:12	06/17/22 10:28
410-87914-14	QA-T-220616	Water	06/16/22 00:00	06/17/22 10:28



# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

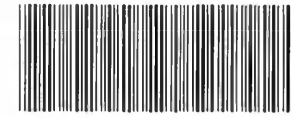
Acct. # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental use only

Group # \_\_\_\_\_

Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.



410-87914 Chain of Custody

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks						
Facility # WBS <b>EDMONDS FORMER BULK FUEL TERMINAL</b>				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface  <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	Total Number of Containers 8021 <input type="checkbox"/> Naphth 8260 <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method CPAH BY 8270 SIM USEPA 300.0 US RSK 175 USEPA 200.8 SULFATE + NITRATE DISSOLVED METHANE DISSOLVED MANGANESE										<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ____ oxy's on highest hit <input type="checkbox"/> Run ____ oxy's on all hits									
Site Address <b>11720 UNOCO ROAD, EDMONDS, WA</b>																								
Chevron PM Lead Consultant <b>KIM JOLITZ</b>																								
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>																								
Consultant Project Mgr. <b>SAMUEL MILES</b>																								
Consultant Phone # _____																								
Sampler <b>J. SEPUL</b> <b>P. BRUND</b> <b>D. GILBERT</b>				3																				
2 Sample Identification		Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	8021	8260	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	6	
Date	Time	Remarks																						
MW-520	6/16	0832	<input checked="" type="checkbox"/>						15															DISSOLVED MANGANESE FIELD FILTERED  USE STANDARD SGC
MW-521	6/16	0922	<input checked="" type="checkbox"/>						15															
MW-504	6/16	1032	<input checked="" type="checkbox"/>						15															
MW-505	6/16	1142	<input checked="" type="checkbox"/>						15															
MW-522	6/16	0910	<input checked="" type="checkbox"/>						15															
MW-BR	6/16	1010	<input checked="" type="checkbox"/>						15															
MW-506	6/16	1130	<input checked="" type="checkbox"/>						15															
MW-507	6/16	1300	<input checked="" type="checkbox"/>						15															
MW-509	6/16	0834	<input checked="" type="checkbox"/>						15															
<del>MW-507</del> MW-517	6/16	0934	<input checked="" type="checkbox"/>						15															
MW-513	6/16	1054	<input checked="" type="checkbox"/>						15															
MW-514	6/16	1234	<input checked="" type="checkbox"/>						15															
MW-512	6/16	1312	<input checked="" type="checkbox"/>						15															
TRIP BLANK			<input type="checkbox"/>						6															
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by		Date		Time		Received by		Date		Time		9								
Standard 5 day 4 day 72 hour 48 hour 24 hour				<b>D Gilbert</b>		6/16/22																		
				Relinquished by		Date		Time		Received by		Date		Time										
8 Data Package (circle if required)				Relinquished by Commercial Carrier:		Received by		Date		Time		Date		Time										
Type I - Full				CVX-RTBU-FL_05 (default)		UPS _____ FedEx <input checked="" type="checkbox"/> Other _____		<b>MP</b>		6/17/22		1028												
Type VI (Raw Data)				Other: _____		Temperature Upon Receipt <b>4.5, 6.5, 10.6</b>		Custody Seals Intact? <b>Yes</b>																

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-87914-1

**Login Number: 87914**

**List Number: 1**

**Creator: Moeller, Colin**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

Question	Answer	Comment
The cooler's custody seal is 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 (</=6C, not frozen).	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-95270-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
9/8/2022 10:37:58 AM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in cursive script, reading "Amek Carter".

---

Amek Carter  
Project Manager  
9/8/2022 10:37:58 AM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
cn	Refer to Case Narrative for further detail
S1-	Surrogate recovery exceeds control limits, low biased.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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## Job ID: 410-95270-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

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#### Job Narrative 410-95270-1

#### Receipt

The samples were received on 8/23/2022 10:36 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 5.2°C and 5.8°C

#### Receipt Exceptions

The container label for the 40mL HCl vials following sample did not match the information listed on the Chain-of-Custody (COC): MW-511-W-220822 (410-95270-8). The container labels list MW-522, while the COC lists MW-511. Entered per COC

Two 40mL vials for the following sample was received broken or leaking: MW-126-W-220822 (410-95270-1).

Vials were received stacked on top of each other with no padding in between

One 40mL vial for the following sample was received broken or leaking: MW-505-W-220822 (410-95270-5).

Vials were received stacked on top of each other with no padding in between

#### GC/MS VOA

Method 8260D\_UST: The continuing calibration verification (CCV) analyzed on 410-289521 is compliant under 8260C/D method criteria for Benzene . The software does not display the % Drift data to the whole number as is listed in the method (i.e. limit of 20%). When applying the evaluation to a whole number, the check passes the criteria with a value of 20% Drift.

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

#### GC/MS Semi VOA

Method 8270E\_SIM: Surrogate recovery for the following sample was outside control limits: MW-511-W-220822 (410-95270-8). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: Surrogate recovery was outside acceptance limits for the following duplicate (DUP) sample: (410-95270-I-10-B DU). The parent sample's surrogate recovery was within limits. The data has been qualified and reported.

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-126-W-220822** **Lab Sample ID: 410-95270-1**

No Detections.

**Client Sample ID: MW-143-W-220822** **Lab Sample ID: 410-95270-2**

No Detections.

**Client Sample ID: MW-502-W-220822** **Lab Sample ID: 410-95270-3**

No Detections.

**Client Sample ID: MW-504-W-220822** **Lab Sample ID: 410-95270-4**

No Detections.

**Client Sample ID: MW-505-W-220822** **Lab Sample ID: 410-95270-5**

No Detections.

**Client Sample ID: MW-506-W-220822** **Lab Sample ID: 410-95270-6**

No Detections.

**Client Sample ID: MW-507-W-220822** **Lab Sample ID: 410-95270-7**

No Detections.

**Client Sample ID: MW-511-W-220822** **Lab Sample ID: 410-95270-8**

No Detections.

**Client Sample ID: MW-518-W-220822** **Lab Sample ID: 410-95270-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
C7-C12 (1C)	750		250	43	ug/L	1			NWTPH-Gx	Total/NA
C12-C24	55	J	110	48	ug/L	1			NWTPH-Dx	Total/NA

**Client Sample ID: MW-519-W-220822** **Lab Sample ID: 410-95270-10**

No Detections.

**Client Sample ID: DUP-1-WD-220822** **Lab Sample ID: 410-95270-11**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
C7-C12 (1C)	740		250	43	ug/L	1			NWTPH-Gx	Total/NA
C12-C24	57	J	110	48	ug/L	1			NWTPH-Dx	Total/NA

**Client Sample ID: QA-T-220822** **Lab Sample ID: 410-95270-12**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-126-W-220822**

**Lab Sample ID: 410-95270-1**

Date Collected: 08/22/22 12:02

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 16:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					08/24/22 16:41	1
4-Bromofluorobenzene (Surr)	94		80 - 120					08/24/22 16:41	1
Dibromofluoromethane (Surr)	103		80 - 120					08/24/22 16:41	1
Toluene-d8 (Surr)	100		80 - 120					08/24/22 16:41	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/29/22 23:46	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/29/22 23:46	1
Benzo[b]fluoranthene	ND	*+	0.053	0.011	ug/L		08/26/22 15:38	08/29/22 23:46	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/29/22 23:46	1
Chrysene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/29/22 23:46	1
Dibenz(a,h)anthracene	ND	*+	0.053	0.021	ug/L		08/26/22 15:38	08/29/22 23:46	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/26/22 15:38	08/29/22 23:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	83		10 - 110				08/26/22 15:38	08/29/22 23:46	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				08/26/22 15:38	08/29/22 23:46	1
Fluoranthene-d10 (Surr)	84		47 - 128				08/26/22 15:38	08/29/22 23:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 15:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/29/22 15:52	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		09/01/22 08:33	09/07/22 17:55	1
C24-C40	ND		260	100	ug/L		09/01/22 08:33	09/07/22 17:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150				09/01/22 08:33	09/07/22 17:55	1

**Client Sample ID: MW-143-W-220822**

**Lab Sample ID: 410-95270-2**

Date Collected: 08/22/22 13:02

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 17:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					08/24/22 17:05	1
4-Bromofluorobenzene (Surr)	95		80 - 120					08/24/22 17:05	1
Dibromofluoromethane (Surr)	102		80 - 120					08/24/22 17:05	1
Toluene-d8 (Surr)	101		80 - 120					08/24/22 17:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-143-W-220822**

**Lab Sample ID: 410-95270-2**

Date Collected: 08/22/22 13:02

Matrix: Water

Date Received: 08/23/22 10:36

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 00:07	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 00:07	1
Benzo[b]fluoranthene	ND	*+	0.055	0.011	ug/L		08/26/22 15:38	08/30/22 00:07	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 00:07	1
Chrysene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 00:07	1
Dibenz(a,h)anthracene	ND	*+	0.055	0.022	ug/L		08/26/22 15:38	08/30/22 00:07	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		08/26/22 15:38	08/30/22 00:07	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	79		10 - 110				08/26/22 15:38	08/30/22 00:07	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111				08/26/22 15:38	08/30/22 00:07	1
Fluoranthene-d10 (Surr)	60		47 - 128				08/26/22 15:38	08/30/22 00:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 16:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					08/29/22 16:17	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		09/01/22 08:33	09/07/22 18:17	1
C24-C40	ND		250	100	ug/L		09/01/22 08:33	09/07/22 18:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	80		50 - 150				09/01/22 08:33	09/07/22 18:17	1

**Client Sample ID: MW-502-W-220822**

**Lab Sample ID: 410-95270-3**

Date Collected: 08/22/22 13:06

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 17:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					08/24/22 17:29	1
4-Bromofluorobenzene (Surr)	94		80 - 120					08/24/22 17:29	1
Dibromofluoromethane (Surr)	102		80 - 120					08/24/22 17:29	1
Toluene-d8 (Surr)	102		80 - 120					08/24/22 17:29	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/26/22 15:38	08/30/22 00:29	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/26/22 15:38	08/30/22 00:29	1
Benzo[b]fluoranthene	ND	*+	0.052	0.010	ug/L		08/26/22 15:38	08/30/22 00:29	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/26/22 15:38	08/30/22 00:29	1
Chrysene	ND		0.052	0.010	ug/L		08/26/22 15:38	08/30/22 00:29	1
Dibenz(a,h)anthracene	ND	*+	0.052	0.021	ug/L		08/26/22 15:38	08/30/22 00:29	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/26/22 15:38	08/30/22 00:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-502-W-220822**

**Lab Sample ID: 410-95270-3**

Date Collected: 08/22/22 13:06

Matrix: Water

Date Received: 08/23/22 10:36

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110	08/26/22 15:38	08/30/22 00:29	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111	08/26/22 15:38	08/30/22 00:29	1
Fluoranthene-d10 (Surr)	86		47 - 128	08/26/22 15:38	08/30/22 00:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/29/22 16:43	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		09/01/22 08:33	09/07/22 18:40	1
C24-C40	ND		260	100	ug/L		09/01/22 08:33	09/07/22 18:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	68		50 - 150	09/01/22 08:33	09/07/22 18:40	1

**Client Sample ID: MW-504-W-220822**

**Lab Sample ID: 410-95270-4**

Date Collected: 08/22/22 12:34

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		08/24/22 17:53	1
4-Bromofluorobenzene (Surr)	95		80 - 120		08/24/22 17:53	1
Dibromofluoromethane (Surr)	101		80 - 120		08/24/22 17:53	1
Toluene-d8 (Surr)	101		80 - 120		08/24/22 17:53	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 00:50	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 00:50	1
Benzo[b]fluoranthene	ND	*+	0.054	0.011	ug/L		08/26/22 15:38	08/30/22 00:50	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 00:50	1
Chrysene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 00:50	1
Dibenz(a,h)anthracene	ND	*+	0.054	0.022	ug/L		08/26/22 15:38	08/30/22 00:50	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		08/26/22 15:38	08/30/22 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	24		10 - 110	08/26/22 15:38	08/30/22 00:50	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111	08/26/22 15:38	08/30/22 00:50	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/26/22 15:38	08/30/22 00:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 17:09	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-504-W-220822**

**Lab Sample ID: 410-95270-4**

Date Collected: 08/22/22 12:34

Matrix: Water

Date Received: 08/23/22 10:36

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/29/22 17:09	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	50	ug/L		09/01/22 08:33	09/07/22 19:25	1
C24-C40	ND		280	110	ug/L		09/01/22 08:33	09/07/22 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	71		50 - 150	09/01/22 08:33	09/07/22 19:25	1

**Client Sample ID: MW-505-W-220822**

**Lab Sample ID: 410-95270-5**

Date Collected: 08/22/22 13:44

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 18:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		08/24/22 18:17	1
4-Bromofluorobenzene (Surr)	95		80 - 120		08/24/22 18:17	1
Dibromofluoromethane (Surr)	100		80 - 120		08/24/22 18:17	1
Toluene-d8 (Surr)	101		80 - 120		08/24/22 18:17	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.057	0.011	ug/L		08/26/22 15:38	08/30/22 01:12	1
Benzo[a]pyrene	ND		0.057	0.011	ug/L		08/26/22 15:38	08/30/22 01:12	1
Benzo[b]fluoranthene	ND	*+	0.057	0.011	ug/L		08/26/22 15:38	08/30/22 01:12	1
Benzo[k]fluoranthene	ND		0.057	0.011	ug/L		08/26/22 15:38	08/30/22 01:12	1
Chrysene	ND		0.057	0.011	ug/L		08/26/22 15:38	08/30/22 01:12	1
Dibenz(a,h)anthracene	ND	*+	0.057	0.023	ug/L		08/26/22 15:38	08/30/22 01:12	1
Indeno[1,2,3-cd]pyrene	ND		0.057	0.023	ug/L		08/26/22 15:38	08/30/22 01:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	19		10 - 110	08/26/22 15:38	08/30/22 01:12	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/26/22 15:38	08/30/22 01:12	1
Fluoranthene-d10 (Surr)	81		47 - 128	08/26/22 15:38	08/30/22 01:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 17:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/29/22 17:34	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	52	ug/L		09/01/22 08:33	09/07/22 19:48	1
C24-C40	ND		290	120	ug/L		09/01/22 08:33	09/07/22 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150	09/01/22 08:33	09/07/22 19:48	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-506-W-220822**

**Lab Sample ID: 410-95270-6**

Date Collected: 08/22/22 11:34

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 18:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					08/24/22 18:41	1
4-Bromofluorobenzene (Surr)	96		80 - 120					08/24/22 18:41	1
Dibromofluoromethane (Surr)	101		80 - 120					08/24/22 18:41	1
Toluene-d8 (Surr)	100		80 - 120					08/24/22 18:41	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		08/26/22 15:38	08/30/22 01:34	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		08/26/22 15:38	08/30/22 01:34	1
Benzo[b]fluoranthene	ND	*+	0.056	0.011	ug/L		08/26/22 15:38	08/30/22 01:34	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		08/26/22 15:38	08/30/22 01:34	1
Chrysene	ND		0.056	0.011	ug/L		08/26/22 15:38	08/30/22 01:34	1
Dibenz(a,h)anthracene	ND	*+	0.056	0.022	ug/L		08/26/22 15:38	08/30/22 01:34	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		08/26/22 15:38	08/30/22 01:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	62		10 - 110				08/26/22 15:38	08/30/22 01:34	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111				08/26/22 15:38	08/30/22 01:34	1
Fluoranthene-d10 (Surr)	85		47 - 128				08/26/22 15:38	08/30/22 01:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 18:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	105		50 - 150					08/29/22 18:00	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	51	ug/L		09/01/22 08:33	09/07/22 20:11	1
C24-C40	ND		280	110	ug/L		09/01/22 08:33	09/07/22 20:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150				09/01/22 08:33	09/07/22 20:11	1

**Client Sample ID: MW-507-W-220822**

**Lab Sample ID: 410-95270-7**

Date Collected: 08/22/22 11:06

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 19:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					08/24/22 19:05	1
4-Bromofluorobenzene (Surr)	93		80 - 120					08/24/22 19:05	1
Dibromofluoromethane (Surr)	104		80 - 120					08/24/22 19:05	1
Toluene-d8 (Surr)	99		80 - 120					08/24/22 19:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-507-W-220822**

**Lab Sample ID: 410-95270-7**

Date Collected: 08/22/22 11:06

Matrix: Water

Date Received: 08/23/22 10:36

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/30/22 01:55	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/30/22 01:55	1
Benzo[b]fluoranthene	ND	*+	0.053	0.011	ug/L		08/26/22 15:38	08/30/22 01:55	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/30/22 01:55	1
Chrysene	ND		0.053	0.011	ug/L		08/26/22 15:38	08/30/22 01:55	1
Dibenz(a,h)anthracene	ND	*+	0.053	0.021	ug/L		08/26/22 15:38	08/30/22 01:55	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/26/22 15:38	08/30/22 01:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	59		10 - 110				08/26/22 15:38	08/30/22 01:55	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111				08/26/22 15:38	08/30/22 01:55	1
Fluoranthene-d10 (Surr)	87		47 - 128				08/26/22 15:38	08/30/22 01:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 18:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/29/22 18:26	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		09/01/22 08:33	09/07/22 20:56	1
C24-C40	ND		260	100	ug/L		09/01/22 08:33	09/07/22 20:56	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	73		50 - 150				09/01/22 08:33	09/07/22 20:56	1

**Client Sample ID: MW-511-W-220822**

**Lab Sample ID: 410-95270-8**

Date Collected: 08/22/22 11:02

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 19:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					08/24/22 19:29	1
4-Bromofluorobenzene (Surr)	96		80 - 120					08/24/22 19:29	1
Dibromofluoromethane (Surr)	103		80 - 120					08/24/22 19:29	1
Toluene-d8 (Surr)	100		80 - 120					08/24/22 19:29	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:17	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:17	1
Benzo[b]fluoranthene	ND	*+ cn	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:17	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:17	1
Chrysene	ND	cn	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:17	1
Dibenz(a,h)anthracene	ND	*+ cn	0.051	0.021	ug/L		08/26/22 15:38	08/30/22 02:17	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.021	ug/L		08/26/22 15:38	08/30/22 02:17	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-511-W-220822**

**Lab Sample ID: 410-95270-8**

Date Collected: 08/22/22 11:02

Matrix: Water

Date Received: 08/23/22 10:36

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	32	cn	10 - 110	08/26/22 15:38	08/30/22 02:17	1
1-Methylnaphthalene-d10 (Surr)	9	S1- cn	36 - 111	08/26/22 15:38	08/30/22 02:17	1
Fluoranthene-d10 (Surr)	20	S1- cn	47 - 128	08/26/22 15:38	08/30/22 02:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 18:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		08/29/22 18:51	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		09/01/22 08:33	09/07/22 21:19	1
C24-C40	ND		260	100	ug/L		09/01/22 08:33	09/07/22 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150	09/01/22 08:33	09/07/22 21:19	1

**Client Sample ID: MW-518-W-220822**

**Lab Sample ID: 410-95270-9**

Date Collected: 08/22/22 12:06

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 19:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		08/24/22 19:53	1
4-Bromofluorobenzene (Surr)	96		80 - 120		08/24/22 19:53	1
Dibromofluoromethane (Surr)	101		80 - 120		08/24/22 19:53	1
Toluene-d8 (Surr)	101		80 - 120		08/24/22 19:53	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:39	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:39	1
Benzo[b]fluoranthene	ND	*+	0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:39	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:39	1
Chrysene	ND		0.051	0.010	ug/L		08/26/22 15:38	08/30/22 02:39	1
Dibenz(a,h)anthracene	ND	*+	0.051	0.020	ug/L		08/26/22 15:38	08/30/22 02:39	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/26/22 15:38	08/30/22 02:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	08/26/22 15:38	08/30/22 02:39	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	08/26/22 15:38	08/30/22 02:39	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/26/22 15:38	08/30/22 02:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	750		250	43	ug/L			08/29/22 20:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-518-W-220822**

**Lab Sample ID: 410-95270-9**

Date Collected: 08/22/22 12:06

Matrix: Water

Date Received: 08/23/22 10:36

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/29/22 20:08	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	55	J	110	48	ug/L		09/01/22 08:33	09/07/22 21:41	1
C24-C40	ND		270	110	ug/L		09/01/22 08:33	09/07/22 21:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150	09/01/22 08:33	09/07/22 21:41	1

**Client Sample ID: MW-519-W-220822**

**Lab Sample ID: 410-95270-10**

Date Collected: 08/22/22 14:02

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120		08/24/22 20:17	1
4-Bromofluorobenzene (Surr)	95		80 - 120		08/24/22 20:17	1
Dibromofluoromethane (Surr)	103		80 - 120		08/24/22 20:17	1
Toluene-d8 (Surr)	101		80 - 120		08/24/22 20:17	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 03:01	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 03:01	1
Benzo[b]fluoranthene	ND	*+	0.055	0.011	ug/L		08/26/22 15:38	08/30/22 03:01	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 03:01	1
Chrysene	ND		0.055	0.011	ug/L		08/26/22 15:38	08/30/22 03:01	1
Dibenz(a,h)anthracene	ND	*+	0.055	0.022	ug/L		08/26/22 15:38	08/30/22 03:01	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		08/26/22 15:38	08/30/22 03:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	70		10 - 110	08/26/22 15:38	08/30/22 03:01	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	08/26/22 15:38	08/30/22 03:01	1
Fluoranthene-d10 (Surr)	83		47 - 128	08/26/22 15:38	08/30/22 03:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 20:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/29/22 20:34	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		09/01/22 08:33	09/07/22 22:04	1
C24-C40	ND		270	110	ug/L		09/01/22 08:33	09/07/22 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150	09/01/22 08:33	09/07/22 22:04	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: DUP-1-WD-220822**

**Lab Sample ID: 410-95270-11**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			08/25/22 21:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/25/22 21:31	1
4-Bromofluorobenzene (Surr)	101		80 - 120					08/25/22 21:31	1
Dibromofluoromethane (Surr)	102		80 - 120					08/25/22 21:31	1
Toluene-d8 (Surr)	99		80 - 120					08/25/22 21:31	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 03:22	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 03:22	1
Benzo[b]fluoranthene	ND	*+	0.054	0.011	ug/L		08/26/22 15:38	08/30/22 03:22	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 03:22	1
Chrysene	ND		0.054	0.011	ug/L		08/26/22 15:38	08/30/22 03:22	1
Dibenz(a,h)anthracene	ND	*+	0.054	0.021	ug/L		08/26/22 15:38	08/30/22 03:22	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		08/26/22 15:38	08/30/22 03:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110				08/26/22 15:38	08/30/22 03:22	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				08/26/22 15:38	08/30/22 03:22	1
Fluoranthene-d10 (Surr)	85		47 - 128				08/26/22 15:38	08/30/22 03:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>740</b>		250	43	ug/L			08/29/22 21:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					08/29/22 21:00	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>57</b>	<b>J</b>	110	48	ug/L		09/01/22 08:33	09/07/22 22:49	1
C24-C40	ND		260	110	ug/L		09/01/22 08:33	09/07/22 22:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	71		50 - 150				09/01/22 08:33	09/07/22 22:49	1

**Client Sample ID: QA-T-220822**

**Lab Sample ID: 410-95270-12**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 15:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					08/24/22 15:29	1
4-Bromofluorobenzene (Surr)	95		80 - 120					08/24/22 15:29	1
Dibromofluoromethane (Surr)	104		80 - 120					08/24/22 15:29	1
Toluene-d8 (Surr)	101		80 - 120					08/24/22 15:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: QA-T-220822**

**Lab Sample ID: 410-95270-12**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 15:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					08/29/22 15:01	1

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

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-95270-1	MW-126-W-220822	97	94	103	100
410-95270-2	MW-143-W-220822	96	95	102	101
410-95270-3	MW-502-W-220822	96	94	102	102
410-95270-4	MW-504-W-220822	96	95	101	101
410-95270-5	MW-505-W-220822	96	95	100	101
410-95270-6	MW-506-W-220822	97	96	101	100
410-95270-7	MW-507-W-220822	98	93	104	99
410-95270-8	MW-511-W-220822	97	96	103	100
410-95270-9	MW-518-W-220822	97	96	101	101
410-95270-10	MW-519-W-220822	97	95	103	101
410-95270-11	DUP-1-WD-220822	107	101	102	99
410-95270-12	QA-T-220822	98	95	104	101
LCS 410-289152/4	Lab Control Sample	100	98	104	102
LCS 410-289521/5	Lab Control Sample	110	102	102	100
LCSD 410-289152/5	Lab Control Sample Dup	100	96	102	100
LCSD 410-289521/6	Lab Control Sample Dup	110	101	102	99
MB 410-289152/6	Method Blank	98	96	104	101
MB 410-289521/12	Method Blank	108	100	102	100

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-95270-1	MW-126-W-220822	83	76	84
410-95270-2	MW-143-W-220822	79	82	60
410-95270-3	MW-502-W-220822	58	77	86
410-95270-4	MW-504-W-220822	24	82	82
410-95270-5	MW-505-W-220822	19	74	81
410-95270-6	MW-506-W-220822	62	75	85
410-95270-7	MW-507-W-220822	59	82	87
410-95270-8	MW-511-W-220822	32 cn	9 S1- cn	20 S1- cn
410-95270-9	MW-518-W-220822	59	78	82
410-95270-10	MW-519-W-220822	70	78	83
410-95270-11	DUP-1-WD-220822	59	79	85
LCS 410-290149/2-A	Lab Control Sample	97	69	86
LCSD 410-290149/3-A	Lab Control Sample Dup	97	72	86
MB 410-290149/1-A	Method Blank	109	85	100

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## 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	TFT-F1 (50-150)			
410-95270-1	MW-126-W-220822	101			
410-95270-2	MW-143-W-220822	102			
410-95270-3	MW-502-W-220822	101			
410-95270-4	MW-504-W-220822	100			
410-95270-5	MW-505-W-220822	100			
410-95270-6	MW-506-W-220822	105			
410-95270-7	MW-507-W-220822	101			
410-95270-8	MW-511-W-220822	99			
410-95270-9	MW-518-W-220822	101			
410-95270-10	MW-519-W-220822	101			
410-95270-11	DUP-1-WD-220822	100			
410-95270-12	QA-T-220822	99			
LCS 410-290514/6	Lab Control Sample	93			
LCSD 410-290514/7	Lab Control Sample Dup	92			
MB 410-290514/5	Method Blank	101			
<b>Surrogate Legend</b>					
TFT-F = a,a,a-Trifluorotoluene (fid)					

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	OTP (50-150)			
410-95270-1	MW-126-W-220822	69			
410-95270-2	MW-143-W-220822	80			
410-95270-3	MW-502-W-220822	68			
410-95270-3 DU	MW-502-W-220822	80			
410-95270-4	MW-504-W-220822	71			
410-95270-5	MW-505-W-220822	57			
410-95270-6	MW-506-W-220822	73			
410-95270-7	MW-507-W-220822	73			
410-95270-8	MW-511-W-220822	73			
410-95270-9	MW-518-W-220822	73			
410-95270-10	MW-519-W-220822	73			
410-95270-10 DU	MW-519-W-220822	45 S1- cn			
410-95270-11	DUP-1-WD-220822	71			
LCS 410-291820/2-B	Lab Control Sample	76			
LCSD 410-291820/3-B	Lab Control Sample Dup	78			
MB 410-291820/1-B	Method Blank	71			
<b>Surrogate Legend</b>					
OTP = o- terphenyl (Surr)					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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

**Lab Sample ID: MB 410-289152/6**

**Matrix: Water**

**Analysis Batch: 289152**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/24/22 14:41	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					08/24/22 14:41	1
4-Bromofluorobenzene (Surr)	96		80 - 120					08/24/22 14:41	1
Dibromofluoromethane (Surr)	104		80 - 120					08/24/22 14:41	1
Toluene-d8 (Surr)	101		80 - 120					08/24/22 14:41	1

**Lab Sample ID: LCS 410-289152/4**

**Matrix: Water**

**Analysis Batch: 289152**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	19.2		ug/L		96	80 - 120	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					
4-Bromofluorobenzene (Surr)	98		80 - 120					
Dibromofluoromethane (Surr)	104		80 - 120					
Toluene-d8 (Surr)	102		80 - 120					

**Lab Sample ID: LCSD 410-289152/5**

**Matrix: Water**

**Analysis Batch: 289152**

**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	20.0	19.4		ug/L		97	80 - 120	1	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	100		80 - 120						
4-Bromofluorobenzene (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	100		80 - 120						

**Lab Sample ID: MB 410-289521/12**

**Matrix: Water**

**Analysis Batch: 289521**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/25/22 15:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/25/22 15:44	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/25/22 15:44	1
Dibromofluoromethane (Surr)	102		80 - 120					08/25/22 15:44	1
Toluene-d8 (Surr)	100		80 - 120					08/25/22 15:44	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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

Lab Sample ID: LCS 410-289521/5

Matrix: Water

Analysis Batch: 289521

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.1		ug/L		111	80 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	110		80 - 120				
4-Bromofluorobenzene (Surr)	102		80 - 120				
Dibromofluoromethane (Surr)	102		80 - 120				
Toluene-d8 (Surr)	100		80 - 120				

Lab Sample ID: LCSD 410-289521/6

Matrix: Water

Analysis Batch: 289521

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	20.0	22.6		ug/L		113	80 - 120	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	110		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	99		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-290149/1-A

Matrix: Water

Analysis Batch: 290708

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 290149

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		08/26/22 15:38	08/29/22 17:36	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		08/26/22 15:38	08/29/22 17:36	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		08/26/22 15:38	08/29/22 17:36	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		08/26/22 15:38	08/29/22 17:36	1
Chrysene	ND		0.050	0.010	ug/L		08/26/22 15:38	08/29/22 17:36	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		08/26/22 15:38	08/29/22 17:36	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		08/26/22 15:38	08/29/22 17:36	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	109		10 - 110				08/26/22 15:38	08/29/22 17:36	1
1-Methylnaphthalene-d10 (Surr)	85		36 - 111				08/26/22 15:38	08/29/22 17:36	1
Fluoranthene-d10 (Surr)	100		47 - 128				08/26/22 15:38	08/29/22 17:36	1

Lab Sample ID: LCS 410-290149/2-A

Matrix: Water

Analysis Batch: 290708

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 290149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	1.13		ug/L		113	61 - 122
Benzo[a]pyrene	1.00	1.06		ug/L		106	60 - 120

Eurofins Lancaster Laboratories Environment Testing, LLC



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 410-290149/2-A

Matrix: Water

Analysis Batch: 290708

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 290149

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[b]fluoranthene	1.00	1.21		ug/L		121	58 - 122
Benzo[k]fluoranthene	1.00	1.11		ug/L		111	57 - 128
Chrysene	1.00	1.03		ug/L		103	55 - 123
Dibenz(a,h)anthracene	1.00	1.34	*+	ug/L		134	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.38		ug/L		138	47 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	97		10 - 110
1-Methylnaphthalene-d10 (Surr)	69		36 - 111
Fluoranthene-d10 (Surr)	86		47 - 128

Lab Sample ID: LCSD 410-290149/3-A

Matrix: Water

Analysis Batch: 290708

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 290149

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	1.00	1.13		ug/L		113	61 - 122	0	30
Benzo[a]pyrene	1.00	1.09		ug/L		109	60 - 120	2	30
Benzo[b]fluoranthene	1.00	1.24	*+	ug/L		124	58 - 122	2	30
Benzo[k]fluoranthene	1.00	1.09		ug/L		109	57 - 128	2	30
Chrysene	1.00	1.01		ug/L		101	55 - 123	1	30
Dibenz(a,h)anthracene	1.00	1.34	*+	ug/L		134	50 - 121	0	30
Indeno[1,2,3-cd]pyrene	1.00	1.34		ug/L		134	47 - 143	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	97		10 - 110
1-Methylnaphthalene-d10 (Surr)	72		36 - 111
Fluoranthene-d10 (Surr)	86		47 - 128

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

Lab Sample ID: MB 410-290514/5

Matrix: Water

Analysis Batch: 290514

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/29/22 13:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/29/22 13:43	1

Lab Sample ID: LCS 410-290514/6

Matrix: Water

Analysis Batch: 290514

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	950		ug/L		86	64 - 131

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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

Lab Sample ID: LCS 410-290514/6

Matrix: Water

Analysis Batch: 290514

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150

Lab Sample ID: LCSD 410-290514/7

Matrix: Water

Analysis Batch: 290514

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
C7-C12 (1C)	1100	954		ug/L		87	64 - 131	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-291820/1-B

Matrix: Water

Analysis Batch: 293521

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 291820

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		09/01/22 08:33	09/07/22 16:47	1
C24-C40	ND		250	100	ug/L		09/01/22 08:33	09/07/22 16:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	71		50 - 150	09/01/22 08:33	09/07/22 16:47	1

Lab Sample ID: LCS 410-291820/2-B

Matrix: Water

Analysis Batch: 293521

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 291820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	205		ug/L		34	14 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-terphenyl (Surr)	76		50 - 150

Lab Sample ID: LCSD 410-291820/3-B

Matrix: Water

Analysis Batch: 293521

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 291820

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	218		ug/L		36	14 - 115	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-terphenyl (Surr)	78		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95270-1

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

**Lab Sample ID: 410-95270-3 DU**

**Matrix: Water**

**Analysis Batch: 293521**

**Client Sample ID: MW-502-W-220822**

**Prep Type: Total/NA**

**Prep Batch: 291820**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
		<i>DU</i>	<i>DU</i>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	80		50 - 150					

**Lab Sample ID: 410-95270-10 DU**

**Matrix: Water**

**Analysis Batch: 293521**

**Client Sample ID: MW-519-W-220822**

**Prep Type: Total/NA**

**Prep Batch: 291820**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND		ND	cn	ug/L		NC	20
C24-C40	ND		ND	cn	ug/L		NC	20
		<i>DU</i>	<i>DU</i>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	45	S1- cn	50 - 150					

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## GC/MS VOA

### Analysis Batch: 289152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	8260D/UST	
410-95270-2	MW-143-W-220822	Total/NA	Water	8260D/UST	
410-95270-3	MW-502-W-220822	Total/NA	Water	8260D/UST	
410-95270-4	MW-504-W-220822	Total/NA	Water	8260D/UST	
410-95270-5	MW-505-W-220822	Total/NA	Water	8260D/UST	
410-95270-6	MW-506-W-220822	Total/NA	Water	8260D/UST	
410-95270-7	MW-507-W-220822	Total/NA	Water	8260D/UST	
410-95270-8	MW-511-W-220822	Total/NA	Water	8260D/UST	
410-95270-9	MW-518-W-220822	Total/NA	Water	8260D/UST	
410-95270-10	MW-519-W-220822	Total/NA	Water	8260D/UST	
410-95270-12	QA-T-220822	Total/NA	Water	8260D/UST	
MB 410-289152/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-289152/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-289152/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

### Analysis Batch: 289521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-11	DUP-1-WD-220822	Total/NA	Water	8260D/UST	
MB 410-289521/12	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-289521/5	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-289521/6	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 290149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	3510C	
410-95270-2	MW-143-W-220822	Total/NA	Water	3510C	
410-95270-3	MW-502-W-220822	Total/NA	Water	3510C	
410-95270-4	MW-504-W-220822	Total/NA	Water	3510C	
410-95270-5	MW-505-W-220822	Total/NA	Water	3510C	
410-95270-6	MW-506-W-220822	Total/NA	Water	3510C	
410-95270-7	MW-507-W-220822	Total/NA	Water	3510C	
410-95270-8	MW-511-W-220822	Total/NA	Water	3510C	
410-95270-9	MW-518-W-220822	Total/NA	Water	3510C	
410-95270-10	MW-519-W-220822	Total/NA	Water	3510C	
410-95270-11	DUP-1-WD-220822	Total/NA	Water	3510C	
MB 410-290149/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-290149/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-290149/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 290708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-2	MW-143-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-3	MW-502-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-4	MW-504-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-5	MW-505-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-6	MW-506-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-7	MW-507-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-8	MW-511-W-220822	Total/NA	Water	8270E SIM	290149

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 290708 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-9	MW-518-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-10	MW-519-W-220822	Total/NA	Water	8270E SIM	290149
410-95270-11	DUP-1-WD-220822	Total/NA	Water	8270E SIM	290149
MB 410-290149/1-A	Method Blank	Total/NA	Water	8270E SIM	290149
LCS 410-290149/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	290149
LCSD 410-290149/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	290149

## GC VOA

### Analysis Batch: 290514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-2	MW-143-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-3	MW-502-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-4	MW-504-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-5	MW-505-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-6	MW-506-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-7	MW-507-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-8	MW-511-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-9	MW-518-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-10	MW-519-W-220822	Total/NA	Water	NWTPH-Gx	
410-95270-11	DUP-1-WD-220822	Total/NA	Water	NWTPH-Gx	
410-95270-12	QA-T-220822	Total/NA	Water	NWTPH-Gx	
MB 410-290514/5	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-290514/6	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-290514/7	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 291820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	3510C	
410-95270-2	MW-143-W-220822	Total/NA	Water	3510C	
410-95270-3	MW-502-W-220822	Total/NA	Water	3510C	
410-95270-4	MW-504-W-220822	Total/NA	Water	3510C	
410-95270-5	MW-505-W-220822	Total/NA	Water	3510C	
410-95270-6	MW-506-W-220822	Total/NA	Water	3510C	
410-95270-7	MW-507-W-220822	Total/NA	Water	3510C	
410-95270-8	MW-511-W-220822	Total/NA	Water	3510C	
410-95270-9	MW-518-W-220822	Total/NA	Water	3510C	
410-95270-10	MW-519-W-220822	Total/NA	Water	3510C	
410-95270-11	DUP-1-WD-220822	Total/NA	Water	3510C	
MB 410-291820/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-95270-3 DU	MW-502-W-220822	Total/NA	Water	3510C	
410-95270-10 DU	MW-519-W-220822	Total/NA	Water	3510C	

### Cleanup Batch: 293268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	3630C	291820
410-95270-2	MW-143-W-220822	Total/NA	Water	3630C	291820

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## GC Semi VOA (Continued)

### Cleanup Batch: 293268 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-3	MW-502-W-220822	Total/NA	Water	3630C	291820
410-95270-4	MW-504-W-220822	Total/NA	Water	3630C	291820
410-95270-5	MW-505-W-220822	Total/NA	Water	3630C	291820
410-95270-6	MW-506-W-220822	Total/NA	Water	3630C	291820
410-95270-7	MW-507-W-220822	Total/NA	Water	3630C	291820
410-95270-8	MW-511-W-220822	Total/NA	Water	3630C	291820
410-95270-9	MW-518-W-220822	Total/NA	Water	3630C	291820
410-95270-10	MW-519-W-220822	Total/NA	Water	3630C	291820
410-95270-11	DUP-1-WD-220822	Total/NA	Water	3630C	291820
MB 410-291820/1-B	Method Blank	Total/NA	Water	3630C	291820
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	3630C	291820
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	291820
410-95270-3 DU	MW-502-W-220822	Total/NA	Water	3630C	291820
410-95270-10 DU	MW-519-W-220822	Total/NA	Water	3630C	291820

### Analysis Batch: 293521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95270-1	MW-126-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-2	MW-143-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-3	MW-502-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-4	MW-504-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-5	MW-505-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-6	MW-506-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-7	MW-507-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-8	MW-511-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-9	MW-518-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-10	MW-519-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-11	DUP-1-WD-220822	Total/NA	Water	NWTPH-Dx	293268
MB 410-291820/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	293268
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	293268
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	293268
410-95270-3 DU	MW-502-W-220822	Total/NA	Water	NWTPH-Dx	293268
410-95270-10 DU	MW-519-W-220822	Total/NA	Water	NWTPH-Dx	293268

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-126-W-220822**

**Lab Sample ID: 410-95270-1**

Date Collected: 08/22/22 12:02

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 16:41
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/29/22 23:46
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 15:52
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 17:55

**Client Sample ID: MW-143-W-220822**

**Lab Sample ID: 410-95270-2**

Date Collected: 08/22/22 13:02

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 17:05
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 00:07
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 16:17
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 18:17

**Client Sample ID: MW-502-W-220822**

**Lab Sample ID: 410-95270-3**

Date Collected: 08/22/22 13:06

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 17:29
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 00:29
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 16:43
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 18:40

**Client Sample ID: MW-504-W-220822**

**Lab Sample ID: 410-95270-4**

Date Collected: 08/22/22 12:34

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 17:53
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 00:50
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 17:09

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-504-W-220822**

**Lab Sample ID: 410-95270-4**

Date Collected: 08/22/22 12:34

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 19:25

**Client Sample ID: MW-505-W-220822**

**Lab Sample ID: 410-95270-5**

Date Collected: 08/22/22 13:44

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 18:17
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 01:12
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 17:34
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 19:48

**Client Sample ID: MW-506-W-220822**

**Lab Sample ID: 410-95270-6**

Date Collected: 08/22/22 11:34

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 18:41
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 01:34
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 18:00
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 20:11

**Client Sample ID: MW-507-W-220822**

**Lab Sample ID: 410-95270-7**

Date Collected: 08/22/22 11:06

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 19:05
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 01:55
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 18:26
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 20:56



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: MW-511-W-220822**

**Lab Sample ID: 410-95270-8**

Date Collected: 08/22/22 11:02

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 19:29
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 02:17
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 18:51
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 21:19

**Client Sample ID: MW-518-W-220822**

**Lab Sample ID: 410-95270-9**

Date Collected: 08/22/22 12:06

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 19:53
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 02:39
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 20:08
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 21:41

**Client Sample ID: MW-519-W-220822**

**Lab Sample ID: 410-95270-10**

Date Collected: 08/22/22 14:02

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 20:17
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 03:01
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 20:34
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 22:04

**Client Sample ID: DUP-1-WD-220822**

**Lab Sample ID: 410-95270-11**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289521	MXX6	ELLE	08/25/22 21:31
Total/NA	Prep	3510C			290149	QJZ6	ELLE	08/26/22 15:38
Total/NA	Analysis	8270E SIM		1	290708	UJM0	ELLE	08/30/22 03:22
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 21:00

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

**Client Sample ID: DUP-1-WD-220822**

**Lab Sample ID: 410-95270-11**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 22:49

**Client Sample ID: QA-T-220822**

**Lab Sample ID: 410-95270-12**

Date Collected: 08/22/22 00:00

Matrix: Water

Date Received: 08/23/22 10:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	289152	MXX6	ELLE	08/24/22 15:29
Total/NA	Analysis	NWTPH-Gx		1	290514	NND8	ELLE	08/29/22 15:01

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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

# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95270-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-95270-1	MW-126-W-220822	Water	08/22/22 12:02	08/23/22 10:36
410-95270-2	MW-143-W-220822	Water	08/22/22 13:02	08/23/22 10:36
410-95270-3	MW-502-W-220822	Water	08/22/22 13:06	08/23/22 10:36
410-95270-4	MW-504-W-220822	Water	08/22/22 12:34	08/23/22 10:36
410-95270-5	MW-505-W-220822	Water	08/22/22 13:44	08/23/22 10:36
410-95270-6	MW-506-W-220822	Water	08/22/22 11:34	08/23/22 10:36
410-95270-7	MW-507-W-220822	Water	08/22/22 11:06	08/23/22 10:36
410-95270-8	MW-511-W-220822	Water	08/22/22 11:02	08/23/22 10:36
410-95270-9	MW-518-W-220822	Water	08/22/22 12:06	08/23/22 10:36
410-95270-10	MW-519-W-220822	Water	08/22/22 14:02	08/23/22 10:36
410-95270-11	DUP-1-WD-220822	Water	08/22/22 00:00	08/23/22 10:36
410-95270-12	QA-T-220822	Water	08/22/22 00:00	08/23/22 10:36



# Chevron Northwest Region Analysis Request



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 For Eurofins Lancaster Laboratories Environmental use  
 Instructions on reverse side correspond with circled numbers.



410-95270 Chain of Custody

dy

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks			
Facility # WBS <b>Edmonds Terminal</b>				Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>				Total Number of Containers										SCR #: _____			
Site Address <b>11720 Union Oil Company Road, Edmonds, WA</b>				Potable <input type="checkbox"/> Water <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>				BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>										<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits			
Chevron PM Lead Consultant <b>James Kiernan Arcadis</b>				Oil <input type="checkbox"/>				8260 full scan <input type="checkbox"/>													
Consultant/Office <b>1100 Olive Way, Suite 800, Seattle, WA 98101</b>				Composite <input type="checkbox"/>				Oxygenates <input type="checkbox"/>										<input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> Benzene 8260 CPAHs 8270 SIM			
Consultant Project Mgr. <b>Sam Mijes</b>				Soil <input type="checkbox"/>				8260 full scan <input type="checkbox"/>													
Consultant Phone # _____				Grab <input type="checkbox"/>				8260 full scan <input type="checkbox"/>										<input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits			
Sampler <b>D Gilbert, J Sepiol, E Scheller</b>				Composite <input type="checkbox"/>				8260 full scan <input type="checkbox"/>													
2 Sample Identification		Collected		3																	
		Date	Time	Grab	Composite	Soil	Water	Oil	Total	BTEX	8260	NWTPH	8260	Lead	Total	Diss.	Method				
MW-126		8/22/22	1202	X			X		10			X	X						* use standard SBC		
MW-143		8/22/22	1302	X			X		10			X	X								
MW-502		8/22/22	1306	X			X		10			X	X								
MW-504		8/22/22	1234	X			X		10			X	X								
MW-505		8/22/22	1344	X			X		10			X	X								
MW-506		8/22/22	1134	X			X		10			X	X								
MW-507		8/22/22	1106	X			X		10			X	X								
<del>MW-509s</del>		8/22/22	1102	X			X		10			X	X								
MW-511		8/22/22	1102	X			X		10			X	X								
MW-518		8/22/22	1206	X			X		10			X	X								
MW-519		8/22/22	1402	X			X		10			X	X								
DUP-1		8/22/22		X			X		10			X	X								
TRIP BLANK								6													
7 Turnaround Time Requested (TAT) (please circle) Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by		Date		Time		Received by		Date		Time		9					
				DANIELLE GILBERT		8/22/22		1500													
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				Relinquished by Commercial Carrier:		Date		Time		Received by		Date		Time		9					
				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____																	
				Temperature Upon Receipt		S.2 - 5.8°C		Custody Seals Intact?		(Yes)		No									

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-95270-1

**Login Number: 95270**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Hess, Anna**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Containers received broken. No volume could be salvaged for analysis.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-95493-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
9/12/2022 10:03:16 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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





Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in black ink that reads "Amek Carter".

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Amek Carter  
Project Manager  
9/12/2022 10:03:16 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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## Job ID: 410-95493-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

#### Job Narrative 410-95493-1

#### Receipt

The samples were received on 8/24/2022 9:58 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.4°C, 3.5°C and 5.8°C

#### Receipt Exceptions

One 40mL HCl vial for the following sample was received broken: MW-533-W-220823 (410-95493-7).

Vials were stacked on top of each other with no padding in between

Two 40mL HCl vials for the following sample was received broken: MW-534-W-220823 (410-95493-8).

Vials were stacked on top of each other with no padding in between

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: The method blank for preparation batch 410-292264 and 410-294701 and analytical batch 410-294763 contained C24-C40 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method NWTPH\_Dx: The o- terphenyl (Surr) surrogate recovery for laboratory control sample duplicate (LCSD) associated with preparation batch 410-292264 and 410-294701 and analytical batch 410-294763 was outside the lower control limits. The recoveries for the analytes of interest were within acceptable control limits. The data is reported.

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Client Sample ID: MW-104-W-220823

Lab Sample ID: 410-95493-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	210	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-129R-W-220823

Lab Sample ID: 410-95493-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	210	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	530	*1	110	50	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-526-W-220823

Lab Sample ID: 410-95493-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	530		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	79	J *1	100	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-525-W-220823

Lab Sample ID: 410-95493-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	50	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-531-W-220823

Lab Sample ID: 410-95493-5

No Detections.

## Client Sample ID: MW-532-W-220823

Lab Sample ID: 410-95493-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	45	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-533-W-220823

Lab Sample ID: 410-95493-7

No Detections.

## Client Sample ID: MW-534-W-220823

Lab Sample ID: 410-95493-8

No Detections.

## Client Sample ID: MW-ER-W-220823

Lab Sample ID: 410-95493-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	890		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	95	J *1	100	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: DUP-2-WD-220823

Lab Sample ID: 410-95493-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	910		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	83	J *1	110	48	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: DUP-3-WD-220823

Lab Sample ID: 410-95493-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	450		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	150	*1	110	47	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: QA-T-220823

Lab Sample ID: 410-95493-12

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-104-W-220823**

**Lab Sample ID: 410-95493-1**

Date Collected: 08/23/22 12:50

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 15:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 15:32	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 15:32	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 15:32	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 15:32	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/30/22 09:11	08/31/22 02:27	1
Benzo[a]pyrene	ND	F1	0.051	0.010	ug/L		08/30/22 09:11	08/31/22 02:27	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/30/22 09:11	08/31/22 02:27	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/30/22 09:11	08/31/22 02:27	1
Chrysene	ND		0.051	0.010	ug/L		08/30/22 09:11	08/31/22 02:27	1
Dibenz(a,h)anthracene	ND	*+	0.051	0.020	ug/L		08/30/22 09:11	08/31/22 02:27	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/30/22 09:11	08/31/22 02:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	47		10 - 110				08/30/22 09:11	08/31/22 02:27	1
1-Methylnaphthalene-d10 (Surr)	69		36 - 111				08/30/22 09:11	08/31/22 02:27	1
Fluoranthene-d10 (Surr)	87		47 - 128				08/30/22 09:11	08/31/22 02:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	210	J	250	43	ug/L			08/30/22 22:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/30/22 22:03	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	46	ug/L		09/01/22 08:33	09/07/22 23:12	1
C24-C40	ND		260	100	ug/L		09/01/22 08:33	09/07/22 23:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69		50 - 150				09/01/22 08:33	09/07/22 23:12	1

**Client Sample ID: MW-129R-W-220823**

**Lab Sample ID: 410-95493-2**

Date Collected: 08/23/22 10:34

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 13:06	1
4-Bromofluorobenzene (Surr)	101		80 - 120					08/31/22 13:06	1
Dibromofluoromethane (Surr)	104		80 - 120					08/31/22 13:06	1
Toluene-d8 (Surr)	99		80 - 120					08/31/22 13:06	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-129R-W-220823**

**Lab Sample ID: 410-95493-2**

Date Collected: 08/23/22 10:34

Matrix: Water

Date Received: 08/24/22 09:58

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		08/30/22 09:11	08/31/22 03:32	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		08/30/22 09:11	08/31/22 03:32	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		08/30/22 09:11	08/31/22 03:32	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		08/30/22 09:11	08/31/22 03:32	1
Chrysene	ND		0.056	0.011	ug/L		08/30/22 09:11	08/31/22 03:32	1
Dibenz(a,h)anthracene	ND	*+	0.056	0.022	ug/L		08/30/22 09:11	08/31/22 03:32	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		08/30/22 09:11	08/31/22 03:32	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	74		10 - 110				08/30/22 09:11	08/31/22 03:32	1
1-Methylnaphthalene-d10 (Surr)	166	S1+	36 - 111				08/30/22 09:11	08/31/22 03:32	1
Fluoranthene-d10 (Surr)	113		47 - 128				08/30/22 09:11	08/31/22 03:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>210</b>	<b>J</b>	250	43	ug/L			08/30/22 23:20	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					08/30/22 23:20	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>530</b>	<b>*1</b>	110	50	ug/L		09/02/22 07:29	09/12/22 12:15	1
C24-C40	ND	cn	280	110	ug/L		09/02/22 07:29	09/12/22 12:15	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	50	cn	50 - 150				09/02/22 07:29	09/12/22 12:15	1

**Client Sample ID: MW-526-W-220823**

**Lab Sample ID: 410-95493-3**

Date Collected: 08/23/22 12:26

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	1.5	ug/L			08/31/22 21:10	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 21:10	5
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 21:10	5
Dibromofluoromethane (Surr)	105		80 - 120					08/31/22 21:10	5
Toluene-d8 (Surr)	97		80 - 120					08/31/22 21:10	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/30/22 09:11	08/31/22 03:53	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/30/22 09:11	08/31/22 03:53	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/30/22 09:11	08/31/22 03:53	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/30/22 09:11	08/31/22 03:53	1
Chrysene	ND		0.053	0.011	ug/L		08/30/22 09:11	08/31/22 03:53	1
Dibenz(a,h)anthracene	ND	*+	0.053	0.021	ug/L		08/30/22 09:11	08/31/22 03:53	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/30/22 09:11	08/31/22 03:53	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-526-W-220823**

**Lab Sample ID: 410-95493-3**

Date Collected: 08/23/22 12:26

Matrix: Water

Date Received: 08/24/22 09:58

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	77		10 - 110	08/30/22 09:11	08/31/22 03:53	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111	08/30/22 09:11	08/31/22 03:53	1
Fluoranthene-d10 (Surr)	100		47 - 128	08/30/22 09:11	08/31/22 03:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	530		250	43	ug/L			08/30/22 23:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		08/30/22 23:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	79	J *1	100	47	ug/L		09/02/22 07:29	09/12/22 13:01	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	58	cn	50 - 150	09/02/22 07:29	09/12/22 13:01	1

**Client Sample ID: MW-525-W-220823**

**Lab Sample ID: 410-95493-4**

Date Collected: 08/23/22 11:15

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:30	1
4-Bromofluorobenzene (Surr)	101		80 - 120		08/31/22 13:30	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 13:30	1
Toluene-d8 (Surr)	99		80 - 120		08/31/22 13:30	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:03	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:03	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:03	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:03	1
Chrysene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:03	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 08:03	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 08:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	08/29/22 15:42	08/30/22 08:03	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111	08/29/22 15:42	08/30/22 08:03	1
Fluoranthene-d10 (Surr)	80		47 - 128	08/29/22 15:42	08/30/22 08:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	50	J	250	43	ug/L			08/31/22 00:11	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-525-W-220823**

**Lab Sample ID: 410-95493-4**

Date Collected: 08/23/22 11:15

Matrix: Water

Date Received: 08/24/22 09:58

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 00:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 13:24	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 13:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	60	cn	50 - 150	09/02/22 07:29	09/12/22 13:24	1

**Client Sample ID: MW-531-W-220823**

**Lab Sample ID: 410-95493-5**

Date Collected: 08/23/22 11:42

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:54	1
4-Bromofluorobenzene (Surr)	101		80 - 120		08/31/22 13:54	1
Dibromofluoromethane (Surr)	101		80 - 120		08/31/22 13:54	1
Toluene-d8 (Surr)	99		80 - 120		08/31/22 13:54	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/29/22 15:42	08/30/22 08:25	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/29/22 15:42	08/30/22 08:25	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/29/22 15:42	08/30/22 08:25	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/29/22 15:42	08/30/22 08:25	1
Chrysene	ND		0.051	0.010	ug/L		08/29/22 15:42	08/30/22 08:25	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		08/29/22 15:42	08/30/22 08:25	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		08/29/22 15:42	08/30/22 08:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	57		10 - 110	08/29/22 15:42	08/30/22 08:25	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/29/22 15:42	08/30/22 08:25	1
Fluoranthene-d10 (Surr)	84		47 - 128	08/29/22 15:42	08/30/22 08:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/01/22 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		09/01/22 16:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 13:47	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 13:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	62	cn	50 - 150	09/02/22 07:29	09/12/22 13:47	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-532-W-220823**

**Lab Sample ID: 410-95493-6**

Date Collected: 08/23/22 13:02

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		80 - 120					08/31/22 14:18	1
4-Bromofluorobenzene (Surr)	102		80 - 120					08/31/22 14:18	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:18	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 14:18	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:46	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:46	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:46	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:46	1
Chrysene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 08:46	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 08:46	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 08:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110				08/29/22 15:42	08/30/22 08:46	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111				08/29/22 15:42	08/30/22 08:46	1
Fluoranthene-d10 (Surr)	89		47 - 128				08/29/22 15:42	08/30/22 08:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	45	J	250	43	ug/L			09/01/22 18:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					09/01/22 18:50	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 14:09	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 14:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	72	cn	50 - 150				09/02/22 07:29	09/12/22 14:09	1

**Client Sample ID: MW-533-W-220823**

**Lab Sample ID: 410-95493-7**

Date Collected: 08/23/22 13:04

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					08/31/22 14:42	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 14:42	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:42	1
Toluene-d8 (Surr)	99		80 - 120					08/31/22 14:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-533-W-220823**

**Lab Sample ID: 410-95493-7**

Date Collected: 08/23/22 13:04

Matrix: Water

Date Received: 08/24/22 09:58

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:08	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:08	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:08	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:08	1
Chrysene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:08	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		08/29/22 15:42	08/30/22 09:08	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		08/29/22 15:42	08/30/22 09:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	73		10 - 110				08/29/22 15:42	08/30/22 09:08	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111				08/29/22 15:42	08/30/22 09:08	1
Fluoranthene-d10 (Surr)	86		47 - 128				08/29/22 15:42	08/30/22 09:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/01/22 19:15	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					09/01/22 19:15	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	120	52	ug/L		09/02/22 07:29	09/12/22 14:55	1
C24-C40	ND	cn	290	120	ug/L		09/02/22 07:29	09/12/22 14:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	74	cn	50 - 150				09/02/22 07:29	09/12/22 14:55	1

**Client Sample ID: MW-534-W-220823**

**Lab Sample ID: 410-95493-8**

Date Collected: 08/23/22 11:44

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 15:07	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 15:07	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 15:07	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 15:07	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 15:07	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:29	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:29	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:29	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:29	1
Chrysene	ND		0.056	0.011	ug/L		08/29/22 15:42	08/30/22 09:29	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		08/29/22 15:42	08/30/22 09:29	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		08/29/22 15:42	08/30/22 09:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-534-W-220823**

**Lab Sample ID: 410-95493-8**

Date Collected: 08/23/22 11:44

Matrix: Water

Date Received: 08/24/22 09:58

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	18		10 - 110	08/29/22 15:42	08/30/22 09:29	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	08/29/22 15:42	08/30/22 09:29	1
Fluoranthene-d10 (Surr)	89		47 - 128	08/29/22 15:42	08/30/22 09:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/01/22 19:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		09/01/22 19:40	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	110	49	ug/L		09/02/22 07:29	09/12/22 15:18	1
C24-C40	ND	cn	270	110	ug/L		09/02/22 07:29	09/12/22 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63	cn	50 - 150	09/02/22 07:29	09/12/22 15:18	1

**Client Sample ID: MW-ER-W-220823**

**Lab Sample ID: 410-95493-9**

Date Collected: 08/23/22 10:02

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 16:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 16:44	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 16:44	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 16:44	1
Toluene-d8 (Surr)	98		80 - 120		08/31/22 16:44	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/30/22 15:48	08/31/22 05:41	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/30/22 15:48	08/31/22 05:41	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/30/22 15:48	08/31/22 05:41	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/30/22 15:48	08/31/22 05:41	1
Chrysene	ND		0.052	0.010	ug/L		08/30/22 15:48	08/31/22 05:41	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/30/22 15:48	08/31/22 05:41	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/30/22 15:48	08/31/22 05:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	50		10 - 110	08/30/22 15:48	08/31/22 05:41	1
1-Methylnaphthalene-d10 (Surr)	51		36 - 111	08/30/22 15:48	08/31/22 05:41	1
Fluoranthene-d10 (Surr)	62		47 - 128	08/30/22 15:48	08/31/22 05:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	890		250	43	ug/L			09/01/22 20:06	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-ER-W-220823**

**Lab Sample ID: 410-95493-9**

Date Collected: 08/23/22 10:02

Matrix: Water

Date Received: 08/24/22 09:58

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		09/01/22 20:06	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	95	J *1	100	47	ug/L		09/02/22 07:29	09/12/22 15:41	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 15:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	70	cn	50 - 150	09/02/22 07:29	09/12/22 15:41	1

**Client Sample ID: DUP-2-WD-220823**

**Lab Sample ID: 410-95493-10**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 17:09	1
4-Bromofluorobenzene (Surr)	99		80 - 120		08/31/22 17:09	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 17:09	1
Toluene-d8 (Surr)	97		80 - 120		08/31/22 17:09	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 10:12	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 10:12	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 10:12	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 10:12	1
Chrysene	ND		0.052	0.010	ug/L		08/29/22 15:42	08/30/22 10:12	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 10:12	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/29/22 15:42	08/30/22 10:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	84		10 - 110	08/29/22 15:42	08/30/22 10:12	1
1-Methylnaphthalene-d10 (Surr)	89		36 - 111	08/29/22 15:42	08/30/22 10:12	1
Fluoranthene-d10 (Surr)	99		47 - 128	08/29/22 15:42	08/30/22 10:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	910		250	43	ug/L			09/01/22 20:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/01/22 20:31	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	83	J *1	110	48	ug/L		09/02/22 07:29	09/12/22 16:04	1
C24-C40	ND	cn	260	110	ug/L		09/02/22 07:29	09/12/22 16:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	59	cn	50 - 150	09/02/22 07:29	09/12/22 16:04	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: DUP-3-WD-220823**

**Lab Sample ID: 410-95493-11**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 17:33	1
4-Bromofluorobenzene (Surr)	102		80 - 120					08/31/22 17:33	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 17:33	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 17:33	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		08/29/22 15:42	08/30/22 10:33	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		08/29/22 15:42	08/30/22 10:33	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		08/29/22 15:42	08/30/22 10:33	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		08/29/22 15:42	08/30/22 10:33	1
Chrysene	ND		0.054	0.011	ug/L		08/29/22 15:42	08/30/22 10:33	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		08/29/22 15:42	08/30/22 10:33	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		08/29/22 15:42	08/30/22 10:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	75		10 - 110				08/29/22 15:42	08/30/22 10:33	1
1-Methylnaphthalene-d10 (Surr)	100		36 - 111				08/29/22 15:42	08/30/22 10:33	1
Fluoranthene-d10 (Surr)	128		47 - 128				08/29/22 15:42	08/30/22 10:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>450</b>		250	43	ug/L			09/01/22 20:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					09/01/22 20:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>150</b>	<b>*1</b>	110	47	ug/L		09/02/22 07:29	09/12/22 16:27	1
C24-C40	ND	cn	260	110	ug/L		09/02/22 07:29	09/12/22 16:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	69	cn	50 - 150				09/02/22 07:29	09/12/22 16:27	1

**Client Sample ID: QA-T-220823**

**Lab Sample ID: 410-95493-12**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 12:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					08/31/22 12:42	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 12:42	1
Dibromofluoromethane (Surr)	105		80 - 120					08/31/22 12:42	1
Toluene-d8 (Surr)	98		80 - 120					08/31/22 12:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: QA-T-220823**

**Lab Sample ID: 410-95493-12**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/01/22 13:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					09/01/22 13:18	1

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

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-95493-1	MW-104-W-220823	107	100	102	100
410-95493-1 MS	MW-104 MS-W-220823	109	103	102	100
410-95493-1 MSD	MW-104 MSD-W-220823	110	103	102	100
410-95493-2	MW-129R-W-220823	108	101	104	99
410-95493-3	MW-526-W-220823	108	100	105	97
410-95493-4	MW-525-W-220823	107	101	103	99
410-95493-5	MW-531-W-220823	107	101	101	99
410-95493-6	MW-532-W-220823	106	102	103	100
410-95493-7	MW-533-W-220823	109	100	103	99
410-95493-8	MW-534-W-220823	108	100	103	100
410-95493-9	MW-ER-W-220823	108	100	103	98
410-95493-10	DUP-2-WD-220823	107	99	103	97
410-95493-11	DUP-3-WD-220823	108	102	103	100
410-95493-12	QA-T-220823	109	100	105	98
LCS 410-291398/4	Lab Control Sample	111	102	103	99
LCSD 410-291398/5	Lab Control Sample Dup	110	102	102	99
MB 410-291398/6	Method Blank	98	97	91	98

### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-95493-1	MW-104-W-220823	47	69	87
410-95493-1 MS	MW-104 MS-W-220823	52	76	91
410-95493-1 MSD	MW-104 MSD-W-220823	46	72	89
410-95493-2	MW-129R-W-220823	74	166 S1+	113
410-95493-3	MW-526-W-220823	77	75	100
410-95493-4	MW-525-W-220823	59	82	80
410-95493-5	MW-531-W-220823	57	74	84
410-95493-6	MW-532-W-220823	86	78	89
410-95493-7	MW-533-W-220823	73	78	86
410-95493-8	MW-534-W-220823	18	78	89
410-95493-9	MW-ER-W-220823	50	51	62
410-95493-10	DUP-2-WD-220823	84	89	99
410-95493-11	DUP-3-WD-220823	75	100	128
LCS 410-290719/2-A	Lab Control Sample	94	72	89
LCS 410-290896/2-A	Lab Control Sample	95	71	87
LCS 410-291195/2-A	Lab Control Sample	94	72	83
LCSD 410-290719/3-A	Lab Control Sample Dup	93	73	89
LCSD 410-291195/3-A	Lab Control Sample Dup	87	68	78
MB 410-290719/1-A	Method Blank	77	67	77
MB 410-290896/1-A	Method Blank	85	68	82

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
MB 410-291195/1-A	Method Blank	95	78	86
<b>Surrogate Legend</b>				
BAPd12 = Benzo(a)pyrene-d12 (Surr)				
MNPd10 = 1-Methylnaphthalene-d10 (Surr)				
FLN10 = Fluoranthene-d10 (Surr)				

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-95493-1	MW-104-W-220823	101
410-95493-1 MS	MW-104 MS-W-220823	90
410-95493-1 MSD	MW-104 MSD-W-220823	91
410-95493-2	MW-129R-W-220823	103
410-95493-3	MW-526-W-220823	102
410-95493-4	MW-525-W-220823	101
410-95493-5	MW-531-W-220823	101
410-95493-6	MW-532-W-220823	99
410-95493-7	MW-533-W-220823	101
410-95493-8	MW-534-W-220823	98
410-95493-9	MW-ER-W-220823	100
410-95493-10	DUP-2-WD-220823	99
410-95493-11	DUP-3-WD-220823	101
410-95493-12	QA-T-220823	101
LCS 410-291093/5	Lab Control Sample	93
LCS 410-291887/5	Lab Control Sample	93
LCS 410-291093/6	Lab Control Sample Dup	93
LCS 410-291887/6	Lab Control Sample Dup	94
MB 410-291093/4	Method Blank	102
MB 410-291887/4	Method Blank	100
<b>Surrogate Legend</b>		
TFT-F = a,a,a-Trifluorotoluene (fid)		

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		OTP (50-150)
410-95493-1	MW-104-W-220823	69
410-95493-1 MS	MW-104 MS-W-220823	71
410-95493-1 MSD	MW-104 MSD-W-220823	71
410-95493-2	MW-129R-W-220823	50 cn
410-95493-2 DU	MW-129R-W-220823	63
410-95493-3	MW-526-W-220823	58 cn
410-95493-4	MW-525-W-220823	60 cn
410-95493-5	MW-531-W-220823	62 cn
410-95493-6	MW-532-W-220823	72 cn

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-95493-7	MW-533-W-220823	74 cn
410-95493-8	MW-534-W-220823	63 cn
410-95493-9	MW-ER-W-220823	70 cn
410-95493-10	DUP-2-WD-220823	59 cn
410-95493-11	DUP-3-WD-220823	69 cn
LCS 410-291820/2-B	Lab Control Sample	76
LCS 410-292264/2-B	Lab Control Sample	71
LCSD 410-291820/3-B	Lab Control Sample Dup	78
LCSD 410-292264/3-B	Lab Control Sample Dup	49 S1-
MB 410-291820/1-B	Method Blank	71
MB 410-292264/1-B	Method Blank	69

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

**Lab Sample ID: MB 410-291398/6**  
**Matrix: Water**  
**Analysis Batch: 291398**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 11:48	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					08/31/22 11:48	1
4-Bromofluorobenzene (Surr)	97		80 - 120					08/31/22 11:48	1
Dibromofluoromethane (Surr)	91		80 - 120					08/31/22 11:48	1
Toluene-d8 (Surr)	98		80 - 120					08/31/22 11:48	1

**Lab Sample ID: LCS 410-291398/4**  
**Matrix: Water**  
**Analysis Batch: 291398**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	22.2		ug/L		111	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	111		80 - 120					
4-Bromofluorobenzene (Surr)	102		80 - 120					
Dibromofluoromethane (Surr)	103		80 - 120					
Toluene-d8 (Surr)	99		80 - 120					

**Lab Sample ID: LCSD 410-291398/5**  
**Matrix: Water**  
**Analysis Batch: 291398**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	20.0	22.4		ug/L		112	80 - 120	1	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	110		80 - 120						
4-Bromofluorobenzene (Surr)	102		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	99		80 - 120						

**Lab Sample ID: 410-95493-1 MS**  
**Matrix: Water**  
**Analysis Batch: 291398**

**Client Sample ID: MW-104 MS-W-220823**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	24.1		ug/L		120	80 - 120
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	109		80 - 120						
4-Bromofluorobenzene (Surr)	103		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	100		80 - 120						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

Lab Sample ID: 410-95493-1 MSD

Matrix: Water

Analysis Batch: 291398

Client Sample ID: MW-104 MSD-W-220823

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	24.0		ug/L		120	80 - 120	0	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	110		80 - 120								
4-Bromofluorobenzene (Surr)	103		80 - 120								
Dibromofluoromethane (Surr)	102		80 - 120								
Toluene-d8 (Surr)	100		80 - 120								

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-290719/1-A

Matrix: Water

Analysis Batch: 290864

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 290719

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		08/29/22 15:42	08/30/22 06:38	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		08/29/22 15:42	08/30/22 06:38	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		08/29/22 15:42	08/30/22 06:38	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		08/29/22 15:42	08/30/22 06:38	1
Chrysene	ND		0.050	0.010	ug/L		08/29/22 15:42	08/30/22 06:38	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		08/29/22 15:42	08/30/22 06:38	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		08/29/22 15:42	08/30/22 06:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	77		10 - 110				08/29/22 15:42	08/30/22 06:38	1
1-Methylnaphthalene-d10 (Surr)	67		36 - 111				08/29/22 15:42	08/30/22 06:38	1
Fluoranthene-d10 (Surr)	77		47 - 128				08/29/22 15:42	08/30/22 06:38	1

Lab Sample ID: LCS 410-290719/2-A

Matrix: Water

Analysis Batch: 290864

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 290719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	1.18		ug/L		118	61 - 122
Benzo[a]pyrene	1.00	1.16		ug/L		116	60 - 120
Benzo[b]fluoranthene	1.00	1.17		ug/L		117	58 - 122
Benzo[k]fluoranthene	1.00	1.22		ug/L		122	57 - 128
Chrysene	1.00	1.14		ug/L		114	55 - 123
Dibenz(a,h)anthracene	1.00	0.982		ug/L		98	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.07		ug/L		107	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Benzo(a)pyrene-d12 (Surr)	94		10 - 110				
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				
Fluoranthene-d10 (Surr)	89		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCSD 410-290719/3-A**  
**Matrix: Water**  
**Analysis Batch: 290864**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 290719**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	1.00	1.16		ug/L		116	61 - 122	2	30	
Benzo[a]pyrene	1.00	1.14		ug/L		114	60 - 120	2	30	
Benzo[b]fluoranthene	1.00	1.14		ug/L		114	58 - 122	2	30	
Benzo[k]fluoranthene	1.00	1.19		ug/L		119	57 - 128	3	30	
Chrysene	1.00	1.12		ug/L		112	55 - 123	2	30	
Dibenz(a,h)anthracene	1.00	1.01		ug/L		101	50 - 121	3	30	
Indeno[1,2,3-cd]pyrene	1.00	1.07		ug/L		107	47 - 143	0	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	93		10 - 110
1-Methylnaphthalene-d10 (Surr)	73		36 - 111
Fluoranthene-d10 (Surr)	89		47 - 128

**Lab Sample ID: MB 410-290896/1-A**  
**Matrix: Water**  
**Analysis Batch: 291201**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 290896**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		08/30/22 09:11	08/30/22 17:09	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		08/30/22 09:11	08/30/22 17:09	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		08/30/22 09:11	08/30/22 17:09	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		08/30/22 09:11	08/30/22 17:09	1
Chrysene	ND		0.050	0.010	ug/L		08/30/22 09:11	08/30/22 17:09	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		08/30/22 09:11	08/30/22 17:09	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		08/30/22 09:11	08/30/22 17:09	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	08/30/22 09:11	08/30/22 17:09	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111	08/30/22 09:11	08/30/22 17:09	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/30/22 09:11	08/30/22 17:09	1

**Lab Sample ID: LCS 410-290896/2-A**  
**Matrix: Water**  
**Analysis Batch: 291201**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 290896**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
Benzo[a]anthracene	1.00	1.19		ug/L		119	61 - 122	
Benzo[a]pyrene	1.00	1.14		ug/L		114	60 - 120	
Benzo[b]fluoranthene	1.00	1.13		ug/L		113	58 - 122	
Benzo[k]fluoranthene	1.00	1.20		ug/L		120	57 - 128	
Chrysene	1.00	1.14		ug/L		114	55 - 123	
Dibenz(a,h)anthracene	1.00	1.23	*+	ug/L		123	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	1.29		ug/L		129	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	95		10 - 110
1-Methylnaphthalene-d10 (Surr)	71		36 - 111

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 410-290896/2-A

Matrix: Water

Analysis Batch: 291201

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 290896

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Fluoranthene-d10 (Surr)	87		47 - 128

Lab Sample ID: 410-95493-1 MS

Matrix: Water

Analysis Batch: 291201

Client Sample ID: MW-104 MS-W-220823

Prep Type: Total/NA

Prep Batch: 290896

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Benzo[a]anthracene	ND		1.04	1.24		ug/L		120	61 - 122	
Benzo[a]pyrene	ND	F1	1.04	0.594	F1	ug/L		57	60 - 120	
Benzo[b]fluoranthene	ND		1.04	1.03		ug/L		99	58 - 122	
Benzo[k]fluoranthene	ND		1.04	1.06		ug/L		102	57 - 128	
Chrysene	ND		1.04	1.17		ug/L		113	55 - 123	
Dibenz(a,h)anthracene	ND	*+	1.04	1.01		ug/L		98	50 - 121	
Indeno[1,2,3-cd]pyrene	ND		1.04	1.07		ug/L		103	47 - 143	

Surrogate	MS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	52		10 - 110
1-Methylnaphthalene-d10 (Surr)	76		36 - 111
Fluoranthene-d10 (Surr)	91		47 - 128

Lab Sample ID: 410-95493-1 MSD

Matrix: Water

Analysis Batch: 291201

Client Sample ID: MW-104 MSD-W-220823

Prep Type: Total/NA

Prep Batch: 290896

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Benzo[a]anthracene	ND		1.02	1.15		ug/L		112	61 - 122	7	30	
Benzo[a]pyrene	ND	F1	1.02	0.523	F1	ug/L		51	60 - 120	13	30	
Benzo[b]fluoranthene	ND		1.02	0.933		ug/L		91	58 - 122	10	30	
Benzo[k]fluoranthene	ND		1.02	0.973		ug/L		95	57 - 128	8	30	
Chrysene	ND		1.02	1.11		ug/L		109	55 - 123	5	30	
Dibenz(a,h)anthracene	ND	*+	1.02	0.910		ug/L		89	50 - 121	11	30	
Indeno[1,2,3-cd]pyrene	ND		1.02	0.951		ug/L		93	47 - 143	11	30	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	46		10 - 110
1-Methylnaphthalene-d10 (Surr)	72		36 - 111
Fluoranthene-d10 (Surr)	89		47 - 128

Lab Sample ID: MB 410-291195/1-A

Matrix: Water

Analysis Batch: 291329

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 291195

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		08/30/22 15:48	08/31/22 04:36	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		08/30/22 15:48	08/31/22 04:36	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		08/30/22 15:48	08/31/22 04:36	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		08/30/22 15:48	08/31/22 04:36	1
Chrysene	ND		0.050	0.010	ug/L		08/30/22 15:48	08/31/22 04:36	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 410-291195/1-A

Matrix: Water

Analysis Batch: 291329

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 291195

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		08/30/22 15:48	08/31/22 04:36	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		08/30/22 15:48	08/31/22 04:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	95		10 - 110	08/30/22 15:48	08/31/22 04:36	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	08/30/22 15:48	08/31/22 04:36	1
Fluoranthene-d10 (Surr)	86		47 - 128	08/30/22 15:48	08/31/22 04:36	1

Lab Sample ID: LCS 410-291195/2-A

Matrix: Water

Analysis Batch: 291329

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 291195

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzo[a]anthracene	1.00	0.879		ug/L		88	61 - 122
Benzo[a]pyrene	1.00	0.840		ug/L		84	60 - 120
Benzo[b]fluoranthene	1.00	0.965		ug/L		96	58 - 122
Benzo[k]fluoranthene	1.00	0.837		ug/L		84	57 - 128
Chrysene	1.00	0.787		ug/L		79	55 - 123
Dibenz(a,h)anthracene	1.00	0.921		ug/L		92	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.978		ug/L		98	47 - 143

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	94		10 - 110
1-Methylnaphthalene-d10 (Surr)	72		36 - 111
Fluoranthene-d10 (Surr)	83		47 - 128

Lab Sample ID: LCSD 410-291195/3-A

Matrix: Water

Analysis Batch: 291329

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 291195

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	Limit
		Result	Qualifier						
Benzo[a]anthracene	1.00	0.860		ug/L		86	61 - 122	2	30
Benzo[a]pyrene	1.00	0.822		ug/L		82	60 - 120	2	30
Benzo[b]fluoranthene	1.00	0.914		ug/L		91	58 - 122	5	30
Benzo[k]fluoranthene	1.00	0.819		ug/L		82	57 - 128	2	30
Chrysene	1.00	0.788		ug/L		79	55 - 123	0	30
Dibenz(a,h)anthracene	1.00	0.908		ug/L		91	50 - 121	1	30
Indeno[1,2,3-cd]pyrene	1.00	0.957		ug/L		96	47 - 143	2	30

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	87		10 - 110
1-Methylnaphthalene-d10 (Surr)	68		36 - 111
Fluoranthene-d10 (Surr)	78		47 - 128

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

**Lab Sample ID: MB 410-291093/4**  
**Matrix: Water**  
**Analysis Batch: 291093**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/30/22 13:03	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150					08/30/22 13:03	1

**Lab Sample ID: LCS 410-291093/5**  
**Matrix: Water**  
**Analysis Batch: 291093**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	986		ug/L		90	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150				

**Lab Sample ID: LCSD 410-291093/6**  
**Matrix: Water**  
**Analysis Batch: 291093**

**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
C7-C12 (1C)	1100	1020		ug/L		93	64 - 131	3	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150						

**Lab Sample ID: 410-95493-1 MS**  
**Matrix: Water**  
**Analysis Batch: 291093**

**Client Sample ID: MW-104 MS-W-220823**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	210	J	1120	1210		ug/L		89	80 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	90		50 - 150						

**Lab Sample ID: 410-95493-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 291093**

**Client Sample ID: MW-104 MSD-W-220823**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C7-C12 (1C)	210	J	1120	1220		ug/L		90	80 - 120	1	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
a,a,a-Trifluorotoluene (fid) (1C)	91		50 - 150								



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

**Lab Sample ID: MB 410-291887/4**  
**Matrix: Water**  
**Analysis Batch: 291887**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/01/22 11:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					09/01/22 11:10	1

**Lab Sample ID: LCS 410-291887/5**  
**Matrix: Water**  
**Analysis Batch: 291887**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
C7-C12 (1C)	1100	1100		ug/L		100	64 - 131	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150					

**Lab Sample ID: LCSD 410-291887/6**  
**Matrix: Water**  
**Analysis Batch: 291887**

**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
C7-C12 (1C)	1100	1100		ug/L		100	64 - 131	0	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-291820/1-B**  
**Matrix: Water**  
**Analysis Batch: 293521**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 291820**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		09/01/22 08:33	09/07/22 16:47	1
C24-C40	ND		250	100	ug/L		09/01/22 08:33	09/07/22 16:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	71		50 - 150				09/01/22 08:33	09/07/22 16:47	1

**Lab Sample ID: LCS 410-291820/2-B**  
**Matrix: Water**  
**Analysis Batch: 293521**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 291820**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
C12-C24	600	205		ug/L		34	14 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
o-terphenyl (Surr)	76		50 - 150					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

**Lab Sample ID: LCSD 410-291820/3-B**  
**Matrix: Water**  
**Analysis Batch: 293521**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 291820**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C12-C24	600	218		ug/L		36	14 - 115	7	20
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o-terphenyl (Surr)</i>		78							50 - 150

**Lab Sample ID: 410-95493-1 MS**  
**Matrix: Water**  
**Analysis Batch: 293521**

**Client Sample ID: MW-104 MS-W-220823**  
**Prep Type: Total/NA**  
**Prep Batch: 291820**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	ND		615	202		ug/L		33	30 - 115
<b>Surrogate</b>		<b>%Recovery</b>			<b>Qualifier</b>				<b>Limits</b>
<i>o-terphenyl (Surr)</i>		71							50 - 150

**Lab Sample ID: 410-95493-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 293521**

**Client Sample ID: MW-104 MSD-W-220823**  
**Prep Type: Total/NA**  
**Prep Batch: 291820**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C12-C24	ND		624	211		ug/L		34	30 - 115	5	20
<b>Surrogate</b>		<b>%Recovery</b>			<b>Qualifier</b>						<b>Limits</b>
<i>o-terphenyl (Surr)</i>		71									50 - 150

**Lab Sample ID: MB 410-292264/1-B**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		09/02/22 07:29	09/12/22 11:06	1
C24-C40	123	J	250	100	ug/L		09/02/22 07:29	09/12/22 11:06	1
<b>Surrogate</b>		<b>%Recovery</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>		69					09/02/22 07:29	09/12/22 11:06	1

**Lab Sample ID: LCS 410-292264/2-B**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	228		ug/L		38	14 - 115
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
<i>o-terphenyl (Surr)</i>		71					50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95493-1

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

Lab Sample ID: LCSD 410-292264/3-B

Matrix: Water

Analysis Batch: 294763

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 292264

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	170	*1	ug/L		28	14 - 115	29	20
		<b>LCSD</b>	<b>LCSD</b>						
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	49	S1-	50 - 150						

Lab Sample ID: 410-95493-2 DU

Matrix: Water

Analysis Batch: 294763

Client Sample ID: MW-129R-W-220823

Prep Type: Total/NA

Prep Batch: 292264

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	530	*1	636	*1	ug/L		18	20
C24-C40	ND	cn	ND		ug/L		NC	20
		<b>DU</b>	<b>DU</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	63		50 - 150					

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## GC/MS VOA

### Analysis Batch: 291398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	8260D/UST	
410-95493-2	MW-129R-W-220823	Total/NA	Water	8260D/UST	
410-95493-3	MW-526-W-220823	Total/NA	Water	8260D/UST	
410-95493-4	MW-525-W-220823	Total/NA	Water	8260D/UST	
410-95493-5	MW-531-W-220823	Total/NA	Water	8260D/UST	
410-95493-6	MW-532-W-220823	Total/NA	Water	8260D/UST	
410-95493-7	MW-533-W-220823	Total/NA	Water	8260D/UST	
410-95493-8	MW-534-W-220823	Total/NA	Water	8260D/UST	
410-95493-9	MW-ER-W-220823	Total/NA	Water	8260D/UST	
410-95493-10	DUP-2-WD-220823	Total/NA	Water	8260D/UST	
410-95493-11	DUP-3-WD-220823	Total/NA	Water	8260D/UST	
410-95493-12	QA-T-220823	Total/NA	Water	8260D/UST	
MB 410-291398/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-291398/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-291398/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	8260D/UST	
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 290719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-4	MW-525-W-220823	Total/NA	Water	3510C	
410-95493-5	MW-531-W-220823	Total/NA	Water	3510C	
410-95493-6	MW-532-W-220823	Total/NA	Water	3510C	
410-95493-7	MW-533-W-220823	Total/NA	Water	3510C	
410-95493-8	MW-534-W-220823	Total/NA	Water	3510C	
410-95493-10	DUP-2-WD-220823	Total/NA	Water	3510C	
410-95493-11	DUP-3-WD-220823	Total/NA	Water	3510C	
MB 410-290719/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-290719/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-290719/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 290864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-4	MW-525-W-220823	Total/NA	Water	8270E SIM	290719
410-95493-5	MW-531-W-220823	Total/NA	Water	8270E SIM	290719
410-95493-6	MW-532-W-220823	Total/NA	Water	8270E SIM	290719
410-95493-7	MW-533-W-220823	Total/NA	Water	8270E SIM	290719
410-95493-8	MW-534-W-220823	Total/NA	Water	8270E SIM	290719
410-95493-10	DUP-2-WD-220823	Total/NA	Water	8270E SIM	290719
410-95493-11	DUP-3-WD-220823	Total/NA	Water	8270E SIM	290719
MB 410-290719/1-A	Method Blank	Total/NA	Water	8270E SIM	290719
LCS 410-290719/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	290719
LCSD 410-290719/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	290719

### Prep Batch: 290896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	3510C	
410-95493-2	MW-129R-W-220823	Total/NA	Water	3510C	
410-95493-3	MW-526-W-220823	Total/NA	Water	3510C	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## GC/MS Semi VOA (Continued)

### Prep Batch: 290896 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-290896/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-290896/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	3510C	
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	3510C	

### Prep Batch: 291195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-9	MW-ER-W-220823	Total/NA	Water	3510C	
MB 410-291195/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-291195/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-291195/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 291201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	8270E SIM	290896
410-95493-2	MW-129R-W-220823	Total/NA	Water	8270E SIM	290896
410-95493-3	MW-526-W-220823	Total/NA	Water	8270E SIM	290896
MB 410-290896/1-A	Method Blank	Total/NA	Water	8270E SIM	290896
LCS 410-290896/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	290896
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	8270E SIM	290896
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	8270E SIM	290896

### Analysis Batch: 291329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-9	MW-ER-W-220823	Total/NA	Water	8270E SIM	291195
MB 410-291195/1-A	Method Blank	Total/NA	Water	8270E SIM	291195
LCS 410-291195/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	291195
LCSD 410-291195/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	291195

## GC VOA

### Analysis Batch: 291093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-2	MW-129R-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-3	MW-526-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-4	MW-525-W-220823	Total/NA	Water	NWTPH-Gx	
MB 410-291093/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-291093/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-291093/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 291887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-5	MW-531-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-6	MW-532-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-7	MW-533-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-8	MW-534-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-9	MW-ER-W-220823	Total/NA	Water	NWTPH-Gx	
410-95493-10	DUP-2-WD-220823	Total/NA	Water	NWTPH-Gx	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## GC VOA (Continued)

### Analysis Batch: 291887 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-11	DUP-3-WD-220823	Total/NA	Water	NWTPH-Gx	
410-95493-12	QA-T-220823	Total/NA	Water	NWTPH-Gx	
MB 410-291887/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-291887/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-291887/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 291820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	3510C	
MB 410-291820/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	3510C	
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	3510C	

### Prep Batch: 292264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-2	MW-129R-W-220823	Total/NA	Water	3510C	
410-95493-3	MW-526-W-220823	Total/NA	Water	3510C	
410-95493-4	MW-525-W-220823	Total/NA	Water	3510C	
410-95493-5	MW-531-W-220823	Total/NA	Water	3510C	
410-95493-6	MW-532-W-220823	Total/NA	Water	3510C	
410-95493-7	MW-533-W-220823	Total/NA	Water	3510C	
410-95493-8	MW-534-W-220823	Total/NA	Water	3510C	
410-95493-9	MW-ER-W-220823	Total/NA	Water	3510C	
410-95493-10	DUP-2-WD-220823	Total/NA	Water	3510C	
410-95493-11	DUP-3-WD-220823	Total/NA	Water	3510C	
MB 410-292264/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-95493-2 DU	MW-129R-W-220823	Total/NA	Water	3510C	

### Cleanup Batch: 293268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	3630C	291820
MB 410-291820/1-B	Method Blank	Total/NA	Water	3630C	291820
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	3630C	291820
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	291820
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	3630C	291820
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	3630C	291820

### Analysis Batch: 293521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-1	MW-104-W-220823	Total/NA	Water	NWTPH-Dx	293268
MB 410-291820/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	293268
LCS 410-291820/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	293268
LCSD 410-291820/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	293268
410-95493-1 MS	MW-104 MS-W-220823	Total/NA	Water	NWTPH-Dx	293268
410-95493-1 MSD	MW-104 MSD-W-220823	Total/NA	Water	NWTPH-Dx	293268

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## GC Semi VOA

### Cleanup Batch: 294701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-2	MW-129R-W-220823	Total/NA	Water	3630C	292264
410-95493-3	MW-526-W-220823	Total/NA	Water	3630C	292264
410-95493-4	MW-525-W-220823	Total/NA	Water	3630C	292264
410-95493-5	MW-531-W-220823	Total/NA	Water	3630C	292264
410-95493-6	MW-532-W-220823	Total/NA	Water	3630C	292264
410-95493-7	MW-533-W-220823	Total/NA	Water	3630C	292264
410-95493-8	MW-534-W-220823	Total/NA	Water	3630C	292264
410-95493-9	MW-ER-W-220823	Total/NA	Water	3630C	292264
410-95493-10	DUP-2-WD-220823	Total/NA	Water	3630C	292264
410-95493-11	DUP-3-WD-220823	Total/NA	Water	3630C	292264
MB 410-292264/1-B	Method Blank	Total/NA	Water	3630C	292264
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	3630C	292264
LCS 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	292264
410-95493-2 DU	MW-129R-W-220823	Total/NA	Water	3630C	292264

### Analysis Batch: 294763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95493-2	MW-129R-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-3	MW-526-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-4	MW-525-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-5	MW-531-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-6	MW-532-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-7	MW-533-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-8	MW-534-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-9	MW-ER-W-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-10	DUP-2-WD-220823	Total/NA	Water	NWTPH-Dx	294701
410-95493-11	DUP-3-WD-220823	Total/NA	Water	NWTPH-Dx	294701
MB 410-292264/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	294701
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	294701
LCS 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	294701
410-95493-2 DU	MW-129R-W-220823	Total/NA	Water	NWTPH-Dx	294701

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-104-W-220823**

**Lab Sample ID: 410-95493-1**

Date Collected: 08/23/22 12:50

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 15:32
Total/NA	Prep	3510C			290896	XP5	ELLE	08/30/22 09:11
Total/NA	Analysis	8270E SIM		1	291201	UJM0	ELLE	08/31/22 02:27
Total/NA	Analysis	NWTPH-Gx		1	291093	NND8	ELLE	08/30/22 22:03
Total/NA	Prep	3510C			291820	YDF5	ELLE	09/01/22 08:33
Total/NA	Cleanup	3630C			293268	UKQ8	ELLE	09/07/22 06:38
Total/NA	Analysis	NWTPH-Dx		1	293521	IUSB	ELLE	09/07/22 23:12

**Client Sample ID: MW-129R-W-220823**

**Lab Sample ID: 410-95493-2**

Date Collected: 08/23/22 10:34

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 13:06
Total/NA	Prep	3510C			290896	XP5	ELLE	08/30/22 09:11
Total/NA	Analysis	8270E SIM		1	291201	UJM0	ELLE	08/31/22 03:32
Total/NA	Analysis	NWTPH-Gx		1	291093	NND8	ELLE	08/30/22 23:20
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 12:15

**Client Sample ID: MW-526-W-220823**

**Lab Sample ID: 410-95493-3**

Date Collected: 08/23/22 12:26

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		5	291398	MXX6	ELLE	08/31/22 21:10
Total/NA	Prep	3510C			290896	XP5	ELLE	08/30/22 09:11
Total/NA	Analysis	8270E SIM		1	291201	UJM0	ELLE	08/31/22 03:53
Total/NA	Analysis	NWTPH-Gx		1	291093	NND8	ELLE	08/30/22 23:46
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 13:01

**Client Sample ID: MW-525-W-220823**

**Lab Sample ID: 410-95493-4**

Date Collected: 08/23/22 11:15

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 13:30
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 08:03
Total/NA	Analysis	NWTPH-Gx		1	291093	NND8	ELLE	08/31/22 00:11



## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-525-W-220823**

**Lab Sample ID: 410-95493-4**

Date Collected: 08/23/22 11:15

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 13:24

**Client Sample ID: MW-531-W-220823**

**Lab Sample ID: 410-95493-5**

Date Collected: 08/23/22 11:42

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 13:54
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 08:25
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 16:42
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 13:47

**Client Sample ID: MW-532-W-220823**

**Lab Sample ID: 410-95493-6**

Date Collected: 08/23/22 13:02

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 14:18
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 08:46
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 18:50
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 14:09

**Client Sample ID: MW-533-W-220823**

**Lab Sample ID: 410-95493-7**

Date Collected: 08/23/22 13:04

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 14:42
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 09:08
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 19:15
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 14:55

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: MW-534-W-220823**

**Lab Sample ID: 410-95493-8**

Date Collected: 08/23/22 11:44

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 15:07
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 09:29
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 19:40
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 15:18

**Client Sample ID: MW-ER-W-220823**

**Lab Sample ID: 410-95493-9**

Date Collected: 08/23/22 10:02

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 16:44
Total/NA	Prep	3510C			291195	QJZ6	ELLE	08/30/22 15:48
Total/NA	Analysis	8270E SIM		1	291329	SJ89	ELLE	08/31/22 05:41
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 20:06
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 15:41

**Client Sample ID: DUP-2-WD-220823**

**Lab Sample ID: 410-95493-10**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 17:09
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 10:12
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 20:31
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 16:04

**Client Sample ID: DUP-3-WD-220823**

**Lab Sample ID: 410-95493-11**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 17:33
Total/NA	Prep	3510C			290719	QJZ6	ELLE	08/29/22 15:42
Total/NA	Analysis	8270E SIM		1	290864	SJ89	ELLE	08/30/22 10:33
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 20:56

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95493-1

**Client Sample ID: DUP-3-WD-220823**

**Lab Sample ID: 410-95493-11**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 16:27

**Client Sample ID: QA-T-220823**

**Lab Sample ID: 410-95493-12**

Date Collected: 08/23/22 00:00

Matrix: Water

Date Received: 08/24/22 09:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291398	MXX6	ELLE	08/31/22 12:42
Total/NA	Analysis	NWTPH-Gx		1	291887	NND8	ELLE	09/01/22 13:18

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95493-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-95493-1	MW-104-W-220823	Water	08/23/22 12:50	08/24/22 09:58
410-95493-2	MW-129R-W-220823	Water	08/23/22 10:34	08/24/22 09:58
410-95493-3	MW-526-W-220823	Water	08/23/22 12:26	08/24/22 09:58
410-95493-4	MW-525-W-220823	Water	08/23/22 11:15	08/24/22 09:58
410-95493-5	MW-531-W-220823	Water	08/23/22 11:42	08/24/22 09:58
410-95493-6	MW-532-W-220823	Water	08/23/22 13:02	08/24/22 09:58
410-95493-7	MW-533-W-220823	Water	08/23/22 13:04	08/24/22 09:58
410-95493-8	MW-534-W-220823	Water	08/23/22 11:44	08/24/22 09:58
410-95493-9	MW-ER-W-220823	Water	08/23/22 10:02	08/24/22 09:58
410-95493-10	DUP-2-WD-220823	Water	08/23/22 00:00	08/24/22 09:58
410-95493-11	DUP-3-WD-220823	Water	08/23/22 00:00	08/24/22 09:58
410-95493-12	QA-T-220823	Water	08/23/22 00:00	08/24/22 09:58

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# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

Acct. # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental Use Only  
Group # \_\_\_\_\_ Sar \_\_\_\_\_  
Instructions on reverse side correspond



410-95493 Chain of Custody

1 OF 2

#: \_\_\_\_\_

1 Client Information				4 Matrix				5 Ar				6 Remarks								
Facility # _____ WBS _____				Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>				Total Number of Containers						<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits						
Site Address <b>EDMONDS TERMINAL</b> <b>11720 UNION OIL COMPANY ROAD EDMONDS, WA</b>				Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>				BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>				BENZENE 8260 CPAHS 8270 SIM								
Chevron PM <b>JAMES KIERNAN</b> Lead Consultant				Oil <input type="checkbox"/>				8260 full scan												
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>				Oxygenates				NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>				NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____								
Consultant Project Mgr. <b>SAM MILES</b>				Soil <input type="checkbox"/>				NWTPH-Gx												
Consultant Phone # _____				Water <input type="checkbox"/>				NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/>				WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____								
Sampler <b>D. GILBERT, J. SEPIOL, E. SCHELLER, P. BRUNO</b>				Oil <input type="checkbox"/>				NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>												
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____	BENZENE 8260 CPAHS 8270 SIM		
Date	Time	Date	Time																	
MW-104	8/23/22	1250		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						*USE STANDARD SGC *Benzene and CPAHS with quantitative levels < 1.45/L
MW-104MS	8/23/22	1300		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-104MSD	8/23/22	1320		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-129R	8/23/22	1034		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-526	8/23/22	1226		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-525	8/23/22	1115		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-531	8/23/22	1142		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-532	8/23/22	1302		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-533	8/23/22	1304		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-534	8/23/22	1144		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
MW-ER	8/23/22	1002		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
DUP-2	8/23/22			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
DUP-3	8/23/22			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		10					<input checked="" type="checkbox"/>						
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by				Date		Time		Received by		Date		Time				
(Standard) 5 day 4 day 72 hour 48 hour 24 hour				<b>J. SEPIOL</b>				8/23/22		1500										
8 Data Package (circle if required)				Relinquished by Commercial Carrier:				Date		Time		Received by		Date		Time				
Type I - Full Type VI (Raw Data)				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____				8/24/22		9:58		[Signature]								
EDD (circle if required)				Temperature Upon Receipt				Custody Seals Intact?												
CVX-RTBU-FI_05 (default)				3.4 - 5.8 °C				Yes												
Other:																				

# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

Acct. # \_\_\_\_\_ For Eurofins Lancaster Laboratories Environmental use only  
Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
Instructions on reverse side correspond with circled numbers.

2 of 2

<b>1) Client Information</b>				<b>4) Matrix</b>				<b>5) Analyses Requested</b>										<b>SCR #: _____</b>		
Facility # WBS <b>EDMONDS TERMINAL</b>				<input type="checkbox"/> Sediment <input type="checkbox"/> Ground <input type="checkbox"/> Surface				<input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air										<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		
Site Address <b>11720 UNION OIL COMPANY ROAD, EDMONDS WA</b>				Total Number of Containers <input type="checkbox"/> BTEX + MTBE    8021    8260    Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup NWTPH-Dx without Silica Gel Cleanup WA VPH    WA EPH    Method														<b>6) Remarks</b>		
Chevron PM <b>JAMES KIERNAN</b> Lead Consultant																				
Consultant/Office <b>11020 OLIVE WAY, SUITE 800, SEATTLE WA</b>																				
Consultant Project Mgr. <b>SAM MILES</b>																				
Consultant Phone # _____																				
Sampler <b>D. GILBERT, J. SEPIOL, E. SCHELLER, P. BRUND</b>				<b>3)</b> <input type="checkbox"/> Grab <input type="checkbox"/> Composite																
Date <b>TRIP BLANK</b>																				
Time																				
Turnaround Time Requested (TAT) (please circle)				Relinquished by <b>J. SEPIOL</b>																
(Standard) 5 day 4 day 72 hour 48 hour 24 hour				Date <b>8/22/22</b> Time <b>1500</b>																
				Relinquished by _____ Date _____ Time _____																
				Received by _____ Date _____ Time _____																
<b>8) Data Package (circle if required)</b>				Relinquished by Commercial Carrier:																
Type I - Full Type VI (Raw Data)				UPS _____ FedEx <input checked="" type="checkbox"/> Other _____																
EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____				Temperature Upon Receipt _____ °C														Received by <i>l m</i> Date <b>8/24/22</b> Time <b>9:58</b> Custody Seals Intact? Yes No		





## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-95493-1

**Login Number: 95493**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Hess, Anna**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-95817-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
9/13/2022 8:33:11 AM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

A handwritten signature in cursive script that reads "Amek Carter".

---

Amek Carter  
Project Manager  
9/13/2022 8:33:11 AM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

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**Job ID: 410-95817-1**

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**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC**

**Narrative**

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**Job Narrative  
410-95817-1**

**Receipt**

The samples were received on 8/26/2022 10:12 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

**GC/MS VOA**

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

**GC/MS Semi VOA**

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

**GC VOA**

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

**GC Semi VOA**

Method NWTPH\_Dx: Surrogate recovery for the following sample was outside control limits: MW-513-W-220825 (410-95817-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## Client Sample ID: MW-8R-W-220825

Lab Sample ID: 410-95817-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	51	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-513-W-220825

Lab Sample ID: 410-95817-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	57	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	71	J *1 cn	110	49	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-514-W-220825

Lab Sample ID: 410-95817-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	56	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-515-W-220825

Lab Sample ID: 410-95817-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	43	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-516-W-220825

Lab Sample ID: 410-95817-5

No Detections.

## Client Sample ID: MW-517-W-220825

Lab Sample ID: 410-95817-6

No Detections.

## Client Sample ID: QA-T-220825

Lab Sample ID: 410-95817-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	45	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-8R-W-220825**

**Lab Sample ID: 410-95817-1**

Date Collected: 08/25/22 10:16

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 18:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 18:33	1
4-Bromofluorobenzene (Surr)	99		80 - 120					08/31/22 18:33	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 18:33	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 18:33	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		09/01/22 08:29	09/01/22 20:13	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		09/01/22 08:29	09/01/22 20:13	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		09/01/22 08:29	09/01/22 20:13	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		09/01/22 08:29	09/01/22 20:13	1
Chrysene	ND		0.054	0.011	ug/L		09/01/22 08:29	09/01/22 20:13	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		09/01/22 08:29	09/01/22 20:13	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		09/01/22 08:29	09/01/22 20:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	86		10 - 110				09/01/22 08:29	09/01/22 20:13	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				09/01/22 08:29	09/01/22 20:13	1
Fluoranthene-d10 (Surr)	85		47 - 128				09/01/22 08:29	09/01/22 20:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	51	J	250	43	ug/L			09/06/22 17:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					09/06/22 17:06	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	110	49	ug/L		09/07/22 09:10	09/12/22 13:24	1
C24-C40	ND		270	110	ug/L		09/07/22 09:10	09/12/22 13:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	81		50 - 150				09/07/22 09:10	09/12/22 13:24	1

**Client Sample ID: MW-513-W-220825**

**Lab Sample ID: 410-95817-2**

Date Collected: 08/25/22 11:46

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 18:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 18:57	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 18:57	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 18:57	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 18:57	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-513-W-220825**

**Lab Sample ID: 410-95817-2**

Date Collected: 08/25/22 11:46

Matrix: Water

Date Received: 08/26/22 10:12

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		09/01/22 08:29	09/01/22 20:34	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		09/01/22 08:29	09/01/22 20:34	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		09/01/22 08:29	09/01/22 20:34	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		09/01/22 08:29	09/01/22 20:34	1
Chrysene	ND		0.056	0.011	ug/L		09/01/22 08:29	09/01/22 20:34	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		09/01/22 08:29	09/01/22 20:34	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		09/01/22 08:29	09/01/22 20:34	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	47		10 - 110				09/01/22 08:29	09/01/22 20:34	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				09/01/22 08:29	09/01/22 20:34	1
Fluoranthene-d10 (Surr)	84		47 - 128				09/01/22 08:29	09/01/22 20:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>57</b>	<b>J</b>	250	43	ug/L			09/06/22 17:31	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	97		50 - 150					09/06/22 17:31	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>71</b>	<b>J *1 cn</b>	110	49	ug/L		09/07/22 09:10	09/12/22 13:47	1
C24-C40	ND	cn	270	110	ug/L		09/07/22 09:10	09/12/22 13:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	45	S1- cn	50 - 150				09/07/22 09:10	09/12/22 13:47	1

**Client Sample ID: MW-514-W-220825**

**Lab Sample ID: 410-95817-3**

Date Collected: 08/25/22 12:40

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 19:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	106		80 - 120					08/31/22 19:21	1
4-Bromofluorobenzene (Surr)	99		80 - 120					08/31/22 19:21	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 19:21	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 19:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 20:56	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 20:56	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 20:56	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 20:56	1
Chrysene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 20:56	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		09/01/22 08:29	09/01/22 20:56	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		09/01/22 08:29	09/01/22 20:56	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-514-W-220825**

**Lab Sample ID: 410-95817-3**

Date Collected: 08/25/22 12:40

Matrix: Water

Date Received: 08/26/22 10:12

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 110	09/01/22 08:29	09/01/22 20:56	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111	09/01/22 08:29	09/01/22 20:56	1
Fluoranthene-d10 (Surr)	86		47 - 128	09/01/22 08:29	09/01/22 20:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	56	J	250	43	ug/L			09/06/22 17:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		09/06/22 17:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/07/22 09:10	09/12/22 14:09	1
C24-C40	ND		260	100	ug/L		09/07/22 09:10	09/12/22 14:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	88		50 - 150	09/07/22 09:10	09/12/22 14:09	1

**Client Sample ID: MW-515-W-220825**

**Lab Sample ID: 410-95817-4**

Date Collected: 08/25/22 08:45

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 19:45	1
4-Bromofluorobenzene (Surr)	99		80 - 120		08/31/22 19:45	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 19:45	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 19:45	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		09/01/22 08:29	09/01/22 21:17	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		09/01/22 08:29	09/01/22 21:17	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		09/01/22 08:29	09/01/22 21:17	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		09/01/22 08:29	09/01/22 21:17	1
Chrysene	ND		0.052	0.010	ug/L		09/01/22 08:29	09/01/22 21:17	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		09/01/22 08:29	09/01/22 21:17	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		09/01/22 08:29	09/01/22 21:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	41		10 - 110	09/01/22 08:29	09/01/22 21:17	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111	09/01/22 08:29	09/01/22 21:17	1
Fluoranthene-d10 (Surr)	87		47 - 128	09/01/22 08:29	09/01/22 21:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	43	J	250	43	ug/L			09/06/22 19:39	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-515-W-220825**

**Lab Sample ID: 410-95817-4**

Date Collected: 08/25/22 08:45

Matrix: Water

Date Received: 08/26/22 10:12

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/06/22 19:39	1			
<b>Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/07/22 09:10	09/12/22 14:55	1
C24-C40	ND		260	100	ug/L		09/07/22 09:10	09/12/22 14:55	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-terphenyl (Surr)	77		50 - 150	09/07/22 09:10	09/12/22 14:55	1			

**Client Sample ID: MW-516-W-220825**

**Lab Sample ID: 410-95817-5**

Date Collected: 08/25/22 10:00

Matrix: Water

Date Received: 08/26/22 10:12

<b>Method: 8260D/UST - Volatile Organic Compounds by GC/MS</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 20:10	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 20:10	1			
4-Bromofluorobenzene (Surr)	101		80 - 120		08/31/22 20:10	1			
Dibromofluoromethane (Surr)	101		80 - 120		08/31/22 20:10	1			
Toluene-d8 (Surr)	103		80 - 120		08/31/22 20:10	1			

<b>Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 21:39	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 21:39	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 21:39	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 21:39	1
Chrysene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 21:39	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		09/01/22 08:29	09/01/22 21:39	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		09/01/22 08:29	09/01/22 21:39	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	48		10 - 110	09/01/22 08:29	09/01/22 21:39	1			
1-Methylnaphthalene-d10 (Surr)	79		36 - 111	09/01/22 08:29	09/01/22 21:39	1			
Fluoranthene-d10 (Surr)	87		47 - 128	09/01/22 08:29	09/01/22 21:39	1			

<b>Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/06/22 20:05	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		09/06/22 20:05	1			

<b>Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH</b>									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/07/22 09:10	09/12/22 15:18	1
C24-C40	ND		250	100	ug/L		09/07/22 09:10	09/12/22 15:18	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
o-terphenyl (Surr)	75		50 - 150	09/07/22 09:10	09/12/22 15:18	1			

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-517-W-220825**

**Lab Sample ID: 410-95817-6**

Date Collected: 08/25/22 11:20

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 20:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 20:34	1
4-Bromofluorobenzene (Surr)	98		80 - 120					08/31/22 20:34	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 20:34	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 20:34	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 22:00	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 22:00	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 22:00	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 22:00	1
Chrysene	ND		0.051	0.010	ug/L		09/01/22 08:29	09/01/22 22:00	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		09/01/22 08:29	09/01/22 22:00	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		09/01/22 08:29	09/01/22 22:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44		10 - 110				09/01/22 08:29	09/01/22 22:00	1
1-Methylnaphthalene-d10 (Surr)	78		36 - 111				09/01/22 08:29	09/01/22 22:00	1
Fluoranthene-d10 (Surr)	87		47 - 128				09/01/22 08:29	09/01/22 22:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/06/22 20:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					09/06/22 20:30	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/07/22 09:10	09/12/22 15:41	1
C24-C40	ND		260	100	ug/L		09/07/22 09:10	09/12/22 15:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	77		50 - 150				09/07/22 09:10	09/12/22 15:41	1

**Client Sample ID: QA-T-220825**

**Lab Sample ID: 410-95817-7**

Date Collected: 08/25/22 00:00

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			09/02/22 16:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		80 - 120					09/02/22 16:26	1
4-Bromofluorobenzene (Surr)	93		80 - 120					09/02/22 16:26	1
Dibromofluoromethane (Surr)	100		80 - 120					09/02/22 16:26	1
Toluene-d8 (Surr)	105		80 - 120					09/02/22 16:26	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: QA-T-220825**

**Lab Sample ID: 410-95817-7**

Date Collected: 08/25/22 00:00

Matrix: Water

Date Received: 08/26/22 10:12

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	45	J	250	43	ug/L			09/06/22 14:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					09/06/22 14:05	1

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

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-95817-1	MW-8R-W-220825	107	99	102	100
410-95817-2	MW-513-W-220825	107	100	103	101
410-95817-3	MW-514-W-220825	106	99	102	101
410-95817-4	MW-515-W-220825	107	99	103	101
410-95817-5	MW-516-W-220825	107	101	101	103
410-95817-6	MW-517-W-220825	108	98	103	100
410-95817-7	QA-T-220825	100	93	100	105
LCS 410-291396/4	Lab Control Sample	109	101	102	101
LCS 410-292465/4	Lab Control Sample	101	93	97	107
LCS 410-291396/5	Lab Control Sample Dup	109	103	101	101
MB 410-291396/6	Method Blank	108	100	104	101
MB 410-292465/5	Method Blank	99	92	99	105

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-95817-1	MW-8R-W-220825	86	76	85
410-95817-2	MW-513-W-220825	47	76	84
410-95817-3	MW-514-W-220825	56	78	86
410-95817-4	MW-515-W-220825	41	79	87
410-95817-5	MW-516-W-220825	48	79	87
410-95817-6	MW-517-W-220825	44	78	87
LCS 410-291816/2-A	Lab Control Sample	91	69	84
LCS 410-291816/3-A	Lab Control Sample Dup	90	71	82
MB 410-291816/1-A	Method Blank	90	77	87

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-95817-1	MW-8R-W-220825	99
410-95817-2	MW-513-W-220825	97
410-95817-3	MW-514-W-220825	98
410-95817-4	MW-515-W-220825	99
410-95817-5	MW-516-W-220825	101

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TFT-F1 (50-150)
410-95817-6	MW-517-W-220825	99
410-95817-7	QA-T-220825	101
LCS 410-292919/5	Lab Control Sample	93
LCSD 410-292919/6	Lab Control Sample Dup	93
MB 410-292919/4	Method Blank	100

#### Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-95817-1	MW-8R-W-220825	81
410-95817-2	MW-513-W-220825	45 S1- cn
410-95817-3	MW-514-W-220825	88
410-95817-3 DU	MW-514-W-220825	89
410-95817-4	MW-515-W-220825	77
410-95817-5	MW-516-W-220825	75
410-95817-6	MW-517-W-220825	77
LCS 410-293299/2-B	Lab Control Sample	95
LCSD 410-293299/3-B	Lab Control Sample Dup	80
MB 410-293299/1-B	Method Blank	69

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

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

**Lab Sample ID: MB 410-291396/6**  
**Matrix: Water**  
**Analysis Batch: 291396**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 11:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 11:35	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 11:35	1
Dibromofluoromethane (Surr)	104		80 - 120					08/31/22 11:35	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 11:35	1

**Lab Sample ID: LCS 410-291396/4**  
**Matrix: Water**  
**Analysis Batch: 291396**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.9		ug/L		109	80 - 120	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					
4-Bromofluorobenzene (Surr)	101		80 - 120					
Dibromofluoromethane (Surr)	102		80 - 120					
Toluene-d8 (Surr)	101		80 - 120					

**Lab Sample ID: LCSD 410-291396/5**  
**Matrix: Water**  
**Analysis Batch: 291396**

**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	20.0	19.9		ug/L		99	80 - 120	9	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	109		80 - 120						
4-Bromofluorobenzene (Surr)	103		80 - 120						
Dibromofluoromethane (Surr)	101		80 - 120						
Toluene-d8 (Surr)	101		80 - 120						

**Lab Sample ID: MB 410-292465/5**  
**Matrix: Water**  
**Analysis Batch: 292465**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			09/02/22 15:38	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					09/02/22 15:38	1
4-Bromofluorobenzene (Surr)	92		80 - 120					09/02/22 15:38	1
Dibromofluoromethane (Surr)	99		80 - 120					09/02/22 15:38	1
Toluene-d8 (Surr)	105		80 - 120					09/02/22 15:38	1



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

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

Lab Sample ID: LCS 410-292465/4

Matrix: Water

Analysis Batch: 292465

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	18.1		ug/L		90	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	93		80 - 120
Dibromofluoromethane (Surr)	97		80 - 120
Toluene-d8 (Surr)	107		80 - 120

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-291816/1-A

Matrix: Water

Analysis Batch: 292126

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 291816

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		09/01/22 08:29	09/01/22 17:43	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		09/01/22 08:29	09/01/22 17:43	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		09/01/22 08:29	09/01/22 17:43	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		09/01/22 08:29	09/01/22 17:43	1
Chrysene	ND		0.050	0.010	ug/L		09/01/22 08:29	09/01/22 17:43	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		09/01/22 08:29	09/01/22 17:43	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		09/01/22 08:29	09/01/22 17:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	90		10 - 110	09/01/22 08:29	09/01/22 17:43	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111	09/01/22 08:29	09/01/22 17:43	1
Fluoranthene-d10 (Surr)	87		47 - 128	09/01/22 08:29	09/01/22 17:43	1

Lab Sample ID: LCS 410-291816/2-A

Matrix: Water

Analysis Batch: 292126

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 291816

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	0.901		ug/L		90	61 - 122
Benzo[a]pyrene	1.00	0.856		ug/L		86	60 - 120
Benzo[b]fluoranthene	1.00	0.850		ug/L		85	58 - 122
Benzo[k]fluoranthene	1.00	0.917		ug/L		92	57 - 128
Chrysene	1.00	0.861		ug/L		86	55 - 123
Dibenz(a,h)anthracene	1.00	0.932		ug/L		93	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.967		ug/L		97	47 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	91		10 - 110
1-Methylnaphthalene-d10 (Surr)	69		36 - 111
Fluoranthene-d10 (Surr)	84		47 - 128

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 410-291816/3-A  
Matrix: Water  
Analysis Batch: 291226

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 291816

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	1.00	0.903		ug/L		90	61 - 122	0	30	
Benzo[a]pyrene	1.00	0.858		ug/L		86	60 - 120	0	30	
Benzo[b]fluoranthene	1.00	0.839		ug/L		84	58 - 122	1	30	
Benzo[k]fluoranthene	1.00	0.880		ug/L		88	57 - 128	4	30	
Chrysene	1.00	0.871		ug/L		87	55 - 123	1	30	
Dibenz(a,h)anthracene	1.00	0.951		ug/L		95	50 - 121	2	30	
Indeno[1,2,3-cd]pyrene	1.00	0.990		ug/L		99	47 - 143	2	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	90		10 - 110
1-Methylnaphthalene-d10 (Surr)	71		36 - 111
Fluoranthene-d10 (Surr)	82		47 - 128

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

Lab Sample ID: MB 410-292919/4  
Matrix: Water  
Analysis Batch: 292919

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	43	ug/L			09/06/22 11:58	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		09/06/22 11:58	1

Lab Sample ID: LCS 410-292919/5  
Matrix: Water  
Analysis Batch: 292919

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
C7-C12 (1C)	1100	1090		ug/L		99	64 - 131	

Surrogate	LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150

Lab Sample ID: LCSD 410-292919/6  
Matrix: Water  
Analysis Batch: 292919

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
C7-C12 (1C)	1100	1110		ug/L		101	64 - 131	1	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-293299/1-B**

**Matrix: Water**

**Analysis Batch: 294769**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 293299**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		09/07/22 09:10	09/12/22 11:06	1
C24-C40	ND		250	100	ug/L		09/07/22 09:10	09/12/22 11:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
<i>o</i> -terphenyl (Surr)	69		50 - 150			09/07/22 09:10	09/12/22 11:06	1	

**Lab Sample ID: LCS 410-293299/2-B**

**Matrix: Water**

**Analysis Batch: 294769**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 293299**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
C12-C24	600	272		ug/L		45	14 - 115
Surrogate	%Recovery	Qualifier	Limits				
<i>o</i> -terphenyl (Surr)	95		50 - 150				

**Lab Sample ID: LCSD 410-293299/3-B**

**Matrix: Water**

**Analysis Batch: 294769**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 293299**

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier					RPD	Limit
C12-C24	600	188	*1	ug/L		31	14 - 115	36	20
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -terphenyl (Surr)	80		50 - 150						

**Lab Sample ID: 410-95817-3 DU**

**Matrix: Water**

**Analysis Batch: 294769**

**Client Sample ID: MW-514-W-220825**

**Prep Type: Total/NA**

**Prep Batch: 293299**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier		Result				Qualifier	RPD
C12-C24	ND	*1	ND	*1	ug/L		NC	20	
C24-C40	ND		ND		ug/L		NC	20	
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -terphenyl (Surr)	89		50 - 150						

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## GC/MS VOA

### Analysis Batch: 291396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	8260D/UST	
410-95817-2	MW-513-W-220825	Total/NA	Water	8260D/UST	
410-95817-3	MW-514-W-220825	Total/NA	Water	8260D/UST	
410-95817-4	MW-515-W-220825	Total/NA	Water	8260D/UST	
410-95817-5	MW-516-W-220825	Total/NA	Water	8260D/UST	
410-95817-6	MW-517-W-220825	Total/NA	Water	8260D/UST	
MB 410-291396/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-291396/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-291396/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

### Analysis Batch: 292465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-7	QA-T-220825	Total/NA	Water	8260D/UST	
MB 410-292465/5	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-292465/4	Lab Control Sample	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 291816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	3510C	
410-95817-2	MW-513-W-220825	Total/NA	Water	3510C	
410-95817-3	MW-514-W-220825	Total/NA	Water	3510C	
410-95817-4	MW-515-W-220825	Total/NA	Water	3510C	
410-95817-5	MW-516-W-220825	Total/NA	Water	3510C	
410-95817-6	MW-517-W-220825	Total/NA	Water	3510C	
MB 410-291816/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-291816/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-291816/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 292126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	8270E SIM	291816
410-95817-2	MW-513-W-220825	Total/NA	Water	8270E SIM	291816
410-95817-3	MW-514-W-220825	Total/NA	Water	8270E SIM	291816
410-95817-4	MW-515-W-220825	Total/NA	Water	8270E SIM	291816
410-95817-5	MW-516-W-220825	Total/NA	Water	8270E SIM	291816
410-95817-6	MW-517-W-220825	Total/NA	Water	8270E SIM	291816
MB 410-291816/1-A	Method Blank	Total/NA	Water	8270E SIM	291816
LCS 410-291816/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	291816
LCSD 410-291816/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	291816

## GC VOA

### Analysis Batch: 292919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	NWTPH-Gx	
410-95817-2	MW-513-W-220825	Total/NA	Water	NWTPH-Gx	
410-95817-3	MW-514-W-220825	Total/NA	Water	NWTPH-Gx	
410-95817-4	MW-515-W-220825	Total/NA	Water	NWTPH-Gx	
410-95817-5	MW-516-W-220825	Total/NA	Water	NWTPH-Gx	
410-95817-6	MW-517-W-220825	Total/NA	Water	NWTPH-Gx	

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## GC VOA (Continued)

### Analysis Batch: 292919 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-7	QA-T-220825	Total/NA	Water	NWTPH-Gx	
MB 410-292919/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-292919/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-292919/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 293299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	3510C	
410-95817-2	MW-513-W-220825	Total/NA	Water	3510C	
410-95817-3	MW-514-W-220825	Total/NA	Water	3510C	
410-95817-4	MW-515-W-220825	Total/NA	Water	3510C	
410-95817-5	MW-516-W-220825	Total/NA	Water	3510C	
410-95817-6	MW-517-W-220825	Total/NA	Water	3510C	
MB 410-293299/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-95817-3 DU	MW-514-W-220825	Total/NA	Water	3510C	

### Cleanup Batch: 294505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	3630C	293299
410-95817-2	MW-513-W-220825	Total/NA	Water	3630C	293299
410-95817-3	MW-514-W-220825	Total/NA	Water	3630C	293299
410-95817-4	MW-515-W-220825	Total/NA	Water	3630C	293299
410-95817-5	MW-516-W-220825	Total/NA	Water	3630C	293299
410-95817-6	MW-517-W-220825	Total/NA	Water	3630C	293299
MB 410-293299/1-B	Method Blank	Total/NA	Water	3630C	293299
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	3630C	293299
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	293299
410-95817-3 DU	MW-514-W-220825	Total/NA	Water	3630C	293299

### Analysis Batch: 294769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95817-1	MW-8R-W-220825	Total/NA	Water	NWTPH-Dx	294505
410-95817-2	MW-513-W-220825	Total/NA	Water	NWTPH-Dx	294505
410-95817-3	MW-514-W-220825	Total/NA	Water	NWTPH-Dx	294505
410-95817-4	MW-515-W-220825	Total/NA	Water	NWTPH-Dx	294505
410-95817-5	MW-516-W-220825	Total/NA	Water	NWTPH-Dx	294505
410-95817-6	MW-517-W-220825	Total/NA	Water	NWTPH-Dx	294505
MB 410-293299/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	294505
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	294505
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	294505
410-95817-3 DU	MW-514-W-220825	Total/NA	Water	NWTPH-Dx	294505

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

### Client Sample ID: MW-8R-W-220825

Lab Sample ID: 410-95817-1

Date Collected: 08/25/22 10:16

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 18:33
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 20:13
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 17:06
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 13:24

### Client Sample ID: MW-513-W-220825

Lab Sample ID: 410-95817-2

Date Collected: 08/25/22 11:46

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 18:57
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 20:34
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 17:31
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 13:47

### Client Sample ID: MW-514-W-220825

Lab Sample ID: 410-95817-3

Date Collected: 08/25/22 12:40

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 19:21
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 20:56
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 17:56
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 14:09

### Client Sample ID: MW-515-W-220825

Lab Sample ID: 410-95817-4

Date Collected: 08/25/22 08:45

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 19:45
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 21:17
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 19:39

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

**Client Sample ID: MW-515-W-220825**

**Lab Sample ID: 410-95817-4**

Date Collected: 08/25/22 08:45

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 14:55

**Client Sample ID: MW-516-W-220825**

**Lab Sample ID: 410-95817-5**

Date Collected: 08/25/22 10:00

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 20:10
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 21:39
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 20:05
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 15:18

**Client Sample ID: MW-517-W-220825**

**Lab Sample ID: 410-95817-6**

Date Collected: 08/25/22 11:20

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 20:34
Total/NA	Prep	3510C			291816	YDF5	ELLE	09/01/22 08:29
Total/NA	Analysis	8270E SIM		1	292126	UJM0	ELLE	09/01/22 22:00
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 20:30
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 15:41

**Client Sample ID: QA-T-220825**

**Lab Sample ID: 410-95817-7**

Date Collected: 08/25/22 00:00

Matrix: Water

Date Received: 08/26/22 10:12

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	292465	UKAD	ELLE	09/02/22 16:26
Total/NA	Analysis	NWTPH-Gx		1	292919	MXX6	ELLE	09/06/22 14:05

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95817-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-95817-1	MW-8R-W-220825	Water	08/25/22 10:16	08/26/22 10:12
410-95817-2	MW-513-W-220825	Water	08/25/22 11:46	08/26/22 10:12
410-95817-3	MW-514-W-220825	Water	08/25/22 12:40	08/26/22 10:12
410-95817-4	MW-515-W-220825	Water	08/25/22 08:45	08/26/22 10:12
410-95817-5	MW-516-W-220825	Water	08/25/22 10:00	08/26/22 10:12
410-95817-6	MW-517-W-220825	Water	08/25/22 11:20	08/26/22 10:12
410-95817-7	QA-T-220825	Water	08/25/22 00:00	08/26/22 10:12

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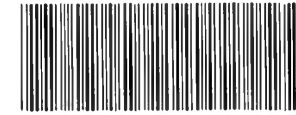
15

# Chevron Northwest Region Analysis Request Form



**Lancaster Laboratories Environmental**

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 Instructions on reverse side correspond with circled numbers



410-95817 Chain of Custody

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks					
Facility # <u>WBS</u> <u>Edmonds Terminal</u> Site Address <u>11720 Union Oil Company Road</u> Chevron PM <u>James Kiernan</u> Lead Consultant Consultant/Office <u>Arcoadis</u> <u>1100 Olive Way, Suite 800, Seattle, WA 98101</u> Consultant Project Mgr. <u>Sam Miles</u> Consultant Phone # _____				<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				Total Number of Containers _____ BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan _____ Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ <u>Benzene 8260</u> <u>CPAHs 8270 SIM</u>										SUR # _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits					
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method	6 Remarks	
Date	Time	Date	Time																				
MW-9R	8-25-22	1016		X			X		10				X	X									* use standard SGL * Benzene and CPAHs with quantitative < 1 mg/L
MW-513	8-25-22	1146		X			X		6				X	X									
MW-514	8-25-22	1240		X			X		6				X	X									
MW-515	8-25-22	0845		X			X		6				X	X									
MW-516	8-25-22	1000		X			X		6				X	X									
MW-517	8-25-22	1120		X			X		6				X	X									
Trip Blank	8-25-22	-							4				X										
7 Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard    5 day    4 day 72 hour    48 hour    24 hour				Relinquished by <u>Danielle Gilbert</u> Date <u>8-25-2022</u> Time <u>1430</u>			Received by _____ Date _____ Time _____			Relinquished by _____ Date _____ Time _____			Received by _____ Date _____ Time _____										
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____			Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____ Temperature Upon Receipt _____ °C						Received by <u>[Signature]</u> Date <u>8/25/22</u> Time <u>1112</u> Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										

ASLI

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-95817-1

Login Number: 95817

List Number: 1

Creator: Hess, Anna

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-95719-1  
Client Project/Site: Edmonds Terminal  
Revision: 1

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
9/23/2022 12:38:51 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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



Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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A handwritten signature in black ink that reads "Amek Carter". The signature is written in a cursive, flowing style.

---

Amek Carter  
Project Manager  
9/23/2022 12:38:51 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC/MS Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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

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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

1

2

3

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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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## Job ID: 410-95719-1

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### Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

#### Narrative

#### Job Narrative 410-95719-1

#### Revision

The report being provided is a revision of the original report sent on 9/20/2022. The report (revision 1) is being revised due to: NWTPH-Gx foaming comment added to Case Narrative.

#### Receipt

The samples were received on 8/25/2022 10:14 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.9° C, 5.1° C and 5.9° C.

#### GC/MS VOA

Method 8260D/UST: Internal standard (ISTD) response for t-Butyl alcohol-d10 for the following sample was outside acceptance criteria: MW-520-W-220824 (410-95719-8). This ISTD does not correspond to any of the requested target compounds; therefore, the data have been reported.

Method 8260D/UST: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: LM-2-W-220824 (410-95719-1). Elevated reporting limits (RLs) are provided.

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

#### GC/MS Semi VOA

Method 8270E SIM: Surrogate recovery for the following samples were outside the upper control limit: MW-101-W-220824 (410-95719-2) and DUP-4-WD-220824 (410-95719-13). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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

#### GC VOA

Method NWTPH-Gx: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: LM-2-W-220824 (410-95719-1). Elevated reporting limits (RLs) are provided.

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

#### GC Semi VOA

Method NWTPH-Dx: The method blank for preparation batch 410-292264 and 410-294701 contained C24-C40 above the MDL. The samples were non-detect for C24-C40; therefore, the data is reported.

Method NWTPH-Dx: The o- terphenyl (Surr) surrogate recovery for laboratory control sample duplicate (LCSD) associated with preparation batch 410-292264 and 410-294701 and analytical batch 410-294763 was outside the lower control limits. The recoveries for the analytes of interest were within acceptable control limits. The data is reported.

Method NWTPH-Dx: Surrogate recovery for the following sample was outside control limits: LM-2-W-220824 (410-95719-1). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results. Since the method holding time expired prior to re-analysis, data is reported from the first trial.

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## Client Sample ID: LM-2-W-220824

Lab Sample ID: 410-95719-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	2100	J cn	2500	430	ug/L	10		NWTPH-Gx	Total/NA

## Client Sample ID: MW-101-W-220824

Lab Sample ID: 410-95719-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1500		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	79	J *1	100	46	ug/L	1		NWTPH-Dx	Total/NA

## Client Sample ID: MW-139R-W-220824

Lab Sample ID: 410-95719-3

No Detections.

## Client Sample ID: MW-20R-W-220824

Lab Sample ID: 410-95719-4

No Detections.

## Client Sample ID: MW-503-W-220824

Lab Sample ID: 410-95719-5

No Detections.

## Client Sample ID: MW-509-W-220824

Lab Sample ID: 410-95719-6

No Detections.

## Client Sample ID: MW-512-W-220824

Lab Sample ID: 410-95719-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	97	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-520-W-220824

Lab Sample ID: 410-95719-8

No Detections.

## Client Sample ID: MW-521-W-220824

Lab Sample ID: 410-95719-9

No Detections.

## Client Sample ID: MW-522-W-220824

Lab Sample ID: 410-95719-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	44	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-530-W-220824

Lab Sample ID: 410-95719-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	52	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-535-W-220824

Lab Sample ID: 410-95719-12

No Detections.

## Client Sample ID: DUP-4-WD-220824

Lab Sample ID: 410-95719-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1500		250	43	ug/L	1		NWTPH-Gx	Total/NA
C12-C24	84	J *1	100	46	ug/L	1		NWTPH-Dx	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: QA-T-220824**

**Lab Sample ID: 410-95719-14**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	110	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

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

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: LM-2-W-220824**

**Lab Sample ID: 410-95719-1**

Date Collected: 08/24/22 10:15

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	5.0	1.5	ug/L			08/31/22 20:58	5
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	106	cn	80 - 120					08/31/22 20:58	5
4-Bromofluorobenzene (Surr)	99	cn	80 - 120					08/31/22 20:58	5
Dibromofluoromethane (Surr)	102	cn	80 - 120					08/31/22 20:58	5
Toluene-d8 (Surr)	101	cn	80 - 120					08/31/22 20:58	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Chrysene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 09:43	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 09:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	44		10 - 110				08/31/22 15:47	09/01/22 09:43	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111				08/31/22 15:47	09/01/22 09:43	1
Fluoranthene-d10 (Surr)	75		47 - 128				08/31/22 15:47	09/01/22 09:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>2100</b>	<b>J cn</b>	2500	430	ug/L			08/31/22 14:04	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101	cn	50 - 150					08/31/22 14:04	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1 cn	100	47	ug/L		09/02/22 07:29	09/12/22 16:50	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 16:50	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	47	S1- cn	50 - 150				09/02/22 07:29	09/12/22 16:50	1

**Client Sample ID: MW-101-W-220824**

**Lab Sample ID: 410-95719-2**

Date Collected: 08/24/22 13:55

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 12:54	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 12:54	1
4-Bromofluorobenzene (Surr)	102		80 - 120					08/31/22 12:54	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 12:54	1
Toluene-d8 (Surr)	99		80 - 120					08/31/22 12:54	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-101-W-220824**

**Lab Sample ID: 410-95719-2**

Date Collected: 08/24/22 13:55

Matrix: Water

Date Received: 08/25/22 10:14

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[a]pyrene	ND	cn	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[b]fluoranthene	ND	cn	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[k]fluoranthene	ND	cn	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Chrysene	ND	cn	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Dibenz(a,h)anthracene	ND	cn	0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:05	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56	cn	10 - 110	08/31/22 15:47	09/01/22 10:05	1
1-Methylnaphthalene-d10 (Surr)	159	S1+ cn	36 - 111	08/31/22 15:47	09/01/22 10:05	1
Fluoranthene-d10 (Surr)	123	cn	47 - 128	08/31/22 15:47	09/01/22 10:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1500		250	43	ug/L			08/31/22 14:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 14:29	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	79	J *1	100	46	ug/L		09/02/22 07:29	09/12/22 17:13	1
C24-C40	ND	cn	250	100	ug/L		09/02/22 07:29	09/12/22 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	75	cn	50 - 150	09/02/22 07:29	09/12/22 17:13	1

**Client Sample ID: MW-139R-W-220824**

**Lab Sample ID: 410-95719-3**

Date Collected: 08/24/22 11:15

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:18	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 13:18	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 13:18	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 13:18	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:27	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:27	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-139R-W-220824**

**Lab Sample ID: 410-95719-3**

Date Collected: 08/24/22 11:15

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	08/31/22 15:47	09/01/22 10:27	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 10:27	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/31/22 15:47	09/01/22 10:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 20:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		09/02/22 20:32	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 17:36	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 17:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	55	cn	50 - 150	09/02/22 07:29	09/12/22 17:36	1

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

Date Collected: 08/24/22 12:16

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:42	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 13:42	1
Dibromofluoromethane (Surr)	102		80 - 120		08/31/22 13:42	1
Toluene-d8 (Surr)	102		80 - 120		08/31/22 13:42	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 10:48	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 10:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	26		10 - 110	08/31/22 15:47	09/01/22 10:48	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/31/22 15:47	09/01/22 10:48	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/31/22 15:47	09/01/22 10:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 20:57	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

Date Collected: 08/24/22 12:16

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/02/22 20:57	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	47	ug/L		09/02/22 07:29	09/12/22 17:59	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70	cn	50 - 150	09/02/22 07:29	09/12/22 17:59	1

**Client Sample ID: MW-503-W-220824**

**Lab Sample ID: 410-95719-5**

Date Collected: 08/24/22 08:52

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 14:06	1
4-Bromofluorobenzene (Surr)	98		80 - 120		08/31/22 14:06	1
Dibromofluoromethane (Surr)	102		80 - 120		08/31/22 14:06	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 14:06	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Chrysene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		08/31/22 15:47	09/01/22 11:10	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		08/31/22 15:47	09/01/22 11:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	66		10 - 110	08/31/22 15:47	09/01/22 11:10	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 11:10	1
Fluoranthene-d10 (Surr)	79		47 - 128	08/31/22 15:47	09/01/22 11:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 21:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/02/22 21:23	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	110	48	ug/L		09/02/22 07:29	09/12/22 18:45	1
C24-C40	ND	cn	270	110	ug/L		09/02/22 07:29	09/12/22 18:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65	cn	50 - 150	09/02/22 07:29	09/12/22 18:45	1

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-509-W-220824**

**Lab Sample ID: 410-95719-6**

Date Collected: 08/24/22 12:35

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 14:30	1
4-Bromofluorobenzene (Surr)	98		80 - 120					08/31/22 14:30	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:30	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 14:30	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:32	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:32	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	14		10 - 110					08/31/22 15:47	09/01/22 11:32
1-Methylnaphthalene-d10 (Surr)	67		36 - 111					08/31/22 15:47	09/01/22 11:32
Fluoranthene-d10 (Surr)	73		47 - 128					08/31/22 15:47	09/01/22 11:32

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 16:12	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					08/31/22 16:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 19:08	1
C24-C40	ND	cn	250	100	ug/L		09/02/22 07:29	09/12/22 19:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	66	cn	50 - 150					09/02/22 07:29	09/12/22 19:08

**Client Sample ID: MW-512-W-220824**

**Lab Sample ID: 410-95719-7**

Date Collected: 08/24/22 09:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 14:55	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 14:55	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:55	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 14:55	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-512-W-220824**

**Lab Sample ID: 410-95719-7**

Date Collected: 08/24/22 09:00

Matrix: Water

Date Received: 08/25/22 10:14

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:53	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110	08/31/22 15:47	09/01/22 11:53	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/31/22 15:47	09/01/22 11:53	1
Fluoranthene-d10 (Surr)	72		47 - 128	08/31/22 15:47	09/01/22 11:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	97	J	250	43	ug/L			08/31/22 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 16:38	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	46	ug/L		09/02/22 07:29	09/12/22 19:30	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67	cn	50 - 150	09/02/22 07:29	09/12/22 19:30	1

**Client Sample ID: MW-520-W-220824**

**Lab Sample ID: 410-95719-8**

Date Collected: 08/24/22 12:22

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			08/31/22 15:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102	cn	80 - 120		08/31/22 15:20	1
4-Bromofluorobenzene (Surr)	99	cn	80 - 120		08/31/22 15:20	1
Dibromofluoromethane (Surr)	102	cn	80 - 120		08/31/22 15:20	1
Toluene-d8 (Surr)	100	cn	80 - 120		08/31/22 15:20	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 12:15	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 12:15	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-520-W-220824**

**Lab Sample ID: 410-95719-8**

Date Collected: 08/24/22 12:22

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	34		10 - 110	08/31/22 15:47	09/01/22 12:15	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	08/31/22 15:47	09/01/22 12:15	1
Fluoranthene-d10 (Surr)	81		47 - 128	08/31/22 15:47	09/01/22 12:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		08/31/22 17:03	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	110	49	ug/L		09/02/22 07:29	09/12/22 19:53	1
C24-C40	ND	cn	270	110	ug/L		09/02/22 07:29	09/12/22 19:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	74	cn	50 - 150	09/02/22 07:29	09/12/22 19:53	1

**Client Sample ID: MW-521-W-220824**

**Lab Sample ID: 410-95719-9**

Date Collected: 08/24/22 13:02

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 15:44	1
4-Bromofluorobenzene (Surr)	99		80 - 120		08/31/22 15:44	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 15:44	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 15:44	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Chrysene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 12:37	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 12:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	76		10 - 110	08/31/22 15:47	09/01/22 12:37	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111	08/31/22 15:47	09/01/22 12:37	1
Fluoranthene-d10 (Surr)	77		47 - 128	08/31/22 15:47	09/01/22 12:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 17:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-521-W-220824**

**Lab Sample ID: 410-95719-9**

Date Collected: 08/24/22 13:02

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 17:29	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	110	48	ug/L		09/02/22 07:29	09/12/22 20:39	1
C24-C40	ND	cn	270	110	ug/L		09/02/22 07:29	09/12/22 20:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73	cn	50 - 150	09/02/22 07:29	09/12/22 20:39	1

**Client Sample ID: MW-522-W-220824**

**Lab Sample ID: 410-95719-10**

Date Collected: 08/24/22 13:36

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 16:08	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 16:08	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 16:08	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 16:08	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 07:33	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 07:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110	08/31/22 15:47	09/01/22 07:33	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 07:33	1
Fluoranthene-d10 (Surr)	83		47 - 128	08/31/22 15:47	09/01/22 07:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	44	J	250	43	ug/L			08/31/22 18:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 18:45	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1 F1	100	47	ug/L		09/02/22 07:29	09/12/22 21:02	1
C24-C40	ND	cn	260	100	ug/L		09/02/22 07:29	09/12/22 21:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65	cn	50 - 150	09/02/22 07:29	09/12/22 21:02	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-530-W-220824**

**Lab Sample ID: 410-95719-11**

Date Collected: 08/24/22 10:12

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 17:21	1
4-Bromofluorobenzene (Surr)	101		80 - 120					08/31/22 17:21	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 17:21	1
Toluene-d8 (Surr)	103		80 - 120					08/31/22 17:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		08/31/22 15:47	09/01/22 12:58	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		08/31/22 15:47	09/01/22 12:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	54		10 - 110					08/31/22 15:47	09/01/22 12:58
1-Methylnaphthalene-d10 (Surr)	66		36 - 111					08/31/22 15:47	09/01/22 12:58
Fluoranthene-d10 (Surr)	71		47 - 128					08/31/22 15:47	09/01/22 12:58

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>52</b>	<b>J</b>	250	43	ug/L			08/31/22 20:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/31/22 20:02	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	47	ug/L		09/07/22 09:10	09/12/22 12:15	1
C24-C40	ND		260	100	ug/L		09/07/22 09:10	09/12/22 12:15	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	86		50 - 150					09/07/22 09:10	09/12/22 12:15

**Client Sample ID: MW-535-W-220824**

**Lab Sample ID: 410-95719-12**

Date Collected: 08/24/22 10:06

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 17:45	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 17:45	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 17:45	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 17:45	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-535-W-220824**

**Lab Sample ID: 410-95719-12**

Date Collected: 08/24/22 10:06

Matrix: Water

Date Received: 08/25/22 10:14

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 13:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	30		10 - 110	08/31/22 15:47	09/01/22 13:20	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111	08/31/22 15:47	09/01/22 13:20	1
Fluoranthene-d10 (Surr)	81		47 - 128	08/31/22 15:47	09/01/22 13:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 20:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 20:27	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1	100	47	ug/L		09/07/22 09:10	09/12/22 12:38	1
C24-C40	ND		260	100	ug/L		09/07/22 09:10	09/12/22 12:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	81		50 - 150	09/07/22 09:10	09/12/22 12:38	1

**Client Sample ID: DUP-4-WD-220824**

**Lab Sample ID: 410-95719-13**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 18:09	1
4-Bromofluorobenzene (Surr)	104		80 - 120		08/31/22 18:09	1
Dibromofluoromethane (Surr)	102		80 - 120		08/31/22 18:09	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 18:09	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Chrysene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		08/31/22 15:47	09/01/22 13:42	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		08/31/22 15:47	09/01/22 13:42	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: DUP-4-WD-220824**

**Lab Sample ID: 410-95719-13**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53	cn	10 - 110	08/31/22 15:47	09/01/22 13:42	1
1-Methylnaphthalene-d10 (Surr)	126	S1+ cn	36 - 111	08/31/22 15:47	09/01/22 13:42	1
Fluoranthene-d10 (Surr)	106	cn	47 - 128	08/31/22 15:47	09/01/22 13:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1500		250	43	ug/L			08/31/22 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 20:53	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	84	J*1	100	46	ug/L		09/07/22 09:10	09/12/22 13:01	1
C24-C40	ND		250	100	ug/L		09/07/22 09:10	09/12/22 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	83		50 - 150	09/07/22 09:10	09/12/22 13:01	1

**Client Sample ID: QA-T-220824**

**Lab Sample ID: 410-95719-14**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 12:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 12:30	1
4-Bromofluorobenzene (Surr)	101		80 - 120		08/31/22 12:30	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 12:30	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 12:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	110	J	250	43	ug/L			08/31/22 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		08/31/22 21:19	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-95719-1	LM-2-W-220824	106 cn	99 cn	102 cn	101 cn
410-95719-2	MW-101-W-220824	108	102	103	99
410-95719-3	MW-139R-W-220824	107	100	103	100
410-95719-4	MW-20R-W-220824	107	100	102	102
410-95719-5	MW-503-W-220824	107	98	102	100
410-95719-6	MW-509-W-220824	107	98	103	101
410-95719-7	MW-512-W-220824	108	100	103	100
410-95719-8	MW-520-W-220824	102 cn	99 cn	102 cn	100 cn
410-95719-9	MW-521-W-220824	108	99	103	100
410-95719-10	MW-522-W-220824	108	100	103	101
410-95719-10 MS	MW-522-MS-W-220824	110	101	102	101
410-95719-10 MSD	MW-522-MSD-W-220824	108	100	101	102
410-95719-11	MW-530-W-220824	107	101	102	103
410-95719-12	MW-535-W-220824	108	100	103	100
410-95719-13	DUP-4-WD-220824	108	104	102	101
410-95719-14	QA-T-220824	107	101	103	101
LCS 410-291396/4	Lab Control Sample	109	101	102	101
LCS 410-291396/5	Lab Control Sample Dup	109	103	101	101
MB 410-291396/6	Method Blank	108	100	104	101

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-95719-1	LM-2-W-220824	44	68	75
410-95719-2	MW-101-W-220824	56 cn	159 S1+ cn	123 cn
410-95719-3	MW-139R-W-220824	59	72	82
410-95719-4	MW-20R-W-220824	26	74	82
410-95719-5	MW-503-W-220824	66	72	79
410-95719-6	MW-509-W-220824	14	67	73
410-95719-7	MW-512-W-220824	82	74	72
410-95719-8	MW-520-W-220824	34	71	81
410-95719-9	MW-521-W-220824	76	73	77
410-95719-10	MW-522-W-220824	71	72	83
410-95719-10 MS	MW-522-MS-W-220824	76	69	83
410-95719-10 MSD	MW-522-MSD-W-220824	78	68	85
410-95719-11	MW-530-W-220824	54	66	71
410-95719-12	MW-535-W-220824	30	73	81
410-95719-13	DUP-4-WD-220824	53 cn	126 S1+ cn	106 cn
LCS 410-291653/2-A	Lab Control Sample	94	72	85
MB 410-291653/1-A	Method Blank	97	82	90

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
 MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
 FLN10 = Fluoranthene-d10 (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	TFT-F1 (50-150)
410-95719-1	LM-2-W-220824	101 cn
410-95719-2	MW-101-W-220824	101
410-95719-3	MW-139R-W-220824	101
410-95719-4	MW-20R-W-220824	99
410-95719-5	MW-503-W-220824	99
410-95719-6	MW-509-W-220824	99
410-95719-7	MW-512-W-220824	100
410-95719-8	MW-520-W-220824	99
410-95719-9	MW-521-W-220824	100
410-95719-10	MW-522-W-220824	101
410-95719-10 MS	MW-522-MS-W-220824	96
410-95719-10 MSD	MW-522-MSD-W-220824	96
410-95719-11	MW-530-W-220824	101
410-95719-12	MW-535-W-220824	100
410-95719-13	DUP-4-WD-220824	101
410-95719-14	QA-T-220824	102
LCS 410-291533/5	Lab Control Sample	94
LCS 410-292308/5	Lab Control Sample	92
LCSD 410-291533/6	Lab Control Sample Dup	94
LCSD 410-292308/6	Lab Control Sample Dup	93
MB 410-291533/4	Method Blank	100
MB 410-292308/4	Method Blank	101

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

**Matrix: Water**

**Prep Type: Total/NA**

**Percent Surrogate Recovery (Acceptance Limits)**

Lab Sample ID	Client Sample ID	OTP (50-150)
410-95719-1	LM-2-W-220824	47 S1- cn
410-95719-2	MW-101-W-220824	75 cn
410-95719-3	MW-139R-W-220824	55 cn
410-95719-4	MW-20R-W-220824	70 cn
410-95719-5	MW-503-W-220824	65 cn
410-95719-6	MW-509-W-220824	66 cn
410-95719-7	MW-512-W-220824	67 cn
410-95719-8	MW-520-W-220824	74 cn
410-95719-8 DU	MW-520-W-220824	71 cn
410-95719-9	MW-521-W-220824	73 cn
410-95719-10	MW-522-W-220824	65 cn
410-95719-10 MS	MW-522-MS-W-220824	57 cn
410-95719-10 MSD	MW-522-MSD-W-220824	62 cn
410-95719-11	MW-530-W-220824	86

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-95719-12	MW-535-W-220824	81
410-95719-13	DUP-4-WD-220824	83
LCS 410-292264/2-B	Lab Control Sample	71
LCS 410-293299/2-B	Lab Control Sample	95
LCSD 410-292264/3-B	Lab Control Sample Dup	49 S1-
LCSD 410-293299/3-B	Lab Control Sample Dup	80
MB 410-292264/1-B	Method Blank	69
MB 410-293299/1-B	Method Blank	69

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

**Lab Sample ID: MB 410-291396/6**  
**Matrix: Water**  
**Analysis Batch: 291396**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 11:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 11:35	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 11:35	1
Dibromofluoromethane (Surr)	104		80 - 120					08/31/22 11:35	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 11:35	1

**Lab Sample ID: LCS 410-291396/4**  
**Matrix: Water**  
**Analysis Batch: 291396**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.9		ug/L		109	80 - 120	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					
4-Bromofluorobenzene (Surr)	101		80 - 120					
Dibromofluoromethane (Surr)	102		80 - 120					
Toluene-d8 (Surr)	101		80 - 120					

**Lab Sample ID: LCSD 410-291396/5**  
**Matrix: Water**  
**Analysis Batch: 291396**

**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	20.0	19.9		ug/L		99	80 - 120	9	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	109		80 - 120						
4-Bromofluorobenzene (Surr)	103		80 - 120						
Dibromofluoromethane (Surr)	101		80 - 120						
Toluene-d8 (Surr)	101		80 - 120						

**Lab Sample ID: 410-95719-10 MS**  
**Matrix: Water**  
**Analysis Batch: 291396**

**Client Sample ID: MW-522-MS-W-220824**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	21.7		ug/L		108	80 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	110		80 - 120						
4-Bromofluorobenzene (Surr)	101		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	101		80 - 120						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

Lab Sample ID: 410-95719-10 MSD

Matrix: Water

Analysis Batch: 291396

Client Sample ID: MW-522-MSD-W-220824

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	23.2		ug/L		116	80 - 120	7	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	108		80 - 120								
4-Bromofluorobenzene (Surr)	100		80 - 120								
Dibromofluoromethane (Surr)	101		80 - 120								
Toluene-d8 (Surr)	102		80 - 120								

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-291653/1-A

Matrix: Water

Analysis Batch: 291791

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 291653

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		08/31/22 15:47	09/01/22 04:39	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		08/31/22 15:47	09/01/22 04:39	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		08/31/22 15:47	09/01/22 04:39	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		08/31/22 15:47	09/01/22 04:39	1
Chrysene	ND		0.050	0.010	ug/L		08/31/22 15:47	09/01/22 04:39	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		08/31/22 15:47	09/01/22 04:39	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		08/31/22 15:47	09/01/22 04:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	97		10 - 110				08/31/22 15:47	09/01/22 04:39	1
1-Methylnaphthalene-d10 (Surr)	82		36 - 111				08/31/22 15:47	09/01/22 04:39	1
Fluoranthene-d10 (Surr)	90		47 - 128				08/31/22 15:47	09/01/22 04:39	1

Lab Sample ID: LCS 410-291653/2-A

Matrix: Water

Analysis Batch: 291791

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 291653

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	0.875		ug/L		88	61 - 122
Benzo[a]pyrene	1.00	0.851		ug/L		85	60 - 120
Benzo[b]fluoranthene	1.00	1.00		ug/L		100	58 - 122
Benzo[k]fluoranthene	1.00	0.866		ug/L		87	57 - 128
Chrysene	1.00	0.795		ug/L		80	55 - 123
Dibenz(a,h)anthracene	1.00	0.952		ug/L		95	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.05		ug/L		105	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Benzo(a)pyrene-d12 (Surr)	94		10 - 110				
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				
Fluoranthene-d10 (Surr)	85		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 410-95719-10 MS

Matrix: Water

Analysis Batch: 291791

Client Sample ID: MW-522-MS-W-220824

Prep Type: Total/NA

Prep Batch: 291653

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Benzo[a]anthracene	ND		1.10	0.950		ug/L		87		61 - 122
Benzo[a]pyrene	ND		1.10	0.743		ug/L		68		60 - 120
Benzo[b]fluoranthene	ND		1.10	0.940		ug/L		86		58 - 122
Benzo[k]fluoranthene	ND		1.10	0.865		ug/L		79		57 - 128
Chrysene	ND		1.10	0.815		ug/L		74		55 - 123
Dibenz(a,h)anthracene	ND		1.10	0.931		ug/L		85		50 - 121
Indeno[1,2,3-cd]pyrene	ND		1.10	0.961		ug/L		88		47 - 143

Surrogate	MS %Recovery	MS Qualifier	MS Limits
Benzo(a)pyrene-d12 (Surr)	76		10 - 110
1-Methylnaphthalene-d10 (Surr)	69		36 - 111
Fluoranthene-d10 (Surr)	83		47 - 128

Lab Sample ID: 410-95719-10 MSD

Matrix: Water

Analysis Batch: 291791

Client Sample ID: MW-522-MSD-W-220824

Prep Type: Total/NA

Prep Batch: 291653

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Benzo[a]anthracene	ND		1.04	0.902		ug/L		86		61 - 122	5	30
Benzo[a]pyrene	ND		1.04	0.696		ug/L		67		60 - 120	7	30
Benzo[b]fluoranthene	ND		1.04	0.962		ug/L		92		58 - 122	2	30
Benzo[k]fluoranthene	ND		1.04	0.847		ug/L		81		57 - 128	2	30
Chrysene	ND		1.04	0.804		ug/L		77		55 - 123	1	30
Dibenz(a,h)anthracene	ND		1.04	0.895		ug/L		86		50 - 121	4	30
Indeno[1,2,3-cd]pyrene	ND		1.04	0.959		ug/L		92		47 - 143	0	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
Benzo(a)pyrene-d12 (Surr)	78		10 - 110
1-Methylnaphthalene-d10 (Surr)	68		36 - 111
Fluoranthene-d10 (Surr)	85		47 - 128

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

Lab Sample ID: MB 410-291533/4

Matrix: Water

Analysis Batch: 291533

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 12:22	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 12:22	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

**Lab Sample ID: LCS 410-291533/5**  
**Matrix: Water**  
**Analysis Batch: 291533**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1130		ug/L		102	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	94		50 - 150				

**Lab Sample ID: LCSD 410-291533/6**  
**Matrix: Water**  
**Analysis Batch: 291533**

**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
C7-C12 (1C)	1100	1140		ug/L		104	64 - 131	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	94		50 - 150						

**Lab Sample ID: 410-95719-10 MS**  
**Matrix: Water**  
**Analysis Batch: 291533**

**Client Sample ID: MW-522-MS-W-220824**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	44	J	1120	1240		ug/L		107	80 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	96		50 - 150						

**Lab Sample ID: 410-95719-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 291533**

**Client Sample ID: MW-522-MSD-W-220824**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C7-C12 (1C)	44	J	1120	1270		ug/L		110	80 - 120	3	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	96		50 - 150								

**Lab Sample ID: MB 410-292308/4**  
**Matrix: Water**  
**Analysis Batch: 292308**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 13:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	101		50 - 150					09/02/22 13:17	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

**Lab Sample ID: LCS 410-292308/5**  
**Matrix: Water**  
**Analysis Batch: 292308**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150				

**Lab Sample ID: LCSD 410-292308/6**  
**Matrix: Water**  
**Analysis Batch: 292308**

**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
C7-C12 (1C)	1100	1120		ug/L		102	64 - 131	4	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-292264/1-B**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		09/02/22 07:29	09/12/22 11:06	1
C24-C40	123	J	250	100	ug/L		09/02/22 07:29	09/12/22 11:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o- terphenyl (Surr)	69		50 - 150				09/02/22 07:29	09/12/22 11:06	1

**Lab Sample ID: LCS 410-292264/2-B**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	228		ug/L		38	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
o- terphenyl (Surr)	71		50 - 150				

**Lab Sample ID: LCSD 410-292264/3-B**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	170	*1	ug/L		28	14 - 115	29	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
o- terphenyl (Surr)	49	S1-	50 - 150						

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

**Lab Sample ID: 410-95719-10 MS**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: MW-522-MS-W-220824**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
C12-C24	ND	*1 F1	631	159	F1	ug/L		25		30 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>							
<i>o-terphenyl (Surr)</i>	57	cn	50 - 150							

**Lab Sample ID: 410-95719-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: MW-522-MSD-W-220824**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
C12-C24	ND	*1 F1	630	169	F1	ug/L		27		30 - 115	6	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>									
<i>o-terphenyl (Surr)</i>	62	cn	50 - 150									

**Lab Sample ID: 410-95719-8 DU**  
**Matrix: Water**  
**Analysis Batch: 294763**

**Client Sample ID: MW-520-W-220824**  
**Prep Type: Total/NA**  
**Prep Batch: 292264**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier		Result				
C12-C24	ND	*1	ND	*1	ug/L		NC	20
C24-C40	ND	cn	ND	cn	ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	71	cn	50 - 150					

**Lab Sample ID: MB 410-293299/1-B**  
**Matrix: Water**  
**Analysis Batch: 294769**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 293299**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		09/07/22 09:10	09/12/22 11:06	1
C24-C40	ND		250	100	ug/L		09/07/22 09:10	09/12/22 11:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>	69		50 - 150				09/07/22 09:10	09/12/22 11:06	1

**Lab Sample ID: LCS 410-293299/2-B**  
**Matrix: Water**  
**Analysis Batch: 294769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 293299**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
C12-C24	600	272		ug/L		45		14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	95		50 - 150					



# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-95719-1

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

**Lab Sample ID: LCSD 410-293299/3-B**  
**Matrix: Water**  
**Analysis Batch: 294769**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 293299**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	188	*1	ug/L		31	14 - 115	36	20
<b>Surrogate</b>		<b>LCSD</b>	<b>LCSD</b>				<b>%Recovery</b>		<b>Limits</b>
<i>o- terphenyl (Surr)</i>			80						50 - 150

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## GC/MS VOA

### Analysis Batch: 291396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	8260D/UST	
410-95719-2	MW-101-W-220824	Total/NA	Water	8260D/UST	
410-95719-3	MW-139R-W-220824	Total/NA	Water	8260D/UST	
410-95719-4	MW-20R-W-220824	Total/NA	Water	8260D/UST	
410-95719-5	MW-503-W-220824	Total/NA	Water	8260D/UST	
410-95719-6	MW-509-W-220824	Total/NA	Water	8260D/UST	
410-95719-7	MW-512-W-220824	Total/NA	Water	8260D/UST	
410-95719-8	MW-520-W-220824	Total/NA	Water	8260D/UST	
410-95719-9	MW-521-W-220824	Total/NA	Water	8260D/UST	
410-95719-10	MW-522-W-220824	Total/NA	Water	8260D/UST	
410-95719-11	MW-530-W-220824	Total/NA	Water	8260D/UST	
410-95719-12	MW-535-W-220824	Total/NA	Water	8260D/UST	
410-95719-13	DUP-4-WD-220824	Total/NA	Water	8260D/UST	
410-95719-14	QA-T-220824	Total/NA	Water	8260D/UST	
MB 410-291396/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-291396/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-291396/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	8260D/UST	
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 291653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	3510C	
410-95719-2	MW-101-W-220824	Total/NA	Water	3510C	
410-95719-3	MW-139R-W-220824	Total/NA	Water	3510C	
410-95719-4	MW-20R-W-220824	Total/NA	Water	3510C	
410-95719-5	MW-503-W-220824	Total/NA	Water	3510C	
410-95719-6	MW-509-W-220824	Total/NA	Water	3510C	
410-95719-7	MW-512-W-220824	Total/NA	Water	3510C	
410-95719-8	MW-520-W-220824	Total/NA	Water	3510C	
410-95719-9	MW-521-W-220824	Total/NA	Water	3510C	
410-95719-10	MW-522-W-220824	Total/NA	Water	3510C	
410-95719-11	MW-530-W-220824	Total/NA	Water	3510C	
410-95719-12	MW-535-W-220824	Total/NA	Water	3510C	
410-95719-13	DUP-4-WD-220824	Total/NA	Water	3510C	
MB 410-291653/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-291653/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	3510C	
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	3510C	

### Analysis Batch: 291791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-2	MW-101-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-3	MW-139R-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-4	MW-20R-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-5	MW-503-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-6	MW-509-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-7	MW-512-W-220824	Total/NA	Water	8270E SIM	291653

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 291791 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-8	MW-520-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-9	MW-521-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-10	MW-522-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-11	MW-530-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-12	MW-535-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-13	DUP-4-WD-220824	Total/NA	Water	8270E SIM	291653
MB 410-291653/1-A	Method Blank	Total/NA	Water	8270E SIM	291653
LCS 410-291653/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	291653
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	8270E SIM	291653
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	8270E SIM	291653

## GC VOA

### Analysis Batch: 291533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-2	MW-101-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-6	MW-509-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-7	MW-512-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-8	MW-520-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-9	MW-521-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-10	MW-522-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-11	MW-530-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-12	MW-535-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-13	DUP-4-WD-220824	Total/NA	Water	NWTPH-Gx	
410-95719-14	QA-T-220824	Total/NA	Water	NWTPH-Gx	
MB 410-291533/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-291533/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-291533/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 292308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-3	MW-139R-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-4	MW-20R-W-220824	Total/NA	Water	NWTPH-Gx	
410-95719-5	MW-503-W-220824	Total/NA	Water	NWTPH-Gx	
MB 410-292308/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-292308/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-292308/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 292264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	3510C	
410-95719-2	MW-101-W-220824	Total/NA	Water	3510C	
410-95719-3	MW-139R-W-220824	Total/NA	Water	3510C	
410-95719-4	MW-20R-W-220824	Total/NA	Water	3510C	
410-95719-5	MW-503-W-220824	Total/NA	Water	3510C	
410-95719-6	MW-509-W-220824	Total/NA	Water	3510C	
410-95719-7	MW-512-W-220824	Total/NA	Water	3510C	

Euofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## GC Semi VOA (Continued)

### Prep Batch: 292264 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-8	MW-520-W-220824	Total/NA	Water	3510C	
410-95719-9	MW-521-W-220824	Total/NA	Water	3510C	
410-95719-10	MW-522-W-220824	Total/NA	Water	3510C	
MB 410-292264/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	3510C	
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	3510C	
410-95719-8 DU	MW-520-W-220824	Total/NA	Water	3510C	

### Prep Batch: 293299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-11	MW-530-W-220824	Total/NA	Water	3510C	
410-95719-12	MW-535-W-220824	Total/NA	Water	3510C	
410-95719-13	DUP-4-WD-220824	Total/NA	Water	3510C	
MB 410-293299/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

### Cleanup Batch: 294505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-11	MW-530-W-220824	Total/NA	Water	3630C	293299
410-95719-12	MW-535-W-220824	Total/NA	Water	3630C	293299
410-95719-13	DUP-4-WD-220824	Total/NA	Water	3630C	293299
MB 410-293299/1-B	Method Blank	Total/NA	Water	3630C	293299
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	3630C	293299
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	293299

### Cleanup Batch: 294701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	3630C	292264
410-95719-2	MW-101-W-220824	Total/NA	Water	3630C	292264
410-95719-3	MW-139R-W-220824	Total/NA	Water	3630C	292264
410-95719-4	MW-20R-W-220824	Total/NA	Water	3630C	292264
410-95719-5	MW-503-W-220824	Total/NA	Water	3630C	292264
410-95719-6	MW-509-W-220824	Total/NA	Water	3630C	292264
410-95719-7	MW-512-W-220824	Total/NA	Water	3630C	292264
410-95719-8	MW-520-W-220824	Total/NA	Water	3630C	292264
410-95719-9	MW-521-W-220824	Total/NA	Water	3630C	292264
410-95719-10	MW-522-W-220824	Total/NA	Water	3630C	292264
MB 410-292264/1-B	Method Blank	Total/NA	Water	3630C	292264
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	3630C	292264
LCSD 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	292264
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	3630C	292264
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	3630C	292264
410-95719-8 DU	MW-520-W-220824	Total/NA	Water	3630C	292264

### Analysis Batch: 294763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-1	LM-2-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-2	MW-101-W-220824	Total/NA	Water	NWTPH-Dx	294701

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## GC Semi VOA (Continued)

### Analysis Batch: 294763 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-3	MW-139R-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-4	MW-20R-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-5	MW-503-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-6	MW-509-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-7	MW-512-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-8	MW-520-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-9	MW-521-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-10	MW-522-W-220824	Total/NA	Water	NWTPH-Dx	294701
MB 410-292264/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	294701
LCS 410-292264/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	294701
LCSD 410-292264/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	294701
410-95719-10 MS	MW-522-MS-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-10 MSD	MW-522-MSD-W-220824	Total/NA	Water	NWTPH-Dx	294701
410-95719-8 DU	MW-520-W-220824	Total/NA	Water	NWTPH-Dx	294701

### Analysis Batch: 294769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-95719-11	MW-530-W-220824	Total/NA	Water	NWTPH-Dx	294505
410-95719-12	MW-535-W-220824	Total/NA	Water	NWTPH-Dx	294505
410-95719-13	DUP-4-WD-220824	Total/NA	Water	NWTPH-Dx	294505
MB 410-293299/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	294505
LCS 410-293299/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	294505
LCSD 410-293299/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	294505

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: LM-2-W-220824**

**Lab Sample ID: 410-95719-1**

Date Collected: 08/24/22 10:15

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		5	291396	MXX6	ELLE	08/31/22 20:58
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 09:43
Total/NA	Analysis	NWTPH-Gx		10	291533	NND8	ELLE	08/31/22 14:04
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 16:50

**Client Sample ID: MW-101-W-220824**

**Lab Sample ID: 410-95719-2**

Date Collected: 08/24/22 13:55

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 12:54
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 10:05
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 14:29
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 17:13

**Client Sample ID: MW-139R-W-220824**

**Lab Sample ID: 410-95719-3**

Date Collected: 08/24/22 11:15

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 13:18
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 10:27
Total/NA	Analysis	NWTPH-Gx		1	292308	MXX6	ELLE	09/02/22 20:32
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 17:36

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

Date Collected: 08/24/22 12:16

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 13:42
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 10:48
Total/NA	Analysis	NWTPH-Gx		1	292308	MXX6	ELLE	09/02/22 20:57

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

**Date Collected: 08/24/22 12:16**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 17:59

**Client Sample ID: MW-503-W-220824**

**Lab Sample ID: 410-95719-5**

**Date Collected: 08/24/22 08:52**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 14:06
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 11:10
Total/NA	Analysis	NWTPH-Gx		1	292308	MXX6	ELLE	09/02/22 21:23
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 18:45

**Client Sample ID: MW-509-W-220824**

**Lab Sample ID: 410-95719-6**

**Date Collected: 08/24/22 12:35**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 14:30
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 11:32
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 16:12
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 19:08

**Client Sample ID: MW-512-W-220824**

**Lab Sample ID: 410-95719-7**

**Date Collected: 08/24/22 09:00**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 14:55
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 11:53
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 16:38
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 19:30

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-520-W-220824**

**Lab Sample ID: 410-95719-8**

Date Collected: 08/24/22 12:22

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 15:20
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 12:15
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 17:03
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 19:53

**Client Sample ID: MW-521-W-220824**

**Lab Sample ID: 410-95719-9**

Date Collected: 08/24/22 13:02

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 15:44
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 12:37
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 17:29
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 20:39

**Client Sample ID: MW-522-W-220824**

**Lab Sample ID: 410-95719-10**

Date Collected: 08/24/22 13:36

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 16:08
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 07:33
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 18:45
Total/NA	Prep	3510C			292264	YDF5	ELLE	09/02/22 07:29
Total/NA	Cleanup	3630C			294701	UKQ8	ELLE	09/12/22 03:05
Total/NA	Analysis	NWTPH-Dx		1	294763	IUSB	ELLE	09/12/22 21:02

**Client Sample ID: MW-530-W-220824**

**Lab Sample ID: 410-95719-11**

Date Collected: 08/24/22 10:12

Matrix: Water

Date Received: 08/25/22 10:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 17:21
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 12:58
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 20:02



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-530-W-220824**

**Lab Sample ID: 410-95719-11**

**Date Collected: 08/24/22 10:12**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 12:15

**Client Sample ID: MW-535-W-220824**

**Lab Sample ID: 410-95719-12**

**Date Collected: 08/24/22 10:06**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 17:45
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 13:20
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 20:27
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 12:38

**Client Sample ID: DUP-4-WD-220824**

**Lab Sample ID: 410-95719-13**

**Date Collected: 08/24/22 00:00**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 18:09
Total/NA	Prep	3510C			291653	QJZ6	ELLE	08/31/22 15:47
Total/NA	Analysis	8270E SIM		1	291791	SJ89	ELLE	09/01/22 13:42
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 20:53
Total/NA	Prep	3510C			293299	YDF5	ELLE	09/07/22 09:10
Total/NA	Cleanup	3630C			294505	K2IL	ELLE	09/10/22 01:01
Total/NA	Analysis	NWTPH-Dx		1	294769	IUSB	ELLE	09/12/22 13:01

**Client Sample ID: QA-T-220824**

**Lab Sample ID: 410-95719-14**

**Date Collected: 08/24/22 00:00**

**Matrix: Water**

**Date Received: 08/25/22 10:14**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	291396	MXX6	ELLE	08/31/22 12:30
Total/NA	Analysis	NWTPH-Gx		1	291533	NND8	ELLE	08/31/22 21:19

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-95719-1	LM-2-W-220824	Water	08/24/22 10:15	08/25/22 10:14
410-95719-2	MW-101-W-220824	Water	08/24/22 13:55	08/25/22 10:14
410-95719-3	MW-139R-W-220824	Water	08/24/22 11:15	08/25/22 10:14
410-95719-4	MW-20R-W-220824	Water	08/24/22 12:16	08/25/22 10:14
410-95719-5	MW-503-W-220824	Water	08/24/22 08:52	08/25/22 10:14
410-95719-6	MW-509-W-220824	Water	08/24/22 12:35	08/25/22 10:14
410-95719-7	MW-512-W-220824	Water	08/24/22 09:00	08/25/22 10:14
410-95719-8	MW-520-W-220824	Water	08/24/22 12:22	08/25/22 10:14
410-95719-9	MW-521-W-220824	Water	08/24/22 13:02	08/25/22 10:14
410-95719-10	MW-522-W-220824	Water	08/24/22 13:36	08/25/22 10:14
410-95719-11	MW-530-W-220824	Water	08/24/22 10:12	08/25/22 10:14
410-95719-12	MW-535-W-220824	Water	08/24/22 10:06	08/25/22 10:14
410-95719-13	DUP-4-WD-220824	Water	08/24/22 00:00	08/25/22 10:14
410-95719-14	QA-T-220824	Water	08/24/22 00:00	08/25/22 10:14

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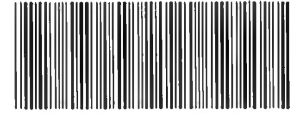
# Chevron Northwest Region Analysis Request/CO



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental use only  
 Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 Instructions on reverse side correspond with circled numbers.



410-95719 Chain of Custody

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks									
Facility # _____ WBS _____ <b>EDMONDS TERMINAL</b> Site Address <b>11720 UNION OIL COMPANY ROAD, EDMONDS, WA</b> Chevron PM _____ Lead Consultant _____ <b>JAMES KIERNAN</b> <b>ARCONDIS</b> Consultant/Office _____ <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. _____ <b>SAM MILES</b> Consultant Phone # _____			<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil			Total Number of Containers _____ BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan _____ Oxygenates _____ NWTPH-Gx _____ NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____ BENZENE 8260 CPAHS 8270 SIM										1 OF 2 SCR #: _____ <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits									
2 Sample Identification		3 Collected		Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method	BENZENE 8260	CPAHS 8270 SIM	6 Remarks		
Date	Time																								
Sampler <b>D. GILBERT J. SEPIOL P. BRUNO</b>																							* USE STANDARD SGC * BENZENE AND CPAHS WITH QUANTITATIVE < 1MG/L		
<b>LM-2</b>		8/24/22	1015	<input checked="" type="checkbox"/>					10																
<del>BR MW BR JS</del>																									
<b>MW-101</b>		8/24/22	1355	<input checked="" type="checkbox"/>					10																
<b>MW-139R</b>		8/24/22	1135	<input checked="" type="checkbox"/>					10																
<b>MW-20R</b>		8/24/22	1216	<input checked="" type="checkbox"/>					10																
<b>MW-503</b>		8/24/22	0852	<input checked="" type="checkbox"/>					10																
<b>MW-509</b>		8/24/22	1235	<input checked="" type="checkbox"/>					10																
<b>MW-512</b>		8/24/22	0900	<input checked="" type="checkbox"/>					10																
<b>MW-520</b>		8/24/22	1222	<input checked="" type="checkbox"/>					10																
<b>MW-521</b>		8/24/22	1302	<input checked="" type="checkbox"/>					10																
<b>MW-522</b>		8/24/22	1336	<input checked="" type="checkbox"/>					10																
<b>MW-522-MS</b>		8/24/22	1336	<input checked="" type="checkbox"/>					10																
<b>MW-522-MSD</b>		8/24/22	1336	<input checked="" type="checkbox"/>					10																
7 Turnaround Time Requested (TAT) (please circle) Standard 5 day 4 day 72 hour 48 hour 24 hour			Relinquished by <b>J. SEPIOL</b> Date <b>8/24/22</b> Time <b>1500</b>			Received by _____ Date _____ Time _____			Relinquished by _____ Date _____ Time _____			Received by _____ Date _____ Time _____													
8 Data Package (circle if required) Type I - Full Type VI (Raw Data)			EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____			Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			Received by <b>[Signature]</b> Date <b>8/25/22</b> Time <b>10/19</b>			Temperature Upon Receipt _____ °C Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

N/E

# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories  
Environmental**

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
Instructions on reverse side correspond with circled numbers.

2 of 2

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																																																									
Facility # <span style="float: right;">WBS</span> <b>EDMONDS TERMINAL</b>		Site Address <b>11720 UNION OIL COMPANY ROAD, EDMONDS, WA</b>		Sediment <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>		Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">BTEX + MTBE</td> <td colspan="2">8021</td> <td colspan="2">8260</td> <td colspan="2">Naphth</td> <td colspan="2">Oxygenates</td> <td colspan="2">NWTPH-Gx</td> <td colspan="2">NWTPH-Dx with Silica Gel Cleanup</td> <td colspan="2">NWTPH-Dx without Silica Gel Cleanup</td> <td colspan="2">WA VPH</td> <td colspan="2">WA EPH</td> <td colspan="2">Lead</td> <td colspan="2">Total</td> <td colspan="2">Diss.</td> <td colspan="2">Method</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> </tr> </table>														BTEX + MTBE		8021		8260		Naphth		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method																													
BTEX + MTBE		8021		8260		Naphth		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method																																																			
Chevron PM <b>JAMES KIERNAN</b>		Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>		Composite <input type="checkbox"/>		Soil <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		Total Number of Containers		8260 full scan		8021		8260		Naphth																																																									
Consultant Project Mgr. <b>SAM MILES</b>		Consultant Phone #		Grab <input type="checkbox"/>		Soil <input type="checkbox"/>		Water <input type="checkbox"/>		Oil <input type="checkbox"/>		Total Number of Containers		8260 full scan		8021		8260		Naphth																																																									
Sampler <b>D. GILBERT J. SEPIOL P. BRUND</b>		Collected Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8260 full scan		Naphth																																																									
Sample Identification		Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		8260 full scan		Naphth																																																									
MW-530		8/24/22		10:12		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		10																																																															
MW-535		8/24/22		10:06		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		10																																																															
DUP-4		8/24/22				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		10																																																															
TRIP BLANK						<input type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		6																																																															
Turnaround Time Requested (TAT) (please circle)		Standard		5 day		4 day																																																																							
		72 hour		48 hour		24 hour																																																																							
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J. SEPIOL		8/24/22		15:00																																																																									
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Type VI (Raw Data)		Other: _____		Temperature Upon Receipt _____ °C		Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																																							

- Results in Dry Weight
- J value reporting needed
- Must meet lowest detection limits possible for 8260 compounds
- 8021 MTBE Confirmation
- Confirm MTBE + Naphthalene
- Confirm highest hit by 8260
- Confirm all hits by 8260
- Run \_\_\_\_\_ oxy's on highest hit
- Run \_\_\_\_\_ oxy's on all hits

\* USE STANDARD SGC  
\* BENZENE AND CPAHS WITH QUANTITATIVE <1 mg/L

# Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-95719-1

**Login Number: 95719**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Kanagy, Nicholas**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Environment Testing, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-99656-1  
Client Project/Site: Edmonds Terminal

For:  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Ophelie Encelle



Authorized for release by:  
10/14/2022 5:12:40 PM

Amek Carter, Project Manager  
(717)556-7252  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)

### LINKS

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results through



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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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





Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

---

Amek Carter  
Project Manager  
10/14/2022 5:12:40 PM



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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**Job ID: 410-99656-1**

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**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC**

---

**Narrative**

**Job Narrative  
410-99656-1**

**Receipt**

The samples were received on 9/28/2022 11:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.2°C

**GC/MS VOA**

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

**GC/MS Semi VOA**

Method 8270E\_SIM: The continuing calibration verification (CCV) associated with batch 410-303162 recovered above the upper control limit for Dibenz(a,h)anthracene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E\_SIM: Surrogate recovery for the following sample was outside control limits: LM-2-GW-092722 (410-99656-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

**GC VOA**

Method NWTPH\_Gx: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: LM-2-GW-092722 (410-99656-1). Elevated reporting limits (RLs) are provided.

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

**GC Semi VOA**

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



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: LM-2-GW-092722**

**Lab Sample ID: 410-99656-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	0.011	J cn	0.054	0.011	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.014	J cn	0.054	0.011	ug/L	1		8270E SIM	Total/NA
C7-C12 (1C)	840	J cn	2500	430	ug/L	10		NWTPH-Gx	Total/NA
C12-C24	49	J *1	110	47	ug/L	1		NWTPH-Dx	Total/NA

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: LM-2-GW-092722**

**Lab Sample ID: 410-99656-1**

Date Collected: 09/27/22 12:50

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			10/10/22 14:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 120					10/10/22 14:20	1
4-Bromofluorobenzene (Surr)	94		80 - 120					10/10/22 14:20	1
Dibromofluoromethane (Surr)	99		80 - 120					10/10/22 14:20	1
Toluene-d8 (Surr)	104		80 - 120					10/10/22 14:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[a]pyrene	0.011	J cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[b]fluoranthene	0.014	J cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[k]fluoranthene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Chrysene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Dibenz(a,h)anthracene	ND	cn	0.054	0.022	ug/L		10/04/22 15:38	10/05/22 08:59	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.054	0.022	ug/L		10/04/22 15:38	10/05/22 08:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44	cn	10 - 110				10/04/22 15:38	10/05/22 08:59	1
1-Methylnaphthalene-d10 (Surr)	80	cn	36 - 111				10/04/22 15:38	10/05/22 08:59	1
Fluoranthene-d10 (Surr)	33	S1- cn	47 - 128				10/04/22 15:38	10/05/22 08:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	840	J cn	2500	430	ug/L			10/06/22 21:32	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101	cn	50 - 150					10/06/22 21:32	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	49	J *1	110	47	ug/L		10/11/22 08:44	10/14/22 00:52	1
C24-C40	ND		260	110	ug/L		10/11/22 08:44	10/14/22 00:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65		50 - 150				10/11/22 08:44	10/14/22 00:52	1

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

Date Collected: 09/27/22 00:00

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			10/10/22 13:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120					10/10/22 13:56	1
4-Bromofluorobenzene (Surr)	95		80 - 120					10/10/22 13:56	1
Dibromofluoromethane (Surr)	97		80 - 120					10/10/22 13:56	1
Toluene-d8 (Surr)	106		80 - 120					10/10/22 13:56	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

Date Collected: 09/27/22 00:00

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			10/05/22 14:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					10/05/22 14:55	1

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-99656-1	LM-2-GW-092722	91	94	99	104
410-99656-2	TRIP BLANK-W-092722	92	95	97	106
LCS 410-304747/4	Lab Control Sample	97	91	97	109
LCSD 410-304747/5	Lab Control Sample Dup	98	95	99	111
MB 410-304747/7	Method Blank	92	96	98	114

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-99656-1	LM-2-GW-092722	44 cn	80 cn	33 S1- cn
LCS 410-303019/2-A	Lab Control Sample	88	72	75
MB 410-303019/1-A	Method Blank	74	65	63

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-99656-1	LM-2-GW-092722	101 cn
410-99656-2	TRIP BLANK-W-092722	103
LCS 410-303348/5	Lab Control Sample	94
LCS 410-303793/5	Lab Control Sample	94
LCSD 410-303348/6	Lab Control Sample Dup	94
LCSD 410-303793/6	Lab Control Sample Dup	94
MB 410-303348/4	Method Blank	103
MB 410-303793/4	Method Blank	100

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		OTP (50-150)
410-99656-1	LM-2-GW-092722	65

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-99656-1 DU	LM-2-GW-092722	68
LCS 410-305107/2-B	Lab Control Sample	69
LCSD 410-305107/3-B	Lab Control Sample Dup	91
MB 410-305107/1-B	Method Blank	91

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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

Lab Sample ID: MB 410-304747/7

Matrix: Water

Analysis Batch: 304747

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			10/10/22 13:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120					10/10/22 13:18	1
4-Bromofluorobenzene (Surr)	96		80 - 120					10/10/22 13:18	1
Dibromofluoromethane (Surr)	98		80 - 120					10/10/22 13:18	1
Toluene-d8 (Surr)	114		80 - 120					10/10/22 13:18	1

Lab Sample ID: LCS 410-304747/4

Matrix: Water

Analysis Batch: 304747

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	18.9		ug/L		94	80 - 120	
Surrogate	%Recovery	Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					
4-Bromofluorobenzene (Surr)	91		80 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
Toluene-d8 (Surr)	109		80 - 120					

Lab Sample ID: LCSD 410-304747/5

Matrix: Water

Analysis Batch: 304747

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	20.0	18.8		ug/L		94	80 - 120	0	30
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		80 - 120						
4-Bromofluorobenzene (Surr)	95		80 - 120						
Dibromofluoromethane (Surr)	99		80 - 120						
Toluene-d8 (Surr)	111		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-303019/1-A

Matrix: Water

Analysis Batch: 303162

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 303019

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		10/04/22 15:38	10/05/22 05:03	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		10/04/22 15:38	10/05/22 05:03	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		10/04/22 15:38	10/05/22 05:03	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		10/04/22 15:38	10/05/22 05:03	1
Chrysene	ND		0.050	0.010	ug/L		10/04/22 15:38	10/05/22 05:03	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		10/04/22 15:38	10/05/22 05:03	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		10/04/22 15:38	10/05/22 05:03	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	74		10 - 110	10/04/22 15:38	10/05/22 05:03	1
1-Methylnaphthalene-d10 (Surr)	65		36 - 111	10/04/22 15:38	10/05/22 05:03	1
Fluoranthene-d10 (Surr)	63		47 - 128	10/04/22 15:38	10/05/22 05:03	1

Lab Sample ID: LCS 410-303019/2-A  
Matrix: Water  
Analysis Batch: 303162

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 303019

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	1.00	0.851		ug/L		85	61 - 122	
Benzo[a]pyrene	1.00	0.807		ug/L		81	60 - 120	
Benzo[b]fluoranthene	1.00	0.843		ug/L		84	58 - 122	
Benzo[k]fluoranthene	1.00	0.812		ug/L		81	57 - 128	
Chrysene	1.00	0.845		ug/L		84	55 - 123	
Dibenz(a,h)anthracene	1.00	0.945		ug/L		95	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.972		ug/L		97	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	88		10 - 110
1-Methylnaphthalene-d10 (Surr)	72		36 - 111
Fluoranthene-d10 (Surr)	75		47 - 128

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

Lab Sample ID: MB 410-303348/4  
Matrix: Water  
Analysis Batch: 303348

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	43	ug/L			10/05/22 13:37	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150		10/05/22 13:37	1

Lab Sample ID: LCS 410-303348/5  
Matrix: Water  
Analysis Batch: 303348

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
C7-C12 (1C)	1100	1070		ug/L		97	64 - 131	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150

Lab Sample ID: LCSD 410-303348/6  
Matrix: Water  
Analysis Batch: 303348

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	Limit
C7-C12 (1C)	1100	1060		ug/L		97	64 - 131	1	30	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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

**Lab Sample ID: LCSD 410-303348/6**  
**Matrix: Water**  
**Analysis Batch: 303348**

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

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150

**Lab Sample ID: MB 410-303793/4**  
**Matrix: Water**  
**Analysis Batch: 303793**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			10/06/22 12:35	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		10/06/22 12:35	1			

**Lab Sample ID: LCS 410-303793/5**  
**Matrix: Water**  
**Analysis Batch: 303793**

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

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
	Added	Result	Qualifier					
C7-C12 (1C)	1100	1130		ug/L		103		64 - 131
Surrogate	LCS	LCS	Limits					
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150					

**Lab Sample ID: LCSD 410-303793/6**  
**Matrix: Water**  
**Analysis Batch: 303793**

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

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier							
C7-C12 (1C)	1100	1140		ug/L		103		64 - 131	0	30
Surrogate	LCSD	LCSD	Limits							
a,a,a-Trifluorotoluene (fid) (1C)	94		50 - 150							

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-305107/1-B**  
**Matrix: Water**  
**Analysis Batch: 306197**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 305107**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		10/11/22 08:44	10/13/22 23:21	1
C24-C40	ND		250	100	ug/L		10/11/22 08:44	10/13/22 23:21	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
o-terphenyl (Surr)	91		50 - 150	10/11/22 08:44	10/13/22 23:21	1			

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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

**Lab Sample ID: LCS 410-305107/2-B**

**Matrix: Water**

**Analysis Batch: 306197**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 305107**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	166		ug/L		28	14 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>o</i> -terphenyl (Surr)	69		50 - 150

**Lab Sample ID: LCSD 410-305107/3-B**

**Matrix: Water**

**Analysis Batch: 306197**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 305107**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	237	*1	ug/L		39	14 - 115	35	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -terphenyl (Surr)	91		50 - 150

**Lab Sample ID: 410-99656-1 DU**

**Matrix: Water**

**Analysis Batch: 306197**

**Client Sample ID: LM-2-GW-092722**

**Prep Type: Total/NA**

**Prep Batch: 305107**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	49	J *1	46.6	J *1	ug/L		6	20
C24-C40	ND		ND		ug/L		NC	20

Surrogate	DU %Recovery	DU Qualifier	Limits
<i>o</i> -terphenyl (Surr)	68		50 - 150

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

## GC/MS VOA

### Analysis Batch: 304747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	8260D/UST	
410-99656-2	TRIP BLANK-W-092722	Total/NA	Water	8260D/UST	
MB 410-304747/7	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-304747/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-304747/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 303019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	3510C	
MB 410-303019/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-303019/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 303162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	8270E SIM	303019
MB 410-303019/1-A	Method Blank	Total/NA	Water	8270E SIM	303019
LCS 410-303019/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	303019

## GC VOA

### Analysis Batch: 303348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-2	TRIP BLANK-W-092722	Total/NA	Water	NWTPH-Gx	
MB 410-303348/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-303348/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-303348/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 303793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	NWTPH-Gx	
MB 410-303793/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-303793/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-303793/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 305107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	3510C	
MB 410-305107/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-305107/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-305107/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-99656-1 DU	LM-2-GW-092722	Total/NA	Water	3510C	

### Cleanup Batch: 306048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	3630C	305107
MB 410-305107/1-B	Method Blank	Total/NA	Water	3630C	305107
LCS 410-305107/2-B	Lab Control Sample	Total/NA	Water	3630C	305107
LCSD 410-305107/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	305107

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

## GC Semi VOA (Continued)

### Cleanup Batch: 306048 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1 DU	LM-2-GW-092722	Total/NA	Water	3630C	305107

### Analysis Batch: 306197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-99656-1	LM-2-GW-092722	Total/NA	Water	NWTPH-Dx	306048
MB 410-305107/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	306048
LCS 410-305107/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	306048
LCSD 410-305107/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	306048
410-99656-1 DU	LM-2-GW-092722	Total/NA	Water	NWTPH-Dx	306048

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: LM-2-GW-092722**

**Lab Sample ID: 410-99656-1**

Date Collected: 09/27/22 12:50

Matrix: Water

Date Received: 09/28/22 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	304747	MXX6	ELLE	10/10/22 14:20
Total/NA	Prep	3510C			303019	ZB3H	ELLE	10/04/22 15:38
Total/NA	Analysis	8270E SIM		1	303162	SJ89	ELLE	10/05/22 08:59
Total/NA	Analysis	NWTPH-Gx		10	303793	NND8	ELLE	10/06/22 21:32
Total/NA	Prep	3510C			305107	YDF5	ELLE	10/11/22 08:44
Total/NA	Cleanup	3630C			306048	UKL2	ELLE	10/13/22 02:47
Total/NA	Analysis	NWTPH-Dx		1	306197	KP5X	ELLE	10/14/22 00:52

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

Date Collected: 09/27/22 00:00

Matrix: Water

Date Received: 09/28/22 11:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	304747	MXX6	ELLE	10/10/22 13:56
Total/NA	Analysis	NWTPH-Gx		1	303348	MXX6	ELLE	10/05/22 14:55

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300





# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-99656-1	LM-2-GW-092722	Water	09/27/22 12:50	09/28/22 11:05
410-99656-2	TRIP BLANK-W-092722	Water	09/27/22 00:00	09/28/22 11:05

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Address: 11720 UNION OIL COMPANY ROAD  
EDMONDS, WA

Chain of



410-99656 Chain of Custody

9 eurofins

Environment Testing  
TestAmerica

TAL-8210

Regulatory Program:  DW  NPDES

Client Contact		Project Manager: <u>SAMUEL MILES</u>		Site Contact:		Date: <u>09/27/2022</u>		COC No:		
Company Name: <u>ARCADIS</u>		Tel/Email: <u>SAMUEL.MILES@ARCADIS.COM</u>		Lab Contact:		Carrier: <u>---</u>		1 of 1 COCs		
Address: <u>1100 OLIVE WAY, SUITE 800</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>NUPH-GX</u> <u>NUPH-DX w/SGC</u> <u>BENZENE B260</u> <u>CPAHs B270 SIM</u>				Sampler:		
City/State/Zip: <u>SEATTLE, WA 98108-98101</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:		
Phone:		TAT If different from Below						Walk-in Client:		
Fax:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <u>STANDARD TAT</u>						Lab Sampling:		
Project Name: <u>EDMONDS TERMINAL</u>								Job / SDG No.:		
Site: <u>CHEVRON PM: JAMES KIRKMAN</u>										
PO# <u>30064301</u>										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:		
<u>LM-2</u>	<u>9/27/22</u>	<u>1250</u>	<u>G</u>	<u>GW</u>	<u>10</u>	<u>N</u>	<u>N</u>	<u>X</u>	<u>X</u>	<u>USE STANDARD SGC</u>
<u>TRIP BLANK</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>3</u>			<u>X</u>	<u>X</u>	<u>BENZENE AND CPAHS WITH QUANTITATIVE &lt; 1 MG/L</u>
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:										
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C) Obs'd: <u>2.2</u> Corr'd: <u>2.2</u>		Therm ID No.:				
Relinquished by: <u>J. SEP10L</u>		Company: <u>ARCADIS</u>		Date/Time: <u>9/27/1400</u>		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by: <u>J. H.</u>		Company: <u>EUET</u>		
								Date/Time: <u>9/28/22 15:05</u>		

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-99656-1

Login Number: 99656

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

CHEVRON

## DATA REVIEW

Edmonds Terminal  
Edmonds, Washington

*Volatile Organic Compounds, Polycyclic Aromatic Hydrocarbons,  
Diesel, Motor Oil, and Gasoline Range Petroleum Hydrocarbons Analyses*

SDGs: 410-95719-1 and 410-99656-1

Analyses Performed By:  
Eurofins Environment Testing America  
Lancaster, Pennsylvania

Validation Report: 47461R  
Review Level: Tier II  
Project: 30064301

## DATA REVIEW REPORT

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) 410-95719-1 and 410-99656-1 for samples collected in association with the Edmonds Terminal site in, Edmonds, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets, and chain-of-custody records (COCs). Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	PAH	TPHg	TPHd	Metals	Misc.
LM-2	410-95719-1	Water	8/24/2022		X	X	X	X		
MW-101	410-95719-2	Water	8/24/2022		X		X			
MW-139R	410-95719-3	Water	8/24/2022		X	X	X	X		
MW-20R	410-95719-4	Water	8/24/2022		X	X	X	X		
MW-503	410-95719-5	Water	8/24/2022		X	X	X	X		
MW-509	410-95719-6	Water	8/24/2022		X	X	X	X		
MW-512	410-95719-7	Water	8/24/2022		X	X	X	X		
MW-520	410-95719-8	Water	8/24/2022		X	X	X	X		
MW-521	410-95719-9	Water	8/24/2022		X	X	X	X		
MW-522	410-95719-10	Water	8/24/2022		X	X	X	X		
MW-530	410-95719-11	Water	8/24/2022		X	X	X	X		
MW-535	410-95719-12	Water	8/24/2022		X	X	X	X		
DUP-4	410-95719-13	Water	8/24/2022	MW-101	X	X	X	X		
Trip Blank	410-95719-14	Water	8/24/2022		X	X	X	X		
LM-2	410-99656-1	Water	9/27/2022		X	X	X	X		
Trip Blank	410-99656-2	Water	9/27/2022		X		X			

Note: As specified on the COCs, sample MW-522 was used in the MS/MSD analyses.

## DATA REVIEW REPORT

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	



## DATA REVIEW REPORT

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260D and 8270E with selected ion monitoring (SIM), and Northwest Total Petroleum Hydrocarbon Methods NWTPG-Gx and NWTPH-Dx. Data were reviewed in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

## DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## DATA REVIEW REPORT

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and field blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike / Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-522 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

## DATA REVIEW REPORT

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited acceptable results.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

Sample and Field Duplicate Sample: MW-101 and DUP-4						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Benzene	1.0 U	1.0 U	N/A	N/A	1.0	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR VOCS**

VOCs: SW-846 8260B, 8260D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

**Gas Chromatography/Mass Spectrometry (GC/MS)**

<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment Blanks, Field blanks	X				X
C. Trip blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery  
 RPD = Relative percent difference

## DATA REVIEW REPORT

### POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270E-SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits, and that all SVOC surrogate recoveries be greater than ten percent.

All samples exhibited acceptable surrogate recoveries.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-522 was used in the MS/MSD analysis. The MS/MSD analyses exhibited acceptable results.

## DATA REVIEW REPORT

### 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

Sample and Field Duplicate Sample: MW-101 and DUP-4						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
All compounds	0.051 U	0.052 U	N/A	N/A	0.052	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR PAHS

PAHs: SW-846 8270D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Mass Spectrometry (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD RPD	X				X
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent Recovery  
 RPD = Relative Percent Difference



## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE ORANICS (TPH-G/GRO) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-G/GRO by NWTPG-Gx	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Sample results less than the BAL associated with the following samples were qualified as documented in the following table.

SDG	Sample	Analyte	Sample Result	Qualification
410-95719-1	MW-512 MW-522 MW-530	GRO (C7-C12)	Detected sample results < reporting limit (RL) and < BAL	"UB" at the RL

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-G/GRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

## DATA REVIEW REPORT

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-522 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Laboratory duplicate sample analysis was not performed using a sample from within these SDGs.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

Sample and Field Duplicate Sample: MW-101 and DUP-4						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
TPH-g/GRO	1,500	1,500	0.0 %	N/A	250	Acceptable

Note:

N/A = Not applicable

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR TPH-G/GRO**

TPH-G/GRO: SW-846 NWTPH-Gx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks		X	X		
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery  
 RPD = Relative percent difference

## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS DIESEL AND MOTOR OIL RANGE ORGANICS (TPH-D/MO/DRO) ANALYSIS

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-D/MO/DRO by NWTPH-Dx	Water (Preserved)	14 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Motor oil range hydrocarbons were detected in one of the laboratory method blanks; however, the associated sample results were non-detects. Therefore, qualification of the sample results is not required.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-D/MO/DRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Surrogate	Recovery
410-95719-1	LM-2	o-Terphenyl	< LL but > 10%

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of surrogate deviations, the sample results are qualified as documented.

Control Limit	Sample Result	Qualification
> UL (Upper Control Limit)	Non-detect	No Action
	Detect	J

## DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
< LL (Lower Control Limit) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
D - Surrogates diluted below the calibration curve	Non-detect	UJ <sup>1</sup>
	Detect	J <sup>1</sup>

<sup>1</sup> A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-522 was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample	Compound	MS Recovery	MSD Recovery
MW-522	DRO (C12-C24)	< LL but > 10%	< LL but > 10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are

## DATA REVIEW REPORT

less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Samples MW-520 and LM-2 (9/27/2022) were used in the laboratory duplicate sample analyses. All analytes associated with laboratory duplicate sample RPDs were within the control limit.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked analytes used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited recoveries within the control limits. Samples associated with LCS/LCSDs exhibiting RPDs greater than the control limit are presented in the following table.

SDG	Samples	Analyte
410-95719-1	LM-2 MW-101 MW-139R MW-20R MW-503 MW-509 MW-512 MW-520 MW-521 MW-522 MW-530 MW-535 DUP-4	DRO (C12-C24)
410-99656-1	LM-2	DRO (C12-C24)

The criteria used to evaluate the RPD between the LCS and LCSD are presented in the following table. In the case of RPD deviations, the sample results are qualified as documented. The laboratory only spiked DRO in the LCS/LCSD analyses. Therefore, the qualifiers were also applied to the motor oil range (C24-C40) results.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

## DATA REVIEW REPORT

Sample and Field Duplicate Sample: MW-101 and DUP-4						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
DRO (C12-C24)	79 J	84 J	N/A	5	100	Acceptable

Notes:

N/A = Not applicable

J = Estimated (result is < RL)

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR TPH-D/MO/DRO

TPH-D/MO/DRO: NWTPH-Dx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X	X		
B. Equipment and/or Field Blanks	X				X
Surrogates Accuracy (%R)		X	X		
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X	X		
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference



# DATA REVIEW REPORT

Validation Performed By: Dennis Dyke

Signature: 

Date: November 4, 2022

# CHAIN OF CUSTODY AND VALIDATED SAMPLE ANALYSIS DATA SHEETS



# Chevron Northwest Region Analysis Request/CO



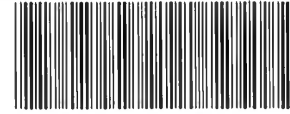
Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental use only

Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.



410-95719 Chain of Custody

1 Client Information			4 Matrix				5 Analyses Requested										6 Remarks		
Facility # _____ WBS _____ <b>EDMONDS TERMINAL</b> Site Address <b>11720 UNION OIL COMPANY ROAD, EDMONDS, WA</b> Chevron PM _____ Lead Consultant _____ <b>JAMES KIERNAN</b> <b>ARCONDIS</b> Consultant/Office _____ <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b> Consultant Project Mgr. _____ <b>SAM MILES</b> Consultant Phone # _____			Sediment <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/>	Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/>	Water <input type="checkbox"/>	Oil <input type="checkbox"/>	Total Number of Containers _____	BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan _____	Oxygenates _____	NWTPH-Gx _____	NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/>	Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method _____	BENZENE 8260 CPAHS 8270 SIM	SCR #: _____ 1 OF 2			
Sampler _____ <b>D. GILBERT J. SEPIOL P. BRUNO</b>																Grab <input type="checkbox"/>	Composite <input type="checkbox"/>	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits	
2 Sample Identification			3 Collected														9		
			Date	Time													Date	Time	
LM-2			8/24/22	1015															
<del>BR MW BR JS</del>																			
MW-101			8/24/22	1355															
MW-139R			8/24/22	1135															
MW-20R			8/24/22	1216															
MW-503			8/24/22	0852															
MW-509			8/24/22	1235															
MW-512			8/24/22	0900															
MW-520			8/24/22	1222															
MW-521			8/24/22	1302															
MW-522			8/24/22	1336															
MW-522-MS			8/24/22	1336															
MW-522-MSD			8/24/22	1336															
7 Turnaround Time Requested (TAT) (please circle)					Relinquished by			Date		Time		Received by			Date		Time		
(Standard) 5 day 4 day 72 hour 48 hour 24 hour					J. SEPIOL			8/24/22		1500									
8 Data Package (circle if required)					Relinquished by Commercial Carrier:					Received by			Date		Time				
Type I - Full _____ Type VI (Raw Data) _____					EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____					UPS _____ FedEx <input checked="" type="checkbox"/> Other _____			_____			8/25/22		10/19	
					Temperature Upon Receipt _____ °C					Custody Seals Intact?			Yes		No				

N/E



# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories Environmental**

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.

2 of 2

1 Client Information			4 Matrix			5 Analyses Requested										6 Remarks							
Facility # <b>WBS</b> <b>EDMONDS TERMINAL</b>			<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface  <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air	<input type="checkbox"/> Composite <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil	Total Number of Containers BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input checked="" type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> BENZENE 8260 CPAHS 8270 SIM											SCR #: _____  <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits							
Site Address <b>11720 UNION OIL COMPANY ROAD, EDMONDS, WA</b>																							
Chevron PM <b>JAMES KIERNAN</b> Lead Consultant																							
Consultant/Office <b>1100 OLIVE WAY, SUITE 800, SEATTLE, WA</b>																							
Consultant Project Mgr. <b>SAM MILES</b>																							
Consultant Phone #																							
Sampler <b>D. GILBERT J. SEPIOL P. BRUND</b>																							
2 Sample Identification		3 Collected																					
Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260	Naphth	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	WA EPH	Lead	Total	Diss.	Method			
MW-530	8/24/22	1012	X		X		10					X	X									X	* USE STANDARD SGC * BENZENE AND CPAHS WITH QUANTITATIVE <1 mg/L
MW-535	8/24/22	1006	X		X		10					X	X									X	
DUP-4	8/24/22		X		X		10					X	X									X	
TRIP BLANK			-		X		6					X	X									X	
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by			Date		Time		Received by			Date		Time							
Standard <input checked="" type="radio"/> 5 day 4 day 72 hour 48 hour 24 hour				J. SEPIOL			8/24/22		1500														
8 Data Package (circle if required)				Relinquished by Commercial Carrier:			Date			Time			Received by			Date		Time					
Type I - Full Type VI (Raw Data)				CVX-RTBU-FI_05 (default)			UPS _____ FedEx <input checked="" type="checkbox"/> Other _____						[Signature]			8/24/22		1014					
				Temperature Upon Receipt _____ °C						Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: LM-2-W-220824**

**Lab Sample ID: 410-95719-1**

Date Collected: 08/24/22 10:15

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	<del>cn</del>	5.0	1.5	ug/L			08/31/22 20:58	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106	<del>cn</del>	80 - 120					08/31/22 20:58	5
4-Bromofluorobenzene (Surr)	99	<del>cn</del>	80 - 120					08/31/22 20:58	5
Dibromofluoromethane (Surr)	102	<del>cn</del>	80 - 120					08/31/22 20:58	5
Toluene-d8 (Surr)	101	<del>cn</del>	80 - 120					08/31/22 20:58	5

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Chrysene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 09:43	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 09:43	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 09:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44		10 - 110				08/31/22 15:47	09/01/22 09:43	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111				08/31/22 15:47	09/01/22 09:43	1
Fluoranthene-d10 (Surr)	75		47 - 128				08/31/22 15:47	09/01/22 09:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>2100</b>	<b>J</b>	2500	430	ug/L			08/31/22 14:04	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/31/22 14:04	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	<del>*1 cn</del> UJ	100	47	ug/L		09/02/22 07:29	09/12/22 16:50	1
C24-C40	ND	<del>cn</del> UJ	260	100	ug/L		09/02/22 07:29	09/12/22 16:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	47	S1- cn	50 - 150				09/02/22 07:29	09/12/22 16:50	1

**Client Sample ID: MW-101-W-220824**

**Lab Sample ID: 410-95719-2**

Date Collected: 08/24/22 13:55

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 12:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 12:54	1
4-Bromofluorobenzene (Surr)	102		80 - 120					08/31/22 12:54	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 12:54	1
Toluene-d8 (Surr)	99		80 - 120					08/31/22 12:54	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-101-W-220824**

**Lab Sample ID: 410-95719-2**

Date Collected: 08/24/22 13:55

Matrix: Water

Date Received: 08/25/22 10:14

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	ch	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[a]pyrene	ND	ch	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[b]fluoranthene	ND	ch	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Benzo[k]fluoranthene	ND	ch	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Chrysene	ND	ch	0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:05	1
Dibenz(a,h)anthracene	ND	ch	0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:05	1
Indeno[1,2,3-cd]pyrene	ND	ch	0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56	cn	10 - 110	08/31/22 15:47	09/01/22 10:05	1
1-Methylnaphthalene-d10 (Surr)	159	S1+ cn	36 - 111	08/31/22 15:47	09/01/22 10:05	1
Fluoranthene-d10 (Surr)	123	cn	47 - 128	08/31/22 15:47	09/01/22 10:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1500		250	43	ug/L			08/31/22 14:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 14:29	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	79	J <del>U</del>	100	46	ug/L		09/02/22 07:29	09/12/22 17:13	1
C24-C40	ND	<del>ch</del> UJ	250	100	ug/L		09/02/22 07:29	09/12/22 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	75	cn	50 - 150	09/02/22 07:29	09/12/22 17:13	1

**Client Sample ID: MW-139R-W-220824**

**Lab Sample ID: 410-95719-3**

Date Collected: 08/24/22 11:15

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:18	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 13:18	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 13:18	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 13:18	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 10:27	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:27	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 10:27	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-139R-W-220824**

**Lab Sample ID: 410-95719-3**

Date Collected: 08/24/22 11:15

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	08/31/22 15:47	09/01/22 10:27	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 10:27	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/31/22 15:47	09/01/22 10:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 20:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		09/02/22 20:32	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1 UJ	100	46	ug/L		09/02/22 07:29	09/12/22 17:36	1
C24-C40	ND	cn UJ	260	100	ug/L		09/02/22 07:29	09/12/22 17:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	55	cn	50 - 150	09/02/22 07:29	09/12/22 17:36	1

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

Date Collected: 08/24/22 12:16

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 13:42	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 13:42	1
Dibromofluoromethane (Surr)	102		80 - 120		08/31/22 13:42	1
Toluene-d8 (Surr)	102		80 - 120		08/31/22 13:42	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 10:48	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 10:48	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 10:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	26		10 - 110	08/31/22 15:47	09/01/22 10:48	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/31/22 15:47	09/01/22 10:48	1
Fluoranthene-d10 (Surr)	82		47 - 128	08/31/22 15:47	09/01/22 10:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 20:57	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-20R-W-220824**

**Lab Sample ID: 410-95719-4**

Date Collected: 08/24/22 12:16

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/02/22 20:57	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* UJ	100	47	ug/L		09/02/22 07:29	09/12/22 17:59	1
C24-C40	ND	cn UJ	260	100	ug/L		09/02/22 07:29	09/12/22 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70	cn	50 - 150	09/02/22 07:29	09/12/22 17:59	1

**Client Sample ID: MW-503-W-220824**

**Lab Sample ID: 410-95719-5**

Date Collected: 08/24/22 08:52

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 14:06	1
4-Bromofluorobenzene (Surr)	98		80 - 120		08/31/22 14:06	1
Dibromofluoromethane (Surr)	102		80 - 120		08/31/22 14:06	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 14:06	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Chrysene	ND		0.055	0.011	ug/L		08/31/22 15:47	09/01/22 11:10	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		08/31/22 15:47	09/01/22 11:10	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		08/31/22 15:47	09/01/22 11:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	66		10 - 110	08/31/22 15:47	09/01/22 11:10	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 11:10	1
Fluoranthene-d10 (Surr)	79		47 - 128	08/31/22 15:47	09/01/22 11:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			09/02/22 21:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		09/02/22 21:23	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* UJ	110	48	ug/L		09/02/22 07:29	09/12/22 18:45	1
C24-C40	ND	cn UJ	270	110	ug/L		09/02/22 07:29	09/12/22 18:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65	cn	50 - 150	09/02/22 07:29	09/12/22 18:45	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-509-W-220824**

**Lab Sample ID: 410-95719-6**

Date Collected: 08/24/22 12:35

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 14:30	1
4-Bromofluorobenzene (Surr)	98		80 - 120					08/31/22 14:30	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:30	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 14:30	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:32	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:32	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	14		10 - 110				08/31/22 15:47	09/01/22 11:32	1
1-Methylnaphthalene-d10 (Surr)	67		36 - 111				08/31/22 15:47	09/01/22 11:32	1
Fluoranthene-d10 (Surr)	73		47 - 128				08/31/22 15:47	09/01/22 11:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 16:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					08/31/22 16:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* UJ	100	46	ug/L		09/02/22 07:29	09/12/22 19:08	1
C24-C40	ND	cn UJ	250	100	ug/L		09/02/22 07:29	09/12/22 19:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	66	cn	50 - 150				09/02/22 07:29	09/12/22 19:08	1

**Client Sample ID: MW-512-W-220824**

**Lab Sample ID: 410-95719-7**

Date Collected: 08/24/22 09:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 14:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 14:55	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 14:55	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 14:55	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 14:55	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-512-W-220824**

**Lab Sample ID: 410-95719-7**

Date Collected: 08/24/22 09:00

Matrix: Water

Date Received: 08/25/22 10:14

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 11:53	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:53	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		08/31/22 15:47	09/01/22 11:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110	08/31/22 15:47	09/01/22 11:53	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	08/31/22 15:47	09/01/22 11:53	1
Fluoranthene-d10 (Surr)	72		47 - 128	08/31/22 15:47	09/01/22 11:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	<del>97</del> UB	250	43	ug/L			08/31/22 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 16:38	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* UJ	100	46	ug/L		09/02/22 07:29	09/12/22 19:30	1
C24-C40	ND	cn UJ	260	100	ug/L		09/02/22 07:29	09/12/22 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67	cn	50 - 150	09/02/22 07:29	09/12/22 19:30	1

**Client Sample ID: MW-520-W-220824**

**Lab Sample ID: 410-95719-8**

Date Collected: 08/24/22 12:22

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	<del>cn</del>	1.0	0.30	ug/L			08/31/22 15:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102	cn	80 - 120		08/31/22 15:20	1
4-Bromofluorobenzene (Surr)	99	cn	80 - 120		08/31/22 15:20	1
Dibromofluoromethane (Surr)	102	cn	80 - 120		08/31/22 15:20	1
Toluene-d8 (Surr)	100	cn	80 - 120		08/31/22 15:20	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 12:15	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 12:15	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 12:15	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-520-W-220824**

**Lab Sample ID: 410-95719-8**

Date Collected: 08/24/22 12:22

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	34		10 - 110	08/31/22 15:47	09/01/22 12:15	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	08/31/22 15:47	09/01/22 12:15	1
Fluoranthene-d10 (Surr)	81		47 - 128	08/31/22 15:47	09/01/22 12:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		08/31/22 17:03	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*1 UJ	110	49	ug/L		09/02/22 07:29	09/12/22 19:53	1
C24-C40	ND	ch UJ	270	110	ug/L		09/02/22 07:29	09/12/22 19:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	74	cn	50 - 150	09/02/22 07:29	09/12/22 19:53	1

**Client Sample ID: MW-521-W-220824**

**Lab Sample ID: 410-95719-9**

Date Collected: 08/24/22 13:02

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 15:44	1
4-Bromofluorobenzene (Surr)	99		80 - 120		08/31/22 15:44	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 15:44	1
Toluene-d8 (Surr)	100		80 - 120		08/31/22 15:44	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Chrysene	ND		0.052	0.010	ug/L		08/31/22 15:47	09/01/22 12:37	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 12:37	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		08/31/22 15:47	09/01/22 12:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	76		10 - 110	08/31/22 15:47	09/01/22 12:37	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111	08/31/22 15:47	09/01/22 12:37	1
Fluoranthene-d10 (Surr)	77		47 - 128	08/31/22 15:47	09/01/22 12:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 17:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-521-W-220824**

**Lab Sample ID: 410-95719-9**

Date Collected: 08/24/22 13:02

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		08/31/22 17:29	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	* UJ	110	48	ug/L		09/02/22 07:29	09/12/22 20:39	1
C24-C40	ND	cn UJ	270	110	ug/L		09/02/22 07:29	09/12/22 20:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73	cn	50 - 150	09/02/22 07:29	09/12/22 20:39	1

**Client Sample ID: MW-522-W-220824**

**Lab Sample ID: 410-95719-10**

Date Collected: 08/24/22 13:36

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120		08/31/22 16:08	1
4-Bromofluorobenzene (Surr)	100		80 - 120		08/31/22 16:08	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 16:08	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 16:08	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 07:33	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 07:33	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 07:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110	08/31/22 15:47	09/01/22 07:33	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	08/31/22 15:47	09/01/22 07:33	1
Fluoranthene-d10 (Surr)	83		47 - 128	08/31/22 15:47	09/01/22 07:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UB	250	43	ug/L			08/31/22 18:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 18:45	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	UJ	100	47	ug/L		09/02/22 07:29	09/12/22 21:02	1
C24-C40	ND	cn UJ	260	100	ug/L		09/02/22 07:29	09/12/22 21:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65	cn	50 - 150	09/02/22 07:29	09/12/22 21:02	1

Euofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-530-W-220824**

**Lab Sample ID: 410-95719-11**

Date Collected: 08/24/22 10:12

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					08/31/22 17:21	1
4-Bromofluorobenzene (Surr)	101		80 - 120					08/31/22 17:21	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 17:21	1
Toluene-d8 (Surr)	103		80 - 120					08/31/22 17:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Chrysene	ND		0.051	0.010	ug/L		08/31/22 15:47	09/01/22 12:58	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		08/31/22 15:47	09/01/22 12:58	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		08/31/22 15:47	09/01/22 12:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	54		10 - 110				08/31/22 15:47	09/01/22 12:58	1
1-Methylnaphthalene-d10 (Surr)	66		36 - 111				08/31/22 15:47	09/01/22 12:58	1
Fluoranthene-d10 (Surr)	71		47 - 128				08/31/22 15:47	09/01/22 12:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>ND</b>	<b><del>52</del> J UB</b>	250	43	ug/L			08/31/22 20:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					08/31/22 20:02	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	<del>UJ</del>	100	47	ug/L		09/07/22 09:10	09/12/22 12:15	1
C24-C40	ND	UJ	260	100	ug/L		09/07/22 09:10	09/12/22 12:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	86		50 - 150				09/07/22 09:10	09/12/22 12:15	1

**Client Sample ID: MW-535-W-220824**

**Lab Sample ID: 410-95719-12**

Date Collected: 08/24/22 10:06

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 17:45	1
4-Bromofluorobenzene (Surr)	100		80 - 120					08/31/22 17:45	1
Dibromofluoromethane (Surr)	103		80 - 120					08/31/22 17:45	1
Toluene-d8 (Surr)	100		80 - 120					08/31/22 17:45	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: MW-535-W-220824**

**Lab Sample ID: 410-95719-12**

Date Collected: 08/24/22 10:06

Matrix: Water

Date Received: 08/25/22 10:14

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Chrysene	ND		0.053	0.011	ug/L		08/31/22 15:47	09/01/22 13:20	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		08/31/22 15:47	09/01/22 13:20	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	30		10 - 110				08/31/22 15:47	09/01/22 13:20	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				08/31/22 15:47	09/01/22 13:20	1
Fluoranthene-d10 (Surr)	81		47 - 128				08/31/22 15:47	09/01/22 13:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			08/31/22 20:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					08/31/22 20:27	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	UJ	100	47	ug/L		09/07/22 09:10	09/12/22 12:38	1
C24-C40	ND	UJ	260	100	ug/L		09/07/22 09:10	09/12/22 12:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	81		50 - 150				09/07/22 09:10	09/12/22 12:38	1

**Client Sample ID: DUP-4-WD-220824**

**Lab Sample ID: 410-95719-13**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 18:09	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	108		80 - 120					08/31/22 18:09	1
4-Bromofluorobenzene (Surr)	104		80 - 120					08/31/22 18:09	1
Dibromofluoromethane (Surr)	102		80 - 120					08/31/22 18:09	1
Toluene-d8 (Surr)	101		80 - 120					08/31/22 18:09	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[a]pyrene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[b]fluoranthene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Benzo[k]fluoranthene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Chrysene	ND	cn	0.052	0.010	ug/L		08/31/22 15:47	09/01/22 13:42	1
Dibenz(a,h)anthracene	ND	cn	0.052	0.021	ug/L		08/31/22 15:47	09/01/22 13:42	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.052	0.021	ug/L		08/31/22 15:47	09/01/22 13:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-95719-1

**Client Sample ID: DUP-4-WD-220824**

**Lab Sample ID: 410-95719-13**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53	cn	10 - 110	08/31/22 15:47	09/01/22 13:42	1
1-Methylnaphthalene-d10 (Surr)	126	S1+ cn	36 - 111	08/31/22 15:47	09/01/22 13:42	1
Fluoranthene-d10 (Surr)	106	cn	47 - 128	08/31/22 15:47	09/01/22 13:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1500		250	43	ug/L			08/31/22 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		08/31/22 20:53	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	84	J	100	46	ug/L		09/07/22 09:10	09/12/22 13:01	1
C24-C40	ND	UU	250	100	ug/L		09/07/22 09:10	09/12/22 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	83		50 - 150	09/07/22 09:10	09/12/22 13:01	1

**Client Sample ID: QA-T-220824**

**Lab Sample ID: 410-95719-14**

Date Collected: 08/24/22 00:00

Matrix: Water

Date Received: 08/25/22 10:14

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			08/31/22 12:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		08/31/22 12:30	1
4-Bromofluorobenzene (Surr)	101		80 - 120		08/31/22 12:30	1
Dibromofluoromethane (Surr)	103		80 - 120		08/31/22 12:30	1
Toluene-d8 (Surr)	101		80 - 120		08/31/22 12:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	110	J	250	43	ug/L			08/31/22 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	102		50 - 150		08/31/22 21:19	1

Address: 11720 UNION OIL COMPANY ROAD  
EDMONDS, WA

Chain of



410-99656 Chain of Custody

9 eurofins

Environment Testing  
TestAmerica

TAL-8210

Regulatory Program:  DW  NPDES

Client Contact		Project Manager: <u>SAMUEL MILES</u>		Site Contact:		Date: <u>09/27/2022</u>		COC No:		
Company Name: <u>ARCADIS</u>		Tel/Email: <u>SAMUEL.MILES@ARCADIS.COM</u>		Lab Contact:		Carrier: <u>---</u>		1 of 1 COCs		
Address: <u>1100 OLIVE WAY, SUITE 800</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>NUPH-GX</u> <u>NUPH-DX w/SGC</u> <u>BENZENE B260</u> <u>CPAHs B270 SIM</u>				Sampler:		
City/State/Zip: <u>SEATTLE, WA 98108-98101</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:		
Phone:		TAT If different from Below						Walk-in Client:		
Fax:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <u>STANDARD TAT</u>						Lab Sampling:		
Project Name: <u>EDMONDS TERMINAL</u>								Job / SDG No.:		
Site: <u>CHEVRON PM: JAMES KIRKMAN</u>										
PO# <u>30064301</u>										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:		
<u>LM-2</u>	<u>9/27/22</u>	<u>1250</u>	<u>G</u>	<u>GW</u>	<u>10</u>	<u>N</u>	<u>N</u>	<u>X</u>	<u>X</u>	<u>USE STANDARD SGC</u>
<u>TRIP BLANK</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>3</u>			<u>X</u>	<u>X</u>	<u>BENZENE AND CPAHS WITH QUANTITATIVE &lt; 1 MG/L</u>
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:										
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C) Obs'd: <u>2.2</u> Corr'd: <u>2.2</u>		Therm ID No.:				
Relinquished by: <u>J. SEP10L</u>		Company: <u>ARCADIS</u>		Date/Time: <u>9/27/1400</u>		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received in Laboratory by: <u>J. H. T.</u>		Company: <u>EUET</u>		
								Date/Time: <u>9/28/22 15:05</u>		



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: LM-2-GW-092722**

**Lab Sample ID: 410-99656-1**

Date Collected: 09/27/22 12:50

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			10/10/22 14:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		80 - 120					10/10/22 14:20	1
4-Bromofluorobenzene (Surr)	94		80 - 120					10/10/22 14:20	1
Dibromofluoromethane (Surr)	99		80 - 120					10/10/22 14:20	1
Toluene-d8 (Surr)	104		80 - 120					10/10/22 14:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[a]pyrene	0.011	J cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[b]fluoranthene	0.014	J cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Benzo[k]fluoranthene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Chrysene	ND	cn	0.054	0.011	ug/L		10/04/22 15:38	10/05/22 08:59	1
Dibenz(a,h)anthracene	ND	cn	0.054	0.022	ug/L		10/04/22 15:38	10/05/22 08:59	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.054	0.022	ug/L		10/04/22 15:38	10/05/22 08:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	44	cn	10 - 110				10/04/22 15:38	10/05/22 08:59	1
1-Methylnaphthalene-d10 (Surr)	80	cn	36 - 111				10/04/22 15:38	10/05/22 08:59	1
Fluoranthene-d10 (Surr)	33	S1- cn	47 - 128				10/04/22 15:38	10/05/22 08:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	840	J cn	2500	430	ug/L			10/06/22 21:32	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101	cn	50 - 150					10/06/22 21:32	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	49	J+J- J	110	47	ug/L		10/11/22 08:44	10/14/22 00:52	1
C24-C40	ND	UJ	260	110	ug/L		10/11/22 08:44	10/14/22 00:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	65		50 - 150				10/11/22 08:44	10/14/22 00:52	1

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

Date Collected: 09/27/22 00:00

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			10/10/22 13:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		80 - 120					10/10/22 13:56	1
4-Bromofluorobenzene (Surr)	95		80 - 120					10/10/22 13:56	1
Dibromofluoromethane (Surr)	97		80 - 120					10/10/22 13:56	1
Toluene-d8 (Surr)	106		80 - 120					10/10/22 13:56	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-99656-1

**Client Sample ID: TRIP BLANK-W-092722**

**Lab Sample ID: 410-99656-2**

Date Collected: 09/27/22 00:00

Matrix: Water

Date Received: 09/28/22 11:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			10/05/22 14:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	103		50 - 150					10/05/22 14:55	1

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 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/15/2022 4:53:39 PM

**JOB DESCRIPTION**

Edmonds Terminal

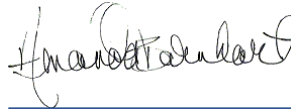
**JOB NUMBER**

410-105564-1

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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Authorized for release by  
Amanda Barnhart, Project Manager  
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(717)556-7252

## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

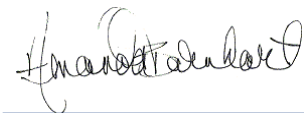
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### GC Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past holding time.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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)

# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Glossary (Continued)

**Abbreviation**      **These commonly used abbreviations may or may not be present in this report.**

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

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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Job ID: 410-105564-1

### Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

#### Narrative

#### Job Narrative 410-105564-1

#### Receipt

The samples were received on 11/12/2022 9:34 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.6°C

#### Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-503-W-221110 (410-105564-1), MW-503-W-221110 (410-105564-1[DU]), MW-503-W-221110 (410-105564-1[MS]), MW-503-W-221110 (410-105564-1[MSD]), MW-139R-W-221110 (410-105564-2), MW-519-W-221110 (410-105564-3), MW-520-W-221110 (410-105564-4), MW-514-W-221110 (410-105564-5), MW-518-W-221110 (410-105564-6), MW-512-W-221110 (410-105564-7), MW-502-W-221110 (410-105564-8), MW-513-W-221110 (410-105564-9), MW-143-W-221110 (410-105564-10), MW-101-W-221110 (410-105564-11), MW-126-W-221110 (410-105564-12), MW-511-W-221110 (410-105564-13), DUP-3-WD-221110 (410-105564-14), DUP-4-WD-221110 (410-105564-15), QA-T-W-221110 (410-105564-16) and MW-522-W-221110 (410-105564-17). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): MW-522-W-221110 (410-105564-17)

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample exhibited low surrogate response. Sample was reanalyzed outside of holding time with surrogate within quality control limits. Results from initial analysis confirmed as ND in reanalysis. In hold data has been reported. MW-519-W-221110 (410-105564-3) and MW-520-W-221110 (410-105564-4)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample was reanalyzed outside of holding time. Results from initial analysis confirmed as 260 ug/L in reanalysis. In hold data has been reported. MW-514-W-221110 (410-105564-5)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample exhibited low surrogate response and over calibration range amount of methane. Sample was diluted outside of holding time with surrogate within quality control limits. Results from initial analysis confirmed as 1100ug/L in dilution. In hold data has been reported. MW-518-W-221110 (410-105564-6)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample was reanalyzed outside of holding time. Results from initial analysis confirmed as 430 ug/L in reanalysis. In hold data has been reported. MW-512-W-221110 (410-105564-7)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample was reanalyzed outside of holding time. Results from initial analysis confirmed as ND in reanalysis. In hold data has been reported. MW-502-W-221110 (410-105564-8)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample was reanalyzed outside of holding time. Results from initial analysis confirmed as 280 ug/L in reanalysis. In hold data has been reported. MW-513-W-221110 (410-105564-9)

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Job ID: 410-105564-1 (Continued)

### Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification fell below quality control limits for surrogate. Sample exhibited low surrogate response and over calibration range amount of methane. Sample was diluted outside of holding time with surrogate within quality control limits. Results from initial analysis confirmed as 9300ug/L in dilution. In hold data has been reported. MW-143-W-221110 (410-105564-10)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification (CCV) fell below quality control limits for surrogate and methane and no bracketing CCV was analyzed. Sample exhibited over calibration range amount of methane. Sample was diluted outside of holding time. Results from initial analysis confirmed as 4400ug/L in dilution. In hold data has been reported. DUP-3-WD-221110 (410-105564-14)

Method RSK\_175: Due to instrument stoppage, sample was analyzed outside of 24 hours from preparation. Continuing calibration verification (CCV) fell below quality control limits for surrogate and methane and no bracketing CCV was analyzed. Sample exhibited over calibration range amount of methane. Sample was diluted outside of holding time. Results from initial analysis confirmed as 940ug/L in diluted. In hold data has been reported. DUP-4-WD-221110 (410-105564-15)

Method RSK\_175: Sample surrogate was not spiked. Sample was diluted outside of holding time with surrogate within quality control limits. Results from initial analysis confirmed as 4100ug/L in dilution. In hold data has been reported. MW-101-W-221110 (410-105564-11)

Method RSK\_175: Sample surrogate was not spiked. Sample was reanalyzed outside of holding time with surrogate within quality control limits. Results from initial analysis confirmed as ND in reanalysis. In hold data has been reported. MW-126-W-221110 (410-105564-12) and MW-522-W-221110 (410-105564-17)

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

### GC Semi VOA

Method NWTPH\_Dx: The laboratory control sample (LCS) for preparation batch 410-320542 and 410-321951 and analytical batch 410-322536 recovered outside control limits (low) for the following analytes: C12-C24 and n-Decanoic Acid (Surr). Since %R was above 10% and samples have no hold time remaining samples were not re-extracted.

Method NWTPH\_Dx: Surrogate recovery for the following sample was outside control limits (low): MW-519-W-221110 (410-105564-3). Evidence of matrix interferences is not obvious. Since %R was above 10% and samples have no hold time remaining samples were not re-extracted.

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

### HPLC/IC

Method 300\_ORGFMS: The following samples were received with less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-503-W-221110 (410-105564-1), MW-503-W-221110 (410-105564-1[DU]), MW-503-W-221110 (410-105564-1[MS]), MW-139R-W-221110 (410-105564-2), MW-519-W-221110 (410-105564-3), MW-520-W-221110 (410-105564-4), MW-514-W-221110 (410-105564-5), MW-518-W-221110 (410-105564-6), MW-502-W-221110 (410-105564-8), MW-513-W-221110 (410-105564-9), MW-143-W-221110 (410-105564-10), MW-101-W-221110 (410-105564-11) and (410-105564-B-1 MSD).

Method 300\_ORGFMS: The following samples were received with less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-512-W-221110 (410-105564-7), MW-126-W-221110 (410-105564-12) and MW-522-W-221110 (410-105564-17).

Method 300\_ORGFMS: The following sample was received with less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-511-W-221110 (410-105564-13).

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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## Job ID: 410-105564-1 (Continued)

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### Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

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

#### Metals

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

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# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Client Sample ID: MW-503-W-221110

## Lab Sample ID: 410-105564-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	68		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	24000	F1	7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	430		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-139R-W-221110

## Lab Sample ID: 410-105564-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	6.8		5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	530	J H cn	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	260000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	81		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-519-W-221110

## Lab Sample ID: 410-105564-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C12-C24	52	J *- *1 cn	110	50	ug/L	1		NWTPH-Dx	Total/NA
Nitrogen, Nitrate	520	J H cn	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	62000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	2.0	J	2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-520-W-221110

## Lab Sample ID: 410-105564-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	360	J H cn	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	220000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA

## Client Sample ID: MW-514-W-221110

## Lab Sample ID: 410-105564-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	53	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	250	cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	36000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	1400		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-518-W-221110

## Lab Sample ID: 410-105564-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	750		250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	610	E cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	54	J *- *1 cn	110	49	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	37000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	260		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-512-W-221110

## Lab Sample ID: 410-105564-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	130	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	450	cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	44000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	1300		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Client Sample ID: MW-502-W-221110

## Lab Sample ID: 410-105564-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	290		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-513-W-221110

## Lab Sample ID: 410-105564-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	52	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	250	cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	140000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	710		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-143-W-221110

## Lab Sample ID: 410-105564-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	4800	E cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
Manganese	3200		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-101-W-221110

## Lab Sample ID: 410-105564-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1300		250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	2800	E cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	58	J *- *1 cn	110	50	ug/L	1		NWTPH-Dx	Total/NA
Manganese	11000		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-126-W-221110

## Lab Sample ID: 410-105564-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	2300	H cn	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	24000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA

## Client Sample ID: MW-511-W-221110

## Lab Sample ID: 410-105564-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	3.3	J	5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	570	H cn	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	19000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	5.8		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: DUP-3-WD-221110

## Lab Sample ID: 410-105564-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1400		250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	2800	E cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	67	J *- *1 cn	110	50	ug/L	1		NWTPH-Dx	Total/NA
Manganese	9900		10	4.9	ug/L	5		200.8 Rev 5.4	Dissolved

## Client Sample ID: DUP-4-WD-221110

## Lab Sample ID: 410-105564-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	730		250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	640	E cn	5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	61	J *- *1 cn	110	49	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	30000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Client Sample ID: DUP-4-WD-221110 (Continued)

Lab Sample ID: 410-105564-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	260		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-W-221110

Lab Sample ID: 410-105564-16

No Detections.

## Client Sample ID: MW-522-W-221110

Lab Sample ID: 410-105564-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	240000		30000	10000	ug/L	20		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-503-W-221110**

**Lab Sample ID: 410-105564-1**

Date Collected: 11/10/22 09:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 18:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/21/22 18:33	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/21/22 18:33	1
Dibromofluoromethane (Surr)	103		80 - 120					11/21/22 18:33	1
Toluene-d8 (Surr)	93		80 - 120					11/21/22 18:33	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Chrysene	ND		0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		11/17/22 15:20	11/18/22 20:56	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		11/17/22 15:20	11/18/22 20:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	81		10 - 110				11/17/22 15:20	11/18/22 20:56	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/18/22 20:56	1
Fluoranthene-d10 (Surr)	93		47 - 128				11/17/22 15:20	11/18/22 20:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 15:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/16/22 15:09	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	68		5.0	3.0	ug/L		11/22/22 08:10	11/22/22 11:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133				11/22/22 08:10	11/22/22 11:04	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 F1 cn	100	46	ug/L		11/23/22 08:00	12/01/22 15:48	1
C24-C40	ND		260	100	ug/L		11/23/22 08:00	12/01/22 15:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150				11/23/22 08:00	12/01/22 15:48	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H F1 cn	550	250	ug/L			11/12/22 18:01	5
Sulfate	24000	F1	7500	2500	ug/L			11/12/22 18:01	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Client Sample ID: MW-503-W-221110

## Lab Sample ID: 410-105564-1

Date Collected: 11/10/22 09:20

Matrix: Water

Date Received: 11/12/22 09:34

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	430		2.1	0.98	ug/L		11/18/22 10:12	11/29/22 10:08	1

## Client Sample ID: MW-139R-W-221110

## Lab Sample ID: 410-105564-2

Date Collected: 11/10/22 11:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/21/22 19:45	1
4-Bromofluorobenzene (Surr)	95		80 - 120		11/21/22 19:45	1
Dibromofluoromethane (Surr)	105		80 - 120		11/21/22 19:45	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 19:45	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:00	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	11/17/22 15:20	11/18/22 22:00	1
1-Methylnaphthalene-d10 (Surr)	80		36 - 111	11/17/22 15:20	11/18/22 22:00	1
Fluoranthene-d10 (Surr)	91		47 - 128	11/17/22 15:20	11/18/22 22:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 16:25	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	6.8		5.0	3.0	ug/L		11/22/22 08:10	11/22/22 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	90		43 - 133	11/22/22 08:10	11/22/22 12:22	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 17:20	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	67		50 - 150	11/23/22 08:00	12/01/22 17:20	1

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-139R-W-221110**

**Lab Sample ID: 410-105564-2**

Date Collected: 11/10/22 11:00

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	530	J H cn	550	250	ug/L			11/12/22 17:18	5
Sulfate	260000		75000	25000	ug/L			11/15/22 15:28	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	81		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:48	1

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

Date Collected: 11/10/22 11:32

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/21/22 20:09	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/21/22 20:09	1
Dibromofluoromethane (Surr)	103		80 - 120		11/21/22 20:09	1
Toluene-d8 (Surr)	93		80 - 120		11/21/22 20:09	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:22	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	90		10 - 110	11/17/22 15:20	11/18/22 22:22	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111	11/17/22 15:20	11/18/22 22:22	1
Fluoranthene-d10 (Surr)	87		47 - 128	11/17/22 15:20	11/18/22 22:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 16:51	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 06:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	30	S1- cn	43 - 133	11/18/22 08:35	11/21/22 06:49	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

Date Collected: 11/10/22 11:32

Matrix: Water

Date Received: 11/12/22 09:34

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>52</b>	<b>J *- *1 cn</b>	110	50	ug/L		11/23/22 08:00	12/01/22 17:43	1
C24-C40	ND	cn	280	110	ug/L		11/23/22 08:00	12/01/22 17:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	47	S1- cn	50 - 150				11/23/22 08:00	12/01/22 17:43	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Nitrogen, Nitrate</b>	<b>520</b>	<b>J H cn</b>	550	250	ug/L			11/12/22 17:26	5
<b>Sulfate</b>	<b>62000</b>		7500	2500	ug/L			11/12/22 17:26	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>2.0</b>	<b>J</b>	2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:05	1

**Client Sample ID: MW-520-W-221110**

**Lab Sample ID: 410-105564-4**

Date Collected: 11/10/22 10:44

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 20:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		80 - 120					11/21/22 20:33	1
<i>4-Bromofluorobenzene (Surr)</i>	94		80 - 120					11/21/22 20:33	1
<i>Dibromofluoromethane (Surr)</i>	104		80 - 120					11/21/22 20:33	1
<i>Toluene-d8 (Surr)</i>	94		80 - 120					11/21/22 20:33	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Chrysene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/17/22 15:20	11/18/22 22:43	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/17/22 15:20	11/18/22 22:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	86		10 - 110				11/17/22 15:20	11/18/22 22:43	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	72		36 - 111				11/17/22 15:20	11/18/22 22:43	1
<i>Fluoranthene-d10 (Surr)</i>	86		47 - 128				11/17/22 15:20	11/18/22 22:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100		50 - 150					11/16/22 17:16	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-520-W-221110**

**Lab Sample ID: 410-105564-4**

Date Collected: 11/10/22 10:44

Matrix: Water

Date Received: 11/12/22 09:34

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	29	S1- cn	43 - 133				11/18/22 08:35	11/21/22 07:07	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 18:06	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 18:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	51		50 - 150				11/23/22 08:00	12/01/22 18:06	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	360	J H cn	550	250	ug/L			11/12/22 17:01	5
Sulfate	220000		75000	25000	ug/L			11/15/22 15:02	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 18:49	1

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

Date Collected: 11/10/22 12:05

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/21/22 20:57	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/21/22 20:57	1
Dibromofluoromethane (Surr)	103		80 - 120					11/21/22 20:57	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 20:57	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Chrysene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:05	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	32		10 - 110				11/17/22 15:20	11/18/22 23:05	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/17/22 15:20	11/18/22 23:05	1
Fluoranthene-d10 (Surr)	88		47 - 128				11/17/22 15:20	11/18/22 23:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

Date Collected: 11/10/22 12:05

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	53	J	250	43	ug/L			11/16/22 17:42	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					11/16/22 17:42	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	250	cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:24	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Propene (1C)	46	cn	43 - 133				11/18/22 08:35	11/21/22 07:24	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	48	ug/L		11/23/22 08:00	12/01/22 18:29	1
C24-C40	ND		260	110	ug/L		11/23/22 08:00	12/01/22 18:29	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
o-terphenyl (Surr)	75		50 - 150				11/23/22 08:00	12/01/22 18:29	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 17:35	5
Sulfate	36000		7500	2500	ug/L			11/12/22 17:35	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1400		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:04	1

**Client Sample ID: MW-518-W-221110**

**Lab Sample ID: 410-105564-6**

Date Collected: 11/10/22 09:08

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 21:21	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/21/22 21:21	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/21/22 21:21	1
Dibromofluoromethane (Surr)	105		80 - 120					11/21/22 21:21	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 21:21	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 23:26	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/18/22 23:26	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-518-W-221110**

**Lab Sample ID: 410-105564-6**

Date Collected: 11/10/22 09:08

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	66		10 - 110	11/17/22 15:20	11/18/22 23:26	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111	11/17/22 15:20	11/18/22 23:26	1
Fluoranthene-d10 (Surr)	93		47 - 128	11/17/22 15:20	11/18/22 23:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>750</b>		250	43	ug/L			11/16/22 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		11/16/22 19:49	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>610</b>	<b>E cn</b>	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	30	S1 - cn	43 - 133	11/18/22 08:35	11/21/22 07:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>54</b>	<b>J* - *1 cn</b>	110	49	ug/L		11/23/22 08:00	12/01/22 18:52	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	75		50 - 150	11/23/22 08:00	12/01/22 18:52	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 16:43	5
<b>Sulfate</b>	<b>37000</b>		7500	2500	ug/L			11/12/22 16:43	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>260</b>		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:46	1

**Client Sample ID: MW-512-W-221110**

**Lab Sample ID: 410-105564-7**

Date Collected: 11/10/22 13:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 21:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		11/21/22 21:45	1
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 21:45	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 21:45	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 21:45	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-512-W-221110**

**Lab Sample ID: 410-105564-7**

Date Collected: 11/10/22 13:20

Matrix: Water

Date Received: 11/12/22 09:34

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Chrysene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:48	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				11/17/22 15:20	11/18/22 23:48	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/18/22 23:48	1
Fluoranthene-d10 (Surr)	73		47 - 128				11/17/22 15:20	11/18/22 23:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>130</b>	<b>J</b>	250	43	ug/L			11/16/22 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/16/22 20:14	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>450</b>	<b>cn</b>	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	50	cn	43 - 133				11/18/22 08:35	11/21/22 08:00	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	100	47	ug/L		11/23/22 08:00	12/01/22 19:14	1
C24-C40	ND		260	100	ug/L		11/23/22 08:00	12/01/22 19:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	60		50 - 150				11/23/22 08:00	12/01/22 19:14	1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 17:52	5
<b>Sulfate</b>	<b>44000</b>		7500	2500	ug/L			11/12/22 17:52	5

## Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>1300</b>		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:34	1

**Client Sample ID: MW-502-W-221110**

**Lab Sample ID: 410-105564-8**

Date Collected: 11/10/22 10:50

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 22:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/21/22 22:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-502-W-221110**

**Lab Sample ID: 410-105564-8**

Date Collected: 11/10/22 10:50

Matrix: Water

Date Received: 11/12/22 09:34

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 22:08	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 22:08	1
Toluene-d8 (Surr)	92		80 - 120		11/21/22 22:08	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Chrysene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:09	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	11/17/22 15:20	11/19/22 00:09	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	11/17/22 15:20	11/19/22 00:09	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/17/22 15:20	11/19/22 00:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/16/22 20:40	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	48	cn	43 - 133	11/18/22 08:35	11/21/22 08:18	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	48	ug/L		11/23/22 08:00	12/01/22 19:37	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150	11/23/22 08:00	12/01/22 19:37	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 17:09	5
Sulfate	20000		7500	2500	ug/L			11/12/22 17:09	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	290		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:58	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-513-W-221110**

**Lab Sample ID: 410-105564-9**

Date Collected: 11/10/22 12:30

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 22:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/21/22 22:32	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/21/22 22:32	1
Dibromofluoromethane (Surr)	105		80 - 120					11/21/22 22:32	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 22:32	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Chrysene	ND		0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/17/22 15:20	11/19/22 00:30	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/17/22 15:20	11/19/22 00:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	61		10 - 110				11/17/22 15:20	11/19/22 00:30	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/17/22 15:20	11/19/22 00:30	1
Fluoranthene-d10 (Surr)	96		47 - 128				11/17/22 15:20	11/19/22 00:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	52	J	250	43	ug/L			11/16/22 21:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/16/22 21:06	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	250	cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	46	cn	43 - 133				11/18/22 08:35	11/21/22 08:54	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 20:23	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 20:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	59		50 - 150				11/23/22 08:00	12/01/22 20:23	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 17:52	5
Sulfate	140000		75000	25000	ug/L			11/16/22 09:43	50



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-513-W-221110**

**Lab Sample ID: 410-105564-9**

Date Collected: 11/10/22 12:30

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	710		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:36	1

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

Date Collected: 11/10/22 12:38

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 22:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		11/21/22 22:56	1
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 22:56	1
Dibromofluoromethane (Surr)	102		80 - 120		11/21/22 22:56	1
Toluene-d8 (Surr)	95		80 - 120		11/21/22 22:56	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Chrysene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:52	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	74		10 - 110	11/17/22 15:20	11/19/22 00:52	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	11/17/22 15:20	11/19/22 00:52	1
Fluoranthene-d10 (Surr)	74		47 - 128	11/17/22 15:20	11/19/22 00:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 21:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/16/22 21:32	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4800	E cn	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 09:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	39	S1- cn	43 - 133	11/18/22 08:35	11/21/22 09:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	48	ug/L		11/23/22 08:00	12/01/22 20:46	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	52		50 - 150	11/23/22 08:00	12/01/22 20:46	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

Date Collected: 11/10/22 12:38

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 17:44	5
Sulfate	ND		7500	2500	ug/L			11/12/22 17:44	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3200		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:03	1

**Client Sample ID: MW-101-W-221110**

**Lab Sample ID: 410-105564-11**

Date Collected: 11/10/22 09:15

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/21/22 23:20	1
4-Bromofluorobenzene (Surr)	96		80 - 120		11/21/22 23:20	1
Dibromofluoromethane (Surr)	105		80 - 120		11/21/22 23:20	1
Toluene-d8 (Surr)	95		80 - 120		11/21/22 23:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Chrysene	ND		0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		11/17/22 15:20	11/19/22 01:13	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		11/17/22 15:20	11/19/22 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 110	11/17/22 15:20	11/19/22 01:13	1
1-Methylnaphthalene-d10 (Surr)	136	S1+	36 - 111	11/17/22 15:20	11/19/22 01:13	1
Fluoranthene-d10 (Surr)	102		47 - 128	11/17/22 15:20	11/19/22 01:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1300		250	43	ug/L			11/16/22 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 21:57	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800	E cn	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 20:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133	11/18/22 12:19	11/18/22 20:04	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-101-W-221110**

**Lab Sample ID: 410-105564-11**

Date Collected: 11/10/22 09:15

Matrix: Water

Date Received: 11/12/22 09:34

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>58</b>	<b>J* - *1 cn</b>	110	50	ug/L		11/23/22 08:00	12/01/22 21:09	1
C24-C40	ND		280	110	ug/L		11/23/22 08:00	12/01/22 21:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	71		50 - 150				11/23/22 08:00	12/01/22 21:09	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 16:52	5
Sulfate	ND		7500	2500	ug/L			11/12/22 16:52	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>11000</b>		21	9.8	ug/L		12/08/22 14:16	12/13/22 17:56	10

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

Date Collected: 11/10/22 14:04

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 23:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		80 - 120					11/21/22 23:44	1
<i>4-Bromofluorobenzene (Surr)</i>	92		80 - 120					11/21/22 23:44	1
<i>Dibromofluoromethane (Surr)</i>	105		80 - 120					11/21/22 23:44	1
<i>Toluene-d8 (Surr)</i>	93		80 - 120					11/21/22 23:44	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/19/22 01:35	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:20	11/19/22 01:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	91		10 - 110				11/17/22 15:20	11/19/22 01:35	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	76		36 - 111				11/17/22 15:20	11/19/22 01:35	1
<i>Fluoranthene-d10 (Surr)</i>	90		47 - 128				11/17/22 15:20	11/19/22 01:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 22:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100		50 - 150					11/16/22 22:23	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

Date Collected: 11/10/22 14:04

Matrix: Water

Date Received: 11/12/22 09:34

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133				11/18/22 12:19	11/18/22 19:49	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 21:55	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 21:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	81		50 - 150				11/23/22 08:00	12/01/22 21:55	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	2300	H cn	550	250	ug/L			11/12/22 18:14	5
Sulfate	24000		7500	2500	ug/L			11/12/22 18:14	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:56	1

**Client Sample ID: MW-511-W-221110**

**Lab Sample ID: 410-105564-13**

Date Collected: 11/10/22 14:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 00:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/22/22 00:09	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/22/22 00:09	1
Dibromofluoromethane (Surr)	106		80 - 120					11/22/22 00:09	1
Toluene-d8 (Surr)	94		80 - 120					11/22/22 00:09	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Chrysene	ND		0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/21/22 09:51	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/17/22 15:20	11/21/22 09:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	84		10 - 110				11/17/22 15:20	11/21/22 09:51	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/21/22 09:51	1
Fluoranthene-d10 (Surr)	92		47 - 128				11/17/22 15:20	11/21/22 09:51	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-511-W-221110**

**Lab Sample ID: 410-105564-13**

Date Collected: 11/10/22 14:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 22:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/16/22 22:48	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	3.3	J	5.0	3.0	ug/L		11/18/22 09:36	11/18/22 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133				11/18/22 09:36	11/18/22 17:17	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	48	ug/L		11/23/22 08:00	12/01/22 22:17	1
C24-C40	ND		260	110	ug/L		11/23/22 08:00	12/01/22 22:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	68		50 - 150				11/23/22 08:00	12/01/22 22:17	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	570	H cn	550	250	ug/L			11/14/22 23:06	5
Sulfate	19000		7500	2500	ug/L			11/14/22 23:06	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5.8		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:44	1

**Client Sample ID: DUP-3-WD-221110**

**Lab Sample ID: 410-105564-14**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 00:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/22/22 00:33	1
4-Bromofluorobenzene (Surr)	97		80 - 120					11/22/22 00:33	1
Dibromofluoromethane (Surr)	104		80 - 120					11/22/22 00:33	1
Toluene-d8 (Surr)	95		80 - 120					11/22/22 00:33	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Chrysene	ND		0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/17/22 15:31	11/18/22 19:30	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/17/22 15:31	11/18/22 19:30	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: DUP-3-WD-221110**

**Lab Sample ID: 410-105564-14**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110	11/17/22 15:31	11/18/22 19:30	1
1-Methylnaphthalene-d10 (Surr)	171	S1+	36 - 111	11/17/22 15:31	11/18/22 19:30	1
Fluoranthene-d10 (Surr)	95		47 - 128	11/17/22 15:31	11/18/22 19:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1400		250	43	ug/L			11/19/22 02:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/19/22 02:26	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800	E cn	5.0	3.0	ug/L		11/18/22 12:29	11/21/22 13:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53	cn	43 - 133	11/18/22 12:29	11/21/22 13:59	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	67	J* - *1 cn	110	50	ug/L		11/23/22 08:00	12/01/22 22:41	1
C24-C40	ND		280	110	ug/L		11/23/22 08:00	12/01/22 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	79		50 - 150	11/23/22 08:00	12/01/22 22:41	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3	550	250	ug/L			11/12/22 18:36	5
Sulfate	ND		7500	2500	ug/L			11/12/22 18:36	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	9900		10	4.9	ug/L		12/08/22 14:16	12/13/22 17:44	5

**Client Sample ID: DUP-4-WD-221110**

**Lab Sample ID: 410-105564-15**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 00:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/22/22 00:56	1
4-Bromofluorobenzene (Surr)	95		80 - 120		11/22/22 00:56	1
Dibromofluoromethane (Surr)	104		80 - 120		11/22/22 00:56	1
Toluene-d8 (Surr)	94		80 - 120		11/22/22 00:56	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: DUP-4-WD-221110**

**Lab Sample ID: 410-105564-15**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:31	11/18/22 19:52	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:31	11/18/22 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 110	11/17/22 15:31	11/18/22 19:52	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	11/17/22 15:31	11/18/22 19:52	1
Fluoranthene-d10 (Surr)	85		47 - 128	11/17/22 15:31	11/18/22 19:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	730		250	43	ug/L			11/19/22 02:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		11/19/22 02:52	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	640	E cn	5.0	3.0	ug/L		11/18/22 12:29	11/21/22 14:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	43	cn	43 - 133	11/18/22 12:29	11/21/22 14:17	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	61	J *- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 23:03	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 23:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	76		50 - 150	11/23/22 08:00	12/01/22 23:03	1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3	550	250	ug/L			11/12/22 18:25	5
Sulfate	30000		7500	2500	ug/L			11/12/22 18:25	5

## Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	260		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:15	1

**Client Sample ID: QA-T-W-221110**

**Lab Sample ID: 410-105564-16**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/21/22 18:09	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: QA-T-W-221110**

**Lab Sample ID: 410-105564-16**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		80 - 120		11/21/22 18:09	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 18:09	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 18:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 13:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/16/22 13:52	1

**Client Sample ID: MW-522-W-221110**

**Lab Sample ID: 410-105564-17**

Date Collected: 11/10/22 13:35

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 01:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/22/22 01:20	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/22/22 01:20	1
Dibromofluoromethane (Surr)	105		80 - 120		11/22/22 01:20	1
Toluene-d8 (Surr)	94		80 - 120		11/22/22 01:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Chrysene	ND		0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/17/22 15:31	11/18/22 20:13	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/17/22 15:31	11/18/22 20:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	11/17/22 15:31	11/18/22 20:13	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	11/17/22 15:31	11/18/22 20:13	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/17/22 15:31	11/18/22 20:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/21/22 17:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/21/22 17:38	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 20:50	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-522-W-221110**

**Lab Sample ID: 410-105564-17**

Date Collected: 11/10/22 13:35

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133	11/18/22 12:19	11/18/22 20:50	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	50	ug/L		11/23/22 08:00	12/01/22 23:26	1
C24-C40	ND		280	110	ug/L		11/23/22 08:00	12/01/22 23:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	71		50 - 150	11/23/22 08:00	12/01/22 23:26	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H cn	550	250	ug/L			11/12/22 18:03	5
Sulfate	240000		30000	10000	ug/L			11/14/22 22:55	20

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:00	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-105564-1	MW-503-W-221110	95	93	103	93
410-105564-1 MS	MW-503-W-221110	96	96	103	93
410-105564-1 MSD	MW-503-W-221110	97	96	101	94
410-105564-2	MW-139R-W-221110	96	95	105	94
410-105564-3	MW-519-W-221110	96	93	103	93
410-105564-4	MW-520-W-221110	95	94	104	94
410-105564-5	MW-514-W-221110	94	94	103	94
410-105564-6	MW-518-W-221110	96	93	105	94
410-105564-7	MW-512-W-221110	94	94	104	94
410-105564-8	MW-502-W-221110	96	94	104	92
410-105564-9	MW-513-W-221110	95	94	105	94
410-105564-10	MW-143-W-221110	94	94	102	95
410-105564-11	MW-101-W-221110	95	96	105	95
410-105564-12	MW-126-W-221110	95	92	105	93
410-105564-13	MW-511-W-221110	95	92	106	94
410-105564-14	DUP-3-WD-221110	96	97	104	95
410-105564-15	DUP-4-WD-221110	95	95	104	94
410-105564-16	QA-T-W-221110	96	95	104	94
410-105564-17	MW-522-W-221110	96	93	105	94
LCS 410-319894/4	Lab Control Sample	97	97	103	95
LCS 410-319894/5	Lab Control Sample Dup	97	95	103	93
MB 410-319894/6	Method Blank	95	95	103	94

#### Surrogate Legend

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-105564-1	MW-503-W-221110	81	77	93
410-105564-1 MS	MW-503-W-221110	79	66	90
410-105564-1 MSD	MW-503-W-221110	77	71	94
410-105564-2	MW-139R-W-221110	53	80	91
410-105564-3	MW-519-W-221110	90	68	87
410-105564-4	MW-520-W-221110	86	72	86
410-105564-5	MW-514-W-221110	32	73	88
410-105564-6	MW-518-W-221110	66	81	93
410-105564-7	MW-512-W-221110	65	77	73
410-105564-8	MW-502-W-221110	59	71	89
410-105564-9	MW-513-W-221110	61	73	96
410-105564-10	MW-143-W-221110	74	74	74
410-105564-11	MW-101-W-221110	56	136 S1+	102
410-105564-12	MW-126-W-221110	91	76	90
410-105564-13	MW-511-W-221110	84	77	92

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-105564-14	DUP-3-WD-221110	58	171 S1+	95
410-105564-15	DUP-4-WD-221110	56	72	85
410-105564-17	MW-522-W-221110	85	72	89
LCS 410-318758/2-A	Lab Control Sample	92	72	90
LCS 410-318763/2-A	Lab Control Sample	94	74	93
LCSD 410-318763/3-A	Lab Control Sample Dup	82	65	80
MB 410-318758/1-A	Method Blank	79	70	79
MB 410-318763/1-A	Method Blank	90	86	91

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
 MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
 FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-105564-1	MW-503-W-221110	99
410-105564-1 MS	MW-503-W-221110	91
410-105564-1 MSD	MW-503-W-221110	91
410-105564-2	MW-139R-W-221110	100
410-105564-3	MW-519-W-221110	100
410-105564-4	MW-520-W-221110	100
410-105564-5	MW-514-W-221110	101
410-105564-6	MW-518-W-221110	98
410-105564-7	MW-512-W-221110	100
410-105564-8	MW-502-W-221110	99
410-105564-9	MW-513-W-221110	99
410-105564-10	MW-143-W-221110	101
410-105564-11	MW-101-W-221110	100
410-105564-12	MW-126-W-221110	100
410-105564-13	MW-511-W-221110	99
410-105564-14	DUP-3-WD-221110	100
410-105564-15	DUP-4-WD-221110	98
410-105564-16	QA-T-W-221110	99
410-105564-17	MW-522-W-221110	100
LCS 410-318147/5	Lab Control Sample	92
LCS 410-319161/5	Lab Control Sample	91
LCS 410-319725/5	Lab Control Sample	108
LCSD 410-318147/6	Lab Control Sample Dup	92
LCSD 410-319161/6	Lab Control Sample Dup	90
LCSD 410-319725/6	Lab Control Sample Dup	107
MB 410-318147/4	Method Blank	100
MB 410-319161/4	Method Blank	99
MB 410-319725/9	Method Blank	99

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Propene1 (43-133)	
410-105564-1	MW-503-W-221110	52	
410-105564-1 MS	MW-503-W-221110	53	
410-105564-1 MSD	MW-503-W-221110	86	
410-105564-2	MW-139R-W-221110	90	
410-105564-3	MW-519-W-221110	30 S1- cn	
410-105564-4	MW-520-W-221110	29 S1- cn	
410-105564-5	MW-514-W-221110	46 cn	
410-105564-6	MW-518-W-221110	30 S1- cn	
410-105564-7	MW-512-W-221110	50 cn	
410-105564-8	MW-502-W-221110	48 cn	
410-105564-9	MW-513-W-221110	46 cn	
410-105564-10	MW-143-W-221110	39 S1- cn	
410-105564-11	MW-101-W-221110	0 S1- cn	
410-105564-12	MW-126-W-221110	0 S1- cn	
410-105564-13	MW-511-W-221110	52	
410-105564-14	DUP-3-WD-221110	53 cn	
410-105564-15	DUP-4-WD-221110	43 cn	
410-105564-17	MW-522-W-221110	0 S1- cn	
LCS 410-319017/2-A	Lab Control Sample	104	
LCS 410-319018/2-A	Lab Control Sample	94	
LCS 410-319107/2-A	Lab Control Sample	92	
LCS 410-319121/2-A	Lab Control Sample	50	
LCS 410-320137/2-A	Lab Control Sample	99	
LCSD 410-319017/3-A	Lab Control Sample Dup	105	
LCSD 410-319018/3-A	Lab Control Sample Dup	96	
LCSD 410-319107/3-A	Lab Control Sample Dup	94	
MB 410-319017/1-A	Method Blank	103	
MB 410-319018/1-A	Method Blank	94	
MB 410-319107/1-A	Method Blank	95	
MB 410-319121/1-A	Method Blank	72	
MB 410-320137/1-A	Method Blank	101	

**Surrogate Legend**

Propene = Propene

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTP (50-150)	
410-105564-1	MW-503-W-221110	73	
410-105564-1 MS	MW-503-W-221110	60	
410-105564-1 MSD	MW-503-W-221110	60	
410-105564-2	MW-139R-W-221110	67	
410-105564-3	MW-519-W-221110	47 S1- cn	
410-105564-4	MW-520-W-221110	51	
410-105564-5	MW-514-W-221110	75	
410-105564-6	MW-518-W-221110	75	
410-105564-7	MW-512-W-221110	60	
410-105564-8	MW-502-W-221110	57	

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)**

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-105564-9	MW-513-W-221110	59
410-105564-10	MW-143-W-221110	52
410-105564-11	MW-101-W-221110	71
410-105564-11 DU	MW-101-W-221110	73
410-105564-12	MW-126-W-221110	81
410-105564-13	MW-511-W-221110	68
410-105564-14	DUP-3-WD-221110	79
410-105564-15	DUP-4-WD-221110	76
410-105564-17	MW-522-W-221110	71
LCS 410-320542/2-B	Lab Control Sample	30 S1-
LCSD 410-320542/3-B	Lab Control Sample Dup	76
MB 410-320542/1-B	Method Blank	52

### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: MB 410-319894/6**  
**Matrix: Water**  
**Analysis Batch: 319894**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/21/22 17:45	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/21/22 17:45	1
4-Bromofluorobenzene (Surr)	95		80 - 120					11/21/22 17:45	1
Dibromofluoromethane (Surr)	103		80 - 120					11/21/22 17:45	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 17:45	1

**Lab Sample ID: LCS 410-319894/4**  
**Matrix: Water**  
**Analysis Batch: 319894**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	21.7		ug/L		108	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					
4-Bromofluorobenzene (Surr)	97		80 - 120					
Dibromofluoromethane (Surr)	103		80 - 120					
Toluene-d8 (Surr)	95		80 - 120					

**Lab Sample ID: LCSD 410-319894/5**  
**Matrix: Water**  
**Analysis Batch: 319894**

**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	20.0	21.7		ug/L		108	80 - 120	0	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
4-Bromofluorobenzene (Surr)	95		80 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
Toluene-d8 (Surr)	93		80 - 120						

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 319894**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	22.8		ug/L		114	80 - 120
Surrogate	%Recovery	MS Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		80 - 120						
4-Bromofluorobenzene (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
Toluene-d8 (Surr)	93		80 - 120						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 319894**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	23.1		ug/L		116	80 - 120	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	97		80 - 120								
4-Bromofluorobenzene (Surr)	96		80 - 120								
Dibromofluoromethane (Surr)	101		80 - 120								
Toluene-d8 (Surr)	94		80 - 120								

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-318758/1-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 318758**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/17/22 15:20	11/18/22 15:56	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/17/22 15:20	11/18/22 15:56	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/17/22 15:20	11/18/22 15:56	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/17/22 15:20	11/18/22 15:56	1
Chrysene	ND		0.050	0.010	ug/L		11/17/22 15:20	11/18/22 15:56	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/17/22 15:20	11/18/22 15:56	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/17/22 15:20	11/18/22 15:56	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	79		10 - 110				11/17/22 15:20	11/18/22 15:56	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111				11/17/22 15:20	11/18/22 15:56	1
Fluoranthene-d10 (Surr)	79		47 - 128				11/17/22 15:20	11/18/22 15:56	1

**Lab Sample ID: LCS 410-318758/2-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 318758**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	0.851		ug/L		85	61 - 122
Benzo[a]pyrene	1.00	0.810		ug/L		81	60 - 120
Benzo[b]fluoranthene	1.00	0.824		ug/L		82	58 - 122
Benzo[k]fluoranthene	1.00	0.832		ug/L		83	57 - 128
Chrysene	1.00	0.831		ug/L		83	55 - 123
Dibenz(a,h)anthracene	1.00	0.974		ug/L		97	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.01		ug/L		101	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Benzo(a)pyrene-d12 (Surr)	92		10 - 110				
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				
Fluoranthene-d10 (Surr)	90		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 318758**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Benzo[a]anthracene	ND		1.05	0.935		ug/L		89		61 - 122
Benzo[a]pyrene	ND		1.05	0.698		ug/L		67		60 - 120
Benzo[b]fluoranthene	ND		1.05	0.807		ug/L		77		58 - 122
Benzo[k]fluoranthene	ND		1.05	0.775		ug/L		74		57 - 128
Chrysene	ND		1.05	0.852		ug/L		82		55 - 123
Dibenz(a,h)anthracene	ND		1.05	0.887		ug/L		85		50 - 121
Indeno[1,2,3-cd]pyrene	ND		1.05	0.937		ug/L		90		47 - 143
<b>MS MS</b>										
Surrogate	%Recovery	Qualifier	Limits							
Benzo(a)pyrene-d12 (Surr)	79		10 - 110							
1-Methylnaphthalene-d10 (Surr)	66		36 - 111							
Fluoranthene-d10 (Surr)	90		47 - 128							

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 318758**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Benzo[a]anthracene	ND		1.04	0.972		ug/L		93		61 - 122	4	30
Benzo[a]pyrene	ND		1.04	0.699		ug/L		67		60 - 120	0	30
Benzo[b]fluoranthene	ND		1.04	0.827		ug/L		80		58 - 122	2	30
Benzo[k]fluoranthene	ND		1.04	0.799		ug/L		77		57 - 128	3	30
Chrysene	ND		1.04	0.875		ug/L		84		55 - 123	3	30
Dibenz(a,h)anthracene	ND		1.04	0.872		ug/L		84		50 - 121	2	30
Indeno[1,2,3-cd]pyrene	ND		1.04	0.908		ug/L		87		47 - 143	3	30
<b>MSD MSD</b>												
Surrogate	%Recovery	Qualifier	Limits									
Benzo(a)pyrene-d12 (Surr)	77		10 - 110									
1-Methylnaphthalene-d10 (Surr)	71		36 - 111									
Fluoranthene-d10 (Surr)	94		47 - 128									

**Lab Sample ID: MB 410-318763/1-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 318763**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/17/22 15:31	11/18/22 14:52	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/17/22 15:31	11/18/22 14:52	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/17/22 15:31	11/18/22 14:52	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/17/22 15:31	11/18/22 14:52	1
Chrysene	ND		0.050	0.010	ug/L		11/17/22 15:31	11/18/22 14:52	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/17/22 15:31	11/18/22 14:52	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/17/22 15:31	11/18/22 14:52	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Benzo(a)pyrene-d12 (Surr)	90		10 - 110	11/17/22 15:31	11/18/22 14:52	1			
1-Methylnaphthalene-d10 (Surr)	86		36 - 111	11/17/22 15:31	11/18/22 14:52	1			



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: MB 410-318763/1-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 318763**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Fluoranthene-d10 (Surr)	91		47 - 128	11/17/22 15:31	11/18/22 14:52	1

**Lab Sample ID: LCS 410-318763/2-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 318763**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Benzo[a]anthracene	1.00	0.832		ug/L		83	61 - 122
Benzo[a]pyrene	1.00	0.803		ug/L		80	60 - 120
Benzo[b]fluoranthene	1.00	0.801		ug/L		80	58 - 122
Benzo[k]fluoranthene	1.00	0.840		ug/L		84	57 - 128
Chrysene	1.00	0.821		ug/L		82	55 - 123
Dibenz(a,h)anthracene	1.00	0.983		ug/L		98	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	1.01		ug/L		101	47 - 143

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	94		10 - 110
1-Methylnaphthalene-d10 (Surr)	74		36 - 111
Fluoranthene-d10 (Surr)	93		47 - 128

**Lab Sample ID: LCSD 410-318763/3-A**  
**Matrix: Water**  
**Analysis Batch: 319137**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 318763**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzo[a]anthracene	1.00	0.737		ug/L		74	61 - 122	12	30
Benzo[a]pyrene	1.00	0.731		ug/L		73	60 - 120	9	30
Benzo[b]fluoranthene	1.00	0.733		ug/L		73	58 - 122	9	30
Benzo[k]fluoranthene	1.00	0.754		ug/L		75	57 - 128	11	30
Chrysene	1.00	0.739		ug/L		74	55 - 123	10	30
Dibenz(a,h)anthracene	1.00	0.852		ug/L		85	50 - 121	14	30
Indeno[1,2,3-cd]pyrene	1.00	0.895		ug/L		89	47 - 143	12	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	82		10 - 110
1-Methylnaphthalene-d10 (Surr)	65		36 - 111
Fluoranthene-d10 (Surr)	80		47 - 128

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

**Lab Sample ID: MB 410-318147/4**  
**Matrix: Water**  
**Analysis Batch: 318147**

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	43	ug/L			11/16/22 12:00	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: MB 410-318147/4**  
**Matrix: Water**  
**Analysis Batch: 318147**

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 12:00	1

**Lab Sample ID: LCS 410-318147/5**  
**Matrix: Water**  
**Analysis Batch: 318147**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	915		ug/L		83	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

**Lab Sample ID: LCSD 410-318147/6**  
**Matrix: Water**  
**Analysis Batch: 318147**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C7-C12 (1C)	1100	901		ug/L		82	64 - 131	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 318147**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	ND		1120	999		ug/L		90	80 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	91		50 - 150

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 318147**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C7-C12 (1C)	ND		1120	1020		ug/L		91	80 - 120	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	91		50 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: MB 410-319161/4**  
**Matrix: Water**  
**Analysis Batch: 319161**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/18/22 16:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/18/22 16:15	1

**Lab Sample ID: LCS 410-319161/5**  
**Matrix: Water**  
**Analysis Batch: 319161**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C7-C12 (1C)	1100	904		ug/L		82	64 - 131		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	91		50 - 150						

**Lab Sample ID: LCSD 410-319161/6**  
**Matrix: Water**  
**Analysis Batch: 319161**

**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
C7-C12 (1C)	1100	898		ug/L		82	64 - 131	1	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	90		50 - 150						

**Lab Sample ID: MB 410-319725/9**  
**Matrix: Water**  
**Analysis Batch: 319725**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/21/22 15:30	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/21/22 15:30	1

**Lab Sample ID: LCS 410-319725/5**  
**Matrix: Water**  
**Analysis Batch: 319725**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	108		50 - 150						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: LCSD 410-319725/6**  
**Matrix: Water**  
**Analysis Batch: 319725**

**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
C7-C12 (1C)	1100	1140		ug/L		104	64 - 131	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	107		50 - 150						

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-319017/1-A**  
**Matrix: Water**  
**Analysis Batch: 319020**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319017**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/18/22 08:35	11/18/22 09:00	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	103		43 - 133				11/18/22 08:35	11/18/22 09:00	1

**Lab Sample ID: LCS 410-319017/2-A**  
**Matrix: Water**  
**Analysis Batch: 319020**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319017**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	62.7		ug/L		105	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	104		43 - 133				

**Lab Sample ID: LCSD 410-319017/3-A**  
**Matrix: Water**  
**Analysis Batch: 319020**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 319017**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	65.5		ug/L		110	85 - 115	4	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	105		43 - 133						

**Lab Sample ID: MB 410-319018/1-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319018**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/18/22 09:36	11/18/22 09:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	94		43 - 133				11/18/22 09:36	11/18/22 09:39	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCS 410-319018/2-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319018**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	59.6		ug/L		100	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	94		43 - 133				

**Lab Sample ID: LCSD 410-319018/3-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 319018**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	60.1		ug/L		100	85 - 115	1	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	96		43 - 133						

**Lab Sample ID: MB 410-319107/1-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319107**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/18/22 12:19	11/18/22 18:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	95		43 - 133				11/18/22 12:19	11/18/22 18:03	1

**Lab Sample ID: LCS 410-319107/2-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319107**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	60.1		ug/L		101	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	92		43 - 133				

**Lab Sample ID: LCSD 410-319107/3-A**  
**Matrix: Water**  
**Analysis Batch: 319024**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 319107**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	60.3		ug/L		101	85 - 115	0	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	94		43 - 133						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: MB 410-319121/1-A**  
**Matrix: Water**  
**Analysis Batch: 319020**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319121**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/18/22 12:29	11/21/22 09:48	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	72		43 - 133				11/18/22 12:29	11/21/22 09:48	1

**Lab Sample ID: LCS 410-319121/2-A**  
**Matrix: Water**  
**Analysis Batch: 319020**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319121**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	53.1		ug/L		89	85 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Propene (1C)	50		43 - 133				

**Lab Sample ID: MB 410-320137/1-A**  
**Matrix: Water**  
**Analysis Batch: 320132**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320137**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/22/22 08:10	11/22/22 08:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	101		43 - 133				11/22/22 08:10	11/22/22 08:35	1

**Lab Sample ID: LCS 410-320137/2-A**  
**Matrix: Water**  
**Analysis Batch: 320132**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 320137**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	62.2		ug/L		104	85 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Propene (1C)	99		43 - 133				

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 320132**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 320137**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	68		59.8	97.8	F1	ug/L		50	85 - 115
Surrogate	MS %Recovery	MS Qualifier	Limits						
Propene (1C)	53		43 - 133						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 410-105564-1 MSD

Matrix: Water

Analysis Batch: 320132

Client Sample ID: MW-503-W-221110

Prep Type: Total/NA

Prep Batch: 320137

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	Limit	
Methane (1C)	68		59.8	132		ug/L		108	85 - 115	30	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD</b> <b>Qualifier</b>	<b>Limits</b>								
Propene (1C)	86		43 - 133								

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-320542/1-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 320542

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		11/23/22 08:00	12/01/22 12:45	1
C24-C40	ND		250	100	ug/L		11/23/22 08:00	12/01/22 12:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB</b> <b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	52		50 - 150				11/23/22 08:00	12/01/22 12:45	1

Lab Sample ID: LCS 410-320542/2-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
C12-C24	600	49.8	J*-	ug/L		8	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS</b> <b>Qualifier</b>	<b>Limits</b>				
o-terphenyl (Surr)	30	S1-	50 - 150				

Lab Sample ID: LCSD 410-320542/3-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
		Result	Qualifier				Limits	Limit	
C12-C24	600	232	*1	ug/L		39	14 - 115	129	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD</b> <b>Qualifier</b>	<b>Limits</b>						
o-terphenyl (Surr)	76		50 - 150						

Lab Sample ID: 410-105564-1 MS

Matrix: Water

Analysis Batch: 322536

Client Sample ID: MW-503-W-221110

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
C12-C24	ND	*- *1 F1	627	150	F1 cn	ug/L		24	30 - 115	
cn										

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

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

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 322536**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 320542**

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -terphenyl (Surr)	60		50 - 150

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 322536**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 320542**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
C12-C24	ND	*- *1 F1 cn	620	145	F1 cn	ug/L		23	30 - 115	3	20
Surrogate	MSD	MSD									
<i>o</i> -terphenyl (Surr)	%Recovery	Qualifier	Limits								
	60		50 - 150								

**Lab Sample ID: 410-105564-11 DU**  
**Matrix: Water**  
**Analysis Batch: 322536**

**Client Sample ID: MW-101-W-221110**  
**Prep Type: Total/NA**  
**Prep Batch: 320542**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	58	J*-*1 cn	ND	*- *1 cn	ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
Surrogate	DU	DU						
<i>o</i> -terphenyl (Surr)	%Recovery	Qualifier	Limits					
	73		50 - 150					

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-317427/5**  
**Matrix: Water**  
**Analysis Batch: 317427**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/14/22 19:04	1

**Lab Sample ID: LCS 410-317427/3**  
**Matrix: Water**  
**Analysis Batch: 317427**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	718		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-317427/4**  
**Matrix: Water**  
**Analysis Batch: 317427**

**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
Nitrogen, Nitrate	750	716		ug/L		96	90 - 110	0	20



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 410-317428/5**  
**Matrix: Water**  
**Analysis Batch: 317428**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/14/22 19:04	1

**Lab Sample ID: LCS 410-317428/3**  
**Matrix: Water**  
**Analysis Batch: 317428**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7520		ug/L		100	90 - 110

**Lab Sample ID: LCSD 410-317428/4**  
**Matrix: Water**  
**Analysis Batch: 317428**

**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
Sulfate	7500	7540		ug/L		101	90 - 110	0	20

**Lab Sample ID: MB 410-317633/16**  
**Matrix: Water**  
**Analysis Batch: 317633**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/12/22 20:16	1

**Lab Sample ID: LCS 410-317633/14**  
**Matrix: Water**  
**Analysis Batch: 317633**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	692		ug/L		92	90 - 110

**Lab Sample ID: LCSD 410-317633/15**  
**Matrix: Water**  
**Analysis Batch: 317633**

**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
Nitrogen, Nitrate	750	692		ug/L		92	90 - 110	0	20

**Lab Sample ID: 410-105564-14 MS**  
**Matrix: Water**  
**Analysis Batch: 317633**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	H H3	2500	2270		ug/L		91	90 - 110

**Lab Sample ID: 410-105564-14 DU**  
**Matrix: Water**  
**Analysis Batch: 317633**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	H H3	ND		ug/L		NC	15

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-317634/16**  
**Matrix: Water**  
**Analysis Batch: 317634**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/12/22 20:16	1

**Lab Sample ID: LCS 410-317634/14**  
**Matrix: Water**  
**Analysis Batch: 317634**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7180		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-317634/15**  
**Matrix: Water**  
**Analysis Batch: 317634**

**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
Sulfate	7500	7180		ug/L		96	90 - 110	0	20

**Lab Sample ID: 410-105564-14 MS**  
**Matrix: Water**  
**Analysis Batch: 317634**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	ND		25000	25800		ug/L		103	90 - 110

**Lab Sample ID: 410-105564-14 DU**  
**Matrix: Water**  
**Analysis Batch: 317634**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	ND		ND		ug/L		NC	15

**Lab Sample ID: MB 410-317640/22**  
**Matrix: Water**  
**Analysis Batch: 317640**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/12/22 19:27	1

**Lab Sample ID: LCS 410-317640/20**  
**Matrix: Water**  
**Analysis Batch: 317640**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	821		ug/L		109	90 - 110

**Lab Sample ID: LCSD 410-317640/21**  
**Matrix: Water**  
**Analysis Batch: 317640**

**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
Nitrogen, Nitrate	750	816		ug/L		109	90 - 110	1	20

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 317640**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	H F1 cn	2500	2860	H F1 cn	ug/L		114	90 - 110

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 317640**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Nitrate	ND	H F1 cn	2500	2830	F1 cn	ug/L		113	90 - 110	1	20

**Lab Sample ID: 410-105564-1 DU**  
**Matrix: Water**  
**Analysis Batch: 317640**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	H F1 cn	ND	H cn	ug/L		NC	15

**Lab Sample ID: MB 410-317641/22**  
**Matrix: Water**  
**Analysis Batch: 317641**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/12/22 19:27	1

**Lab Sample ID: LCS 410-317641/20**  
**Matrix: Water**  
**Analysis Batch: 317641**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	8250		ug/L		110	90 - 110

**Lab Sample ID: LCSD 410-317641/21**  
**Matrix: Water**  
**Analysis Batch: 317641**

**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
Sulfate	7500	8040		ug/L		107	90 - 110	3	20

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 317641**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	24000	F1	25000	54600	F1	ug/L		123	90 - 110

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 317641**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	24000	F1	25000	54700	F1	ug/L		123	90 - 110	0	20

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: 410-105564-1 DU**  
**Matrix: Water**  
**Analysis Batch: 317641**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	24000	F1	24400		ug/L		2	15

**Lab Sample ID: MB 410-317838/5**  
**Matrix: Water**  
**Analysis Batch: 317838**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/15/22 09:36	1

**Lab Sample ID: LCS 410-317838/3**  
**Matrix: Water**  
**Analysis Batch: 317838**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	824		ug/L		110	90 - 110

**Lab Sample ID: LCSD 410-317838/4**  
**Matrix: Water**  
**Analysis Batch: 317838**

**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
Nitrogen, Nitrate	750	794		ug/L		106	90 - 110	4	20

**Lab Sample ID: MB 410-317839/5**  
**Matrix: Water**  
**Analysis Batch: 317839**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/15/22 09:36	1

**Lab Sample ID: LCS 410-317839/3**  
**Matrix: Water**  
**Analysis Batch: 317839**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7780		ug/L		104	90 - 110

**Lab Sample ID: LCSD 410-317839/4**  
**Matrix: Water**  
**Analysis Batch: 317839**

**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
Sulfate	7500	7770		ug/L		104	90 - 110	0	20

**Lab Sample ID: MB 410-317919/5**  
**Matrix: Water**  
**Analysis Batch: 317919**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/16/22 05:41	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID:** LCS 410-317919/3  
**Matrix:** Water  
**Analysis Batch:** 317919

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7670		ug/L		102	90 - 110

**Lab Sample ID:** LCSD 410-317919/4  
**Matrix:** Water  
**Analysis Batch:** 317919

**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
Sulfate	7500	7680		ug/L		102	90 - 110	0	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID:** MB 410-319043/1-A  
**Matrix:** Water  
**Analysis Batch:** 321650

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 319043

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/18/22 10:12	11/29/22 10:04	1

**Lab Sample ID:** LCS 410-319043/2-A  
**Matrix:** Water  
**Analysis Batch:** 321650

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 319043

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	523		ug/L		105	85 - 115

**Lab Sample ID:** MB 410-325131/1-A  
**Matrix:** Water  
**Analysis Batch:** 326784

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 325131

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 15:33	1

**Lab Sample ID:** LCS 410-325131/2-A  
**Matrix:** Water  
**Analysis Batch:** 326784

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 325131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	484		ug/L		97	85 - 115

**Lab Sample ID:** MB 410-325132/1-A  
**Matrix:** Water  
**Analysis Batch:** 326306

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 325132

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 18:41	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 410-325132/2-A**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 325132**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	474		ug/L		95	85 - 115

**Lab Sample ID: 410-105564-1 MS**  
**Matrix: Water**  
**Analysis Batch: 321650**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 319043**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	430		500	961		ug/L		106	70 - 130

**Lab Sample ID: 410-105564-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 321650**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 319043**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	430		500	953		ug/L		104	70 - 130	1	20

**Lab Sample ID: 410-105564-1 DU**  
**Matrix: Water**  
**Analysis Batch: 321650**

**Client Sample ID: MW-503-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 319043**

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	430		500	443		ug/L				2	20

**Lab Sample ID: 410-105564-14 MS**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	9900		500	9580	4	ug/L		-65	70 - 130

**Lab Sample ID: 410-105564-14 MSD**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	9900		500	10500	4	ug/L		109	70 - 130	9	20

**Lab Sample ID: 410-105564-15 MS**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-4-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	260		500	726		ug/L		93	70 - 130

**Lab Sample ID: 410-105564-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-4-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	260		500	759		ug/L		100	70 - 130	4	20

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: 410-105564-14 DU**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-3-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	9900		9830		ug/L		0.8	20

**Lab Sample ID: 410-105564-15 DU**  
**Matrix: Water**  
**Analysis Batch: 326784**

**Client Sample ID: DUP-4-WD-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325131**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	260		263		ug/L		1	20

**Lab Sample ID: 410-105564-2 MS**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-139R-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	81		500	552		ug/L		94	70 - 130

**Lab Sample ID: 410-105564-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-139R-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	81		500	555		ug/L		95	70 - 130	1	20

**Lab Sample ID: 410-105564-4 MS**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-520-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	ND		500	473		ug/L		95	70 - 130

**Lab Sample ID: 410-105564-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-520-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	ND		500	474		ug/L		95	70 - 130	0	20

**Lab Sample ID: 410-105564-2 DU**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-139R-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	81		81.3		ug/L		0.1	20

**Lab Sample ID: 410-105564-4 DU**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: MW-520-W-221110**  
**Prep Type: Dissolved**  
**Prep Batch: 325132**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	ND		ND		ug/L		NC	20

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC/MS VOA

### Analysis Batch: 319894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	8260D/UST	
410-105564-2	MW-139R-W-221110	Total/NA	Water	8260D/UST	
410-105564-3	MW-519-W-221110	Total/NA	Water	8260D/UST	
410-105564-4	MW-520-W-221110	Total/NA	Water	8260D/UST	
410-105564-5	MW-514-W-221110	Total/NA	Water	8260D/UST	
410-105564-6	MW-518-W-221110	Total/NA	Water	8260D/UST	
410-105564-7	MW-512-W-221110	Total/NA	Water	8260D/UST	
410-105564-8	MW-502-W-221110	Total/NA	Water	8260D/UST	
410-105564-9	MW-513-W-221110	Total/NA	Water	8260D/UST	
410-105564-10	MW-143-W-221110	Total/NA	Water	8260D/UST	
410-105564-11	MW-101-W-221110	Total/NA	Water	8260D/UST	
410-105564-12	MW-126-W-221110	Total/NA	Water	8260D/UST	
410-105564-13	MW-511-W-221110	Total/NA	Water	8260D/UST	
410-105564-14	DUP-3-WD-221110	Total/NA	Water	8260D/UST	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	8260D/UST	
410-105564-16	QA-T-W-221110	Total/NA	Water	8260D/UST	
410-105564-17	MW-522-W-221110	Total/NA	Water	8260D/UST	
MB 410-319894/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-319894/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-319894/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	8260D/UST	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 318758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	3510C	
410-105564-2	MW-139R-W-221110	Total/NA	Water	3510C	
410-105564-3	MW-519-W-221110	Total/NA	Water	3510C	
410-105564-4	MW-520-W-221110	Total/NA	Water	3510C	
410-105564-5	MW-514-W-221110	Total/NA	Water	3510C	
410-105564-6	MW-518-W-221110	Total/NA	Water	3510C	
410-105564-7	MW-512-W-221110	Total/NA	Water	3510C	
410-105564-8	MW-502-W-221110	Total/NA	Water	3510C	
410-105564-9	MW-513-W-221110	Total/NA	Water	3510C	
410-105564-10	MW-143-W-221110	Total/NA	Water	3510C	
410-105564-11	MW-101-W-221110	Total/NA	Water	3510C	
410-105564-12	MW-126-W-221110	Total/NA	Water	3510C	
410-105564-13	MW-511-W-221110	Total/NA	Water	3510C	
MB 410-318758/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-318758/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	3510C	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	3510C	

### Prep Batch: 318763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-14	DUP-3-WD-221110	Total/NA	Water	3510C	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	3510C	
410-105564-17	MW-522-W-221110	Total/NA	Water	3510C	
MB 410-318763/1-A	Method Blank	Total/NA	Water	3510C	



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC/MS Semi VOA (Continued)

### Prep Batch: 318763 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-318763/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-318763/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 319137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-2	MW-139R-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-3	MW-519-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-4	MW-520-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-5	MW-514-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-6	MW-518-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-7	MW-512-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-8	MW-502-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-9	MW-513-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-10	MW-143-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-11	MW-101-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-12	MW-126-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-14	DUP-3-WD-221110	Total/NA	Water	8270E SIM	318763
410-105564-15	DUP-4-WD-221110	Total/NA	Water	8270E SIM	318763
410-105564-17	MW-522-W-221110	Total/NA	Water	8270E SIM	318763
MB 410-318758/1-A	Method Blank	Total/NA	Water	8270E SIM	318758
MB 410-318763/1-A	Method Blank	Total/NA	Water	8270E SIM	318763
LCS 410-318758/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	318758
LCS 410-318763/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	318763
LCSD 410-318763/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	318763
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	8270E SIM	318758
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	8270E SIM	318758

### Analysis Batch: 319557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-13	MW-511-W-221110	Total/NA	Water	8270E SIM	318758

## GC VOA

### Analysis Batch: 318147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-2	MW-139R-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-3	MW-519-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-4	MW-520-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-5	MW-514-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-6	MW-518-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-7	MW-512-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-8	MW-502-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-9	MW-513-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-10	MW-143-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-11	MW-101-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-12	MW-126-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-13	MW-511-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-16	QA-T-W-221110	Total/NA	Water	NWTPH-Gx	
MB 410-318147/4	Method Blank	Total/NA	Water	NWTPH-Gx	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC VOA (Continued)

### Analysis Batch: 318147 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-318147/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-318147/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	NWTPH-Gx	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	NWTPH-Gx	

### Prep Batch: 319017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-3	MW-519-W-221110	Total/NA	Water	RSK-175	
410-105564-4	MW-520-W-221110	Total/NA	Water	RSK-175	
410-105564-5	MW-514-W-221110	Total/NA	Water	RSK-175	
410-105564-6	MW-518-W-221110	Total/NA	Water	RSK-175	
410-105564-7	MW-512-W-221110	Total/NA	Water	RSK-175	
410-105564-8	MW-502-W-221110	Total/NA	Water	RSK-175	
410-105564-9	MW-513-W-221110	Total/NA	Water	RSK-175	
410-105564-10	MW-143-W-221110	Total/NA	Water	RSK-175	
MB 410-319017/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-319017/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-319017/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Prep Batch: 319018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-13	MW-511-W-221110	Total/NA	Water	RSK-175	
MB 410-319018/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-319018/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-319018/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 319020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-3	MW-519-W-221110	Total/NA	Water	RSK-175	319017
410-105564-4	MW-520-W-221110	Total/NA	Water	RSK-175	319017
410-105564-5	MW-514-W-221110	Total/NA	Water	RSK-175	319017
410-105564-6	MW-518-W-221110	Total/NA	Water	RSK-175	319017
410-105564-7	MW-512-W-221110	Total/NA	Water	RSK-175	319017
410-105564-8	MW-502-W-221110	Total/NA	Water	RSK-175	319017
410-105564-9	MW-513-W-221110	Total/NA	Water	RSK-175	319017
410-105564-10	MW-143-W-221110	Total/NA	Water	RSK-175	319017
410-105564-14	DUP-3-WD-221110	Total/NA	Water	RSK-175	319121
410-105564-15	DUP-4-WD-221110	Total/NA	Water	RSK-175	319121
MB 410-319017/1-A	Method Blank	Total/NA	Water	RSK-175	319017
MB 410-319121/1-A	Method Blank	Total/NA	Water	RSK-175	319121
LCS 410-319017/2-A	Lab Control Sample	Total/NA	Water	RSK-175	319017
LCS 410-319121/2-A	Lab Control Sample	Total/NA	Water	RSK-175	319121
LCSD 410-319017/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	319017

### Analysis Batch: 319024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-11	MW-101-W-221110	Total/NA	Water	RSK-175	319107
410-105564-12	MW-126-W-221110	Total/NA	Water	RSK-175	319107
410-105564-13	MW-511-W-221110	Total/NA	Water	RSK-175	319018
410-105564-17	MW-522-W-221110	Total/NA	Water	RSK-175	319107
MB 410-319018/1-A	Method Blank	Total/NA	Water	RSK-175	319018

Euofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC VOA (Continued)

### Analysis Batch: 319024 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-319107/1-A	Method Blank	Total/NA	Water	RSK-175	319107
LCS 410-319018/2-A	Lab Control Sample	Total/NA	Water	RSK-175	319018
LCS 410-319107/2-A	Lab Control Sample	Total/NA	Water	RSK-175	319107
LCSD 410-319018/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	319018
LCSD 410-319107/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	319107

### Prep Batch: 319107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-11	MW-101-W-221110	Total/NA	Water	RSK-175	
410-105564-12	MW-126-W-221110	Total/NA	Water	RSK-175	
410-105564-17	MW-522-W-221110	Total/NA	Water	RSK-175	
MB 410-319107/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-319107/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-319107/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Prep Batch: 319121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-14	DUP-3-WD-221110	Total/NA	Water	RSK-175	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	RSK-175	
MB 410-319121/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-319121/2-A	Lab Control Sample	Total/NA	Water	RSK-175	

### Analysis Batch: 319161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-14	DUP-3-WD-221110	Total/NA	Water	NWTPH-Gx	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	NWTPH-Gx	
MB 410-319161/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-319161/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-319161/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 319725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-17	MW-522-W-221110	Total/NA	Water	NWTPH-Gx	
MB 410-319725/9	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-319725/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-319725/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 320132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	RSK-175	320137
410-105564-2	MW-139R-W-221110	Total/NA	Water	RSK-175	320137
MB 410-320137/1-A	Method Blank	Total/NA	Water	RSK-175	320137
LCS 410-320137/2-A	Lab Control Sample	Total/NA	Water	RSK-175	320137
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	RSK-175	320137
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	RSK-175	320137

### Prep Batch: 320137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	RSK-175	
410-105564-2	MW-139R-W-221110	Total/NA	Water	RSK-175	
MB 410-320137/1-A	Method Blank	Total/NA	Water	RSK-175	

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC VOA (Continued)

### Prep Batch: 320137 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-320137/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	RSK-175	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 320542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	3510C	
410-105564-2	MW-139R-W-221110	Total/NA	Water	3510C	
410-105564-3	MW-519-W-221110	Total/NA	Water	3510C	
410-105564-4	MW-520-W-221110	Total/NA	Water	3510C	
410-105564-5	MW-514-W-221110	Total/NA	Water	3510C	
410-105564-6	MW-518-W-221110	Total/NA	Water	3510C	
410-105564-7	MW-512-W-221110	Total/NA	Water	3510C	
410-105564-8	MW-502-W-221110	Total/NA	Water	3510C	
410-105564-9	MW-513-W-221110	Total/NA	Water	3510C	
410-105564-10	MW-143-W-221110	Total/NA	Water	3510C	
410-105564-11	MW-101-W-221110	Total/NA	Water	3510C	
410-105564-12	MW-126-W-221110	Total/NA	Water	3510C	
410-105564-13	MW-511-W-221110	Total/NA	Water	3510C	
410-105564-14	DUP-3-WD-221110	Total/NA	Water	3510C	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	3510C	
410-105564-17	MW-522-W-221110	Total/NA	Water	3510C	
MB 410-320542/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCS 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	3510C	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	3510C	
410-105564-11 DU	MW-101-W-221110	Total/NA	Water	3510C	

### Cleanup Batch: 321951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	3630C	320542
410-105564-2	MW-139R-W-221110	Total/NA	Water	3630C	320542
410-105564-3	MW-519-W-221110	Total/NA	Water	3630C	320542
410-105564-4	MW-520-W-221110	Total/NA	Water	3630C	320542
410-105564-5	MW-514-W-221110	Total/NA	Water	3630C	320542
410-105564-6	MW-518-W-221110	Total/NA	Water	3630C	320542
410-105564-7	MW-512-W-221110	Total/NA	Water	3630C	320542
410-105564-8	MW-502-W-221110	Total/NA	Water	3630C	320542
410-105564-9	MW-513-W-221110	Total/NA	Water	3630C	320542
410-105564-10	MW-143-W-221110	Total/NA	Water	3630C	320542
410-105564-11	MW-101-W-221110	Total/NA	Water	3630C	320542
410-105564-12	MW-126-W-221110	Total/NA	Water	3630C	320542
410-105564-13	MW-511-W-221110	Total/NA	Water	3630C	320542
410-105564-14	DUP-3-WD-221110	Total/NA	Water	3630C	320542
410-105564-15	DUP-4-WD-221110	Total/NA	Water	3630C	320542
410-105564-17	MW-522-W-221110	Total/NA	Water	3630C	320542
MB 410-320542/1-B	Method Blank	Total/NA	Water	3630C	320542
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	3630C	320542

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## GC Semi VOA (Continued)

### Cleanup Batch: 321951 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	320542
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	3630C	320542
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	3630C	320542
410-105564-11 DU	MW-101-W-221110	Total/NA	Water	3630C	320542

### Analysis Batch: 322536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-2	MW-139R-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-3	MW-519-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-4	MW-520-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-5	MW-514-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-6	MW-518-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-7	MW-512-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-8	MW-502-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-9	MW-513-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-10	MW-143-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-11	MW-101-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-12	MW-126-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-13	MW-511-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-14	DUP-3-WD-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-15	DUP-4-WD-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-17	MW-522-W-221110	Total/NA	Water	NWTPH-Dx	321951
MB 410-320542/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	321951
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	321951
LCSD 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	321951
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	NWTPH-Dx	321951
410-105564-11 DU	MW-101-W-221110	Total/NA	Water	NWTPH-Dx	321951

## HPLC/IC

### Analysis Batch: 317427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-13	MW-511-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317427/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317427/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317427/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-13	MW-511-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-17	MW-522-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317428/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317428/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317428/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-7	MW-512-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-12	MW-126-W-221110	Total/NA	Water	EPA 300.0 R2.1	

Euofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## HPLC/IC (Continued)

### Analysis Batch: 317633 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-14	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-17	MW-522-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317633/16	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317633/14	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317633/15	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105564-14 MS	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-14 DU	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-7	MW-512-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-12	MW-126-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-14	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-15	DUP-4-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317634/16	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317634/14	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317634/15	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105564-14 MS	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-14 DU	DUP-3-WD-221110	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-2	MW-139R-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-3	MW-519-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-4	MW-520-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-5	MW-514-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-6	MW-518-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-8	MW-502-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-9	MW-513-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-10	MW-143-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-11	MW-101-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317640/22	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317640/20	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317640/21	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 DU	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-3	MW-519-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-5	MW-514-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-6	MW-518-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-8	MW-502-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-10	MW-143-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-11	MW-101-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317641/22	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317641/20	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## HPLC/IC (Continued)

### Analysis Batch: 317641 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-317641/21	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 MS	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 MSD	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-1 DU	MW-503-W-221110	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-317838/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317838/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317838/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-2	MW-139R-W-221110	Total/NA	Water	EPA 300.0 R2.1	
410-105564-4	MW-520-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317839/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317839/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317839/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-9	MW-513-W-221110	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317919/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317919/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317919/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 319043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Dissolved	Water	Non-Digest Prep	
MB 410-319043/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-319043/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-105564-1 MS	MW-503-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-1 MSD	MW-503-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-1 DU	MW-503-W-221110	Dissolved	Water	Non-Digest Prep	

### Analysis Batch: 321650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-1	MW-503-W-221110	Dissolved	Water	200.8 Rev 5.4	319043
MB 410-319043/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	319043
LCS 410-319043/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	319043
410-105564-1 MS	MW-503-W-221110	Dissolved	Water	200.8 Rev 5.4	319043
410-105564-1 MSD	MW-503-W-221110	Dissolved	Water	200.8 Rev 5.4	319043
410-105564-1 DU	MW-503-W-221110	Dissolved	Water	200.8 Rev 5.4	319043

### Prep Batch: 325131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-3	MW-519-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-6	MW-518-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-8	MW-502-W-221110	Dissolved	Water	Non-Digest Prep	

Euofins Lancaster Laboratories Environment Testing, LLC

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Metals (Continued)

### Prep Batch: 325131 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-10	MW-143-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-11	MW-101-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-12	MW-126-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-13	MW-511-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-14	DUP-3-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-15	DUP-4-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-17	MW-522-W-221110	Dissolved	Water	Non-Digest Prep	
MB 410-325131/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-325131/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-105564-14 MS	DUP-3-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-14 MSD	DUP-3-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-15 MS	DUP-4-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-15 MSD	DUP-4-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-14 DU	DUP-3-WD-221110	Dissolved	Water	Non-Digest Prep	
410-105564-15 DU	DUP-4-WD-221110	Dissolved	Water	Non-Digest Prep	

### Prep Batch: 325132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-2	MW-139R-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-4	MW-520-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-5	MW-514-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-7	MW-512-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-9	MW-513-W-221110	Dissolved	Water	Non-Digest Prep	
MB 410-325132/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-325132/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-105564-2 MS	MW-139R-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-2 MSD	MW-139R-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-4 MS	MW-520-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-4 MSD	MW-520-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-2 DU	MW-139R-W-221110	Dissolved	Water	Non-Digest Prep	
410-105564-4 DU	MW-520-W-221110	Dissolved	Water	Non-Digest Prep	

### Analysis Batch: 326306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-2	MW-139R-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-4	MW-520-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-5	MW-514-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-7	MW-512-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-9	MW-513-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
MB 410-325132/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	325132
LCS 410-325132/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	325132
410-105564-2 MS	MW-139R-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-2 MSD	MW-139R-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-4 MS	MW-520-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-4 MSD	MW-520-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-2 DU	MW-139R-W-221110	Dissolved	Water	200.8 Rev 5.4	325132
410-105564-4 DU	MW-520-W-221110	Dissolved	Water	200.8 Rev 5.4	325132

### Analysis Batch: 326784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-3	MW-519-W-221110	Dissolved	Water	200.8 Rev 5.4	325131

Euofins Lancaster Laboratories Environment Testing, LLC



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Metals (Continued)

### Analysis Batch: 326784 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105564-6	MW-518-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-8	MW-502-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-10	MW-143-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-11	MW-101-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-12	MW-126-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-13	MW-511-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-14	DUP-3-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-15	DUP-4-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-17	MW-522-W-221110	Dissolved	Water	200.8 Rev 5.4	325131
MB 410-325131/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	325131
LCS 410-325131/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	325131
410-105564-14 MS	DUP-3-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-14 MSD	DUP-3-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-15 MS	DUP-4-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-15 MSD	DUP-4-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-14 DU	DUP-3-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131
410-105564-15 DU	DUP-4-WD-221110	Dissolved	Water	200.8 Rev 5.4	325131

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-503-W-221110**

**Lab Sample ID: 410-105564-1**

**Date Collected: 11/10/22 09:20**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 18:33
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 20:56
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 15:09
Total/NA	Prep	RSK-175			320137	LXF2	ELLE	11/22/22 08:10
Total/NA	Analysis	RSK-175		1	320132	LXF2	ELLE	11/22/22 11:04
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 15:48
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 18:01
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 18:01
Dissolved	Prep	Non-Digest Prep			319043	HUH3	ELLE	11/18/22 10:12
Dissolved	Analysis	200.8 Rev 5.4		1	321650	F7JF	ELLE	11/29/22 10:08

**Client Sample ID: MW-139R-W-221110**

**Lab Sample ID: 410-105564-2**

**Date Collected: 11/10/22 11:00**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 19:45
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 22:00
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 16:25
Total/NA	Prep	RSK-175			320137	LXF2	ELLE	11/22/22 08:10
Total/NA	Analysis	RSK-175		1	320132	LXF2	ELLE	11/22/22 12:22
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 17:20
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:18
Total/NA	Analysis	EPA 300.0 R2.1		50	317839	L4QM	ELLE	11/15/22 15:28
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 19:48

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

**Date Collected: 11/10/22 11:32**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 20:09
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 22:22
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 16:51
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 06:49

Eurofins Lancaster Laboratories Environment Testing, LLC

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

**Date Collected: 11/10/22 11:32**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 17:43
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:26
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 17:26
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 17:05

**Client Sample ID: MW-520-W-221110**

**Lab Sample ID: 410-105564-4**

**Date Collected: 11/10/22 10:44**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 20:33
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 22:43
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 17:16
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 07:07
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 18:06
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:01
Total/NA	Analysis	EPA 300.0 R2.1		50	317839	L4QM	ELLE	11/15/22 15:02
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 18:49

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

**Date Collected: 11/10/22 12:05**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 20:57
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 23:05
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 17:42
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 07:24
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 18:29
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:35
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 17:35

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

**Date Collected: 11/10/22 12:05**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 19:04

**Client Sample ID: MW-518-W-221110**

**Lab Sample ID: 410-105564-6**

**Date Collected: 11/10/22 09:08**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 21:21
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 23:26
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 19:49
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 07:42
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 18:52
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 16:43
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 16:43
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 16:46

**Client Sample ID: MW-512-W-221110**

**Lab Sample ID: 410-105564-7**

**Date Collected: 11/10/22 13:20**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 21:45
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 23:48
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 20:14
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 08:00
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 19:14
Total/NA	Analysis	EPA 300.0 R2.1		5	317633	L4QM	ELLE	11/12/22 17:52
Total/NA	Analysis	EPA 300.0 R2.1		5	317634	L4QM	ELLE	11/12/22 17:52
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 19:34

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-502-W-221110**

**Lab Sample ID: 410-105564-8**

**Date Collected: 11/10/22 10:50**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 22:08
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/19/22 00:09
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 20:40
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 08:18
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 19:37
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:09
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 17:09
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 16:58

**Client Sample ID: MW-513-W-221110**

**Lab Sample ID: 410-105564-9**

**Date Collected: 11/10/22 12:30**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 22:32
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/19/22 00:30
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 21:06
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 08:54
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 20:23
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:52
Total/NA	Analysis	EPA 300.0 R2.1		50	317919	L4QM	ELLE	11/16/22 09:43
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 19:36

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

**Date Collected: 11/10/22 12:38**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 22:56
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/19/22 00:52
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 21:32
Total/NA	Prep	RSK-175			319017	MB4Z	ELLE	11/18/22 08:35
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 09:12

Eurofins Lancaster Laboratories Environment Testing, LLC

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

**Date Collected: 11/10/22 12:38**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 20:46
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 17:44
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 17:44
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 17:03

**Client Sample ID: MW-101-W-221110**

**Lab Sample ID: 410-105564-11**

**Date Collected: 11/10/22 09:15**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 23:20
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/19/22 01:13
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 21:57
Total/NA	Prep	RSK-175			319107	MB4Z	ELLE	11/18/22 12:19
Total/NA	Analysis	RSK-175		1	319024	MB4Z	ELLE	11/18/22 20:04
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 21:09
Total/NA	Analysis	EPA 300.0 R2.1		5	317640	L4QM	ELLE	11/12/22 16:52
Total/NA	Analysis	EPA 300.0 R2.1		5	317641	L4QM	ELLE	11/12/22 16:52
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		10	326784	S4PD	ELLE	12/13/22 17:56

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

**Date Collected: 11/10/22 14:04**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 23:44
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/19/22 01:35
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 22:23
Total/NA	Prep	RSK-175			319107	MB4Z	ELLE	11/18/22 12:19
Total/NA	Analysis	RSK-175		1	319024	MB4Z	ELLE	11/18/22 19:49
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 21:55
Total/NA	Analysis	EPA 300.0 R2.1		5	317633	L4QM	ELLE	11/12/22 18:14
Total/NA	Analysis	EPA 300.0 R2.1		5	317634	L4QM	ELLE	11/12/22 18:14

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

**Date Collected: 11/10/22 14:04**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 16:56

**Client Sample ID: MW-511-W-221110**

**Lab Sample ID: 410-105564-13**

**Date Collected: 11/10/22 14:20**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/22/22 00:09
Total/NA	Prep	3510C			318758	MD4W	ELLE	11/17/22 15:20
Total/NA	Analysis	8270E SIM		1	319557	SJ89	ELLE	11/21/22 09:51
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 22:48
Total/NA	Prep	RSK-175			319018	MB4Z	ELLE	11/18/22 09:36
Total/NA	Analysis	RSK-175		1	319024	MB4Z	ELLE	11/18/22 17:17
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 22:17
Total/NA	Analysis	EPA 300.0 R2.1		5	317427	L4QM	ELLE	11/14/22 23:06
Total/NA	Analysis	EPA 300.0 R2.1		5	317428	L4QM	ELLE	11/14/22 23:06
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 16:44

**Client Sample ID: DUP-3-WD-221110**

**Lab Sample ID: 410-105564-14**

**Date Collected: 11/10/22 00:00**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/22/22 00:33
Total/NA	Prep	3510C			318763	MD4W	ELLE	11/17/22 15:31
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 19:30
Total/NA	Analysis	NWTPH-Gx		1	319161	NND8	ELLE	11/19/22 02:26
Total/NA	Prep	RSK-175			319121	MB4Z	ELLE	11/18/22 12:29
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 13:59
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 22:41
Total/NA	Analysis	EPA 300.0 R2.1		5	317633	L4QM	ELLE	11/12/22 18:36
Total/NA	Analysis	EPA 300.0 R2.1		5	317634	L4QM	ELLE	11/12/22 18:36
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		5	326784	S4PD	ELLE	12/13/22 17:44

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: DUP-4-WD-221110**

**Lab Sample ID: 410-105564-15**

**Date Collected: 11/10/22 00:00**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/22/22 00:56
Total/NA	Prep	3510C			318763	MD4W	ELLE	11/17/22 15:31
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 19:52
Total/NA	Analysis	NWTPH-Gx		1	319161	NND8	ELLE	11/19/22 02:52
Total/NA	Prep	RSK-175			319121	MB4Z	ELLE	11/18/22 12:29
Total/NA	Analysis	RSK-175		1	319020	MB4Z	ELLE	11/21/22 14:17
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 23:03
Total/NA	Analysis	EPA 300.0 R2.1		5	317633	L4QM	ELLE	11/12/22 18:25
Total/NA	Analysis	EPA 300.0 R2.1		5	317634	L4QM	ELLE	11/12/22 18:25
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 17:15

**Client Sample ID: QA-T-W-221110**

**Lab Sample ID: 410-105564-16**

**Date Collected: 11/10/22 00:00**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/21/22 18:09
Total/NA	Analysis	NWTPH-Gx		1	318147	NND8	ELLE	11/16/22 13:52

**Client Sample ID: MW-522-W-221110**

**Lab Sample ID: 410-105564-17**

**Date Collected: 11/10/22 13:35**

**Matrix: Water**

**Date Received: 11/12/22 09:34**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	319894	UKAD	ELLE	11/22/22 01:20
Total/NA	Prep	3510C			318763	MD4W	ELLE	11/17/22 15:31
Total/NA	Analysis	8270E SIM		1	319137	UJM0	ELLE	11/18/22 20:13
Total/NA	Analysis	NWTPH-Gx		1	319725	NND8	ELLE	11/21/22 17:38
Total/NA	Prep	RSK-175			319107	MB4Z	ELLE	11/18/22 12:19
Total/NA	Analysis	RSK-175		1	319024	MB4Z	ELLE	11/18/22 20:50
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 23:26
Total/NA	Analysis	EPA 300.0 R2.1		5	317633	L4QM	ELLE	11/12/22 18:03
Total/NA	Analysis	EPA 300.0 R2.1		20	317428	L4QM	ELLE	11/14/22 22:55
Dissolved	Prep	Non-Digest Prep			325131	UAMX	ELLE	12/08/22 14:16
Dissolved	Analysis	200.8 Rev 5.4		1	326784	S4PD	ELLE	12/13/22 17:00

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)

# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-105564-1	MW-503-W-221110	Water	11/10/22 09:20	11/12/22 09:34
410-105564-2	MW-139R-W-221110	Water	11/10/22 11:00	11/12/22 09:34
410-105564-3	MW-519-W-221110	Water	11/10/22 11:32	11/12/22 09:34
410-105564-4	MW-520-W-221110	Water	11/10/22 10:44	11/12/22 09:34
410-105564-5	MW-514-W-221110	Water	11/10/22 12:05	11/12/22 09:34
410-105564-6	MW-518-W-221110	Water	11/10/22 09:08	11/12/22 09:34
410-105564-7	MW-512-W-221110	Water	11/10/22 13:20	11/12/22 09:34
410-105564-8	MW-502-W-221110	Water	11/10/22 10:50	11/12/22 09:34
410-105564-9	MW-513-W-221110	Water	11/10/22 12:30	11/12/22 09:34
410-105564-10	MW-143-W-221110	Water	11/10/22 12:38	11/12/22 09:34
410-105564-11	MW-101-W-221110	Water	11/10/22 09:15	11/12/22 09:34
410-105564-12	MW-126-W-221110	Water	11/10/22 14:04	11/12/22 09:34
410-105564-13	MW-511-W-221110	Water	11/10/22 14:20	11/12/22 09:34
410-105564-14	DUP-3-WD-221110	Water	11/10/22 00:00	11/12/22 09:34
410-105564-15	DUP-4-WD-221110	Water	11/10/22 00:00	11/12/22 09:34
410-105564-16	QA-T-W-221110	Water	11/10/22 00:00	11/12/22 09:34
410-105564-17	MW-522-W-221110	Water	11/10/22 13:35	11/12/22 09:34





410-105564 Chain of Custody

# Chain of Custody Record

Sample: <b>* SAVANNAH Green</b>		Lab PM:	Carrier Tracking No(s):	COC No:					
Client Contact:		Phone:	E-Mail:	State of Origin: <b>WA</b>					
Company: <b>ARCADIS</b>		PWSID:	Page: <b>Page 1 of 2</b>						
Address: <b>1100 OLIVE WAY</b>		Due Date Requested:	Analysis Requested						
City: <b>SEATTLE</b>		TAT Requested (days):	Preservation Codes:						
State, Zip: <b>WA 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSC4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)						
Project Name: <b>FORMER EDMONDS THERMAL</b>		PO #: Purchase Order not required	Other:						
Site: <b>11720 UNOLD ROAD EDMONDS, WA</b>		WO #:	Total Number of Containers						
Project #:		SSOW #:	Special Instructions/Note:						
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil, BT=BIOSUR, A=As)	Field Filtered Sample (Yes or No)	Performance MMSD (Yes or No)	Analysis Requested	Total Number of Containers	Special Instructions/Note:
MW-503	11-10-22	0920	G	W	Y	X	B270 D SIM COAH BY SIM 300 DRUGM ZSD SULFAMETHOXAZOLE 200 B MANNANASE NUTPH DX WATER W/ SILIC B260 D BENZENE NUTPH GX WATER U CLR RSK P5 METHANE	X	USE STANDARDED JUNG BENZENE & COAH WITH QUANTITATIVE < 1 MG/L
MW-503 MS		0920							
MW-503 MSD		0920							
MW-139R		1100							
MW-519		1132							
MW-520		1044							
MW-514		1205							
MW-518		0908							
MW-512		1320							
MW-502		1050							
MW-5B		1230							
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:				
Relinquished by: <b>Savannah Green</b>	Date/Time: <b>11/10/22 3:30 PM</b>	Company: <b>ARCADIS</b>	Received by:	Date/Time:	Company:				
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:				
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: <b>11/14/22 0900</b>	Company: <b>ELWA</b>				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: <b>8.9</b>							

\* Field sampler Added 12/1/2022 - LAC1779

### Chain of Custody Record

Client Information		Sampler: <b>*SAVANNAH GREEN</b>		Lab PM:		Carrier Tracking No(s):		COC No:			
Client Contact:		Phone:		E-Mail:		State of Origin: <b>WA</b>		Page: <b>Page 2 of 2</b>			
Company: <b>Arcadis</b>		PWSID:		Analysis Requested		Job #:		Preservation Codes:			
Address: <b>1600 Olive Way</b>		Due Date Requested:		Field Filtered Sample (Yes or No) Perform in S/S/MSD (Yes or No) B270 D SIM CPAM BY SIM 300 OIL/GREASE 280 SULFIDE/INDIAN 200 Pb MANDIANE X MWTPH DX WATER W/SIGREL B260 D BENZENE NWTPH (DX) WATER C7 C10 BSL 175 METHANE		Total Number of Containers		A - HCL		M - Hexane	
City: <b>Seattle</b>		TAT Requested (days):						B - NaOH		N - None	
State, Zip: <b>WA, 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No						C - Zn Acetate		O - AsNaO2	
Phone:		PO #:						D - Nitric Acid		P - Na2O4S	
Email:		Purchase Order not required						E - NaHSO4		Q - Na2SO3	
Project Name: <b>Former Edmond - Terminal</b>		WO #:						F - MeOH		R - Na2SO3	
Site: <b>11720 Unoco Rd, Edmonds, WA</b>		Project #:		G - Amchlor		S - H2SO4					
SSOW#:		Project #:		H - Ascorbic Acid		T - TSP Dodecahydrate		Other:			
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, G=grab, BT=Tissue, AA=Air)			
								Special Instructions/Note:			
MW-143		11-10-22		12:39		G		W			
MW-101				09:15							
MW-126				14:04							
MW-511				14:20							
DUP-3				-							
DUP-4				-							
TRIP BLANK				-							
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <b>Savannah Green</b>		Date/Time: <b>11/10/22 3:50PM</b>		Company: <b>Arcadis</b>		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		<b>8.9</b>					

\* Field Sampler Added 12/1/2022 - LAC 1779



# Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-105564-1

**Login Number: 105564**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	False	Refer to Job Narrative for details.
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

# Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-105564-1

**Login Number: 105564**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**Creator: Foreman, Leah M**

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Water present in cooler; indicates evidence of melted ice
Cooler Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/12/2022 9:12:35 PM

**JOB DESCRIPTION**

Edmonds Terminal

**JOB NUMBER**

410-105565-1



## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
12/12/2022 9:12:35 PM

Authorized for release by  
Amek Carter, Project Manager  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)  
(717)556-7252

## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

## 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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## Job ID: 410-105565-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

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#### Job Narrative 410-105565-1

#### Receipt

The sample was received on 11/12/2022 9:34 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

#### Receipt Exceptions

A trip blank was not submitted for analysis with this sample shipment; and was not listed on the Chain of Custody (COC).

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: The surrogate recovery for the blank associated with preparation batch 410-320840 and 410-323516 and analytical batch 410-323778 was outside the upper control limits (low).

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

#### HPLC/IC

Method 300\_ORGFMS: The following sample was diluted due to the abundance of non-target analytes: MW-20R-GW-221111 (410-105565-1) at 50.0. Elevated reporting limits (RLs) are provided.

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

#### Metals

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

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	41		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	1200000		750000	250000	ug/L	500		EPA 300.0 R2.1	Total/NA
Manganese	180		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Date Collected: 11/11/22 11:30

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 18:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/22/22 18:36	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/22/22 18:36	1
Dibromofluoromethane (Surr)	102		80 - 120					11/22/22 18:36	1
Toluene-d8 (Surr)	95		80 - 120					11/22/22 18:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Chrysene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/18/22 16:15	11/21/22 20:45	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/18/22 16:15	11/21/22 20:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	36		10 - 110				11/18/22 16:15	11/21/22 20:45	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/18/22 16:15	11/21/22 20:45	1
Fluoranthene-d10 (Surr)	90		47 - 128				11/18/22 16:15	11/21/22 20:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 15:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/15/22 15:35	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	41		5.0	3.0	ug/L		11/22/22 09:55	11/22/22 15:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133				11/22/22 09:55	11/22/22 15:37	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	48	ug/L		11/25/22 07:39	12/05/22 18:00	1
C24-C40	ND	cn	270	110	ug/L		11/25/22 07:39	12/05/22 18:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.02	cn	0 - 1				11/25/22 07:39	12/05/22 18:00	1
o-terphenyl (Surr)	65	cn	50 - 150				11/25/22 07:39	12/05/22 18:00	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	5500	2500	ug/L			11/12/22 19:09	50
Sulfate	1200000		750000	250000	ug/L			11/12/22 19:20	500

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Date Collected: 11/11/22 11:30

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	180		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:01	1

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



# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-105565-1	MW-20R-GW-221111	94	93	102	95
LCS 410-320285/4	Lab Control Sample	97	96	104	96
LCSD 410-320285/5	Lab Control Sample Dup	96	94	103	98
MB 410-320285/6	Method Blank	96	91	105	95

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-105565-1	MW-20R-GW-221111	36	73	90
LCS 410-319181/2-A	Lab Control Sample	91	71	90
LCSD 410-319181/3-A	Lab Control Sample Dup	90	74	88
MB 410-319181/1-A	Method Blank	79	75	85

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-105565-1	MW-20R-GW-221111	100
LCS 410-317459/5	Lab Control Sample	85
LCSD 410-317459/6	Lab Control Sample Dup	86
MB 410-317459/9	Method Blank	100

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Propene1 (43-133)
410-105565-1	MW-20R-GW-221111	54
LCS 410-320137/2-A	Lab Control Sample	99
MB 410-320137/1-A	Method Blank	101

**Surrogate Legend**

Propene = Propene

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NDA (0-1)	OTP (50-150)
410-105565-1	MW-20R-GW-221111	0.02 cn	65 cn
410-105565-1 DU	MW-20R-GW-221111	0.01 cn	71 cn
LCS 410-320840/2-B	Lab Control Sample	0.6	65
LCSD 410-320840/3-B	Lab Control Sample Dup	0.5	63
MB 410-320840/1-B	Method Blank	0.00008	36 S1-

#### Surrogate Legend

NDA = n-Decanoic Acid (Surr)

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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

**Lab Sample ID: MB 410-320285/6**  
**Matrix: Water**  
**Analysis Batch: 320285**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		1.0	0.30	ug/L			11/22/22 16:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	96		80 - 120				11/22/22 16:36	1	
4-Bromofluorobenzene (Surr)	91		80 - 120				11/22/22 16:36	1	
Dibromofluoromethane (Surr)	105		80 - 120				11/22/22 16:36	1	
Toluene-d8 (Surr)	95		80 - 120				11/22/22 16:36	1	

**Lab Sample ID: LCS 410-320285/4**  
**Matrix: Water**  
**Analysis Batch: 320285**

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

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	20.0	20.1		ug/L		101	80 - 120
Surrogate	%Recovery	Qualifier	Limits				
1,2-Dichloroethane-d4 (Surr)	97		80 - 120				
4-Bromofluorobenzene (Surr)	96		80 - 120				
Dibromofluoromethane (Surr)	104		80 - 120				
Toluene-d8 (Surr)	96		80 - 120				

**Lab Sample ID: LCSD 410-320285/5**  
**Matrix: Water**  
**Analysis Batch: 320285**

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

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Benzene	20.0	18.2		ug/L		91	80 - 120	10	30
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	96		80 - 120						
4-Bromofluorobenzene (Surr)	94		80 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
Toluene-d8 (Surr)	98		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-319181/1-A**  
**Matrix: Water**  
**Analysis Batch: 319557**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319181**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/18/22 16:15	11/21/22 07:22	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/18/22 16:15	11/21/22 07:22	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/18/22 16:15	11/21/22 07:22	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/18/22 16:15	11/21/22 07:22	1
Chrysene	ND		0.050	0.010	ug/L		11/18/22 16:15	11/21/22 07:22	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/18/22 16:15	11/21/22 07:22	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/18/22 16:15	11/21/22 07:22	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	79		10 - 110	11/18/22 16:15	11/21/22 07:22	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111	11/18/22 16:15	11/21/22 07:22	1
Fluoranthene-d10 (Surr)	85		47 - 128	11/18/22 16:15	11/21/22 07:22	1

Lab Sample ID: LCS 410-319181/2-A

Matrix: Water

Analysis Batch: 319557

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]anthracene	1.00	0.853		ug/L		85	61 - 122	
Benzo[a]pyrene	1.00	0.811		ug/L		81	60 - 120	
Benzo[b]fluoranthene	1.00	0.818		ug/L		82	58 - 122	
Benzo[k]fluoranthene	1.00	0.828		ug/L		83	57 - 128	
Chrysene	1.00	0.820		ug/L		82	55 - 123	
Dibenz(a,h)anthracene	1.00	0.644		ug/L		64	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.730		ug/L		73	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	91		10 - 110
1-Methylnaphthalene-d10 (Surr)	71		36 - 111
Fluoranthene-d10 (Surr)	90		47 - 128

Lab Sample ID: LCSD 410-319181/3-A

Matrix: Water

Analysis Batch: 319557

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 319181

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	1.00	0.850		ug/L		85	61 - 122	0	30	
Benzo[a]pyrene	1.00	0.814		ug/L		81	60 - 120	0	30	
Benzo[b]fluoranthene	1.00	0.819		ug/L		82	58 - 122	0	30	
Benzo[k]fluoranthene	1.00	0.834		ug/L		83	57 - 128	1	30	
Chrysene	1.00	0.814		ug/L		81	55 - 123	1	30	
Dibenz(a,h)anthracene	1.00	0.702		ug/L		70	50 - 121	9	30	
Indeno[1,2,3-cd]pyrene	1.00	0.770		ug/L		77	47 - 143	5	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	90		10 - 110
1-Methylnaphthalene-d10 (Surr)	74		36 - 111
Fluoranthene-d10 (Surr)	88		47 - 128

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

Lab Sample ID: MB 410-317459/9

Matrix: Water

Analysis Batch: 317459

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/15/22 13:53	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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

**Lab Sample ID: LCS 410-317459/5**  
**Matrix: Water**  
**Analysis Batch: 317459**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid) (1C)	85		50 - 150				

**Lab Sample ID: LCSD 410-317459/6**  
**Matrix: Water**  
**Analysis Batch: 317459**

**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
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131	5	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid) (1C)	86		50 - 150						

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-320137/1-A**  
**Matrix: Water**  
**Analysis Batch: 320132**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320137**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/22/22 08:10	11/22/22 08:35	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
Propene (1C)	101		43 - 133						

**Lab Sample ID: LCS 410-320137/2-A**  
**Matrix: Water**  
**Analysis Batch: 320132**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 320137**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	62.2		ug/L		104	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	99		43 - 133				

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-320840/1-B**  
**Matrix: Water**  
**Analysis Batch: 323778**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320840**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		11/25/22 07:39	12/05/22 16:52	1
C24-C40	ND		250	100	ug/L		11/25/22 07:39	12/05/22 16:52	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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

**Lab Sample ID: MB 410-320840/1-B**  
**Matrix: Water**  
**Analysis Batch: 323778**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 320840**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>n-Decanoic Acid (Surr)</i>	0.00008		0 - 1	11/25/22 07:39	12/05/22 16:52	1
<i>o-terphenyl (Surr)</i>	36	S1-	50 - 150	11/25/22 07:39	12/05/22 16:52	1

**Lab Sample ID: LCS 410-320840/2-B**  
**Matrix: Water**  
**Analysis Batch: 323778**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 320840**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
C12-C24	600	180		ug/L		30	14 - 115

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>n-Decanoic Acid (Surr)</i>	0.6		0 - 1
<i>o-terphenyl (Surr)</i>	65		50 - 150

**Lab Sample ID: LCSD 410-320840/3-B**  
**Matrix: Water**  
**Analysis Batch: 323778**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 320840**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec Limits	RPD	Limit
		Result	Qualifier						
C12-C24	600	176		ug/L		29	14 - 115	2	20

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>n-Decanoic Acid (Surr)</i>	0.5		0 - 1
<i>o-terphenyl (Surr)</i>	63		50 - 150

**Lab Sample ID: 410-105565-1 DU**  
**Matrix: Water**  
**Analysis Batch: 323778**

**Client Sample ID: MW-20R-GW-221111**  
**Prep Type: Total/NA**  
**Prep Batch: 320840**

Analyte	Sample		DU DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND	cn	ND	cn	ug/L		NC	20
C24-C40	ND	cn	ND	cn	ug/L		NC	20

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
<i>n-Decanoic Acid (Surr)</i>	0.01	cn	0 - 1
<i>o-terphenyl (Surr)</i>	71	cn	50 - 150

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-317633/16**  
**Matrix: Water**  
**Analysis Batch: 317633**

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrogen, Nitrate	ND		110	50	ug/L			11/12/22 20:16	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 410-317633/14**  
**Matrix: Water**  
**Analysis Batch: 317633**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	692		ug/L		92	90 - 110

**Lab Sample ID: LCSD 410-317633/15**  
**Matrix: Water**  
**Analysis Batch: 317633**

**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
Nitrogen, Nitrate	750	692		ug/L		92	90 - 110	0	20

**Lab Sample ID: MB 410-317634/16**  
**Matrix: Water**  
**Analysis Batch: 317634**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/12/22 20:16	1

**Lab Sample ID: LCS 410-317634/14**  
**Matrix: Water**  
**Analysis Batch: 317634**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7180		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-317634/15**  
**Matrix: Water**  
**Analysis Batch: 317634**

**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
Sulfate	7500	7180		ug/L		96	90 - 110	0	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-325132/1-A**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 325132**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 18:41	1

**Lab Sample ID: LCS 410-325132/2-A**  
**Matrix: Water**  
**Analysis Batch: 326306**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 325132**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	474		ug/L		95	85 - 115

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## GC/MS VOA

### Analysis Batch: 320285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	8260D/UST	
MB 410-320285/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-320285/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-320285/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 319181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	3510C	
MB 410-319181/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-319181/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-319181/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Analysis Batch: 319557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-319181/1-A	Method Blank	Total/NA	Water	8270E SIM	319181
LCS 410-319181/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	319181
LCSD 410-319181/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	319181

### Analysis Batch: 319931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	8270E SIM	319181

## GC VOA

### Analysis Batch: 317459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	NWTPH-Gx	
MB 410-317459/9	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-317459/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-317459/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 320132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	RSK-175	320137
MB 410-320137/1-A	Method Blank	Total/NA	Water	RSK-175	320137
LCS 410-320137/2-A	Lab Control Sample	Total/NA	Water	RSK-175	320137

### Prep Batch: 320137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	RSK-175	
MB 410-320137/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-320137/2-A	Lab Control Sample	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 320840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	3510C	
MB 410-320840/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-320840/2-B	Lab Control Sample	Total/NA	Water	3510C	

Eurofins Lancaster Laboratories Environment Testing, LLC



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## GC Semi VOA (Continued)

### Prep Batch: 320840 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-320840/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-105565-1 DU	MW-20R-GW-221111	Total/NA	Water	3510C	

### Cleanup Batch: 323516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	3630C	320840
MB 410-320840/1-B	Method Blank	Total/NA	Water	3630C	320840
LCS 410-320840/2-B	Lab Control Sample	Total/NA	Water	3630C	320840
LCSD 410-320840/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	320840
410-105565-1 DU	MW-20R-GW-221111	Total/NA	Water	3630C	320840

### Analysis Batch: 323778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	NWTPH-Dx	323516
MB 410-320840/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	323516
LCS 410-320840/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	323516
LCSD 410-320840/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	323516
410-105565-1 DU	MW-20R-GW-221111	Total/NA	Water	NWTPH-Dx	323516

## HPLC/IC

### Analysis Batch: 317633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317633/16	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317633/14	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317633/15	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317634/16	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317634/14	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317634/15	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 325132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Dissolved	Water	Non-Digest Prep	
MB 410-325132/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-325132/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 326306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105565-1	MW-20R-GW-221111	Dissolved	Water	200.8 Rev 5.4	325132
MB 410-325132/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	325132
LCS 410-325132/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	325132

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Date Collected: 11/11/22 11:30

Matrix: Water

Date Received: 11/12/22 09:34

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	320285	UKAD	ELLE	11/22/22 18:36
Total/NA	Prep	3510C			319181	QJZ6	ELLE	11/18/22 16:15
Total/NA	Analysis	8270E SIM		1	319931	UJM0	ELLE	11/21/22 20:45
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 15:35
Total/NA	Prep	RSK-175			320137	LXF2	ELLE	11/22/22 09:55
Total/NA	Analysis	RSK-175		1	320132	LXF2	ELLE	11/22/22 15:37
Total/NA	Prep	3510C			320840	YDF5	ELLE	11/25/22 07:39
Total/NA	Cleanup	3630C			323516	UKQ8	ELLE	12/05/22 01:55
Total/NA	Analysis	NWTPH-Dx		1	323778	IUSB	ELLE	12/05/22 18:00
Total/NA	Analysis	EPA 300.0 R2.1		50	317633	L4QM	ELLE	11/12/22 19:09
Total/NA	Analysis	EPA 300.0 R2.1		500	317634	L4QM	ELLE	11/12/22 19:20
Dissolved	Prep	Non-Digest Prep			325132	UAMX	ELLE	12/08/22 14:21
Dissolved	Analysis	200.8 Rev 5.4		1	326306	UCIG	ELLE	12/12/22 19:01

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-105565-1	MW-20R-GW-221111	Water	11/11/22 11:30	11/12/22 09:34

1

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Chain of Custody Record



410-105565 Chain of Custody

<b>Client Information</b>		Sampler: * SAVANNAH GREEN		Lab PM:		COC No:	
Client Contact:		Phone:		E-Mail:		Page: Page 1 of 1	
Company: Arcadis		PWSID:		Analysis Requested: WA		Job #:	
Address: 1100 Olive Way		Due Date Requested:		Field Filtered Sample (Yes or No) Perform in <del>lab</del> Yes or No 3270D SIM - CPM SIM 8360D - Benzene 200.8 - Manganese 300-OR GFM - 280-SUB NWT PH-0x w/ SG NWT PH-Gx RSL-175 - Methane		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify): Other:	
City: Seattle		TAT Requested (days):					
State, Zip: WA 98101		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Phone:		PO #:					
Email:		Purchase Order not required					
Project Name: Former Edmonds Terminal		Project #:		Total Number of Containers:		Special Instructions/Note:	
Site: 11720 Unow Rd, Edmonds, WA		SSOW#:					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Preservation Code	
MW-20R		11/11/22	11:30	G	W	X	X
Possible Hazard Identification		Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Special Instructions/QC Requirements:	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months		Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____		Relinquished by: Savannah Green Date/Time: 11/11/22 12:30 Company: _____ Received by: _____ Date/Time: _____ Company: _____	
Relinquished by: _____ Date/Time: _____ Company: _____		Relinquished by: _____ Date/Time: _____ Company: _____		Relinquished by: _____ Date/Time: _____ Company: _____		Relinquished by: _____ Date/Time: 11/12/22 9:24 Company: ELET	
Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 31/2.0			

\* Field sampler Added - LA= 1779 12/1/2022

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-105565-1

**Login Number: 105565**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

CHEVRON

## DATA REVIEW

Edmonds Terminal  
Edmonds, Washington

*Volatile Organic Compounds, Polycyclic Aromatic Hydrocarbons, Diesel, Motor Oil, and Gasoline Range Petroleum Hydrocarbons, Metals, and General Chemistry Analyses*

SDGs: 410-105564-1 and 410-105565-1

Analyses Performed By:  
Eurofins Environment Testing America  
Lancaster, Pennsylvania

Validation Report: 48022R  
Review Level: Tier II  
Project: 30063675



## DATA REVIEW REPORT

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) 410-105564-1 and 410-105565-1 for samples collected in association with the Edmonds Terminal site in, Edmonds, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets, and chain-of-custody records (COCs). Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	PAH	TPHg	TPHd	Metals	Misc.
MW-503-W-221110	410-105564-1	Water	11/10/2022		X	X	X	X	X	X
MW-139R-W-221110	410-105564-2	Water	11/10/2022		X	X	X	X	X	X
MW-519-W-221110	410-105564-3	Water	11/10/2022		X	X	X	X	X	X
MW-520-W-221110	410-105564-4	Water	11/10/2022		X	X	X	X	X	X
MW-514-W-221110	410-105564-5	Water	11/10/2022		X	X	X	X	X	X
MW-518-W-221110	410-105564-6	Water	11/10/2022		X	X	X	X	X	X
MW-512-W-221110	410-105564-7	Water	11/10/2022		X	X	X	X	X	X
MW-502-W-221110	410-105564-8	Water	11/10/2022		X	X	X	X	X	X
MW-513-W-221110	410-105564-9	Water	11/10/2022		X	X	X	X	X	X
MW-143-W-221110	410-105564-10	Water	11/10/2022		X	X	X	X	X	X
MW-101-W-221110	410-105564-11	Water	11/10/2022		X	X	X	X	X	X
MW-126-W-221110	410-105564-12	Water	11/10/2022		X	X	X	X	X	X
MW-511-W-221110	410-105564-13	Water	11/10/2022		X	X	X	X	X	X
DUP-3-WD-221110	410-105564-14	Water	11/10/2022	MW-101-W-221110	X	X	X	X	X	X
DUP-4-WD-221110	410-105564-15	Water	11/10/2022	MW-518-W-221110	X	X	X	X	X	X
QA-T-W-221110	410-105564-15	Water	11/10/2022		X	X	X	X		
MW-522-W-221110	410-105564-17	Water	11/10/2022		X	X	X	X	X	X
MW-20R-GW-221111	410-105565-1	Water	11/11/2022		X	X	X	X	X	X

Note: As specified on the COCs, sample MW-503-W-221110 was used in the MS/MSD analyses.

## DATA REVIEW REPORT

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X	X		
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

1. The samples in SDG 410-105564-1 were collected on Thursday 11/10/2022 and received at the laboratory on Monday 11/14/2022. The temperature upon receipt was 8.9 degrees Celsius, which is greater than the EPA-recommended maximum receipt temperature of 6 degrees Celsius. With the exception of the metals results, the sample results for SDG 410-105564-1 were qualified as estimated.

## DATA REVIEW REPORT

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method RSK-175, SW-846 Methods 8260D and 8270E with selected ion monitoring (SIM), and Northwest Total Petroleum Hydrocarbon Methods NWTPG-Gx and NWTPH-Dx. Data were reviewed in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

## DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## DATA REVIEW REPORT

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and field blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike / Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-503-W-221110 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

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### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited acceptable results.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Benzene	1.0 U	1.0 U	N/A	N/A	1.0	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Benzene	1.0 U	1.0 U	N/A	N/A	1.0	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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## DATA VALIDATION CHECKLIST FOR VOCS

VOCs: SW-846 8260D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

### Gas Chromatography/Mass Spectrometry (GC/MS)

#### Tier II Validation

Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment Blanks, Field blanks	X				X
C. Trip blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

## DATA REVIEW REPORT

### DISSOLVED GASES ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Dissolved Gases by RSK-175	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

#### 5. Surrogates / System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Surrogate	Recovery
410-105564-1	MW-519-W-221110 MW-520-W-221110 MW-518-W-221110 MW-143-W-221110	Propene	< LL but > 10%
	MW-126-W-221110 MW-522-W-221110	Propene	Not spiked
	MW-101-W-221110	Propene	< 10%

The sample results associated with surrogate deviations are qualified according to the criteria presented in the following table.



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Control Limit	Sample Result	Qualification
> UL (Upper Control Limit)	Non-detect	No Action
	Detect	J
< LL (Lower Control Limit) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates not spiked or D - Surrogates diluted below the calibration curve	Non-detect	UJ <sup>1</sup>
	Detect	J <sup>1</sup>

<sup>1</sup> A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

#### 4. Matrix Spike/Matrix Spike Duplicate Sample (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample MW-503-W-221110 was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Compound	MS Recovery	MSD Recovery
410-105564-1	MW-503-W-221110	Methane	< LL but > 10%	Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

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### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited acceptable results.

### 6. Laboratory Duplicate Sample Analysis

Laboratory duplicate sample results are used to assess precision and may be used in addition to or in lieu of the MSD analysis. The laboratory duplicate sample RPD criteria are applied when parent and duplicate sample concentrations are at least five times the RL and are established by the analytical laboratory. In the case where the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

The laboratory duplicate sample analysis was not performed on a sample from the se SDGs.

### 7. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Methane	2,800	2,800	0.0 %	N/A	5.0	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Methane	610	640	4.8 %	N/A	5.0	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 8. Calibration and Quantification

reported result was qualified as estimated.

Sample results that exhibited concentrations greater than the instrument calibration range were qualified as estimated as summarized in the following table.

SDG	Sample ID	Compound	Reported Result	Qualified Result
410-105564-1	MW-518-W-221110	Methane	610 E	610 EJ

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SDG	Sample ID	Compound	Reported Result	Qualified Result
410-105564-1	MW-143-W-221110	Methane	4,800 E	4,800 EJ
	MW-101-W-221110	Methane	2,800 E	2,800 EJ
	DUP-3-WD-221110	Methane	2,800 E	2,800 EJ
	DUP-4-WD-221110	Methane	640 E	640 EJ

The following sample results are associated with a continuing calibration verification analysis that exhibited a response (%D) less than the lower control limit.

SDG	Sample	Compound	Criteria
410-105564-1	MW-519-W-221110 MW-520-W-221110 MW-514-W-221110 MW-518-W-221110 MW-512-W-221110 MW-502-W-221110 MW-513-W-221110 MW-143-W-221110 DUP-3-WD-221110 DUP-4-WD-221110	Methane	%D < -20%

The criteria used to evaluate the calibrations are presented in the following table. In the case of calibration deviations, the sample results are qualified as specified.

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D > 20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D < -20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

### 9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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## DATA VALIDATION CHECKLIST FOR DISSOLVED GASES

DISSOLVED GASES: RSK-175	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Thermal Conductivity Detector (GC/TCD)</b>					
<b>Tier II Validation</b>					
Holding Times/Temperature/Preservation		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method/Calibration Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks		X		X	
Surrogates Accuracy (%R)		X	X		
Matrix Spike Sample (MS) Accuracy (%R)		X	X		
Matrix Spike Duplicate Sample (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	
Quantification		X	X		
Calibration	X		X		

**Notes:**

%R    Percent recovery  
 RPD    Relative percent difference

## DATA REVIEW REPORT

### POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270E-SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits, and that all SVOC surrogate recoveries be greater than ten percent.

All samples exhibited acceptable surrogate recoveries.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-503-W-221110 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

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### 8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited acceptable results.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
All Compounds	U	U	N/A	N/A	Varies	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
All Compounds	U	U	N/A	N/A	Varies	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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**DATA VALIDATION CHECKLIST FOR PAHS**

PAHs: SW-846 8270E-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Mass Spectrometry (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field/Trip Blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent Recovery  
 RPD = Relative Percent Difference

## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE ORANICS (TPH-G/GRO) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-G/GRO by NWTPG-Gx	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-G/GRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.



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Sample MW-503-W-221110 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Laboratory duplicate sample analysis was not performed using a sample from within these SDGs.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Gasoline Range Organics	1,300	1,400	7.4 %	N/A	250	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Gasoline Range Organics	750	730	N/A	20	250	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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**DATA VALIDATION CHECKLIST FOR TPH-G/GRO**

TPH-G/GRO: SW-846 NWTPH-Gx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

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### TOTAL PETROLEUM HYDROCARBONS DIESEL AND MOTOR OIL RANGE ORANICS (TPH-D/MO/DRO) ANALYSIS

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-D/MO/DRO by NWTPH-Dx	Water (Preserved)	14 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-D/MO/DRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited acceptable surrogate recoveries.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

## DATA REVIEW REPORT

Sample MW-503-W-221110 was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Analyte	MS Recovery	MSD Recovery
410-105564-1	MW-503-W-221110	DRO (C12-C24)	< LL but > 10%	< LL but > 10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented. Because DRO was the only spiked analyte, the qualification also applies to the motor oil range result.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Sample MW-101-W-221110 was used in the laboratory duplicate sample analysis. The laboratory duplicate sample analysis exhibited acceptable results.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked analytes used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

Samples associated with LCS/LCSD analyses exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Samples	Analyte	LCS Recovery	LCSD Recovery
410-105564-1	MW-503-W-221110 MW-139R-W-221110 MW-519-W-221110 MW-520-W-221110 MW-514-W-221110 MW-518-W-221110 MW-512-W-221110	DRO (C12-C24)	< 10%	Acceptable

## DATA REVIEW REPORT

SDG	Samples	Analyte	LCS Recovery	LCSD Recovery
410-105564-1	MW-502-W-221110 MW-513-W-221110 MW-143-W-221110 MW-101-W-221110 MW-126-W-221110 MW-511-W-221110 DUP-3-WD-221110 DUP-4-WD-221110 MW-522-W-221110	DRO (C12-C24)	< 10%	Acceptable

The criteria used to evaluate the RPD between the LCS and LCSD are presented in the following table. In the case of RPD deviations, the sample results are qualified as documented. Because DRO was the only spiked analyte, the qualification also applies to the motor oil range result.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

Samples associated with LCS/LCSDs exhibiting RPDs greater than the control limit are presented in the following table.

SDG	Samples	Analyte
410-105564-1	MW-503-W-221110 MW-139R-W-221110 MW-519-W-221110 MW-520-W-221110 MW-514-W-221110 MW-518-W-221110 MW-512-W-221110 MW-502-W-221110 MW-513-W-221110 MW-143-W-221110 MW-101-W-221110 MW-126-W-221110 MW-511-W-221110 DUP-3-WD-221110 DUP-4-WD-221110 MW-522-W-221110	DRO (C12-C24)

The criteria used to evaluate the RPD between the LCS and LCSD are presented in the following table. In the case of RPD deviations, the sample results are qualified as documented in the table below. Because DRO was the only spiked analyte, the qualification also applies to the motor oil range result.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate

## DATA REVIEW REPORT

sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Diesel and Motor Oil Range Organics	U	U	N/A	N/A	67 and 110	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Diesel and Motor Oil Range Organics	U	U	N/A	N/A	61 and 110	Acceptable

Notes:  
N/A = Not applicable  
U = Not detected

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR TPH-D/MO/DRO

TPH-D/MO/DRO: NWTPH-Dx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field/Trip Blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X	X		
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

## DATA REVIEW REPORT

### INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 200.8 and 300.0. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Data Review (October 2004), USEPA Region II SOP HW-3c (July 2004).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within the control limits.
  - \* Duplicate analysis is not within the control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.



# DATA REVIEW REPORT

## METALS ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
USEPA 200.8	Water	180 days from collection to analysis	Cool to < 6 °C; pH < 2 with HNO <sub>3</sub>
	Soil	180 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) / Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

#### 3.1 MS/MSD Analysis

All metal analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. When MSDs are analyzed, the relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20% for water matrices and 35% for soil matrices. The MS/MSD control limits do not apply for MS/MSDs performed on samples where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and any laboratory qualifier (N) will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Samples MW-503-W-221110, MW-139R-W-221110, MW-520-W-221110, DUP-3-WD-221110, and DUP-4-WD-221110 were used in the MS/MSD analyses. The MS/MSD analyses exhibited acceptable results.

#### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to five times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control

## DATA REVIEW REPORT

limit of one times the RL is applied to the difference between the results for water matrices or two times the RL for soil matrices.

Samples MW-503-W-221110, MW-139R-W-221110, MW-520-W-221110, DUP-3-WD-221110, and DUP-4-WD-221110 were used in the laboratory duplicate sample analyses. The laboratory duplicate sample analyses exhibited RPDs acceptable results.

### 4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries (%R) within the control limits of 80% and 120% for water samples, or between the laboratory-established control limits for soil and sediment samples.

The LCS analyses exhibited acceptable results.

### 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the case where the parent and duplicate sample concentrations are less than five times the reporting limit (RL), a control limit of two times the RL for water matrices and three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Manganese	11,000	9,900	10.5 %	N/A	21	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Manganese	260	260	0.0 %	N/A	2.1	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 6. Serial Dilution (SD) Analysis

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

The serial dilution analysis was not performed using a sample from these SDGs.

## DATA REVIEW REPORT

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR METALS

Metals: SW-846 200.8	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

### Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)

#### Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X			X
B. Method Blanks		X		X	
C. Equipment and/or Field Blanks	X				X
Matrix Spike (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD RPD	X				X
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
ICP Serial Dilution %D	X				X
Dilution Factor		X		X	
Dry Weight	X				X

#### Notes:

%R = Percent recovery

RPD = Relative percent difference

%D = Percent difference

# DATA REVIEW REPORT

## GENERAL CHEMISTRY ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Nitrate-N by USEPA 300.0	Water	48 hours from collection to analysis	Cool to < 6 °C
Sulfate by USEPA 300.0	Water	28 days from collection to analysis	Cool to < 6 °C

The following sample analyses were performed past the EPA-recommended holding time.

SDG	Sample	Analyte	Holding Time Criteria	Analysis Completed
410-105564-1	MW-503-W-221110 MW-139R-W-221110 MW-519-W-221110 MW-520-W-221110 MW-514-W-221110 MW-518-W-221110 MW-512-W-221110 MW-502-W-221110 MW-513-W-221110 MW-143-W-221110 MW-101-W-221110 MW-126-W-221110 MW-511-W-221110 DUP-3-WD-221110 DUP-4-WD-221110 MW-522-W-221110	Nitrate	Within 48 hours	> 48 Hours

Qualifications for parameters that are analyzed past the recommended holding times are specified in the following table.

Criteria	Qualification	
	Detects	Non-detects
Analysis or extraction completed > holding time (but < 2x holding time)	J	UJ
Analysis completed > 2x holding time	J	R

Note that the EPA-recommended holding time for nitrate plus nitrite is 28 days. The 48-hour holding time for the individual nitrate and nitrite species is due to the easy conversion of nitrite into nitrate - i.e. nitrate results obtained after 48 hours of collection should be considered to be "nitrate+nitrite". Therefore, the non-detect nitrate results for the samples in the preceding table do not warrant qualification.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The

## DATA REVIEW REPORT

BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

#### 3.1 MS/MSD Analysis

All analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. The relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD control limits do not apply for MS/MSDs performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample DUP-3-WD-221110 was used in the MS analyses and MW-503-W-221110 was used in the MS/MSD analyses. The

#### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample RPD criterion is applied when both the parent and duplicate sample concentrations are greater than or equal to five times the reporting limit (RL). A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the detection limit, a control limit of two times the RL for water matrices is applied to the difference between the results.

Samples DUP-3-WD-221110 and MW-503-W-221110 were used in the laboratory duplicate sample analyses. The laboratory duplicate sample analyses exhibited acceptable results.

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit recoveries between the control limits of 80% and 120%. The relative percent difference (RPD) between the LCS and LCSD results must be no greater than the established acceptance limit of 20%.

The LSC/LSD analyses exhibited acceptable results.

### 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 20% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Results for the field duplicate samples are summarized in the following tables.

## DATA REVIEW REPORT

Sample and Field Duplicate Sample: MW-101-W-221110 and DUP-3-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Nitrate as N	550 U	550 U	N/A	N/A	550	Acceptable
Sulfate	2,500 U	2,500 U	N/A	N/A	2,500	Acceptable

Sample and Field Duplicate Sample: MW-518-W-221110 and DUP-4-WD-221110						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Nitrate as N	550 U	550 U	N/A	N/A	550	Acceptable
Sulfate	37,000	30,000	20.9 %	N/A	7,500	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: USEPA 300.0	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Ion Chromatograph</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
Matrix Spike Sample (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate Sample (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

**Notes:**

%R - percent recovery

RPD - relative percent difference



# DATA REVIEW REPORT

Validation Performed By: Dennis Dyke

Signature: 

Date: December 27, 2022

# CHAIN OF CUSTODY AND VALIDATED SAMPLE ANALYSIS DATA SHEETS





410-105564 Chain of Custody

### Chain of Custody Record

Samples: <b>* SAVANNAH Green</b>		Lab PM:	Carrier Tracking No(s):	COC No:					
Client Contact:		Phone:	E-Mail:	State of Origin: <b>WA</b>					
Company: <b>ARCADIS</b>		PWSID:	Page: <b>Page 1 of 2</b>						
Address: <b>1100 OLIVE WAY</b>		Due Date Requested:	Analysis Requested						
City: <b>SEATTLE</b>		TAT Requested (days):	Preservation Codes:						
State, Zip: <b>WA 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSC4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)						
Project Name: <b>FORMER EDMONDS THERMAL</b>		PO #: Purchase Order not required	Job #:						
Site: <b>11720 UNCLE ROAD EDMONDS, WA</b>		WO #:	Total Number of Containers:						
Project #:		SSOW #:	Other:						
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=wastewater, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Performance MSA/MSD (Yes or No)	Analysis Requested	Special Instructions/Note:	
MW-503	11-10-22	0920	G	W	Y	X	8270 D SIM COAH BY SIM	USE STANDARDED JUNG	
MW-503 MS		0920					300 DRUM ZSD SULFATE/NITRATE	BENTENE & CPAN	
MW-503 MSD		0920					200 B MANNANASE	WITH QUANTITATIVE	
MW-139R		1100					NUTPH DX WATER W/ SILIC	< 1 mg/L	
MW-519		1132					B-260 D BENTENE		
MW-520		1044					NUTPH GX WATER U CR		
MW-514		1205					RSK 175 METHANE		
MW-518		0908							
MW-512		1320							
MW-502		1050							
MW-5B		1230							
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:					
Relinquished by: <b>Savannah Green</b>		Date/Time: <b>11/10/22 3:30 PM</b>	Company: <b>ARCADIS</b>	Received by:		Date/Time:	Company:		
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:		
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time: <b>11/14/22 0900</b>	Company: <b>ELWA</b>		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>8.9</b>					

\* Field sampler Added 12/1/2022 - LAC1779

### Chain of Custody Record

<b>Client Information</b>		Sampler: <u>X SAUANNAH GREEN</u>		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact:		Phone:		E-Mail:		State of Origin: <u>WA</u>		Page: <u>Page 2 of 2</u>	
Company: <u>Arcadis</u>		PWSID:		Analysis Requested <u>8270 D SIM CPAM BY SIM</u> <u>300 OILHEAM 280 SULFONE/INDAN</u> <u>200 P MANDIANE X</u> <u>MUTPH DX WATER W/SIGREL</u> <u>8260 D BENZENE</u> <u>NWTPH 17X WATER 17 CLO</u> <u>DSK 175 METHANE</u>		Total Number of Containers 10		Preservation Codes: A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate            O - AsNaO2 D - Nitric Acid            P - Na2O4S E - NaHSO4                Q - Na2SO3 F - MeOH                    R - Na2S2O3 G - Amchlor                S - H2SO4 H - Ascorbic Acid        T - TSP Dodecahydrate I - Ice                        U - Acetone J - DI Water                V - MCAA K - EDTA                    W - pH 4-5 L - EDA                      Z - other (specify)  Other:	
Address: <u>1600 Olive way</u>		Due Date Requested:							
City: <u>Seattle</u>		TAT Requested (days):							
State, Zip: <u>WA, 98101</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No							
Phone:		PO #: Purchase Order not required							
Email:		WO #:							
Project Name: <u>Former Edmond - Terminal</u>		Project #:		SSOW#:		Site: <u>11720 Unoco Rd, Edmonds, WA</u>			
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil/sed, BT=Tissue, AA=Air)	Field Filtered Sample (Yes or No)	Perform as S&M&D (Yes or No)	Special Instructions/Note:	
MW-143		11-10-22	12:39	G	W	X	X	* Use standard	
MW-101			09:15			X	X	SGC	
MW-126			14:04			X	X	* Benzene +	
MW-511			14:20			X	X	CPAM's	
DUP-3						X	X	w/ quantitative	
DUP-4						X	X	61 mg/L	
TRIP BLANK									
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:					
Relinquished by: <u>Sauannah Green</u>		Date/Time: <u>11/10/22 3:50PM</u>	Company: <u>Arcadis</u>	Received by: _____		Date/Time: _____	Company: _____		
Relinquished by: _____		Date/Time: _____	Company: _____	Received by: _____		Date/Time: _____	Company: _____		
Relinquished by: _____		Date/Time: _____	Company: _____	Received by: _____		Date/Time: <u>11/14/22 0900</u>	Company: <u>FELT</u>		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		8.9			

\* Field Sampler Added 12/1/2022 - LAC 1779

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-503-W-221110**

**Lab Sample ID: 410-105564-1**

Date Collected: 11/10/22 09:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 18:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/21/22 18:33	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/21/22 18:33	1
Dibromofluoromethane (Surr)	103		80 - 120					11/21/22 18:33	1
Toluene-d8 (Surr)	93		80 - 120					11/21/22 18:33	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[a]pyrene	ND	UJ	0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[b]fluoranthene	ND	UJ	0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Benzo[k]fluoranthene	ND	UJ	0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Chrysene	ND	UJ	0.051	0.010	ug/L		11/17/22 15:20	11/18/22 20:56	1
Dibenz(a,h)anthracene	ND	UJ	0.051	0.021	ug/L		11/17/22 15:20	11/18/22 20:56	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.051	0.021	ug/L		11/17/22 15:20	11/18/22 20:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	81		10 - 110				11/17/22 15:20	11/18/22 20:56	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/18/22 20:56	1
Fluoranthene-d10 (Surr)	93		47 - 128				11/17/22 15:20	11/18/22 20:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 15:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/16/22 15:09	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	68	J	5.0	3.0	ug/L		11/22/22 08:10	11/22/22 11:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133				11/22/22 08:10	11/22/22 11:04	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>R ND</del>	<del>*- *1 F1 cn</del>	<del>100</del>	<del>46</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 15:48	1
C24-C40	<del>R ND</del>	<del></del>	<del>260</del>	<del>100</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 15:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	73		50 - 150				11/23/22 08:00	12/01/22 15:48	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H F1 cn</del> UJ	550	250	ug/L			11/12/22 18:01	5
Sulfate	24000	<del>F1</del> J	7500	2500	ug/L			11/12/22 18:01	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

## Client Sample ID: MW-503-W-221110

## Lab Sample ID: 410-105564-1

Date Collected: 11/10/22 09:20

Matrix: Water

Date Received: 11/12/22 09:34

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	430		2.1	0.98	ug/L		11/18/22 10:12	11/29/22 10:08	1

## Client Sample ID: MW-139R-W-221110

## Lab Sample ID: 410-105564-2

Date Collected: 11/10/22 11:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/21/22 19:45	1
4-Bromofluorobenzene (Surr)	95		80 - 120		11/21/22 19:45	1
Dibromofluoromethane (Surr)	105		80 - 120		11/21/22 19:45	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 19:45	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[a]pyrene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[b]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Benzo[k]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Chrysene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:00	1
Dibenz(a,h)anthracene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:00	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	11/17/22 15:20	11/18/22 22:00	1
1-Methylnaphthalene-d10 (Surr)	80		36 - 111	11/17/22 15:20	11/18/22 22:00	1
Fluoranthene-d10 (Surr)	91		47 - 128	11/17/22 15:20	11/18/22 22:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 16:25	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	6.8	J	5.0	3.0	ug/L		11/22/22 08:10	11/22/22 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	90		43 - 133	11/22/22 08:10	11/22/22 12:22	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	*1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 17:20	1
C24-C40	R ND		270	110	ug/L		11/23/22 08:00	12/01/22 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150	11/23/22 08:00	12/01/22 17:20	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-139R-W-221110**

**Lab Sample ID: 410-105564-2**

Date Collected: 11/10/22 11:00

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	530	JH-cn J	550	250	ug/L			11/12/22 17:18	5
Sulfate	260000	J	75000	25000	ug/L			11/15/22 15:28	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	81		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:48	1

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

Date Collected: 11/10/22 11:32

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 20:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/21/22 20:09	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/21/22 20:09	1
Dibromofluoromethane (Surr)	103		80 - 120		11/21/22 20:09	1
Toluene-d8 (Surr)	93		80 - 120		11/21/22 20:09	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[a]pyrene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[b]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Benzo[k]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Chrysene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 22:22	1
Dibenz(a,h)anthracene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:22	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 22:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	90		10 - 110	11/17/22 15:20	11/18/22 22:22	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111	11/17/22 15:20	11/18/22 22:22	1
Fluoranthene-d10 (Surr)	87		47 - 128	11/17/22 15:20	11/18/22 22:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 16:51	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	cn J	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 06:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	30	S1- cn	43 - 133	11/18/22 08:35	11/21/22 06:49	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-519-W-221110**

**Lab Sample ID: 410-105564-3**

Date Collected: 11/10/22 11:32

Matrix: Water

Date Received: 11/12/22 09:34

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	52	<del>J</del> *1 cn	J	110	50	ug/L	11/23/22 08:00	12/01/22 17:43	1
C24-C40	R ND	cn	<del>280</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 17:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	47	S1- cn	50 - 150				11/23/22 08:00	12/01/22 17:43	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Nitrogen, Nitrate</b>	520	<del>J</del> H cn	J	550	250	ug/L		11/12/22 17:26	5
<b>Sulfate</b>	62000		J	7500	2500	ug/L		11/12/22 17:26	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	2.0	J	2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:05	1

**Client Sample ID: MW-520-W-221110**

**Lab Sample ID: 410-105564-4**

Date Collected: 11/10/22 10:44

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 20:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		80 - 120					11/21/22 20:33	1
<i>4-Bromofluorobenzene (Surr)</i>	94		80 - 120					11/21/22 20:33	1
<i>Dibromofluoromethane (Surr)</i>	104		80 - 120					11/21/22 20:33	1
<i>Toluene-d8 (Surr)</i>	94		80 - 120					11/21/22 20:33	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[a]pyrene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[b]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Benzo[k]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Chrysene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/18/22 22:43	1
Dibenz(a,h)anthracene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:20	11/18/22 22:43	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:20	11/18/22 22:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	86		10 - 110				11/17/22 15:20	11/18/22 22:43	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	72		36 - 111				11/17/22 15:20	11/18/22 22:43	1
<i>Fluoranthene-d10 (Surr)</i>	86		47 - 128				11/17/22 15:20	11/18/22 22:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100		50 - 150					11/16/22 17:16	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-520-W-221110**

**Lab Sample ID: 410-105564-4**

Date Collected: 11/10/22 10:44

Matrix: Water

Date Received: 11/12/22 09:34

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	<del>cn</del> UJ	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	29	S1- cn	43 - 133				11/18/22 08:35	11/21/22 07:07	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	<del>*-1 cn</del>	<del>110</del>	<del>49</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 18:06	1
C24-C40	R ND		<del>270</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 18:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	51		50 - 150				11/23/22 08:00	12/01/22 18:06	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	360	<del>JH cn</del> J	550	250	ug/L			11/12/22 17:01	5
Sulfate	220000	J	75000	25000	ug/L			11/15/22 15:02	50

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 18:49	1

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

Date Collected: 11/10/22 12:05

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/21/22 20:57	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/21/22 20:57	1
Dibromofluoromethane (Surr)	103		80 - 120					11/21/22 20:57	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 20:57	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[a]pyrene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[b]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Benzo[k]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Chrysene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:05	1
Dibenz(a,h)anthracene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:05	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	32		10 - 110				11/17/22 15:20	11/18/22 23:05	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/17/22 15:20	11/18/22 23:05	1
Fluoranthene-d10 (Surr)	88		47 - 128				11/17/22 15:20	11/18/22 23:05	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-514-W-221110**

**Lab Sample ID: 410-105564-5**

Date Collected: 11/10/22 12:05

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>53</b>	<b>J</b>	250	43	ug/L			11/16/22 17:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	101		50 - 150					11/16/22 17:42	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>250</b>	<del>cn</del> <b>J</b>	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:24	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Propene (1C)</i>	46	cn	43 - 133				11/18/22 08:35	11/21/22 07:24	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	<del>*1 cn</del>	110	48	ug/L		11/23/22 08:00	12/01/22 18:29	1
C24-C40	R ND		260	110	ug/L		11/23/22 08:00	12/01/22 18:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>	75		50 - 150				11/23/22 08:00	12/01/22 18:29	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>cn</del> <b>UJ</b>	550	250	ug/L			11/12/22 17:35	5
<b>Sulfate</b>	<b>36000</b>	<b>J</b>	7500	2500	ug/L			11/12/22 17:35	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>1400</b>		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:04	1

**Client Sample ID: MW-518-W-221110**

**Lab Sample ID: 410-105564-6**

Date Collected: 11/10/22 09:08

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	<b>UJ</b>	1.0	0.30	ug/L			11/21/22 21:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>1,2-Dichloroethane-d4 (Surr)</i>	96		80 - 120					11/21/22 21:21	1
<i>4-Bromofluorobenzene (Surr)</i>	93		80 - 120					11/21/22 21:21	1
<i>Dibromofluoromethane (Surr)</i>	105		80 - 120					11/21/22 21:21	1
<i>Toluene-d8 (Surr)</i>	94		80 - 120					11/21/22 21:21	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	<b>UJ</b>	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[a]pyrene	ND	<b>UJ</b>	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[b]fluoranthene	ND	<b>UJ</b>	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Benzo[k]fluoranthene	ND	<b>UJ</b>	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Chrysene	ND	<b>UJ</b>	0.054	0.011	ug/L		11/17/22 15:20	11/18/22 23:26	1
Dibenz(a,h)anthracene	ND	<b>UJ</b>	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 23:26	1
Indeno[1,2,3-cd]pyrene	ND	<b>UJ</b>	0.054	0.022	ug/L		11/17/22 15:20	11/18/22 23:26	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-518-W-221110**

**Lab Sample ID: 410-105564-6**

Date Collected: 11/10/22 09:08

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	66		10 - 110	11/17/22 15:20	11/18/22 23:26	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111	11/17/22 15:20	11/18/22 23:26	1
Fluoranthene-d10 (Surr)	93		47 - 128	11/17/22 15:20	11/18/22 23:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>750</b>	<b>J</b>	250	43	ug/L			11/16/22 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		11/16/22 19:49	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>610</b>	<del>E-en</del> <b>EJ</b>	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 07:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	30	S1- cn	43 - 133	11/18/22 08:35	11/21/22 07:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>54</b>	<del>J * 1 cn</del> <b>J</b>	110	49	ug/L		11/23/22 08:00	12/01/22 18:52	1
C24-C40	<b>R</b>	<del>ND</del>	<del>270</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 18:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	75		50 - 150	11/23/22 08:00	12/01/22 18:52	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H cn</del> <b>UJ</b>	550	250	ug/L			11/12/22 16:43	5
<b>Sulfate</b>	<b>37000</b>	<b>J</b>	7500	2500	ug/L			11/12/22 16:43	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>260</b>		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:46	1

**Client Sample ID: MW-512-W-221110**

**Lab Sample ID: 410-105564-7**

Date Collected: 11/10/22 13:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	<b>UJ</b>	1.0	0.30	ug/L			11/21/22 21:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		11/21/22 21:45	1
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 21:45	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 21:45	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 21:45	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	<b>UJ</b>	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Benzo[a]pyrene	ND	<b>UJ</b>	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-512-W-221110**

**Lab Sample ID: 410-105564-7**

Date Collected: 11/10/22 13:20

Matrix: Water

Date Received: 11/12/22 09:34

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Benzo[k]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Chrysene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/18/22 23:48	1
Dibenz(a,h)anthracene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:48	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/18/22 23:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				11/17/22 15:20	11/18/22 23:48	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/18/22 23:48	1
Fluoranthene-d10 (Surr)	73		47 - 128				11/17/22 15:20	11/18/22 23:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>130</b>	<b>J</b>	250	43	ug/L			11/16/22 20:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/16/22 20:14	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>450</b>	<b>cn - J</b>	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	50	cn	43 - 133				11/18/22 08:35	11/21/22 08:00	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>R ND</del>	<del>*1 cn</del>	<del>100</del>	<del>47</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 19:14	1
C24-C40	<del>R ND</del>	<del></del>	<del>260</del>	<del>100</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 19:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	60		50 - 150				11/23/22 08:00	12/01/22 19:14	1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H cn</del> UJ	550	250	ug/L			11/12/22 17:52	5
<b>Sulfate</b>	<b>44000</b>	<b>J</b>	7500	2500	ug/L			11/12/22 17:52	5

## Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>1300</b>		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:34	1

**Client Sample ID: MW-502-W-221110**

**Lab Sample ID: 410-105564-8**

Date Collected: 11/10/22 10:50

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 22:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/21/22 22:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-502-W-221110**

**Lab Sample ID: 410-105564-8**

Date Collected: 11/10/22 10:50

Matrix: Water

Date Received: 11/12/22 09:34

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 22:08	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 22:08	1
Toluene-d8 (Surr)	92		80 - 120		11/21/22 22:08	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[a]pyrene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[b]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Benzo[k]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Chrysene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:09	1
Dibenz(a,h)anthracene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:09	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	11/17/22 15:20	11/19/22 00:09	1
1-Methylnaphthalene-d10 (Surr)	71		36 - 111	11/17/22 15:20	11/19/22 00:09	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/17/22 15:20	11/19/22 00:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/16/22 20:40	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	<del>cn</del> UJ	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	48	cn	43 - 133	11/18/22 08:35	11/21/22 08:18	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>R ND</del>	<del>*1 cn</del>	<del>110</del>	<del>48</del>	<del>ug/L</del>		<del>11/23/22 08:00</del>	<del>12/01/22 19:37</del>	<del>1</del>
C24-C40	<del>R ND</del>	<del></del>	<del>270</del>	<del>110</del>	<del>ug/L</del>		<del>11/23/22 08:00</del>	<del>12/01/22 19:37</del>	<del>1</del>

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150	11/23/22 08:00	12/01/22 19:37	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H cn</del> UJ	550	250	ug/L			11/12/22 17:09	5
Sulfate	20000	J	7500	2500	ug/L			11/12/22 17:09	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	290		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:58	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-513-W-221110**

**Lab Sample ID: 410-105564-9**

Date Collected: 11/10/22 12:30

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 22:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/21/22 22:32	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/21/22 22:32	1
Dibromofluoromethane (Surr)	105		80 - 120					11/21/22 22:32	1
Toluene-d8 (Surr)	94		80 - 120					11/21/22 22:32	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[a]pyrene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[b]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Benzo[k]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Chrysene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:20	11/19/22 00:30	1
Dibenz(a,h)anthracene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:20	11/19/22 00:30	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:20	11/19/22 00:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	61		10 - 110				11/17/22 15:20	11/19/22 00:30	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/17/22 15:20	11/19/22 00:30	1
Fluoranthene-d10 (Surr)	96		47 - 128				11/17/22 15:20	11/19/22 00:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	52	J	250	43	ug/L			11/16/22 21:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/16/22 21:06	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	250	en - J	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 08:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	46	cn	43 - 133				11/18/22 08:35	11/21/22 08:54	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	*. *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 20:23	1
C24-C40	R ND		270	110	ug/L		11/23/22 08:00	12/01/22 20:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	59		50 - 150				11/23/22 08:00	12/01/22 20:23	1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn UJ	550	250	ug/L			11/12/22 17:52	5
Sulfate	140000	J	75000	25000	ug/L			11/16/22 09:43	50

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-513-W-221110**

**Lab Sample ID: 410-105564-9**

Date Collected: 11/10/22 12:30

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	710		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:36	1

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

Date Collected: 11/10/22 12:38

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 22:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120		11/21/22 22:56	1
4-Bromofluorobenzene (Surr)	94		80 - 120		11/21/22 22:56	1
Dibromofluoromethane (Surr)	102		80 - 120		11/21/22 22:56	1
Toluene-d8 (Surr)	95		80 - 120		11/21/22 22:56	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[a]pyrene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[b]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Benzo[k]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Chrysene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/19/22 00:52	1
Dibenz(a,h)anthracene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:52	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/19/22 00:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	74		10 - 110	11/17/22 15:20	11/19/22 00:52	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111	11/17/22 15:20	11/19/22 00:52	1
Fluoranthene-d10 (Surr)	74		47 - 128	11/17/22 15:20	11/19/22 00:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 21:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/16/22 21:32	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4800	<del>En</del> EJ	5.0	3.0	ug/L		11/18/22 08:35	11/21/22 09:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	39	S1- cn	43 - 133	11/18/22 08:35	11/21/22 09:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>R ND</del>	<del>* *1 cn</del>	<del>110</del>	<del>48</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 20:46	1
C24-C40	<del>R ND</del>	<del></del>	<del>270</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	52		50 - 150	11/23/22 08:00	12/01/22 20:46	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-143-W-221110**

**Lab Sample ID: 410-105564-10**

Date Collected: 11/10/22 12:38

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H.cn</del> UJ	550	250	ug/L			11/12/22 17:44	5
Sulfate	ND	UJ	7500	2500	ug/L			11/12/22 17:44	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3200		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:03	1

**Client Sample ID: MW-101-W-221110**

**Lab Sample ID: 410-105564-11**

Date Collected: 11/10/22 09:15

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/21/22 23:20	1
4-Bromofluorobenzene (Surr)	96		80 - 120		11/21/22 23:20	1
Dibromofluoromethane (Surr)	105		80 - 120		11/21/22 23:20	1
Toluene-d8 (Surr)	95		80 - 120		11/21/22 23:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[a]pyrene	ND	UJ	0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[b]fluoranthene	ND	UJ	0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Benzo[k]fluoranthene	ND	UJ	0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Chrysene	ND	UJ	0.056	0.011	ug/L		11/17/22 15:20	11/19/22 01:13	1
Dibenz(a,h)anthracene	ND	UJ	0.056	0.022	ug/L		11/17/22 15:20	11/19/22 01:13	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.056	0.022	ug/L		11/17/22 15:20	11/19/22 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 110	11/17/22 15:20	11/19/22 01:13	1
1-Methylnaphthalene-d10 (Surr)	136	S1+	36 - 111	11/17/22 15:20	11/19/22 01:13	1
Fluoranthene-d10 (Surr)	102		47 - 128	11/17/22 15:20	11/19/22 01:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1300	J	250	43	ug/L			11/16/22 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/16/22 21:57	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800	E.cn EJ	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 20:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133	11/18/22 12:19	11/18/22 20:04	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-101-W-221110**

**Lab Sample ID: 410-105564-11**

Date Collected: 11/10/22 09:15

Matrix: Water

Date Received: 11/12/22 09:34

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	58	<del>J</del> *1 cn J	110	50	ug/L		11/23/22 08:00	12/01/22 21:09	1
C24-C40	R ND	<del>J</del>	<del>280</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 21:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	71		50 - 150				11/23/22 08:00	12/01/22 21:09	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>H</del> on UJ	550	250	ug/L			11/12/22 16:52	5
Sulfate	ND	UJ	7500	2500	ug/L			11/12/22 16:52	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	11000		21	9.8	ug/L		12/08/22 14:16	12/13/22 17:56	10

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

Date Collected: 11/10/22 14:04

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/21/22 23:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		80 - 120					11/21/22 23:44	1
<i>4-Bromofluorobenzene (Surr)</i>	92		80 - 120					11/21/22 23:44	1
<i>Dibromofluoromethane (Surr)</i>	105		80 - 120					11/21/22 23:44	1
<i>Toluene-d8 (Surr)</i>	93		80 - 120					11/21/22 23:44	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[a]pyrene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[b]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Benzo[k]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Chrysene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:20	11/19/22 01:35	1
Dibenz(a,h)anthracene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/19/22 01:35	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:20	11/19/22 01:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	91		10 - 110				11/17/22 15:20	11/19/22 01:35	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	76		36 - 111				11/17/22 15:20	11/19/22 01:35	1
<i>Fluoranthene-d10 (Surr)</i>	90		47 - 128				11/17/22 15:20	11/19/22 01:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 22:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100		50 - 150					11/16/22 22:23	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-126-W-221110**

**Lab Sample ID: 410-105564-12**

Date Collected: 11/10/22 14:04

Matrix: Water

Date Received: 11/12/22 09:34

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	<del>cn</del> UJ	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133				11/18/22 12:19	11/18/22 19:49	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	<del>*1 cn</del>	110	49	ug/L		11/23/22 08:00	12/01/22 21:55	1
C24-C40	R ND		270	110	ug/L		11/23/22 08:00	12/01/22 21:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	81		50 - 150				11/23/22 08:00	12/01/22 21:55	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	2300	<del>H cn</del> J	550	250	ug/L			11/12/22 18:14	5
Sulfate	24000	J	7500	2500	ug/L			11/12/22 18:14	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:56	1

**Client Sample ID: MW-511-W-221110**

**Lab Sample ID: 410-105564-13**

Date Collected: 11/10/22 14:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/22/22 00:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/22/22 00:09	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/22/22 00:09	1
Dibromofluoromethane (Surr)	106		80 - 120					11/22/22 00:09	1
Toluene-d8 (Surr)	94		80 - 120					11/22/22 00:09	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[a]pyrene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[b]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Benzo[k]fluoranthene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Chrysene	ND	UJ	0.053	0.011	ug/L		11/17/22 15:20	11/21/22 09:51	1
Dibenz(a,h)anthracene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/21/22 09:51	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.053	0.021	ug/L		11/17/22 15:20	11/21/22 09:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	84		10 - 110				11/17/22 15:20	11/21/22 09:51	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/17/22 15:20	11/21/22 09:51	1
Fluoranthene-d10 (Surr)	92		47 - 128				11/17/22 15:20	11/21/22 09:51	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-511-W-221110**

**Lab Sample ID: 410-105564-13**

Date Collected: 11/10/22 14:20

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 22:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	99		50 - 150					11/16/22 22:48	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	3.3	J	5.0	3.0	ug/L		11/18/22 09:36	11/18/22 17:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Propene (1C)</i>	52		43 - 133				11/18/22 09:36	11/18/22 17:17	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	<del>*- *1 cn</del>	110	48	ug/L		11/23/22 08:00	12/01/22 22:17	1
C24-C40	R ND	<del></del>	260	110	ug/L		11/23/22 08:00	12/01/22 22:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	68		50 - 150				11/23/22 08:00	12/01/22 22:17	1

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	570	<del>H cn</del>	550	250	ug/L			11/14/22 23:06	5
Sulfate	19000		7500	2500	ug/L			11/14/22 23:06	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5.8		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 16:44	1

**Client Sample ID: DUP-3-WD-221110**

**Lab Sample ID: 410-105564-14**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/22/22 00:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	96		80 - 120					11/22/22 00:33	1
<i>4-Bromofluorobenzene (Surr)</i>	97		80 - 120					11/22/22 00:33	1
<i>Dibromofluoromethane (Surr)</i>	104		80 - 120					11/22/22 00:33	1
<i>Toluene-d8 (Surr)</i>	95		80 - 120					11/22/22 00:33	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[a]pyrene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[b]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Benzo[k]fluoranthene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Chrysene	ND	UJ	0.055	0.011	ug/L		11/17/22 15:31	11/18/22 19:30	1
Dibenz(a,h)anthracene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:31	11/18/22 19:30	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.055	0.022	ug/L		11/17/22 15:31	11/18/22 19:30	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: DUP-3-WD-221110**

**Lab Sample ID: 410-105564-14**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110	11/17/22 15:31	11/18/22 19:30	1
1-Methylnaphthalene-d10 (Surr)	171	S1+	36 - 111	11/17/22 15:31	11/18/22 19:30	1
Fluoranthene-d10 (Surr)	95		47 - 128	11/17/22 15:31	11/18/22 19:30	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1400	J	250	43	ug/L			11/19/22 02:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/19/22 02:26	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800	E cn EJ	5.0	3.0	ug/L		11/18/22 12:29	11/21/22 13:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53	cn	43 - 133	11/18/22 12:29	11/21/22 13:59	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	67	J * 1 cn	J 110	50	ug/L		11/23/22 08:00	12/01/22 22:41	1
C24-C40	R ND		200	110	ug/L		11/23/22 08:00	12/01/22 22:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	79		50 - 150	11/23/22 08:00	12/01/22 22:41	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	H H3 UJ	550	250	ug/L			11/12/22 18:36	5
Sulfate	ND	UJ	7500	2500	ug/L			11/12/22 18:36	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	9900		10	4.9	ug/L		12/08/22 14:16	12/13/22 17:44	5

**Client Sample ID: DUP-4-WD-221110**

**Lab Sample ID: 410-105564-15**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/22/22 00:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/22/22 00:56	1
4-Bromofluorobenzene (Surr)	95		80 - 120		11/22/22 00:56	1
Dibromofluoromethane (Surr)	104		80 - 120		11/22/22 00:56	1
Toluene-d8 (Surr)	94		80 - 120		11/22/22 00:56	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Benzo[a]pyrene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: DUP-4-WD-221110**

**Lab Sample ID: 410-105564-15**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Benzo[k]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Chrysene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 19:52	1
Dibenz(a,h)anthracene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:31	11/18/22 19:52	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:31	11/18/22 19:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	56		10 - 110				11/17/22 15:31	11/18/22 19:52	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111				11/17/22 15:31	11/18/22 19:52	1
Fluoranthene-d10 (Surr)	85		47 - 128				11/17/22 15:31	11/18/22 19:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>730</b>	<b>J</b>	250	43	ug/L			11/19/22 02:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150					11/19/22 02:52	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>640</b>	<del>E cn</del> <b>EJ</b>	5.0	3.0	ug/L		11/18/22 12:29	11/21/22 14:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	43	cn	43 - 133				11/18/22 12:29	11/21/22 14:17	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>61</b>	<del>J * 1 cn</del> <b>J</b>	110	49	ug/L		11/23/22 08:00	12/01/22 23:03	1
C24-C40	<b>R</b> ND		270	110	ug/L		11/23/22 08:00	12/01/22 23:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	76		50 - 150				11/23/22 08:00	12/01/22 23:03	1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>HH</del> <b>UJ</b>	550	250	ug/L			11/12/22 18:25	5
<b>Sulfate</b>	<b>30000</b>	<b>J</b>	7500	2500	ug/L			11/12/22 18:25	5

## Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>260</b>		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:15	1

**Client Sample ID: QA-T-W-221110**

**Lab Sample ID: 410-105564-16**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	<b>UJ</b>	1.0	0.30	ug/L			11/21/22 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/21/22 18:09	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: QA-T-W-221110**

**Lab Sample ID: 410-105564-16**

Date Collected: 11/10/22 00:00

Matrix: Water

Date Received: 11/12/22 09:34

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		80 - 120		11/21/22 18:09	1
Dibromofluoromethane (Surr)	104		80 - 120		11/21/22 18:09	1
Toluene-d8 (Surr)	94		80 - 120		11/21/22 18:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/16/22 13:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/16/22 13:52	1

**Client Sample ID: MW-522-W-221110**

**Lab Sample ID: 410-105564-17**

Date Collected: 11/10/22 13:35

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	UJ	1.0	0.30	ug/L			11/22/22 01:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/22/22 01:20	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/22/22 01:20	1
Dibromofluoromethane (Surr)	105		80 - 120		11/22/22 01:20	1
Toluene-d8 (Surr)	94		80 - 120		11/22/22 01:20	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[a]pyrene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[b]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Benzo[k]fluoranthene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Chrysene	ND	UJ	0.054	0.011	ug/L		11/17/22 15:31	11/18/22 20:13	1
Dibenz(a,h)anthracene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:31	11/18/22 20:13	1
Indeno[1,2,3-cd]pyrene	ND	UJ	0.054	0.022	ug/L		11/17/22 15:31	11/18/22 20:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	11/17/22 15:31	11/18/22 20:13	1
1-Methylnaphthalene-d10 (Surr)	72		36 - 111	11/17/22 15:31	11/18/22 20:13	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/17/22 15:31	11/18/22 20:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	UJ	250	43	ug/L			11/21/22 17:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/21/22 17:38	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	en UJ	5.0	3.0	ug/L		11/18/22 12:19	11/18/22 20:50	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-105564-1

**Client Sample ID: MW-522-W-221110**

**Lab Sample ID: 410-105564-17**

Date Collected: 11/10/22 13:35

Matrix: Water

Date Received: 11/12/22 09:34

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	0	S1- cn	43 - 133	11/18/22 12:19	11/18/22 20:50	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>ND</del>	<del>* *1 cn</del>	<del>110</del>	<del>50</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 23:26	1
C24-C40	<del>ND</del>	<del></del>	<del>280</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 23:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o- terphenyl (Surr)	71		50 - 150	11/23/22 08:00	12/01/22 23:26	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	<del>en</del> UJ	550	250	ug/L			11/12/22 18:03	5
Sulfate	240000	J	30000	10000	ug/L			11/14/22 22:55	20

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		12/08/22 14:16	12/13/22 17:00	1

Chain of Custody Record



410-105565 Chain of Custody

<b>Client Information</b>		Sampler: * SAVANNAH GREEN		Lab PM:		COC No:	
Client Contact:		Phone:		E-Mail:		Page: Page 1 of 1	
Company: Arcadis		PWSID:		Analysis Requested: WA		Job #:	
Address: 1100 Olive Way		Due Date Requested:		Analysis Requested 3270D SIM - CPAM SIM 8360D - Benzene 200.8 - Manganese 300-OR GFM - 280-SUB NWT PH-0x w/ SG NWT PH-Gx RSL-175 - Methane		Preservation Codes: A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate              O - AsNaO2 D - Nitric Acid              P - Na2O4S E - NaHSO4                  Q - Na2SO3 F - MeOH                     R - Na2S03 G - Amchlor                 S - H2SO4 H - Ascorbic Acid          T - TSP Dodecahydrate I - Ice                         U - Acetone J - DI Water                 V - MCAA K - EDTA                     W - pH 4-5 L - EDA                        Z - other (specify):  Other:	
City: Seattle		TAT Requested (days):					
State, Zip: WA 98101		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Phone:		PO #:					
Email:		Purchase Order not required					
Project Name: Former Edmonds Terminal		Project #:		WO #:		Total Number of Containers	
Site: 11720 Unow Rd, Edmonds, WA		SSOW#:					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Other)	Field Filtered Sample (Yes or No)	Special Instructions/Note:
MW-20R		11/11/22	11:30	G	W	X	
Possible Hazard Identification		Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Special Instructions/QC Requirements:	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For    Months			
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Savannah Green		Date/Time: 11/11/22 12:30		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 31/2.0		11/12/22 9:24 EJET	

\* Field sampler Added - LA= 1779 12/1/2022





# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Date Collected: 11/11/22 11:30

Matrix: Water

Date Received: 11/12/22 09:34

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/22/22 18:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/22/22 18:36	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/22/22 18:36	1
Dibromofluoromethane (Surr)	102		80 - 120					11/22/22 18:36	1
Toluene-d8 (Surr)	95		80 - 120					11/22/22 18:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Chrysene	ND		0.055	0.011	ug/L		11/18/22 16:15	11/21/22 20:45	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/18/22 16:15	11/21/22 20:45	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/18/22 16:15	11/21/22 20:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	36		10 - 110				11/18/22 16:15	11/21/22 20:45	1
1-Methylnaphthalene-d10 (Surr)	73		36 - 111				11/18/22 16:15	11/21/22 20:45	1
Fluoranthene-d10 (Surr)	90		47 - 128				11/18/22 16:15	11/21/22 20:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 15:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/15/22 15:35	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	41		5.0	3.0	ug/L		11/22/22 09:55	11/22/22 15:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133				11/22/22 09:55	11/22/22 15:37	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	48	ug/L		11/25/22 07:39	12/05/22 18:00	1
C24-C40	ND	cn	270	110	ug/L		11/25/22 07:39	12/05/22 18:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Decanoic Acid (Surr)	0.02	cn	0 - 1				11/25/22 07:39	12/05/22 18:00	1
o-terphenyl (Surr)	65	cn	50 - 150				11/25/22 07:39	12/05/22 18:00	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	5500	2500	ug/L			11/12/22 19:09	50
Sulfate	1200000		750000	250000	ug/L			11/12/22 19:20	500

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105565-1

**Client Sample ID: MW-20R-GW-221111**

**Lab Sample ID: 410-105565-1**

Date Collected: 11/11/22 11:30

Matrix: Water

Date Received: 11/12/22 09:34

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	180		2.1	0.98	ug/L		12/08/22 14:21	12/12/22 19:01	1

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



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

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## JOB DESCRIPTION

Edmonds Terminal

## JOB NUMBER

410-104778-1

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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Authorized for release by  
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## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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## Job ID: 410-104778-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

#### Job Narrative 410-104778-1

#### Receipt

The samples were received on 11/8/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.0°C and 3.2°C

#### Receipt Exceptions

The container count for the following sample did not match what was listed on the Chain-of-Custody (COC): QA-T-221107 (410-104778-9). The laboratory received 4 total containers, while the COC lists 8 total containers.

One or more containers for the following sample was received broken or leaking: MW-506-W-221107 (410-104778-3).

One HCl preserved 40mL vial broken upon receipt.

One or more containers for the following sample was received broken or leaking: MW-515-W-221107 (410-104778-6).

Two HCl preserved 40mL vials received broken.

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC VOA

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

#### GC Semi VOA

Method NWTPH\_Dx: Surrogate recovery for the following samples was below the lower control limit: MW-506-W-221107 (410-104778-3) and MW-509-W-221107 (410-104778-5). This sample did not contain any target analytes. Re-extraction could not be performed within the method required holding time, therefore the data is reported.

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

#### HPLC/IC

Method 300\_ORGFMS: The following sample was diluted due to the nature of the sample matrix: MW-505-W-221107 (410-104778-2) at 10.0. Elevated reporting limits (RLs) are provided.

Method 300\_ORGFMS: The following samples were diluted due to the nature of the sample matrix: MW-509-W-221107 (410-104778-5), MW-515-W-221107 (410-104778-6), MW-516-W-221107 (410-104778-7) and MW-517-W-221107 (410-104778-8) at 10.0, 10.0, 10.0 and 10.0. Elevated reporting limits (RLs) are provided.

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

#### Metals

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



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Client Sample ID: MW-504-W-221107

Lab Sample ID: 410-104778-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	980		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	44000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	2.7		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-505-W-221107

Lab Sample ID: 410-104778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	1200		25	15	ug/L	5		RSK-175	Total/NA
Sulfate	110000		15000	5000	ug/L	10		EPA 300.0 R2.1	Total/NA
Manganese	830		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-506-W-221107

Lab Sample ID: 410-104778-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	6000		100	60	ug/L	20		RSK-175	Total/NA
Sulfate	22000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	4800		21	9.8	ug/L	10		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-507-W-221107

Lab Sample ID: 410-104778-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	4.7	J	5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	250	J	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	120000		15000	5000	ug/L	10		EPA 300.0 R2.1	Total/NA
Manganese	12		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-509-W-221107

Lab Sample ID: 410-104778-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	10		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	1300000		150000	50000	ug/L	100		EPA 300.0 R2.1	Total/NA
Manganese	1100		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-515-W-221107

Lab Sample ID: 410-104778-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	100		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	190000		30000	10000	ug/L	20		EPA 300.0 R2.1	Total/NA
Manganese	320		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-516-W-221107

Lab Sample ID: 410-104778-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	100		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	86000		15000	5000	ug/L	10		EPA 300.0 R2.1	Total/NA
Manganese	730		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-517-W-221107

Lab Sample ID: 410-104778-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	43	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	120		5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	670	J cn	1100	500	ug/L	10		EPA 300.0 R2.1	Total/NA
Sulfate	96000		15000	5000	ug/L	10		EPA 300.0 R2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Client Sample ID: MW-517-W-221107 (Continued)

Lab Sample ID: 410-104778-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese	1100		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-221107

Lab Sample ID: 410-104778-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	48	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-504-W-221107**

**Lab Sample ID: 410-104778-1**

Date Collected: 11/07/22 14:00

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/14/22 17:03	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/14/22 17:03	1
Dibromofluoromethane (Surr)	101		80 - 120					11/14/22 17:03	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 17:03	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Chrysene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/14/22 07:49	11/15/22 10:17	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/14/22 07:49	11/15/22 10:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110				11/14/22 07:49	11/15/22 10:17	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				11/14/22 07:49	11/15/22 10:17	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/14/22 07:49	11/15/22 10:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 17:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 17:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 21:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133				11/09/22 11:15	11/09/22 21:39	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 13:56	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 13:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	53		50 - 150				11/21/22 09:12	11/28/22 13:56	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	980		550	250	ug/L			11/09/22 00:51	5
Sulfate	44000		7500	2500	ug/L			11/09/22 00:51	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Client Sample ID: MW-504-W-221107

Lab Sample ID: 410-104778-1

Date Collected: 11/07/22 14:00

Matrix: Water

Date Received: 11/08/22 10:20

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.7		2.1	0.98	ug/L		11/07/22 12:55	11/16/22 16:27	1

## Client Sample ID: MW-505-W-221107

Lab Sample ID: 410-104778-2

Date Collected: 11/07/22 12:30

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/14/22 17:27	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/14/22 17:27	1
Dibromofluoromethane (Surr)	101		80 - 120		11/14/22 17:27	1
Toluene-d8 (Surr)	95		80 - 120		11/14/22 17:27	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Chrysene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 10:38	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 10:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	23		10 - 110	11/14/22 07:49	11/15/22 10:38	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	11/14/22 07:49	11/15/22 10:38	1
Fluoranthene-d10 (Surr)	88		47 - 128	11/14/22 07:49	11/15/22 10:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/11/22 17:53	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	1200		25	15	ug/L		11/10/22 08:10	11/10/22 12:43	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	88		43 - 133	11/10/22 08:10	11/10/22 12:43	5

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	53	ug/L		11/21/22 09:12	11/28/22 14:41	1
C24-C40	ND		290	120	ug/L		11/21/22 09:12	11/28/22 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	59		50 - 150	11/21/22 09:12	11/28/22 14:41	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-505-W-221107**

**Lab Sample ID: 410-104778-2**

Date Collected: 11/07/22 12:30

Matrix: Water

Date Received: 11/08/22 10:20

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	1100	500	ug/L			11/09/22 01:02	10
<b>Sulfate</b>	<b>110000</b>		15000	5000	ug/L			11/09/22 01:02	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>830</b>		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:16	1

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:51	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/14/22 17:51	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/14/22 17:51	1
Dibromofluoromethane (Surr)	103		80 - 120					11/14/22 17:51	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 17:51	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Chrysene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		11/14/22 07:49	11/15/22 10:59	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		11/14/22 07:49	11/15/22 10:59	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				11/14/22 07:49	11/15/22 10:59	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/14/22 07:49	11/15/22 10:59	1
Fluoranthene-d10 (Surr)	75		47 - 128				11/14/22 07:49	11/15/22 10:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 18:19	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 18:19	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>6000</b>		100	60	ug/L		11/10/22 08:10	11/10/22 13:00	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	98		43 - 133				11/10/22 08:10	11/10/22 13:00	20

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	100	47	ug/L		11/21/22 09:12	11/28/22 15:04	1
C24-C40	ND	cn	260	100	ug/L		11/21/22 09:12	11/28/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	48	S1- cn	50 - 150				11/21/22 09:12	11/28/22 15:04	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/09/22 01:13	5
Sulfate	22000		7500	2500	ug/L			11/09/22 01:13	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	4800		21	9.8	ug/L		11/14/22 14:06	11/30/22 09:38	10

**Client Sample ID: MW-507-W-221107**

**Lab Sample ID: 410-104778-4**

Date Collected: 11/07/22 12:26

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 18:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d</i> 4 (Surr)	97		80 - 120					11/14/22 18:15	1
<i>4</i> -Bromofluorobenzene (Surr)	92		80 - 120					11/14/22 18:15	1
<i>Dibromofluoromethane</i> (Surr)	102		80 - 120					11/14/22 18:15	1
<i>Toluene-d</i> 8 (Surr)	96		80 - 120					11/14/22 18:15	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Chrysene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/14/22 07:49	11/15/22 11:21	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/14/22 07:49	11/15/22 11:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d</i> 12 (Surr)	63		10 - 110				11/14/22 07:49	11/15/22 11:21	1
<i>1-Methylnaphthalene-d</i> 10 (Surr)	64		36 - 111				11/14/22 07:49	11/15/22 11:21	1
<i>Fluoranthene-d</i> 10 (Surr)	75		47 - 128				11/14/22 07:49	11/15/22 11:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	101		50 - 150					11/11/22 18:45	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-507-W-221107**

**Lab Sample ID: 410-104778-4**

Date Collected: 11/07/22 12:26

Matrix: Water

Date Received: 11/08/22 10:20

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4.7	J	5.0	3.0	ug/L		11/09/22 11:15	11/09/22 22:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	71		43 - 133				11/09/22 11:15	11/09/22 22:33	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		11/21/22 09:12	11/28/22 15:27	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 15:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150				11/21/22 09:12	11/28/22 15:27	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	250	J	550	250	ug/L			11/09/22 11:04	5
Sulfate	120000		15000	5000	ug/L			11/12/22 22:17	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	12		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:06	1

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 18:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/14/22 18:39	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/14/22 18:39	1
Dibromofluoromethane (Surr)	101		80 - 120					11/14/22 18:39	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 18:39	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Chrysene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		11/14/22 07:49	11/15/22 11:42	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		11/14/22 07:49	11/15/22 11:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	10		10 - 110				11/14/22 07:49	11/15/22 11:42	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111				11/14/22 07:49	11/15/22 11:42	1
Fluoranthene-d10 (Surr)	86		47 - 128				11/14/22 07:49	11/15/22 11:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 19:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/11/22 19:11	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	10		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 22:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/09/22 11:15	11/09/22 22:51	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	100	47	ug/L		11/21/22 09:12	11/28/22 16:13	1
C24-C40	ND	cn	260	100	ug/L		11/21/22 09:12	11/28/22 16:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	45	S1- cn	50 - 150				11/21/22 09:12	11/28/22 16:13	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	1100	500	ug/L			11/09/22 10:42	10
Sulfate	1300000		150000	50000	ug/L			11/15/22 00:45	100

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1100		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:23	1

**Client Sample ID: MW-515-W-221107**

**Lab Sample ID: 410-104778-6**

Date Collected: 11/07/22 10:52

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					11/14/22 19:03	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 19:03	1
Dibromofluoromethane (Surr)	104		80 - 120					11/14/22 19:03	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 19:03	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Chrysene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 12:03	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 12:03	1

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-515-W-221107**

**Lab Sample ID: 410-104778-6**

Date Collected: 11/07/22 10:52

Matrix: Water

Date Received: 11/08/22 10:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	22		10 - 110	11/14/22 07:49	11/15/22 12:03	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	11/14/22 07:49	11/15/22 12:03	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/14/22 07:49	11/15/22 12:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 19:37	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	100		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133	11/09/22 11:15	11/09/22 23:09	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 16:36	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150	11/21/22 09:12	11/28/22 16:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	1100	500	ug/L			11/09/22 11:15	10
Sulfate	190000		30000	10000	ug/L			11/14/22 21:23	20

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	320		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:38	1

**Client Sample ID: MW-516-W-221107**

**Lab Sample ID: 410-104778-7**

Date Collected: 11/07/22 10:50

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/14/22 19:27	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/14/22 19:27	1
Dibromofluoromethane (Surr)	103		80 - 120		11/14/22 19:27	1
Toluene-d8 (Surr)	95		80 - 120		11/14/22 19:27	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Benzo[a]pyrene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-516-W-221107**

**Lab Sample ID: 410-104778-7**

Date Collected: 11/07/22 10:50

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Benzo[k]fluoranthene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Chrysene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Dibenz(a,h)anthracene	ND		0.060	0.024	ug/L		11/14/22 07:49	11/15/22 12:25	1
Indeno[1,2,3-cd]pyrene	ND		0.060	0.024	ug/L		11/14/22 07:49	11/15/22 12:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	21		10 - 110				11/14/22 07:49	11/15/22 12:25	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111				11/14/22 07:49	11/15/22 12:25	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/14/22 07:49	11/15/22 12:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 20:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 20:03	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	100		5.0	3.0	ug/L		11/09/22 11:17	11/09/22 14:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/09/22 11:17	11/09/22 14:04	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	50	ug/L		11/21/22 09:12	11/28/22 16:59	1
C24-C40	ND		280	110	ug/L		11/21/22 09:12	11/28/22 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	58		50 - 150				11/21/22 09:12	11/28/22 16:59	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	1100	500	ug/L			11/09/22 10:53	10
Sulfate	86000		15000	5000	ug/L			11/09/22 10:53	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	730		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:40	1

**Client Sample ID: MW-517-W-221107**

**Lab Sample ID: 410-104778-8**

Date Collected: 11/07/22 11:10

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 19:51	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-517-W-221107**

**Lab Sample ID: 410-104778-8**

Date Collected: 11/07/22 11:10

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		80 - 120		11/14/22 19:51	1
Dibromofluoromethane (Surr)	102		80 - 120		11/14/22 19:51	1
Toluene-d8 (Surr)	96		80 - 120		11/14/22 19:51	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Chrysene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		11/14/22 07:49	11/15/22 12:46	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		11/14/22 07:49	11/15/22 12:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	13		10 - 110	11/14/22 07:49	11/15/22 12:46	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111	11/14/22 07:49	11/15/22 12:46	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/14/22 07:49	11/15/22 12:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	43	J	250	43	ug/L			11/15/22 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/15/22 20:18	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	120		5.0	3.0	ug/L		11/09/22 11:17	11/09/22 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133	11/09/22 11:17	11/09/22 14:19	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 17:22	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 17:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150	11/21/22 09:12	11/28/22 17:22	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	670	J cn	1100	500	ug/L			11/09/22 12:10	10
Sulfate	96000		15000	5000	ug/L			11/09/22 12:10	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1100		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: QA-T-221107**

**Lab Sample ID: 410-104778-9**

Date Collected: 11/07/22 00:00

Matrix: Water

Date Received: 11/08/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 15:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 15:51	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 15:51	1
Dibromofluoromethane (Surr)	99		80 - 120					11/14/22 15:51	1
Toluene-d8 (Surr)	97		80 - 120					11/14/22 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>48</b>	<b>J</b>	250	43	ug/L			11/11/22 17:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					11/11/22 17:01	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-104778-1	MW-504-W-221107	97	93	101	95
410-104778-2	MW-505-W-221107	96	93	101	95
410-104778-3	MW-506-W-221107	95	92	103	95
410-104778-4	MW-507-W-221107	97	92	102	96
410-104778-5	MW-509-W-221107	97	93	101	95
410-104778-6	MW-515-W-221107	98	94	104	95
410-104778-7	MW-516-W-221107	98	92	103	95
410-104778-8	MW-517-W-221107	96	93	102	96
410-104778-9	QA-T-221107	96	94	99	97
LCS 410-317288/4	Lab Control Sample	99	97	102	96
LCSD 410-317288/5	Lab Control Sample Dup	98	96	102	97
MB 410-317288/6	Method Blank	96	94	100	97

**Surrogate Legend**

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

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-104778-1	MW-504-W-221107	71	76	87
410-104778-2	MW-505-W-221107	23	76	88
410-104778-3	MW-506-W-221107	65	77	75
410-104778-4	MW-507-W-221107	63	64	75
410-104778-5	MW-509-W-221107	10	75	86
410-104778-6	MW-515-W-221107	22	76	89
410-104778-7	MW-516-W-221107	21	74	87
410-104778-8	MW-517-W-221107	13	75	86
LCS 410-317124/2-A	Lab Control Sample	83	76	82
MB 410-317124/1-A	Method Blank	66	68	70

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-104778-1	MW-504-W-221107	99
410-104778-2	MW-505-W-221107	100
410-104778-3	MW-506-W-221107	99
410-104778-4	MW-507-W-221107	101

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## Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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

Matrix: Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TFT-F1 (50-150)
410-104778-5	MW-509-W-221107	100
410-104778-6	MW-515-W-221107	101
410-104778-7	MW-516-W-221107	99
410-104778-8	MW-517-W-221107	101
410-104778-9	QA-T-221107	101
LCS 410-316365/7	Lab Control Sample	89
LCS 410-317459/5	Lab Control Sample	85
LCSD 410-316365/8	Lab Control Sample Dup	88
LCSD 410-317459/6	Lab Control Sample Dup	86
MB 410-316365/4	Method Blank	101
MB 410-317459/9	Method Blank	100

#### Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)

### Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Propene1 (43-133)
410-104778-1	MW-504-W-221107	57
410-104778-2	MW-505-W-221107	88
410-104778-3	MW-506-W-221107	98
410-104778-4	MW-507-W-221107	71
410-104778-5	MW-509-W-221107	56
410-104778-6	MW-515-W-221107	52
410-104778-7	MW-516-W-221107	56
410-104778-8	MW-517-W-221107	57
LCS 410-315663/2-A	Lab Control Sample	105
LCS 410-315664/2-A	Lab Control Sample	119
LCS 410-316049/2-A	Lab Control Sample	105
LCSD 410-315663/3-A	Lab Control Sample Dup	101
LCSD 410-315664/3-A	Lab Control Sample Dup	108
LCSD 410-316049/3-A	Lab Control Sample Dup	102
MB 410-315663/1-A	Method Blank	105
MB 410-315664/1-A	Method Blank	109
MB 410-316049/1-A	Method Blank	101

#### Surrogate Legend

Propene = Propene

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-104778-1	MW-504-W-221107	53
410-104778-1 DU	MW-504-W-221107	35 S1-
410-104778-2	MW-505-W-221107	59
410-104778-3	MW-506-W-221107	48 S1- cn

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# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-104778-4	MW-507-W-221107	64
410-104778-5	MW-509-W-221107	45 S1- cn
410-104778-6	MW-515-W-221107	64
410-104778-7	MW-516-W-221107	58
410-104778-8	MW-517-W-221107	63
LCS 410-319383/2-B	Lab Control Sample	69
LCSD 410-319383/3-B	Lab Control Sample Dup	61
MB 410-319383/1-B	Method Blank	67

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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

**Lab Sample ID: MB 410-317288/6**  
**Matrix: Water**  
**Analysis Batch: 317288**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 15:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 15:27	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 15:27	1
Dibromofluoromethane (Surr)	100		80 - 120					11/14/22 15:27	1
Toluene-d8 (Surr)	97		80 - 120					11/14/22 15:27	1

**Lab Sample ID: LCS 410-317288/4**  
**Matrix: Water**  
**Analysis Batch: 317288**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	20.6		ug/L		103	80 - 120	
Surrogate	%Recovery	Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					
4-Bromofluorobenzene (Surr)	97		80 - 120					
Dibromofluoromethane (Surr)	102		80 - 120					
Toluene-d8 (Surr)	96		80 - 120					

**Lab Sample ID: LCSD 410-317288/5**  
**Matrix: Water**  
**Analysis Batch: 317288**

**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	20.0	20.4		ug/L		102	80 - 120	1	30
Surrogate	%Recovery	Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		80 - 120						
4-Bromofluorobenzene (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	97		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-317124/1-A**  
**Matrix: Water**  
**Analysis Batch: 317500**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 317124**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/14/22 07:49	11/15/22 05:57	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/14/22 07:49	11/15/22 05:57	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/14/22 07:49	11/15/22 05:57	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/14/22 07:49	11/15/22 05:57	1
Chrysene	ND		0.050	0.010	ug/L		11/14/22 07:49	11/15/22 05:57	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/14/22 07:49	11/15/22 05:57	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/14/22 07:49	11/15/22 05:57	1

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	66		10 - 110	11/14/22 07:49	11/15/22 05:57	1
1-Methylnaphthalene-d10 (Surr)	68		36 - 111	11/14/22 07:49	11/15/22 05:57	1
Fluoranthene-d10 (Surr)	70		47 - 128	11/14/22 07:49	11/15/22 05:57	1

Lab Sample ID: LCS 410-317124/2-A  
Matrix: Water  
Analysis Batch: 317500

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 317124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Benzo[a]anthracene	1.00	0.790		ug/L		79	61 - 122	
Benzo[a]pyrene	1.00	0.793		ug/L		79	60 - 120	
Benzo[b]fluoranthene	1.00	0.762		ug/L		76	58 - 122	
Benzo[k]fluoranthene	1.00	0.837		ug/L		84	57 - 128	
Chrysene	1.00	0.825		ug/L		83	55 - 123	
Dibenz(a,h)anthracene	1.00	0.569		ug/L		57	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.605		ug/L		60	47 - 143	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	83		10 - 110
1-Methylnaphthalene-d10 (Surr)	76		36 - 111
Fluoranthene-d10 (Surr)	82		47 - 128

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

Lab Sample ID: MB 410-316365/4  
Matrix: Water  
Analysis Batch: 316365

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 14:52	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 14:52	1

Lab Sample ID: LCS 410-316365/7  
Matrix: Water  
Analysis Batch: 316365

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
a,a,a-Trifluorotoluene (fid) (1C)	89		50 - 150

Lab Sample ID: LCSD 410-316365/8  
Matrix: Water  
Analysis Batch: 316365

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits		RPD	Limit
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131	0	30	

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

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

**Lab Sample ID: LCSD 410-316365/8**  
**Matrix: Water**  
**Analysis Batch: 316365**

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

	LCSD	LCSD	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	88		50 - 150

**Lab Sample ID: MB 410-317459/9**  
**Matrix: Water**  
**Analysis Batch: 317459**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 13:53	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100		50 - 150					11/15/22 13:53	1

**Lab Sample ID: LCS 410-317459/5**  
**Matrix: Water**  
**Analysis Batch: 317459**

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

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
	Added	Result	Qualifier				Limits	
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>					
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	85		50 - 150					

**Lab Sample ID: LCSD 410-317459/6**  
**Matrix: Water**  
**Analysis Batch: 317459**

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

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier				Limits	RPD	Limit	
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131	5	30	
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>							
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	86		50 - 150							

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 410-315663/1-A**  
**Matrix: Water**  
**Analysis Batch: 315570**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315663**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 17:43	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Propene (1C)</i>	105		43 - 133				11/09/22 11:15	11/09/22 17:43	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCS 410-315663/2-A**  
**Matrix: Water**  
**Analysis Batch: 315570**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315663**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	65.0		ug/L		109	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	105		43 - 133				

**Lab Sample ID: LCSD 410-315663/3-A**  
**Matrix: Water**  
**Analysis Batch: 315570**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 315663**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	63.9		ug/L		107	85 - 115	2	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	101		43 - 133						

**Lab Sample ID: MB 410-315664/1-A**  
**Matrix: Water**  
**Analysis Batch: 315574**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315664**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/09/22 11:17	11/09/22 13:10	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	109		43 - 133				11/09/22 11:17	11/09/22 13:10	1

**Lab Sample ID: LCS 410-315664/2-A**  
**Matrix: Water**  
**Analysis Batch: 315574**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315664**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	62.5		ug/L		105	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	119		43 - 133				

**Lab Sample ID: LCSD 410-315664/3-A**  
**Matrix: Water**  
**Analysis Batch: 315574**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 315664**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	62.8		ug/L		105	85 - 115	0	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	108		43 - 133						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: MB 410-316049/1-A**  
**Matrix: Water**  
**Analysis Batch: 316102**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 316049**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 08:10	11/10/22 08:26	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	101		43 - 133				11/10/22 08:10	11/10/22 08:26	1

**Lab Sample ID: LCS 410-316049/2-A**  
**Matrix: Water**  
**Analysis Batch: 316102**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 316049**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Methane (1C)	59.8	66.7		ug/L		112	85 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Propene (1C)	105		43 - 133					

**Lab Sample ID: LCSD 410-316049/3-A**  
**Matrix: Water**  
**Analysis Batch: 316102**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 316049**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	65.7		ug/L		110	85 - 115	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Propene (1C)	102		43 - 133						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-319383/1-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		11/21/22 09:12	11/28/22 12:47	1
C24-C40	ND		250	100	ug/L		11/21/22 09:12	11/28/22 12:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	67		50 - 150				11/21/22 09:12	11/28/22 12:47	1

**Lab Sample ID: LCS 410-319383/2-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
C12-C24	600	163		ug/L		27	14 - 115	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
o-terphenyl (Surr)	69		50 - 150					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

**Lab Sample ID: LCSD 410-319383/3-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	159		ug/L		26	14 - 115	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	61		50 - 150						

**Lab Sample ID: 410-104778-1 DU**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: MW-504-W-221107**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>DU Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	35	S1-	50 - 150					

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-315381/5**  
**Matrix: Water**  
**Analysis Batch: 315381**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/08/22 20:49	1

**Lab Sample ID: LCS 410-315381/3**  
**Matrix: Water**  
**Analysis Batch: 315381**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	715		ug/L		95	90 - 110

**Lab Sample ID: LCSD 410-315381/4**  
**Matrix: Water**  
**Analysis Batch: 315381**

**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
Nitrogen, Nitrate	750	718		ug/L		96	90 - 110	0	20

**Lab Sample ID: MB 410-315382/5**  
**Matrix: Water**  
**Analysis Batch: 315382**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/08/22 20:49	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 410-315382/3**  
**Matrix: Water**  
**Analysis Batch: 315382**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7390		ug/L		98	90 - 110

**Lab Sample ID: LCSD 410-315382/4**  
**Matrix: Water**  
**Analysis Batch: 315382**

**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
Sulfate	7500	7420		ug/L		99	90 - 110	0	20

**Lab Sample ID: MB 410-315400/21**  
**Matrix: Water**  
**Analysis Batch: 315400**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/09/22 13:05	1

**Lab Sample ID: LCS 410-315400/19**  
**Matrix: Water**  
**Analysis Batch: 315400**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	692		ug/L		92	90 - 110

**Lab Sample ID: LCSD 410-315400/20**  
**Matrix: Water**  
**Analysis Batch: 315400**

**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
Nitrogen, Nitrate	750	691		ug/L		92	90 - 110	0	20

**Lab Sample ID: 410-104778-6 MS**  
**Matrix: Water**  
**Analysis Batch: 315400**

**Client Sample ID: MW-515-W-221107**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	cn	5000	5070		ug/L		101	90 - 110

**Lab Sample ID: 410-104778-6 DU**  
**Matrix: Water**  
**Analysis Batch: 315400**

**Client Sample ID: MW-515-W-221107**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	cn	ND		ug/L		NC	15

**Lab Sample ID: MB 410-315401/21**  
**Matrix: Water**  
**Analysis Batch: 315401**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/09/22 13:05	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID:** LCS 410-315401/19  
**Matrix:** Water  
**Analysis Batch:** 315401

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7180		ug/L		96	90 - 110

**Lab Sample ID:** LCSD 410-315401/20  
**Matrix:** Water  
**Analysis Batch:** 315401

**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
Sulfate	7500	7180		ug/L		96	90 - 110	0	20

**Lab Sample ID:** MB 410-317428/5  
**Matrix:** Water  
**Analysis Batch:** 317428

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/14/22 19:04	1

**Lab Sample ID:** LCS 410-317428/3  
**Matrix:** Water  
**Analysis Batch:** 317428

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7520		ug/L		100	90 - 110

**Lab Sample ID:** LCSD 410-317428/4  
**Matrix:** Water  
**Analysis Batch:** 317428

**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
Sulfate	7500	7540		ug/L		101	90 - 110	0	20

**Lab Sample ID:** MB 410-317468/5  
**Matrix:** Water  
**Analysis Batch:** 317468

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/14/22 20:57	1

**Lab Sample ID:** LCS 410-317468/3  
**Matrix:** Water  
**Analysis Batch:** 317468

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	8000		ug/L		107	90 - 110

**Lab Sample ID:** LCSD 410-317468/4  
**Matrix:** Water  
**Analysis Batch:** 317468

**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
Sulfate	7500	7910		ug/L		105	90 - 110	1	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-317634/16**  
**Matrix: Water**  
**Analysis Batch: 317634**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/12/22 20:16	1

**Lab Sample ID: LCS 410-317634/14**  
**Matrix: Water**  
**Analysis Batch: 317634**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7180		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-317634/15**  
**Matrix: Water**  
**Analysis Batch: 317634**

**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
Sulfate	7500	7180		ug/L		96	90 - 110	0	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-314760/1-A**  
**Matrix: Water**  
**Analysis Batch: 317956**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 314760**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/07/22 12:55	11/15/22 17:52	1

**Lab Sample ID: MB 410-314760/1-A**  
**Matrix: Water**  
**Analysis Batch: 318433**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 314760**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/07/22 12:55	11/16/22 16:19	1

**Lab Sample ID: LCS 410-314760/2-A**  
**Matrix: Water**  
**Analysis Batch: 317956**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 314760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	524		ug/L		105	85 - 115

**Lab Sample ID: LCS 410-314760/2-A**  
**Matrix: Water**  
**Analysis Batch: 318433**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 314760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	507		ug/L		101	85 - 115



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 410-317329/1-A**  
**Matrix: Water**  
**Analysis Batch: 320809**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 317329**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 16:52	1

**Lab Sample ID: LCS 410-317329/2-A**  
**Matrix: Water**  
**Analysis Batch: 320809**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 317329**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	508		ug/L		102	85 - 115

**Lab Sample ID: 410-104778-1 MS**  
**Matrix: Water**  
**Analysis Batch: 318433**

**Client Sample ID: MW-504-W-221107**  
**Prep Type: Dissolved**  
**Prep Batch: 314760**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	2.37		500	523		ug/L		104	70 - 130

**Lab Sample ID: 410-104778-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 318433**

**Client Sample ID: MW-504-W-221107**  
**Prep Type: Dissolved**  
**Prep Batch: 314760**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Manganese	2.37		500	524		ug/L		104	70 - 130	0	20

**Lab Sample ID: 410-104778-R-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 318433**

**Client Sample ID: 410-104778-R-1-A DU**  
**Prep Type: Dissolved**  
**Prep Batch: 314760**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Manganese	2.7		2.37		ug/L		13	20

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## GC/MS VOA

### Analysis Batch: 317288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	8260D/UST	
410-104778-2	MW-505-W-221107	Total/NA	Water	8260D/UST	
410-104778-3	MW-506-W-221107	Total/NA	Water	8260D/UST	
410-104778-4	MW-507-W-221107	Total/NA	Water	8260D/UST	
410-104778-5	MW-509-W-221107	Total/NA	Water	8260D/UST	
410-104778-6	MW-515-W-221107	Total/NA	Water	8260D/UST	
410-104778-7	MW-516-W-221107	Total/NA	Water	8260D/UST	
410-104778-8	MW-517-W-221107	Total/NA	Water	8260D/UST	
410-104778-9	QA-T-221107	Total/NA	Water	8260D/UST	
MB 410-317288/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-317288/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCS 410-317288/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 317124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	3510C	
410-104778-2	MW-505-W-221107	Total/NA	Water	3510C	
410-104778-3	MW-506-W-221107	Total/NA	Water	3510C	
410-104778-4	MW-507-W-221107	Total/NA	Water	3510C	
410-104778-5	MW-509-W-221107	Total/NA	Water	3510C	
410-104778-6	MW-515-W-221107	Total/NA	Water	3510C	
410-104778-7	MW-516-W-221107	Total/NA	Water	3510C	
410-104778-8	MW-517-W-221107	Total/NA	Water	3510C	
MB 410-317124/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-317124/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 317500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-317124/1-A	Method Blank	Total/NA	Water	8270E SIM	317124
LCS 410-317124/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	317124

### Analysis Batch: 317512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-2	MW-505-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-3	MW-506-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-4	MW-507-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-5	MW-509-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-6	MW-515-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-7	MW-516-W-221107	Total/NA	Water	8270E SIM	317124
410-104778-8	MW-517-W-221107	Total/NA	Water	8270E SIM	317124

## GC VOA

### Analysis Batch: 315570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	RSK-175	315663
410-104778-4	MW-507-W-221107	Total/NA	Water	RSK-175	315663
410-104778-5	MW-509-W-221107	Total/NA	Water	RSK-175	315663
410-104778-6	MW-515-W-221107	Total/NA	Water	RSK-175	315663

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## GC VOA (Continued)

### Analysis Batch: 315570 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-315663/1-A	Method Blank	Total/NA	Water	RSK-175	315663
LCS 410-315663/2-A	Lab Control Sample	Total/NA	Water	RSK-175	315663
LCSD 410-315663/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	315663

### Analysis Batch: 315574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-7	MW-516-W-221107	Total/NA	Water	RSK-175	315664
410-104778-8	MW-517-W-221107	Total/NA	Water	RSK-175	315664
MB 410-315664/1-A	Method Blank	Total/NA	Water	RSK-175	315664
LCS 410-315664/2-A	Lab Control Sample	Total/NA	Water	RSK-175	315664
LCSD 410-315664/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	315664

### Prep Batch: 315663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	RSK-175	
410-104778-4	MW-507-W-221107	Total/NA	Water	RSK-175	
410-104778-5	MW-509-W-221107	Total/NA	Water	RSK-175	
410-104778-6	MW-515-W-221107	Total/NA	Water	RSK-175	
MB 410-315663/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-315663/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-315663/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Prep Batch: 315664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-7	MW-516-W-221107	Total/NA	Water	RSK-175	
410-104778-8	MW-517-W-221107	Total/NA	Water	RSK-175	
MB 410-315664/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-315664/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-315664/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Prep Batch: 316049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-2	MW-505-W-221107	Total/NA	Water	RSK-175	
410-104778-3	MW-506-W-221107	Total/NA	Water	RSK-175	
MB 410-316049/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-316049/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-316049/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 316102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-2	MW-505-W-221107	Total/NA	Water	RSK-175	316049
410-104778-3	MW-506-W-221107	Total/NA	Water	RSK-175	316049
MB 410-316049/1-A	Method Blank	Total/NA	Water	RSK-175	316049
LCS 410-316049/2-A	Lab Control Sample	Total/NA	Water	RSK-175	316049
LCSD 410-316049/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	316049

### Analysis Batch: 316365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-2	MW-505-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-3	MW-506-W-221107	Total/NA	Water	NWTPH-Gx	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## GC VOA (Continued)

### Analysis Batch: 316365 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-4	MW-507-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-5	MW-509-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-6	MW-515-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-7	MW-516-W-221107	Total/NA	Water	NWTPH-Gx	
410-104778-9	QA-T-221107	Total/NA	Water	NWTPH-Gx	
MB 410-316365/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-316365/7	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-316365/8	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 317459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-8	MW-517-W-221107	Total/NA	Water	NWTPH-Gx	
MB 410-317459/9	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-317459/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-317459/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 319383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	3510C	
410-104778-2	MW-505-W-221107	Total/NA	Water	3510C	
410-104778-3	MW-506-W-221107	Total/NA	Water	3510C	
410-104778-4	MW-507-W-221107	Total/NA	Water	3510C	
410-104778-5	MW-509-W-221107	Total/NA	Water	3510C	
410-104778-6	MW-515-W-221107	Total/NA	Water	3510C	
410-104778-7	MW-516-W-221107	Total/NA	Water	3510C	
410-104778-8	MW-517-W-221107	Total/NA	Water	3510C	
MB 410-319383/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-104778-1 DU	MW-504-W-221107	Total/NA	Water	3510C	

### Cleanup Batch: 321018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	3630C	319383
410-104778-2	MW-505-W-221107	Total/NA	Water	3630C	319383
410-104778-3	MW-506-W-221107	Total/NA	Water	3630C	319383
410-104778-4	MW-507-W-221107	Total/NA	Water	3630C	319383
410-104778-5	MW-509-W-221107	Total/NA	Water	3630C	319383
410-104778-6	MW-515-W-221107	Total/NA	Water	3630C	319383
410-104778-7	MW-516-W-221107	Total/NA	Water	3630C	319383
410-104778-8	MW-517-W-221107	Total/NA	Water	3630C	319383
MB 410-319383/1-B	Method Blank	Total/NA	Water	3630C	319383
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3630C	319383
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	319383
410-104778-1 DU	MW-504-W-221107	Total/NA	Water	3630C	319383

### Analysis Batch: 321156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	NWTPH-Dx	321018

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## GC Semi VOA (Continued)

### Analysis Batch: 321156 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-2	MW-505-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-3	MW-506-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-4	MW-507-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-5	MW-509-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-6	MW-515-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-7	MW-516-W-221107	Total/NA	Water	NWTPH-Dx	321018
410-104778-8	MW-517-W-221107	Total/NA	Water	NWTPH-Dx	321018
MB 410-319383/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	321018
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	321018
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	321018
410-104778-1 DU	MW-504-W-221107	Total/NA	Water	NWTPH-Dx	321018

## HPLC/IC

### Analysis Batch: 315381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-2	MW-505-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-3	MW-506-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315381/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315381/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315381/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-2	MW-505-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-3	MW-506-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315382/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315382/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315382/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-4	MW-507-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-5	MW-509-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-6	MW-515-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-7	MW-516-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-8	MW-517-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315400/21	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315400/19	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315400/20	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-104778-6 MS	MW-515-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-6 DU	MW-515-W-221107	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-7	MW-516-W-221107	Total/NA	Water	EPA 300.0 R2.1	
410-104778-8	MW-517-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315401/21	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315401/19	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## HPLC/IC (Continued)

### Analysis Batch: 315401 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-315401/20	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-5	MW-509-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317428/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317428/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317428/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-6	MW-515-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317468/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317468/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317468/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-4	MW-507-W-221107	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317634/16	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317634/14	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317634/15	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 314760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Dissolved	Water	Non-Digest Prep	
MB 410-314760/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-314760/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-104778-1 MS	MW-504-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-1 MSD	MW-504-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-R-1-A DU	410-104778-R-1-A DU	Dissolved	Water	Non-Digest Prep	

### Prep Batch: 317329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-2	MW-505-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-3	MW-506-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-4	MW-507-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-5	MW-509-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-6	MW-515-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-7	MW-516-W-221107	Dissolved	Water	Non-Digest Prep	
410-104778-8	MW-517-W-221107	Dissolved	Water	Non-Digest Prep	
MB 410-317329/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-317329/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 317956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-314760/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	314760
LCS 410-314760/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	314760

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Metals

### Analysis Batch: 318433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-1	MW-504-W-221107	Dissolved	Water	200.8 Rev 5.4	314760
MB 410-314760/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	314760
LCS 410-314760/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	314760
410-104778-1 MS	MW-504-W-221107	Dissolved	Water	200.8 Rev 5.4	314760
410-104778-1 MSD	MW-504-W-221107	Dissolved	Water	200.8 Rev 5.4	314760
410-104778-R-1-A DU	410-104778-R-1-A DU	Dissolved	Water	200.8 Rev 5.4	314760

### Analysis Batch: 320809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-2	MW-505-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
410-104778-4	MW-507-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
410-104778-5	MW-509-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
410-104778-6	MW-515-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
410-104778-7	MW-516-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
410-104778-8	MW-517-W-221107	Dissolved	Water	200.8 Rev 5.4	317329
MB 410-317329/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	317329
LCS 410-317329/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	317329

### Analysis Batch: 322120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104778-3	MW-506-W-221107	Dissolved	Water	200.8 Rev 5.4	317329



## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-504-W-221107**

**Lab Sample ID: 410-104778-1**

Date Collected: 11/07/22 14:00

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 17:03
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 10:17
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 17:27
Total/NA	Prep	RSK-175			315663	MB4Z	ELLE	11/09/22 11:15
Total/NA	Analysis	RSK-175		1	315570	LXF2	ELLE	11/09/22 21:39
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 13:56
Total/NA	Analysis	EPA 300.0 R2.1		5	315381	L4QM	ELLE	11/09/22 00:51
Total/NA	Analysis	EPA 300.0 R2.1		5	315382	L4QM	ELLE	11/09/22 00:51
Dissolved	Prep	Non-Digest Prep			314760	UAMX	ELLE	11/07/22 12:55
Dissolved	Analysis	200.8 Rev 5.4		1	318433	UCIG	ELLE	11/16/22 16:27

**Client Sample ID: MW-505-W-221107**

**Lab Sample ID: 410-104778-2**

Date Collected: 11/07/22 12:30

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 17:27
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 10:38
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 17:53
Total/NA	Prep	RSK-175			316049	LXF2	ELLE	11/10/22 08:10
Total/NA	Analysis	RSK-175		5	316102	LXF2	ELLE	11/10/22 12:43
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 14:41
Total/NA	Analysis	EPA 300.0 R2.1		10	315381	L4QM	ELLE	11/09/22 01:02
Total/NA	Analysis	EPA 300.0 R2.1		10	315382	L4QM	ELLE	11/09/22 01:02
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:16

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 17:51
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 10:59
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 18:19
Total/NA	Prep	RSK-175			316049	LXF2	ELLE	11/10/22 08:10
Total/NA	Analysis	RSK-175		20	316102	LXF2	ELLE	11/10/22 13:00

Eurofins Lancaster Laboratories Environment Testing, LLC



## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 15:04
Total/NA	Analysis	EPA 300.0 R2.1		5	315381	L4QM	ELLE	11/09/22 01:13
Total/NA	Analysis	EPA 300.0 R2.1		5	315382	L4QM	ELLE	11/09/22 01:13
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		10	322120	F7JF	ELLE	11/30/22 09:38

**Client Sample ID: MW-507-W-221107**

**Lab Sample ID: 410-104778-4**

Date Collected: 11/07/22 12:26

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 18:15
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 11:21
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 18:45
Total/NA	Prep	RSK-175			315663	MB4Z	ELLE	11/09/22 11:15
Total/NA	Analysis	RSK-175		1	315570	LXF2	ELLE	11/09/22 22:33
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 15:27
Total/NA	Analysis	EPA 300.0 R2.1		5	315400	L4QM	ELLE	11/09/22 11:04
Total/NA	Analysis	EPA 300.0 R2.1		10	317634	L4QM	ELLE	11/12/22 22:17
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:06

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 18:39
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 11:42
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 19:11
Total/NA	Prep	RSK-175			315663	MB4Z	ELLE	11/09/22 11:15
Total/NA	Analysis	RSK-175		1	315570	LXF2	ELLE	11/09/22 22:51
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 16:13
Total/NA	Analysis	EPA 300.0 R2.1		10	315400	L4QM	ELLE	11/09/22 10:42
Total/NA	Analysis	EPA 300.0 R2.1		100	317428	L4QM	ELLE	11/15/22 00:45

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:23

**Client Sample ID: MW-515-W-221107**

**Lab Sample ID: 410-104778-6**

Date Collected: 11/07/22 10:52

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 19:03
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 12:03
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 19:37
Total/NA	Prep	RSK-175			315663	MB4Z	ELLE	11/09/22 11:15
Total/NA	Analysis	RSK-175		1	315570	LXF2	ELLE	11/09/22 23:09
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 16:36
Total/NA	Analysis	EPA 300.0 R2.1		20	317468	L4QM	ELLE	11/14/22 21:23
Total/NA	Analysis	EPA 300.0 R2.1		10	315400	L4QM	ELLE	11/09/22 11:15
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:38

**Client Sample ID: MW-516-W-221107**

**Lab Sample ID: 410-104778-7**

Date Collected: 11/07/22 10:50

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 19:27
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 12:25
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 20:03
Total/NA	Prep	RSK-175			315664	MB4Z	ELLE	11/09/22 11:17
Total/NA	Analysis	RSK-175		1	315574	MB4Z	ELLE	11/09/22 14:04
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 16:59
Total/NA	Analysis	EPA 300.0 R2.1		10	315400	L4QM	ELLE	11/09/22 10:53
Total/NA	Analysis	EPA 300.0 R2.1		10	315401	L4QM	ELLE	11/09/22 10:53
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:40

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-517-W-221107**

**Lab Sample ID: 410-104778-8**

Date Collected: 11/07/22 11:10

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 19:51
Total/NA	Prep	3510C			317124	YDF5	ELLE	11/14/22 07:49
Total/NA	Analysis	8270E SIM		1	317512	SJ89	ELLE	11/15/22 12:46
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 20:18
Total/NA	Prep	RSK-175			315664	MB4Z	ELLE	11/09/22 11:17
Total/NA	Analysis	RSK-175		1	315574	MB4Z	ELLE	11/09/22 14:19
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 17:22
Total/NA	Analysis	EPA 300.0 R2.1		10	315400	L4QM	ELLE	11/09/22 12:10
Total/NA	Analysis	EPA 300.0 R2.1		10	315401	L4QM	ELLE	11/09/22 12:10
Dissolved	Prep	Non-Digest Prep			317329	HUH3	ELLE	11/14/22 14:06
Dissolved	Analysis	200.8 Rev 5.4		1	320809	S4PD	ELLE	11/23/22 17:08

**Client Sample ID: QA-T-221107**

**Lab Sample ID: 410-104778-9**

Date Collected: 11/07/22 00:00

Matrix: Water

Date Received: 11/08/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 15:51
Total/NA	Analysis	NWTPH-Gx		1	316365	NND8	ELLE	11/11/22 17:01

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-104778-1	MW-504-W-221107	Water	11/07/22 14:00	11/08/22 10:20
410-104778-2	MW-505-W-221107	Water	11/07/22 12:30	11/08/22 10:20
410-104778-3	MW-506-W-221107	Water	11/07/22 12:40	11/08/22 10:20
410-104778-4	MW-507-W-221107	Water	11/07/22 12:26	11/08/22 10:20
410-104778-5	MW-509-W-221107	Water	11/07/22 12:22	11/08/22 10:20
410-104778-6	MW-515-W-221107	Water	11/07/22 10:52	11/08/22 10:20
410-104778-7	MW-516-W-221107	Water	11/07/22 10:50	11/08/22 10:20
410-104778-8	MW-517-W-221107	Water	11/07/22 11:10	11/08/22 10:20
410-104778-9	QA-T-221107	Water	11/07/22 00:00	11/08/22 10:20

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## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-104778-1

**Login Number: 104778**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Burkholder, Conrad**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	





 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/6/2022 11:58:03 PM

**JOB DESCRIPTION**

Edmonds Terminal

**JOB NUMBER**

410-104971-1

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



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Authorized for release by  
Amek Carter, Project Manager  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)  
(717)556-7252

## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

### GC VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

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**Job ID: 410-104971-1**

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**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC**

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**Narrative**

**Job Narrative  
410-104971-1**

**Receipt**

The samples were received on 11/9/2022 10:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.5°C and 5.2°C

**GC/MS VOA**

Method 8260D\_UST: Internal standard (ISTD) response for t-Butyl alcohol-d10 for the following sample in analytical batch 410-317288 was outside acceptance criteria: MW-ER-W-221108 (410-104971-2). This ISTD does not correspond to any of the requested target compounds reported from this analytical batch; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC/MS Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC VOA**

Method NWTPH\_Gx: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: LM-2-W-221108 (410-104971-4). Elevated reporting limits (RLs) are provided.

Method RSK\_175: The method requirement for no headspace was not met for methane. The following volatile sample was analyzed with significant headspace in the sample container(s): MW-ER-W-221108 (410-104971-2). Significant headspace is defined as a bubble greater than 6 mm in diameter.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

Method NWTPH\_Dx: Surrogate recovery for the following samples was below the lower control limit: MW-ER-W-221108 (410-104971-2) and LM-2-W-221108 (410-104971-4). Re-extraction could not be performed within the method required holding time, therefore the data is reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**HPLC/IC**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-530-W-221108

Lab Sample ID: 410-104971-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	480		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	1400000		150000	50000	ug/L	100		EPA 300.0 R2.1	Total/NA
Manganese	260		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-ER-W-221108

Lab Sample ID: 410-104971-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	1100		250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	12000	cn	250	150	ug/L	50		RSK-175	Total/NA
C12-C24	82	J cn	110	50	ug/L	1		NWTPH-Dx	Total/NA
Manganese	5100		20	9.5	ug/L	10		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-129R-W-221108

Lab Sample ID: 410-104971-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	220		5.0	3.0	ug/L	1		RSK-175	Total/NA
C12-C24	170		100	47	ug/L	1		NWTPH-Dx	Total/NA
Nitrogen, Nitrate	550		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	340000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	4200		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: LM-2-W-221108

Lab Sample ID: 410-104971-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	2800		50	30	ug/L	10		RSK-175	Total/NA
Sulfate	150000		38000	13000	ug/L	25		EPA 300.0 R2.1	Total/NA
Manganese	160		2.0	0.95	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: QA-T-221108

Lab Sample ID: 410-104971-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	43	J	250	43	ug/L	1		NWTPH-Gx	Total/NA

## Client Sample ID: MW-533-W-221108

Lab Sample ID: 410-104971-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	1400		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	740000		150000	50000	ug/L	100		EPA 300.0 R2.1	Total/NA

## Client Sample ID: MW-535-W-221108

Lab Sample ID: 410-104971-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	680000		150000	50000	ug/L	100		EPA 300.0 R2.1	Total/NA
Manganese	2.9		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: MW-104-W-221108

Lab Sample ID: 410-104971-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	50	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Methane (1C)	330		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	210000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	1700		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-530-W-221108**

**Lab Sample ID: 410-104971-1**

Date Collected: 11/08/22 10:35

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 22:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/14/22 22:15	1
4-Bromofluorobenzene (Surr)	95		80 - 120					11/14/22 22:15	1
Dibromofluoromethane (Surr)	99		80 - 120					11/14/22 22:15	1
Toluene-d8 (Surr)	96		80 - 120					11/14/22 22:15	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 08:07	11/16/22 02:12	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 08:07	11/16/22 02:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	70		10 - 110				11/15/22 08:07	11/16/22 02:12	1
1-Methylnaphthalene-d10 (Surr)	110		36 - 111				11/15/22 08:07	11/16/22 02:12	1
Fluoranthene-d10 (Surr)	83		47 - 128				11/15/22 08:07	11/16/22 02:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 16:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150					11/15/22 16:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	480		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 16:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	58		43 - 133				11/10/22 09:39	11/10/22 16:08	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		11/21/22 09:12	11/28/22 17:45	1
C24-C40	ND		260	110	ug/L		11/21/22 09:12	11/28/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150				11/21/22 09:12	11/28/22 17:45	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 00:34	5
Sulfate	1400000		150000	50000	ug/L			11/17/22 12:44	100



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-530-W-221108

Lab Sample ID: 410-104971-1

Date Collected: 11/08/22 10:35

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	260		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:15	1

## Client Sample ID: MW-ER-W-221108

Lab Sample ID: 410-104971-2

Date Collected: 11/08/22 12:40

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			11/14/22 22:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94	cn	80 - 120		11/14/22 22:39	1
4-Bromofluorobenzene (Surr)	92	cn	80 - 120		11/14/22 22:39	1
Dibromofluoromethane (Surr)	101	cn	80 - 120		11/14/22 22:39	1
Toluene-d8 (Surr)	96	cn	80 - 120		11/14/22 22:39	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		11/15/22 08:07	11/16/22 01:51	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		11/15/22 08:07	11/16/22 01:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110	11/15/22 08:07	11/16/22 01:51	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111	11/15/22 08:07	11/16/22 01:51	1
Fluoranthene-d10 (Surr)	87		47 - 128	11/15/22 08:07	11/16/22 01:51	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	43	ug/L			11/15/22 16:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150		11/15/22 16:52	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	12000	cn	250	150	ug/L		11/11/22 08:30	11/11/22 14:36	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	96	cn	43 - 133	11/11/22 08:30	11/11/22 14:36	50

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	82	J cn	110	50	ug/L		11/21/22 09:12	11/28/22 18:08	1
C24-C40	ND	cn	280	110	ug/L		11/21/22 09:12	11/28/22 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	44	S1- cn	50 - 150	11/21/22 09:12	11/28/22 18:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-ER-W-221108

Lab Sample ID: 410-104971-2

Date Collected: 11/08/22 12:40

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 00:45	5
Sulfate	ND		7500	2500	ug/L			11/10/22 00:45	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5100		20	9.5	ug/L		12/03/22 06:31	12/05/22 19:13	10

## Client Sample ID: MW-129R-W-221108

Lab Sample ID: 410-104971-3

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/14/22 23:02	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/14/22 23:02	1
Dibromofluoromethane (Surr)	102		80 - 120		11/14/22 23:02	1
Toluene-d8 (Surr)	97		80 - 120		11/14/22 23:02	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Chrysene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/15/22 16:30	11/16/22 05:41	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/15/22 16:30	11/16/22 05:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	11/15/22 16:30	11/16/22 05:41	1
1-Methylnaphthalene-d10 (Surr)	91		36 - 111	11/15/22 16:30	11/16/22 05:41	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/15/22 16:30	11/16/22 05:41	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 17:18	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	220		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	58		43 - 133	11/10/22 09:39	11/10/22 16:38	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-129R-W-221108**

**Lab Sample ID: 410-104971-3**

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>170</b>		100	47	ug/L		11/21/22 09:12	11/28/22 18:31	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 18:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	59		50 - 150				11/21/22 09:12	11/28/22 18:31	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Nitrogen, Nitrate</b>	<b>550</b>		550	250	ug/L			11/10/22 00:56	5
<b>Sulfate</b>	<b>340000</b>		75000	25000	ug/L			11/17/22 12:53	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>4200</b>		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:11	1

**Client Sample ID: LM-2-W-221108**

**Lab Sample ID: 410-104971-4**

Date Collected: 11/08/22 10:40

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 23:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		80 - 120					11/14/22 23:27	1
<i>4-Bromofluorobenzene (Surr)</i>	93		80 - 120					11/14/22 23:27	1
<i>Dibromofluoromethane (Surr)</i>	101		80 - 120					11/14/22 23:27	1
<i>Toluene-d8 (Surr)</i>	96		80 - 120					11/14/22 23:27	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Chrysene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:02	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	52		10 - 110				11/15/22 16:30	11/16/22 06:02	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	78		36 - 111				11/15/22 16:30	11/16/22 06:02	1
<i>Fluoranthene-d10 (Surr)</i>	68		47 - 128				11/15/22 16:30	11/16/22 06:02	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	cn	5000	860	ug/L			11/15/22 20:43	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100	cn	50 - 150					11/15/22 20:43	20

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: LM-2-W-221108**

**Lab Sample ID: 410-104971-4**

Date Collected: 11/08/22 10:40

Matrix: Water

Date Received: 11/09/22 10:05

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800		50	30	ug/L		11/11/22 08:30	11/11/22 14:54	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	88		43 - 133				11/11/22 08:30	11/11/22 14:54	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	100	46	ug/L		11/21/22 09:12	11/28/22 18:54	1
C24-C40	ND	cn	260	100	ug/L		11/21/22 09:12	11/28/22 18:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	37	S1- cn	50 - 150				11/21/22 09:12	11/28/22 18:54	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 01:06	5
Sulfate	150000		38000	13000	ug/L			11/17/22 13:01	25

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	160		2.0	0.95	ug/L		12/03/22 06:31	12/04/22 10:29	1

**Client Sample ID: QA-T-221108**

**Lab Sample ID: 410-104971-6**

Date Collected: 11/08/22 00:00

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/15/22 15:01	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/15/22 15:01	1
Dibromofluoromethane (Surr)	102		80 - 120					11/15/22 15:01	1
Toluene-d8 (Surr)	96		80 - 120					11/15/22 15:01	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	43	J	250	43	ug/L			11/15/22 17:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 17:44	1

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 16:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/15/22 16:50	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		80 - 120		11/15/22 16:50	1
Dibromofluoromethane (Surr)	103		80 - 120		11/15/22 16:50	1
Toluene-d8 (Surr)	97		80 - 120		11/15/22 16:50	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 06:24	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 06:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	79		10 - 110	11/15/22 16:30	11/16/22 06:24	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111	11/15/22 16:30	11/16/22 06:24	1
Fluoranthene-d10 (Surr)	81		47 - 128	11/15/22 16:30	11/16/22 06:24	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/15/22 18:10	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133	11/10/22 09:39	11/10/22 18:06	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 12:47	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 12:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	79		50 - 150	11/21/22 09:12	11/28/22 12:47	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1400		550	250	ug/L			11/10/22 01:49	5
Sulfate	740000		150000	50000	ug/L			11/16/22 23:31	100

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:07	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-535-W-221108**

**Lab Sample ID: 410-104971-8**

Date Collected: 11/08/22 10:28

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/15/22 15:25	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/15/22 15:25	1
Dibromofluoromethane (Surr)	100		80 - 120					11/15/22 15:25	1
Toluene-d8 (Surr)	96		80 - 120					11/15/22 15:25	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Chrysene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:45	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110				11/15/22 16:30	11/16/22 06:45	1
1-Methylnaphthalene-d10 (Surr)	94		36 - 111				11/15/22 16:30	11/16/22 06:45	1
Fluoranthene-d10 (Surr)	77		47 - 128				11/15/22 16:30	11/16/22 06:45	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 19:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	97		50 - 150					11/15/22 19:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/10/22 09:39	11/10/22 18:23	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 13:33	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 13:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	74		50 - 150				11/21/22 09:12	11/28/22 13:33	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	F1	1100	500	ug/L			11/10/22 03:37	10
<b>Sulfate</b>	<b>680000</b>		150000	50000	ug/L			11/16/22 09:21	100

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-535-W-221108

Lab Sample ID: 410-104971-8

Date Collected: 11/08/22 10:28

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.9		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:09	1

## Client Sample ID: MW-104-W-221108

Lab Sample ID: 410-104971-9

Date Collected: 11/08/22 12:28

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/15/22 15:49	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/15/22 15:49	1
Dibromofluoromethane (Surr)	101		80 - 120		11/15/22 15:49	1
Toluene-d8 (Surr)	95		80 - 120		11/15/22 15:49	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 07:07	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 07:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	13		10 - 110	11/15/22 16:30	11/16/22 07:07	1
1-Methylnaphthalene-d10 (Surr)	94		36 - 111	11/15/22 16:30	11/16/22 07:07	1
Fluoranthene-d10 (Surr)	88		47 - 128	11/15/22 16:30	11/16/22 07:07	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	50	J	250	43	ug/L			11/15/22 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	96		50 - 150		11/15/22 19:52	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	330		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	64		43 - 133	11/10/22 09:39	11/10/22 18:39	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 13:56	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 13:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	76		50 - 150	11/21/22 09:12	11/28/22 13:56	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-104-W-221108**

**Lab Sample ID: 410-104971-9**

Date Collected: 11/08/22 12:28

Matrix: Water

Date Received: 11/09/22 10:05

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 04:09	5
<b>Sulfate</b>	<b>210000</b>		75000	25000	ug/L			11/16/22 09:32	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>1700</b>		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:13	1





# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-104971-1	MW-530-W-221108	94	95	99	96
410-104971-2	MW-ER-W-221108	94 cn	92 cn	101 cn	96 cn
410-104971-3	MW-129R-W-221108	95	92	102	97
410-104971-4	LM-2-W-221108	97	93	101	96
410-104971-6	QA-T-221108	96	92	102	96
410-104971-7	MW-533-W-221108	95	92	103	97
410-104971-8	MW-535-W-221108	95	93	100	96
410-104971-9	MW-104-W-221108	95	93	101	95
LCS 410-317288/4	Lab Control Sample	99	97	102	96
LCS 410-317620/4	Lab Control Sample	97	93	104	96
LCS 410-317623/4	Lab Control Sample	98	94	102	93
LCSD 410-317288/5	Lab Control Sample Dup	98	96	102	97
LCSD 410-317620/5	Lab Control Sample Dup	97	95	100	96
LCSD 410-317623/5	Lab Control Sample Dup	97	95	100	97
MB 410-317288/6	Method Blank	96	94	100	97
MB 410-317620/6	Method Blank	96	92	102	98
MB 410-317623/6	Method Blank	96	93	102	95

**Surrogate Legend**

DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DBFM = Dibromofluoromethane (Surr)  
TOL = Toluene-d8 (Surr)

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-104971-1	MW-530-W-221108	70	110	83
410-104971-2	MW-ER-W-221108	65	79	87
410-104971-3	MW-129R-W-221108	53	91	86
410-104971-4	LM-2-W-221108	52	78	68
410-104971-7	MW-533-W-221108	79	86	81
410-104971-8	MW-535-W-221108	82	94	77
410-104971-9	MW-104-W-221108	13	94	88
LCS 410-317583/2-A	Lab Control Sample	81	79	80
LCS 410-317821/2-A	Lab Control Sample	89	80	85
LCSD 410-317583/3-A	Lab Control Sample Dup	84	82	83
MB 410-317583/1-A	Method Blank	84	86	87
MB 410-317821/1-A	Method Blank	86	81	80

**Surrogate Legend**

BAPd12 = Benzo(a)pyrene-d12 (Surr)  
MNPd10 = 1-Methylnaphthalene-d10 (Surr)  
FLN10 = Fluoranthene-d10 (Surr)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## 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	TFT-F1 (50-150)
410-104971-1	MW-530-W-221108	98
410-104971-2	MW-ER-W-221108	98
410-104971-3	MW-129R-W-221108	99
410-104971-4	LM-2-W-221108	100 cn
410-104971-6	QA-T-221108	99
410-104971-7	MW-533-W-221108	100
410-104971-8	MW-535-W-221108	97
410-104971-9	MW-104-W-221108	96
LCS 410-317459/5	Lab Control Sample	85
LCSD 410-317459/6	Lab Control Sample Dup	86
MB 410-317459/9	Method Blank	100

**Surrogate Legend**  
TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	Propene1 (43-133)
410-104971-1	MW-530-W-221108	58
410-104971-2	MW-ER-W-221108	96 cn
410-104971-3	MW-129R-W-221108	58
410-104971-4	LM-2-W-221108	88
410-104971-7	MW-533-W-221108	57
410-104971-8	MW-535-W-221108	56
410-104971-9	MW-104-W-221108	64
LCS 410-316113/2-A	Lab Control Sample	99
LCS 410-316601/2-A	Lab Control Sample	102
LCSD 410-316601/3-A	Lab Control Sample Dup	100
MB 410-316113/1-A	Method Blank	99
MB 410-316601/1-A	Method Blank	102

**Surrogate Legend**  
Propene = Propene

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	OTP (50-150)
410-104971-1	MW-530-W-221108	57
410-104971-2	MW-ER-W-221108	44 S1- cn
410-104971-3	MW-129R-W-221108	59
410-104971-4	LM-2-W-221108	37 S1- cn
410-104971-7	MW-533-W-221108	79
410-104971-7 DU	MW-533-W-221108	69
410-104971-8	MW-535-W-221108	74
410-104971-9	MW-104-W-221108	76
LCS 410-319383/2-B	Lab Control Sample	69

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
LCSD 410-319383/3-B	Lab Control Sample Dup	61
MB 410-319383/1-B	Method Blank	67

#### Surrogate Legend

OTP = o- terphenyl (Surr)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 410-317288/6**

**Matrix: Water**

**Analysis Batch: 317288**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 15:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 15:27	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 15:27	1
Dibromofluoromethane (Surr)	100		80 - 120					11/14/22 15:27	1
Toluene-d8 (Surr)	97		80 - 120					11/14/22 15:27	1

**Lab Sample ID: LCS 410-317288/4**

**Matrix: Water**

**Analysis Batch: 317288**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	20.6		ug/L		103	80 - 120	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	99		80 - 120					
4-Bromofluorobenzene (Surr)	97		80 - 120					
Dibromofluoromethane (Surr)	102		80 - 120					
Toluene-d8 (Surr)	96		80 - 120					

**Lab Sample ID: LCSD 410-317288/5**

**Matrix: Water**

**Analysis Batch: 317288**

**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	20.0	20.4		ug/L		102	80 - 120	1	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	98		80 - 120						
4-Bromofluorobenzene (Surr)	96		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	97		80 - 120						

**Lab Sample ID: MB 410-317620/6**

**Matrix: Water**

**Analysis Batch: 317620**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 14:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/15/22 14:02	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/15/22 14:02	1
Dibromofluoromethane (Surr)	102		80 - 120					11/15/22 14:02	1
Toluene-d8 (Surr)	98		80 - 120					11/15/22 14:02	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 410-317620/4

Matrix: Water

Analysis Batch: 317620

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	18.3		ug/L		92	80 - 120
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>LCS</b>	<b>Qualifier</b>	<b>Limits</b>			
1,2-Dichloroethane-d4 (Surr)	97			80 - 120			
4-Bromofluorobenzene (Surr)	93			80 - 120			
Dibromofluoromethane (Surr)	104			80 - 120			
Toluene-d8 (Surr)	96			80 - 120			

Lab Sample ID: LCSD 410-317620/5

Matrix: Water

Analysis Batch: 317620

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	20.0	18.7		ug/L		93	80 - 120	2	30
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>LCSD</b>	<b>Qualifier</b>	<b>Limits</b>					
1,2-Dichloroethane-d4 (Surr)	97			80 - 120					
4-Bromofluorobenzene (Surr)	95			80 - 120					
Dibromofluoromethane (Surr)	100			80 - 120					
Toluene-d8 (Surr)	96			80 - 120					

Lab Sample ID: MB 410-317623/6

Matrix: Water

Analysis Batch: 317623

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		1.0	0.30	ug/L			11/15/22 14:13	1	
<b>Surrogate</b>										
	<b>%Recovery</b>	<b>MB</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	96			80 - 120					11/15/22 14:13	1
4-Bromofluorobenzene (Surr)	93			80 - 120					11/15/22 14:13	1
Dibromofluoromethane (Surr)	102			80 - 120					11/15/22 14:13	1
Toluene-d8 (Surr)	95			80 - 120					11/15/22 14:13	1

Lab Sample ID: LCS 410-317623/4

Matrix: Water

Analysis Batch: 317623

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.3		ug/L		107	80 - 120
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>LCS</b>	<b>Qualifier</b>	<b>Limits</b>			
1,2-Dichloroethane-d4 (Surr)	98			80 - 120			
4-Bromofluorobenzene (Surr)	94			80 - 120			
Dibromofluoromethane (Surr)	102			80 - 120			
Toluene-d8 (Surr)	93			80 - 120			

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 410-317623/5

Matrix: Water

Analysis Batch: 317623

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	20.0	21.2		ug/L		106	80 - 120	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	97		80 - 120						
4-Bromofluorobenzene (Surr)	95		80 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
Toluene-d8 (Surr)	97		80 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 410-317583/1-A

Matrix: Water

Analysis Batch: 317852

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 317583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/15/22 08:07	11/15/22 18:18	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/15/22 08:07	11/15/22 18:18	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/15/22 08:07	11/15/22 18:18	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/15/22 08:07	11/15/22 18:18	1
Chrysene	ND		0.050	0.010	ug/L		11/15/22 08:07	11/15/22 18:18	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/15/22 08:07	11/15/22 18:18	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/15/22 08:07	11/15/22 18:18	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	84		10 - 110				11/15/22 08:07	11/15/22 18:18	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111				11/15/22 08:07	11/15/22 18:18	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/15/22 08:07	11/15/22 18:18	1

Lab Sample ID: LCS 410-317583/2-A

Matrix: Water

Analysis Batch: 317852

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 317583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	1.00	0.787		ug/L		79	61 - 122
Benzo[a]pyrene	1.00	0.783		ug/L		78	60 - 120
Benzo[b]fluoranthene	1.00	0.720		ug/L		72	58 - 122
Benzo[k]fluoranthene	1.00	0.823		ug/L		82	57 - 128
Chrysene	1.00	0.772		ug/L		77	55 - 123
Dibenz(a,h)anthracene	1.00	0.546		ug/L		55	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.598		ug/L		60	47 - 143
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Benzo(a)pyrene-d12 (Surr)	81		10 - 110				
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				
Fluoranthene-d10 (Surr)	80		47 - 128				

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCSD 410-317583/3-A**

**Matrix: Water**

**Analysis Batch: 317852**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 317583**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	1.00	0.807		ug/L		81	61 - 122	3	30	
Benzo[a]pyrene	1.00	0.812		ug/L		81	60 - 120	4	30	
Benzo[b]fluoranthene	1.00	0.734		ug/L		73	58 - 122	2	30	
Benzo[k]fluoranthene	1.00	0.866		ug/L		87	57 - 128	5	30	
Chrysene	1.00	0.797		ug/L		80	55 - 123	3	30	
Dibenz(a,h)anthracene	1.00	0.632		ug/L		63	50 - 121	15	30	
Indeno[1,2,3-cd]pyrene	1.00	0.620		ug/L		62	47 - 143	4	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	84		10 - 110
1-Methylnaphthalene-d10 (Surr)	82		36 - 111
Fluoranthene-d10 (Surr)	83		47 - 128

**Lab Sample ID: MB 410-317821/1-A**

**Matrix: Water**

**Analysis Batch: 317979**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 317821**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/15/22 16:30	11/16/22 03:53	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/15/22 16:30	11/16/22 03:53	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/15/22 16:30	11/16/22 03:53	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/15/22 16:30	11/16/22 03:53	1
Chrysene	ND		0.050	0.010	ug/L		11/15/22 16:30	11/16/22 03:53	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/15/22 16:30	11/16/22 03:53	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/15/22 16:30	11/16/22 03:53	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	86		10 - 110	11/15/22 16:30	11/16/22 03:53	1
1-Methylnaphthalene-d10 (Surr)	81		36 - 111	11/15/22 16:30	11/16/22 03:53	1
Fluoranthene-d10 (Surr)	80		47 - 128	11/15/22 16:30	11/16/22 03:53	1

**Lab Sample ID: LCS 410-317821/2-A**

**Matrix: Water**

**Analysis Batch: 317979**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 317821**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
Benzo[a]anthracene	1.00	0.973		ug/L		97	61 - 122	
Benzo[a]pyrene	1.00	0.914		ug/L		91	60 - 120	
Benzo[b]fluoranthene	1.00	0.894		ug/L		89	58 - 122	
Benzo[k]fluoranthene	1.00	0.938		ug/L		94	57 - 128	
Chrysene	1.00	0.911		ug/L		91	55 - 123	
Dibenz(a,h)anthracene	1.00	0.909		ug/L		91	50 - 121	
Indeno[1,2,3-cd]pyrene	1.00	0.910		ug/L		91	47 - 143	

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	89		10 - 110
1-Methylnaphthalene-d10 (Surr)	80		36 - 111

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 410-317821/2-A  
Matrix: Water  
Analysis Batch: 317979

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 317821

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Fluoranthene-d10 (Surr)	85		47 - 128

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-317459/9  
Matrix: Water  
Analysis Batch: 317459

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 13:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/15/22 13:53	1			

Lab Sample ID: LCS 410-317459/5  
Matrix: Water  
Analysis Batch: 317459

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	1080		ug/L		98	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid) (1C)	85		50 - 150				

Lab Sample ID: LCSD 410-317459/6  
Matrix: Water  
Analysis Batch: 317459

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
C7-C12 (1C)	1100	1130		ug/L		103	64 - 131	5	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid) (1C)	86		50 - 150						

## Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 410-316113/1-A  
Matrix: Water  
Analysis Batch: 316091

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 316113

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 14:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Propene (1C)	99		43 - 133		11/10/22 09:39	11/10/22 14:21	1		



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCS 410-316113/2-A**  
**Matrix: Water**  
**Analysis Batch: 316091**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 316113**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	63.4		ug/L		106	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	99		43 - 133				

**Lab Sample ID: MB 410-316601/1-A**  
**Matrix: Water**  
**Analysis Batch: 316613**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 316601**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/11/22 08:30	11/11/22 09:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	102		43 - 133				11/11/22 08:30	11/11/22 09:30	1

**Lab Sample ID: LCS 410-316601/2-A**  
**Matrix: Water**  
**Analysis Batch: 316613**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 316601**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	61.9		ug/L		104	85 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
Propene (1C)	102		43 - 133				

**Lab Sample ID: LCSD 410-316601/3-A**  
**Matrix: Water**  
**Analysis Batch: 316613**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 316601**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	62.2		ug/L		104	85 - 115	0	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Propene (1C)	100		43 - 133						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-319383/1-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		11/21/22 09:12	11/28/22 12:47	1
C24-C40	ND		250	100	ug/L		11/21/22 09:12	11/28/22 12:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	67		50 - 150				11/21/22 09:12	11/28/22 12:47	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

**Lab Sample ID: LCS 410-319383/2-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	163		ug/L		27	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
<i>o-terphenyl (Surr)</i>	69		50 - 150				

**Lab Sample ID: LCSD 410-319383/3-B**  
**Matrix: Water**  
**Analysis Batch: 321156**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	159		ug/L		26	14 - 115	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	61		50 - 150						

**Lab Sample ID: 410-104971-7 DU**  
**Matrix: Water**  
**Analysis Batch: 321158**

**Client Sample ID: MW-533-W-221108**  
**Prep Type: Total/NA**  
**Prep Batch: 319383**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>DU Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	69		50 - 150					

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-315866/5**  
**Matrix: Water**  
**Analysis Batch: 315866**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/09/22 18:50	1

**Lab Sample ID: LCS 410-315866/3**  
**Matrix: Water**  
**Analysis Batch: 315866**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	733		ug/L		98	90 - 110

**Lab Sample ID: LCSD 410-315866/4**  
**Matrix: Water**  
**Analysis Batch: 315866**

**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
Nitrogen, Nitrate	750	724		ug/L		96	90 - 110	1	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 410-315867/5**  
**Matrix: Water**  
**Analysis Batch: 315867**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/09/22 18:50	1

**Lab Sample ID: LCS 410-315867/3**  
**Matrix: Water**  
**Analysis Batch: 315867**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7450		ug/L		99	90 - 110

**Lab Sample ID: LCSD 410-315867/4**  
**Matrix: Water**  
**Analysis Batch: 315867**

**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
Sulfate	7500	7360		ug/L		98	90 - 110	1	20

**Lab Sample ID: MB 410-315868/5**  
**Matrix: Water**  
**Analysis Batch: 315868**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/10/22 03:05	1

**Lab Sample ID: LCS 410-315868/3**  
**Matrix: Water**  
**Analysis Batch: 315868**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	682		ug/L		91	90 - 110

**Lab Sample ID: LCSD 410-315868/4**  
**Matrix: Water**  
**Analysis Batch: 315868**

**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
Nitrogen, Nitrate	750	684		ug/L		91	90 - 110	0	20

**Lab Sample ID: 410-104971-8 MS**  
**Matrix: Water**  
**Analysis Batch: 315868**

**Client Sample ID: MW-535-W-221108**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	ND	F1	5000	5590	F1	ug/L		112	90 - 110

**Lab Sample ID: 410-104971-8 DU**  
**Matrix: Water**  
**Analysis Batch: 315868**

**Client Sample ID: MW-535-W-221108**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	ND	F1	ND		ug/L		NC	15

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-315869/5**  
**Matrix: Water**  
**Analysis Batch: 315869**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/10/22 03:05	1

**Lab Sample ID: LCS 410-315869/3**  
**Matrix: Water**  
**Analysis Batch: 315869**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	6920		ug/L		92	90 - 110

**Lab Sample ID: LCSD 410-315869/4**  
**Matrix: Water**  
**Analysis Batch: 315869**

**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
Sulfate	7500	6960		ug/L		93	90 - 110	0	20

**Lab Sample ID: MB 410-317919/5**  
**Matrix: Water**  
**Analysis Batch: 317919**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/16/22 05:41	1

**Lab Sample ID: LCS 410-317919/3**  
**Matrix: Water**  
**Analysis Batch: 317919**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7670		ug/L		102	90 - 110

**Lab Sample ID: LCSD 410-317919/4**  
**Matrix: Water**  
**Analysis Batch: 317919**

**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
Sulfate	7500	7680		ug/L		102	90 - 110	0	20

**Lab Sample ID: MB 410-318350/5**  
**Matrix: Water**  
**Analysis Batch: 318350**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/16/22 22:48	1

**Lab Sample ID: LCS 410-318350/3**  
**Matrix: Water**  
**Analysis Batch: 318350**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7800		ug/L		104	90 - 110

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: LCSD 410-318350/4

Matrix: Water

Analysis Batch: 318350

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
Sulfate	7500	7680		ug/L		102	90 - 110	2	20

Lab Sample ID: MB 410-318364/5

Matrix: Water

Analysis Batch: 318364

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/17/22 10:09	1

Lab Sample ID: LCS 410-318364/3

Matrix: Water

Analysis Batch: 318364

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7910		ug/L		105	90 - 110

Lab Sample ID: LCSD 410-318364/4

Matrix: Water

Analysis Batch: 318364

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
Sulfate	7500	7860		ug/L		105	90 - 110	1	20

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

Lab Sample ID: MB 410-317328/1-A

Matrix: Water

Analysis Batch: 321467

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 317328

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 16:41	1

Lab Sample ID: LCS 410-317328/2-A

Matrix: Water

Analysis Batch: 321467

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 317328

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	482		ug/L		96	85 - 115

Lab Sample ID: MB 410-323320/1-A

Matrix: Water

Analysis Batch: 323546

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 323320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.0	0.95	ug/L		12/03/22 06:31	12/04/22 09:56	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 410-323320/2-A  
Matrix: Water  
Analysis Batch: 323546

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 323320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	444		ug/L		89	85 - 115

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# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## GC/MS VOA

### Analysis Batch: 317288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	8260D/UST	
410-104971-2	MW-ER-W-221108	Total/NA	Water	8260D/UST	
410-104971-3	MW-129R-W-221108	Total/NA	Water	8260D/UST	
410-104971-4	LM-2-W-221108	Total/NA	Water	8260D/UST	
MB 410-317288/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-317288/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-317288/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

### Analysis Batch: 317620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-7	MW-533-W-221108	Total/NA	Water	8260D/UST	
MB 410-317620/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-317620/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-317620/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

### Analysis Batch: 317623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-6	QA-T-221108	Total/NA	Water	8260D/UST	
410-104971-8	MW-535-W-221108	Total/NA	Water	8260D/UST	
410-104971-9	MW-104-W-221108	Total/NA	Water	8260D/UST	
MB 410-317623/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-317623/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-317623/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 317583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	3510C	
410-104971-2	MW-ER-W-221108	Total/NA	Water	3510C	
MB 410-317583/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-317583/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-317583/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

### Prep Batch: 317821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-3	MW-129R-W-221108	Total/NA	Water	3510C	
410-104971-4	LM-2-W-221108	Total/NA	Water	3510C	
410-104971-7	MW-533-W-221108	Total/NA	Water	3510C	
410-104971-8	MW-535-W-221108	Total/NA	Water	3510C	
410-104971-9	MW-104-W-221108	Total/NA	Water	3510C	
MB 410-317821/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-317821/2-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 317852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	8270E SIM	317583
410-104971-2	MW-ER-W-221108	Total/NA	Water	8270E SIM	317583
MB 410-317583/1-A	Method Blank	Total/NA	Water	8270E SIM	317583
LCS 410-317583/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	317583
LCSD 410-317583/3-A	Lab Control Sample Dup	Total/NA	Water	8270E SIM	317583

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## GC/MS Semi VOA

### Analysis Batch: 317979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-3	MW-129R-W-221108	Total/NA	Water	8270E SIM	317821
410-104971-4	LM-2-W-221108	Total/NA	Water	8270E SIM	317821
410-104971-7	MW-533-W-221108	Total/NA	Water	8270E SIM	317821
410-104971-8	MW-535-W-221108	Total/NA	Water	8270E SIM	317821
410-104971-9	MW-104-W-221108	Total/NA	Water	8270E SIM	317821
MB 410-317821/1-A	Method Blank	Total/NA	Water	8270E SIM	317821
LCS 410-317821/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	317821

## GC VOA

### Analysis Batch: 316091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	RSK-175	316113
410-104971-3	MW-129R-W-221108	Total/NA	Water	RSK-175	316113
410-104971-7	MW-533-W-221108	Total/NA	Water	RSK-175	316113
410-104971-8	MW-535-W-221108	Total/NA	Water	RSK-175	316113
410-104971-9	MW-104-W-221108	Total/NA	Water	RSK-175	316113
MB 410-316113/1-A	Method Blank	Total/NA	Water	RSK-175	316113
LCS 410-316113/2-A	Lab Control Sample	Total/NA	Water	RSK-175	316113

### Prep Batch: 316113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	RSK-175	
410-104971-3	MW-129R-W-221108	Total/NA	Water	RSK-175	
410-104971-7	MW-533-W-221108	Total/NA	Water	RSK-175	
410-104971-8	MW-535-W-221108	Total/NA	Water	RSK-175	
410-104971-9	MW-104-W-221108	Total/NA	Water	RSK-175	
MB 410-316113/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-316113/2-A	Lab Control Sample	Total/NA	Water	RSK-175	

### Prep Batch: 316601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-2	MW-ER-W-221108	Total/NA	Water	RSK-175	
410-104971-4	LM-2-W-221108	Total/NA	Water	RSK-175	
MB 410-316601/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-316601/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-316601/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	

### Analysis Batch: 316613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-2	MW-ER-W-221108	Total/NA	Water	RSK-175	316601
410-104971-4	LM-2-W-221108	Total/NA	Water	RSK-175	316601
MB 410-316601/1-A	Method Blank	Total/NA	Water	RSK-175	316601
LCS 410-316601/2-A	Lab Control Sample	Total/NA	Water	RSK-175	316601
LCSD 410-316601/3-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	316601

### Analysis Batch: 317459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	NWTPH-Gx	
410-104971-2	MW-ER-W-221108	Total/NA	Water	NWTPH-Gx	
410-104971-3	MW-129R-W-221108	Total/NA	Water	NWTPH-Gx	



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## GC VOA (Continued)

### Analysis Batch: 317459 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-4	LM-2-W-221108	Total/NA	Water	NWTPH-Gx	
410-104971-6	QA-T-221108	Total/NA	Water	NWTPH-Gx	
410-104971-7	MW-533-W-221108	Total/NA	Water	NWTPH-Gx	
410-104971-8	MW-535-W-221108	Total/NA	Water	NWTPH-Gx	
410-104971-9	MW-104-W-221108	Total/NA	Water	NWTPH-Gx	
MB 410-317459/9	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-317459/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-317459/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 319383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	3510C	
410-104971-2	MW-ER-W-221108	Total/NA	Water	3510C	
410-104971-3	MW-129R-W-221108	Total/NA	Water	3510C	
410-104971-4	LM-2-W-221108	Total/NA	Water	3510C	
410-104971-7	MW-533-W-221108	Total/NA	Water	3510C	
410-104971-8	MW-535-W-221108	Total/NA	Water	3510C	
410-104971-9	MW-104-W-221108	Total/NA	Water	3510C	
MB 410-319383/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-104971-7 DU	MW-533-W-221108	Total/NA	Water	3510C	

### Cleanup Batch: 321018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	3630C	319383
410-104971-2	MW-ER-W-221108	Total/NA	Water	3630C	319383
410-104971-3	MW-129R-W-221108	Total/NA	Water	3630C	319383
410-104971-4	LM-2-W-221108	Total/NA	Water	3630C	319383
410-104971-7	MW-533-W-221108	Total/NA	Water	3630C	319383
410-104971-8	MW-535-W-221108	Total/NA	Water	3630C	319383
410-104971-9	MW-104-W-221108	Total/NA	Water	3630C	319383
MB 410-319383/1-B	Method Blank	Total/NA	Water	3630C	319383
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3630C	319383
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	319383
410-104971-7 DU	MW-533-W-221108	Total/NA	Water	3630C	319383

### Analysis Batch: 321156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-2	MW-ER-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-3	MW-129R-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-4	LM-2-W-221108	Total/NA	Water	NWTPH-Dx	321018
MB 410-319383/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	321018
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	321018
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	321018

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## GC Semi VOA

### Analysis Batch: 321158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-7	MW-533-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-8	MW-535-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-9	MW-104-W-221108	Total/NA	Water	NWTPH-Dx	321018
410-104971-7 DU	MW-533-W-221108	Total/NA	Water	NWTPH-Dx	321018

## HPLC/IC

### Analysis Batch: 315866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-2	MW-ER-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-3	MW-129R-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-4	LM-2-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-7	MW-533-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315866/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315866/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315866/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-2	MW-ER-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315867/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315867/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315867/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-8	MW-535-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-9	MW-104-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-315868/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315868/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315868/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-104971-8 MS	MW-535-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-8 DU	MW-535-W-221108	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 315869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-315869/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-315869/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-315869/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 317919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-8	MW-535-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-9	MW-104-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-317919/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-317919/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-317919/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## HPLC/IC

### Analysis Batch: 318350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-7	MW-533-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-318350/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-318350/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-318350/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 318364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-3	MW-129R-W-221108	Total/NA	Water	EPA 300.0 R2.1	
410-104971-4	LM-2-W-221108	Total/NA	Water	EPA 300.0 R2.1	
MB 410-318364/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-318364/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-318364/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 317328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Dissolved	Water	Non-Digest Prep	
410-104971-3	MW-129R-W-221108	Dissolved	Water	Non-Digest Prep	
410-104971-7	MW-533-W-221108	Dissolved	Water	Non-Digest Prep	
410-104971-8	MW-535-W-221108	Dissolved	Water	Non-Digest Prep	
410-104971-9	MW-104-W-221108	Dissolved	Water	Non-Digest Prep	
MB 410-317328/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-317328/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

### Analysis Batch: 321467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-1	MW-530-W-221108	Dissolved	Water	200.8 Rev 5.4	317328
410-104971-3	MW-129R-W-221108	Dissolved	Water	200.8 Rev 5.4	317328
410-104971-7	MW-533-W-221108	Dissolved	Water	200.8 Rev 5.4	317328
410-104971-8	MW-535-W-221108	Dissolved	Water	200.8 Rev 5.4	317328
410-104971-9	MW-104-W-221108	Dissolved	Water	200.8 Rev 5.4	317328
MB 410-317328/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	317328
LCS 410-317328/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	317328

### Prep Batch: 323320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-2	MW-ER-W-221108	Dissolved	Water	200.8 Rev 5.4	
410-104971-4	LM-2-W-221108	Dissolved	Water	200.8 Rev 5.4	
MB 410-323320/1-A	Method Blank	Total Recoverable	Water	200.8 Rev 5.4	
LCS 410-323320/2-A	Lab Control Sample	Total Recoverable	Water	200.8 Rev 5.4	

### Analysis Batch: 323546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-4	LM-2-W-221108	Dissolved	Water	200.8 Rev 5.4	323320
MB 410-323320/1-A	Method Blank	Total Recoverable	Water	200.8 Rev 5.4	323320
LCS 410-323320/2-A	Lab Control Sample	Total Recoverable	Water	200.8 Rev 5.4	323320

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Metals

### Analysis Batch: 323889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-104971-2	MW-ER-W-221108	Dissolved	Water	200.8 Rev 5.4	323320

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- 2
- 3
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- 5
- 6
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- 14
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# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-530-W-221108**

**Lab Sample ID: 410-104971-1**

Date Collected: 11/08/22 10:35

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 22:15
Total/NA	Prep	3510C			317583	YDF5	ELLE	11/15/22 08:07
Total/NA	Analysis	8270E SIM		1	317852	UJM0	ELLE	11/16/22 02:12
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 16:27
Total/NA	Prep	RSK-175			316113	MB4Z	ELLE	11/10/22 09:39
Total/NA	Analysis	RSK-175		1	316091	MB4Z	ELLE	11/10/22 16:08
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 17:45
Total/NA	Analysis	EPA 300.0 R2.1		100	318364	L4QM	ELLE	11/17/22 12:44
Total/NA	Analysis	EPA 300.0 R2.1		5	315866	L4QM	ELLE	11/10/22 00:34
Dissolved	Prep	Non-Digest Prep			317328	UAMX	ELLE	11/14/22 13:50
Dissolved	Analysis	200.8 Rev 5.4		1	321467	S4PD	ELLE	11/28/22 17:15

**Client Sample ID: MW-ER-W-221108**

**Lab Sample ID: 410-104971-2**

Date Collected: 11/08/22 12:40

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 22:39
Total/NA	Prep	3510C			317583	YDF5	ELLE	11/15/22 08:07
Total/NA	Analysis	8270E SIM		1	317852	UJM0	ELLE	11/16/22 01:51
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 16:52
Total/NA	Prep	RSK-175			316601	MB4Z	ELLE	11/11/22 08:30
Total/NA	Analysis	RSK-175		50	316613	MB4Z	ELLE	11/11/22 14:36
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 18:08
Total/NA	Analysis	EPA 300.0 R2.1		5	315866	L4QM	ELLE	11/10/22 00:45
Total/NA	Analysis	EPA 300.0 R2.1		5	315867	L4QM	ELLE	11/10/22 00:45
Dissolved	Prep	200.8 Rev 5.4			323320	UAMX	ELLE	12/03/22 06:31
Dissolved	Analysis	200.8 Rev 5.4		10	323889	UCIG	ELLE	12/05/22 19:13

**Client Sample ID: MW-129R-W-221108**

**Lab Sample ID: 410-104971-3**

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 23:02
Total/NA	Prep	3510C			317821	QJZ6	ELLE	11/15/22 16:30
Total/NA	Analysis	8270E SIM		1	317979	SJ89	ELLE	11/16/22 05:41
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 17:18
Total/NA	Prep	RSK-175			316113	MB4Z	ELLE	11/10/22 09:39
Total/NA	Analysis	RSK-175		1	316091	MB4Z	ELLE	11/10/22 16:38

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-129R-W-221108**

**Lab Sample ID: 410-104971-3**

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 18:31
Total/NA	Analysis	EPA 300.0 R2.1		50	318364	L4QM	ELLE	11/17/22 12:53
Total/NA	Analysis	EPA 300.0 R2.1		5	315866	L4QM	ELLE	11/10/22 00:56
Dissolved	Prep	Non-Digest Prep			317328	UAMX	ELLE	11/14/22 13:50
Dissolved	Analysis	200.8 Rev 5.4		1	321467	S4PD	ELLE	11/28/22 17:11

**Client Sample ID: LM-2-W-221108**

**Lab Sample ID: 410-104971-4**

Date Collected: 11/08/22 10:40

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317288	MXX6	ELLE	11/14/22 23:27
Total/NA	Prep	3510C			317821	QJZ6	ELLE	11/15/22 16:30
Total/NA	Analysis	8270E SIM		1	317979	SJ89	ELLE	11/16/22 06:02
Total/NA	Analysis	NWTPH-Gx		20	317459	NND8	ELLE	11/15/22 20:43
Total/NA	Prep	RSK-175			316601	MB4Z	ELLE	11/11/22 08:30
Total/NA	Analysis	RSK-175		10	316613	MB4Z	ELLE	11/11/22 14:54
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321156	KP5X	ELLE	11/28/22 18:54
Total/NA	Analysis	EPA 300.0 R2.1		25	318364	L4QM	ELLE	11/17/22 13:01
Total/NA	Analysis	EPA 300.0 R2.1		5	315866	L4QM	ELLE	11/10/22 01:06
Dissolved	Prep	200.8 Rev 5.4			323320	UAMX	ELLE	12/03/22 06:31
Dissolved	Analysis	200.8 Rev 5.4		1	323546	F7JF	ELLE	12/04/22 10:29

**Client Sample ID: QA-T-221108**

**Lab Sample ID: 410-104971-6**

Date Collected: 11/08/22 00:00

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317623	MXX6	ELLE	11/15/22 15:01
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 17:44

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317620	MXX6	ELLE	11/15/22 16:50
Total/NA	Prep	3510C			317821	QJZ6	ELLE	11/15/22 16:30
Total/NA	Analysis	8270E SIM		1	317979	SJ89	ELLE	11/16/22 06:24
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 18:10

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	RSK-175			316113	MB4Z	ELLE	11/10/22 09:39
Total/NA	Analysis	RSK-175		1	316091	MB4Z	ELLE	11/10/22 18:06
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 12:47
Total/NA	Analysis	EPA 300.0 R2.1		100	318350	L4QM	ELLE	11/16/22 23:31
Total/NA	Analysis	EPA 300.0 R2.1		5	315866	L4QM	ELLE	11/10/22 01:49
Dissolved	Prep	Non-Digest Prep			317328	UAMX	ELLE	11/14/22 13:50
Dissolved	Analysis	200.8 Rev 5.4		1	321467	S4PD	ELLE	11/28/22 17:07

**Client Sample ID: MW-535-W-221108**

**Lab Sample ID: 410-104971-8**

Date Collected: 11/08/22 10:28

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317623	MXX6	ELLE	11/15/22 15:25
Total/NA	Prep	3510C			317821	QJZ6	ELLE	11/15/22 16:30
Total/NA	Analysis	8270E SIM		1	317979	SJ89	ELLE	11/16/22 06:45
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 19:27
Total/NA	Prep	RSK-175			316113	MB4Z	ELLE	11/10/22 09:39
Total/NA	Analysis	RSK-175		1	316091	MB4Z	ELLE	11/10/22 18:23
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 13:33
Total/NA	Analysis	EPA 300.0 R2.1		100	317919	L4QM	ELLE	11/16/22 09:21
Total/NA	Analysis	EPA 300.0 R2.1		10	315868	W3XT	ELLE	11/10/22 03:37
Dissolved	Prep	Non-Digest Prep			317328	UAMX	ELLE	11/14/22 13:50
Dissolved	Analysis	200.8 Rev 5.4		1	321467	S4PD	ELLE	11/28/22 17:09

**Client Sample ID: MW-104-W-221108**

**Lab Sample ID: 410-104971-9**

Date Collected: 11/08/22 12:28

Matrix: Water

Date Received: 11/09/22 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	317623	MXX6	ELLE	11/15/22 15:49
Total/NA	Prep	3510C			317821	QJZ6	ELLE	11/15/22 16:30
Total/NA	Analysis	8270E SIM		1	317979	SJ89	ELLE	11/16/22 07:07
Total/NA	Analysis	NWTPH-Gx		1	317459	NND8	ELLE	11/15/22 19:52
Total/NA	Prep	RSK-175			316113	MB4Z	ELLE	11/10/22 09:39
Total/NA	Analysis	RSK-175		1	316091	MB4Z	ELLE	11/10/22 18:39
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 13:56
Total/NA	Analysis	EPA 300.0 R2.1		50	317919	L4QM	ELLE	11/16/22 09:32

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-104-W-221108**

**Lab Sample ID: 410-104971-9**

**Date Collected: 11/08/22 12:28**

**Matrix: Water**

**Date Received: 11/09/22 10:05**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	EPA 300.0 R2.1		5	315868	W3XT	ELLE	11/10/22 04:09
Dissolved	Prep	Non-Digest Prep			317328	UAMX	ELLE	11/14/22 13:50
Dissolved	Analysis	200.8 Rev 5.4		1	321467	S4PD	ELLE	11/28/22 17:13

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300





# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
200.8 Rev 5.4	Preparation, Total Recoverable Metals	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-104971-1	MW-530-W-221108	Water	11/08/22 10:35	11/09/22 10:05
410-104971-2	MW-ER-W-221108	Water	11/08/22 12:40	11/09/22 10:05
410-104971-3	MW-129R-W-221108	Water	11/08/22 12:15	11/09/22 10:05
410-104971-4	LM-2-W-221108	Water	11/08/22 10:40	11/09/22 10:05
410-104971-6	QA-T-221108	Water	11/08/22 00:00	11/09/22 10:05
410-104971-7	MW-533-W-221108	Water	11/08/22 14:10	11/09/22 10:05
410-104971-8	MW-535-W-221108	Water	11/08/22 10:28	11/09/22 10:05
410-104971-9	MW-104-W-221108	Water	11/08/22 12:28	11/09/22 10:05

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Chain of Custody Record



<b>Client Information</b> Client Contact: <b>SAM MILES</b> Company: <b>ARCADIS U.S. INC</b>		Sampler: <b>Peter Bruno</b> Phone: <b>206 853 7428</b>		Lab PM: E-Mail:		410-104971 Chain of Custody <b>WA</b>		COC No: Page: <b>Page 1 of 1</b> Job #:							
Address: <b>11720 UNDCO ROAD</b> City: <b>EDMONDS WA</b> State, Zip: <b>WA</b> PO #: <b>ARCADIS U.S. INC</b> Email:		Due Date Requested: TAT Requested (days): <b>STANDARD</b> Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: <b>Purchase Order not required</b> WC #:		<b>Analysis Requested</b>		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)		Project Name: <b>FORMER EDMONDS TERMINAL</b> Site: <b>FORMER EDMONDS TERMINAL</b> Project #: SSOW#:		Other:					
<b>Sample Identification</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=organic, BT=Trace, A=Air)</b>		<b>Field Filtered Sample (Yes or No) (SD, Yes or No)</b>		<b>Total Number of Containers</b>		<b>Special Instructions/Note:</b>	
<b>MW - 530</b>		<b>11-8-22</b>		<b>10:35</b>		<b>G W</b>		<b>W</b>		<b>Y</b>		<b>X X X X X X X</b>		<b>ONLY 200'S</b>	
<b>MW - ER</b>		<b>11-8-22</b>		<b>12:40</b>		<b>G W</b>		<b>W</b>		<b>Y</b>		<b>X X X X X X X</b>		<b>MANUANESE IS</b>	
<b>MW - 129R</b>		<b>11-8-22</b>		<b>12:15</b>		<b>G W</b>		<b>W</b>		<b>Y</b>		<b>X X X X X X X</b>		<b>FIELD FILTERED</b>	
<b>LM - 2</b>		<b>11-8-22</b>		<b>10:40</b>		<b>G W</b>		<b>W</b>		<b>Y</b>		<b>X X X X X X X</b>			
<b>MW - 525</b>		<b>11-8-22</b>		<b>13:55</b>		<b>G W</b>		<b>W</b>		<b>Y</b>		<b>X X X X X X X</b>		<b>USE STANDARD</b>	
<b>TRIP BLANKS</b>														<b>300</b>	
<b>MW - 533</b>		<b>11-8-22</b>		<b>14:10</b>		<b>G W</b>		<b>W</b>				<b>X X X X X X X</b>			
<b>MW - 535</b>		<b>11-8-22</b>		<b>10:28</b>		<b>G W</b>		<b>W</b>				<b>X X X X X X X</b>		<b>BENZENE &amp; CPAHS</b>	
<b>MW - 104</b>		<b>11-8-22</b>		<b>12:28</b>		<b>G W</b>		<b>W</b>				<b>X X X X X X X</b>		<b>WITH QUANTITATIVE LEVELS &lt; 1 M/L</b>	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		<b>Deliverable Requested: I, II, III, IV, Other (specify)</b>		<b>Special Instructions/QC Requirements:</b>		<b>Empty Kit Relinquished by:</b>		<b>Date:</b>		<b>Time:</b>		<b>Method of Shipment:</b>	
Relinquished by: <i>[Signature]</i>		Date/Time: <b>11/8/22 1500</b>		Company: <b>ARCADIS</b>		Received by:		Date/Time:		Company:					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time: <b>11/9/22 10:05</b>		Company: <b>ELLET</b>					
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>2.5-5.2</b>											

\* Field sampler Added 11/10/2022

AEM

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-104971-1

**Login Number: 104971**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/2/2022 12:38:25 AM

## JOB DESCRIPTION

Edmonds Terminal

## JOB NUMBER

410-105162-1

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
12/2/2022 12:38:25 AM

Authorized for release by  
Amek Carter, Project Manager  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)  
(717)556-7252

## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
cn	Refer to Case Narrative for further detail
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

### HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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

## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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

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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

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## Job ID: 410-105162-1

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Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

### Narrative

#### Job Narrative 410-105162-1

#### Receipt

The samples were received on 11/10/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.8°C, 1.1°C and 1.6°C

#### Receipt Exceptions

The following sample(s) was listed on the Chain of Custody (COC); however, no sample(s) was received: Trip Blank.

One or more containers for the following sample was received broken or leaking: MW-521-W-221109 (410-105162-1).

The lid on one of the vials was cracked and some of the sample had leaked out causing headspace in the vial. Remaining sample is not contaminated so the lid was replaced with a new one.

One amber glass 250 mL HCL preserved container is not labeled with a sample ID or collection date/time. Through process of elimination this was found to go with DUP-1

DUP-1-WD-221109 (410-105162-8)

#### GC/MS VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### GC/MS Semi VOA

Method 8270E\_SIM: Surrogate recovery for the following sample was outside control limits: DUP-2-WD-221109 (410-105162-9). Re-extraction and/or re-analysis was performed outside of holding time with acceptable results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### GC Semi VOA

Method NWTPH\_Dx: Surrogate recovery for the following sample was below the lower control limit: MW-525-W-221109 (410-105162-2). This sample did not contain any target analytes. Re-extraction could not be performed within the method required holding time, therefore the data is reported.

Method NWTPH\_Dx: The laboratory control sample (LCS) for preparation batch 410-320542 and 410-321951 and analytical batch 410-322536 recovered outside control limits (low) for the following analytes: C12-C24 and n-Decanoic Acid (Surr). Since %R was above 10% and samples have no hold time remaining samples were not re-extracted.

Method NWTPH\_Dx: Surrogate recovery for the following samples were outside control limits (low): MW-526-W-221109 (410-105162-6), DUP-1-WD-221109 (410-105162-8), DUP-2-WD-221109 (410-105162-9) and (410-105162-D-8-B DU). Evidence of matrix interferences is not obvious. Since %R was above 10% and samples have no hold time remaining samples were not re-extracted.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

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**Job ID: 410-105162-1 (Continued)**

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**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)**

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## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

### Client Sample ID: MW-521-W-221109

Lab Sample ID: 410-105162-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	40000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA

### Client Sample ID: MW-525-W-221109

Lab Sample ID: 410-105162-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	33000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	150		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-8R-W-221109

Lab Sample ID: 410-105162-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.011	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[a]pyrene	0.011	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[b]fluoranthene	0.013	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Benzo[k]fluoranthene	0.012	J	0.052	0.010	ug/L	1		8270E SIM	Total/NA
Dibenz[a,h]anthracene	0.021	J	0.052	0.021	ug/L	1		8270E SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.022	J	0.052	0.021	ug/L	1		8270E SIM	Total/NA
Nitrogen, Nitrate	860		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	230000	F1	75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	110		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-534-W-221109

Lab Sample ID: 410-105162-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	360		5.0	3.0	ug/L	1		RSK-175	Total/NA
Sulfate	180000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	950		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-532-W-221109

Lab Sample ID: 410-105162-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	11		5.0	3.0	ug/L	1		RSK-175	Total/NA
C24-C40	130	J	270	110	ug/L	1		NWTPH-Dx	Total/NA
Sulfate	11000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	96		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-526-W-221109

Lab Sample ID: 410-105162-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C7-C12 (1C)	52	J	250	43	ug/L	1		NWTPH-Gx	Total/NA
Nitrogen, Nitrate	1700		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	22000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	120		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

### Client Sample ID: MW-531-W-221109

Lab Sample ID: 410-105162-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane (1C)	17		5.0	3.0	ug/L	1		RSK-175	Total/NA
Nitrogen, Nitrate	330	J	550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	210000		75000	25000	ug/L	50		EPA 300.0 R2.1	Total/NA
Manganese	89		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Client Sample ID: DUP-1-WD-221109

## Lab Sample ID: 410-105162-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Nitrate	1700		550	250	ug/L	5		EPA 300.0 R2.1	Total/NA
Sulfate	22000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	130		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

## Client Sample ID: DUP-2-WD-221109

## Lab Sample ID: 410-105162-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	33000		7500	2500	ug/L	5		EPA 300.0 R2.1	Total/NA
Manganese	140		2.1	0.98	ug/L	1		200.8 Rev 5.4	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-521-W-221109**

**Lab Sample ID: 410-105162-1**

Date Collected: 11/09/22 13:25

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 21:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					11/16/22 21:01	1
4-Bromofluorobenzene (Surr)	91		80 - 120					11/16/22 21:01	1
Dibromofluoromethane (Surr)	103		80 - 120					11/16/22 21:01	1
Toluene-d8 (Surr)	97		80 - 120					11/16/22 21:01	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Chrysene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 14:00	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 14:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	90		10 - 110				11/16/22 15:37	11/17/22 14:00	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				11/16/22 15:37	11/17/22 14:00	1
Fluoranthene-d10 (Surr)	97		47 - 128				11/16/22 15:37	11/17/22 14:00	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 17:45	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 11:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133				11/16/22 09:45	11/16/22 11:41	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	53	ug/L		11/21/22 09:12	11/28/22 14:19	1
C24-C40	ND		290	120	ug/L		11/21/22 09:12	11/28/22 14:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	80		50 - 150				11/21/22 09:12	11/28/22 14:19	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 18:54	5
Sulfate	40000		7500	2500	ug/L			11/10/22 18:54	5



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Client Sample ID: MW-521-W-221109

Lab Sample ID: 410-105162-1

Date Collected: 11/09/22 13:25

Matrix: Water

Date Received: 11/10/22 10:00

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:12	1

## Client Sample ID: MW-525-W-221109

Lab Sample ID: 410-105162-2

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/16/22 15:12	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/16/22 15:12	1
Dibromofluoromethane (Surr)	104		80 - 120		11/16/22 15:12	1
Toluene-d8 (Surr)	94		80 - 120		11/16/22 15:12	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Chrysene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 14:21	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110	11/16/22 15:37	11/17/22 14:21	1
1-Methylnaphthalene-d10 (Surr)	69		36 - 111	11/16/22 15:37	11/17/22 14:21	1
Fluoranthene-d10 (Surr)	83		47 - 128	11/16/22 15:37	11/17/22 14:21	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 18:11	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 11:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133	11/16/22 09:45	11/16/22 11:56	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn	110	49	ug/L		11/21/22 09:12	11/28/22 14:41	1
C24-C40	ND	cn	270	110	ug/L		11/21/22 09:12	11/28/22 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	47	S1- cn	50 - 150	11/21/22 09:12	11/28/22 14:41	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-525-W-221109**

**Lab Sample ID: 410-105162-2**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 19:05	5
<b>Sulfate</b>	<b>33000</b>		7500	2500	ug/L			11/10/22 19:05	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>150</b>		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:08	1

**Client Sample ID: MW-8R-W-221109**

**Lab Sample ID: 410-105162-3**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 15:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/16/22 15:36	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/16/22 15:36	1
Dibromofluoromethane (Surr)	104		80 - 120		11/16/22 15:36	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 15:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzo[a]anthracene</b>	<b>0.011</b>	<b>J</b>	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
<b>Benzo[a]pyrene</b>	<b>0.011</b>	<b>J</b>	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
<b>Benzo[b]fluoranthene</b>	<b>0.013</b>	<b>J</b>	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
<b>Benzo[k]fluoranthene</b>	<b>0.012</b>	<b>J</b>	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Chrysene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
<b>Dibenz(a,h)anthracene</b>	<b>0.021</b>	<b>J</b>	0.052	0.021	ug/L		11/16/22 15:37	11/17/22 12:56	1
<b>Indeno[1,2,3-cd]pyrene</b>	<b>0.022</b>	<b>J</b>	0.052	0.021	ug/L		11/16/22 15:37	11/17/22 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	11/16/22 15:37	11/17/22 12:56	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111	11/16/22 15:37	11/17/22 12:56	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/16/22 15:37	11/17/22 12:56	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 21:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 21:48	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	F1	5.0	3.0	ug/L		11/16/22 09:45	11/16/22 12:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	51		43 - 133	11/16/22 09:45	11/16/22 12:11	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-8R-W-221109**

**Lab Sample ID: 410-105162-3**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	F1	100	46	ug/L		11/21/22 09:12	11/28/22 15:04	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	67		50 - 150				11/21/22 09:12	11/28/22 15:04	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	860		550	250	ug/L			11/10/22 19:16	5
Sulfate	230000	F1	75000	25000	ug/L			11/18/22 11:10	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	110		2.1	0.98	ug/L		11/14/22 13:40	11/18/22 18:58	1

**Client Sample ID: MW-534-W-221109**

**Lab Sample ID: 410-105162-4**

Date Collected: 11/09/22 09:40

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 16:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	93		80 - 120					11/16/22 16:48	1
<i>4-Bromofluorobenzene (Surr)</i>	92		80 - 120					11/16/22 16:48	1
<i>Dibromofluoromethane (Surr)</i>	104		80 - 120					11/16/22 16:48	1
<i>Toluene-d8 (Surr)</i>	94		80 - 120					11/16/22 16:48	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Chrysene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/16/22 15:37	11/17/22 14:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/16/22 15:37	11/17/22 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	60		10 - 110				11/16/22 15:37	11/17/22 14:42	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	83		36 - 111				11/16/22 15:37	11/17/22 14:42	1
<i>Fluoranthene-d10 (Surr)</i>	100		47 - 128				11/16/22 15:37	11/17/22 14:42	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	99		50 - 150					11/15/22 18:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-534-W-221109**

**Lab Sample ID: 410-105162-4**

Date Collected: 11/09/22 09:40

Matrix: Water

Date Received: 11/10/22 10:00

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	360		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	51		43 - 133				11/16/22 09:45	11/16/22 13:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 16:13	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 16:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	72		50 - 150				11/21/22 09:12	11/28/22 16:13	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 19:49	5
Sulfate	180000		75000	25000	ug/L			11/17/22 03:49	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	950		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:10	1

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 17:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/16/22 17:12	1
4-Bromofluorobenzene (Surr)	90		80 - 120					11/16/22 17:12	1
Dibromofluoromethane (Surr)	102		80 - 120					11/16/22 17:12	1
Toluene-d8 (Surr)	94		80 - 120					11/16/22 17:12	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[a]pyrene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[b]fluoranthene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[k]fluoranthene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Chrysene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Dibenz(a,h)anthracene	ND		0.057	0.023	ug/L		11/16/22 15:37	11/17/22 15:04	1
Indeno[1,2,3-cd]pyrene	ND		0.057	0.023	ug/L		11/16/22 15:37	11/17/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110				11/16/22 15:37	11/17/22 15:04	1
1-Methylnaphthalene-d10 (Surr)	80		36 - 111				11/16/22 15:37	11/17/22 15:04	1
Fluoranthene-d10 (Surr)	95		47 - 128				11/16/22 15:37	11/17/22 15:04	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 19:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 19:02	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	11		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133				11/16/22 09:45	11/16/22 13:27	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 16:36	1
C24-C40	130	J	270	110	ug/L		11/21/22 09:12	11/28/22 16:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	53		50 - 150				11/21/22 09:12	11/28/22 16:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 20:00	5
Sulfate	11000		7500	2500	ug/L			11/10/22 20:00	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	96		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 09:43	1

**Client Sample ID: MW-526-W-221109**

**Lab Sample ID: 410-105162-6**

Date Collected: 11/09/22 13:10

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/16/22 17:36	1
4-Bromofluorobenzene (Surr)	90		80 - 120					11/16/22 17:36	1
Dibromofluoromethane (Surr)	101		80 - 120					11/16/22 17:36	1
Toluene-d8 (Surr)	95		80 - 120					11/16/22 17:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Chrysene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 15:25	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 15:25	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-526-W-221109**

**Lab Sample ID: 410-105162-6**

Date Collected: 11/09/22 13:10

Matrix: Water

Date Received: 11/10/22 10:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	11/16/22 15:37	11/17/22 15:25	1
1-Methylnaphthalene-d10 (Surr)	84		36 - 111	11/16/22 15:37	11/17/22 15:25	1
Fluoranthene-d10 (Surr)	82		47 - 128	11/16/22 15:37	11/17/22 15:25	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	52	J	250	43	ug/L			11/15/22 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 20:19	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133	11/16/22 09:45	11/16/22 13:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	50	ug/L		11/23/22 08:00	12/01/22 13:54	1
C24-C40	ND	cn	280	110	ug/L		11/23/22 08:00	12/01/22 13:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	37	S1- cn	50 - 150	11/23/22 08:00	12/01/22 13:54	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1700		550	250	ug/L			11/10/22 20:11	5
Sulfate	22000		7500	2500	ug/L			11/10/22 20:11	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	120		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:06	1

**Client Sample ID: MW-531-W-221109**

**Lab Sample ID: 410-105162-7**

Date Collected: 11/09/22 09:16

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/16/22 18:00	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/16/22 18:00	1
Dibromofluoromethane (Surr)	103		80 - 120		11/16/22 18:00	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 18:00	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-531-W-221109**

**Lab Sample ID: 410-105162-7**

Date Collected: 11/09/22 09:16

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Chrysene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 15:47	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 15:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	41		10 - 110				11/16/22 15:37	11/17/22 15:47	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				11/16/22 15:37	11/17/22 15:47	1
Fluoranthene-d10 (Surr)	94		47 - 128				11/16/22 15:37	11/17/22 15:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 20:44	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	17		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133				11/16/22 09:45	11/16/22 13:58	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 14:17	1
C24-C40	ND		270	110	ug/L		11/23/22 08:00	12/01/22 14:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	55		50 - 150				11/23/22 08:00	12/01/22 14:17	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	330	J	550	250	ug/L			11/10/22 20:44	5
Sulfate	210000		75000	25000	ug/L			11/17/22 11:09	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	89		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:14	1

**Client Sample ID: DUP-1-WD-221109**

**Lab Sample ID: 410-105162-8**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/16/22 18:24	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-1-WD-221109**

**Lab Sample ID: 410-105162-8**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		80 - 120		11/16/22 18:24	1
Dibromofluoromethane (Surr)	102		80 - 120		11/16/22 18:24	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 18:24	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Chrysene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/16/22 15:37	11/17/22 16:08	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/16/22 15:37	11/17/22 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110	11/16/22 15:37	11/17/22 16:08	1
1-Methylnaphthalene-d10 (Surr)	83		36 - 111	11/16/22 15:37	11/17/22 16:08	1
Fluoranthene-d10 (Surr)	80		47 - 128	11/16/22 15:37	11/17/22 16:08	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 21:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 21:10	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 14:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133	11/16/22 09:45	11/16/22 14:13	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 14:40	1
C24-C40	ND	cn	270	110	ug/L		11/23/22 08:00	12/01/22 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	26	S1- cn	50 - 150	11/23/22 08:00	12/01/22 14:40	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1700		550	250	ug/L			11/10/22 20:55	5
Sulfate	22000		7500	2500	ug/L			11/10/22 20:55	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	130		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:04	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-2-WD-221109**

**Lab Sample ID: 410-105162-9**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:48	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/16/22 18:48	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/16/22 18:48	1
Dibromofluoromethane (Surr)	101		80 - 120					11/16/22 18:48	1
Toluene-d8 (Surr)	95		80 - 120					11/16/22 18:48	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[a]pyrene	ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[b]fluoranthene	ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[k]fluoranthene	ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Chrysene	ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Dibenz(a,h)anthracene	ND	cn	0.055	0.022	ug/L		11/16/22 15:37	11/17/22 16:29	1
Indeno[1,2,3-cd]pyrene	ND	cn	0.055	0.022	ug/L		11/16/22 15:37	11/17/22 16:29	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	36	cn	10 - 110				11/16/22 15:37	11/17/22 16:29	1
1-Methylnaphthalene-d10 (Surr)	7	S1- cn	36 - 111				11/16/22 15:37	11/17/22 16:29	1
Fluoranthene-d10 (Surr)	29	S1- cn	47 - 128				11/16/22 15:37	11/17/22 16:29	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 21:35	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 21:35	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 14:28	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133				11/16/22 09:45	11/16/22 14:28	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 15:26	1
C24-C40	ND	cn	270	110	ug/L		11/23/22 08:00	12/01/22 15:26	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	42	S1- cn	50 - 150				11/23/22 08:00	12/01/22 15:26	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 21:06	5
<b>Sulfate</b>	<b>33000</b>		7500	2500	ug/L			11/10/22 21:06	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-2-WD-221109**

**Lab Sample ID: 410-105162-9**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	140		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 09:56	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-105162-1	MW-521-W-221109	93	91	103	97
410-105162-2	MW-525-W-221109	93	93	104	94
410-105162-3	MW-8R-W-221109	93	92	104	95
410-105162-3 MS	MW-8R-W-221109 MS	95	93	104	94
410-105162-3 MSD	MW-8R-W-221109 MSD	93	93	103	94
410-105162-4	MW-534-W-221109	93	92	104	94
410-105162-5	MW-532-W-221109	95	90	102	94
410-105162-6	MW-526-W-221109	97	90	101	95
410-105162-7	MW-531-W-221109	96	92	103	95
410-105162-8	DUP-1-WD-221109	97	91	102	95
410-105162-9	DUP-2-WD-221109	96	92	101	95
LCS 410-318223/4	Lab Control Sample	94	93	104	95
LCS 410-318225/4	Lab Control Sample	96	94	104	95
LCS 410-318223/5	Lab Control Sample Dup	94	92	104	96
LCS 410-318225/5	Lab Control Sample Dup	95	95	103	96
MB 410-318223/6	Method Blank	94	92	104	97
MB 410-318225/6	Method Blank	93	91	103	94

**Surrogate Legend**

- DCA = 1,2-Dichloroethane-d4 (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DBFM = Dibromofluoromethane (Surr)
- TOL = Toluene-d8 (Surr)

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BAPd12 (10-110)	MNPd10 (36-111)	FLN10 (47-128)
410-105162-1	MW-521-W-221109	90	76	97
410-105162-2	MW-525-W-221109	65	69	83
410-105162-3	MW-8R-W-221109	85	70	86
410-105162-3 MS	MW-8R-W-221109 MS	89	73	90
410-105162-3 MSD	MW-8R-W-221109 MSD	85	71	89
410-105162-4	MW-534-W-221109	60	83	100
410-105162-5	MW-532-W-221109	85	80	95
410-105162-6	MW-526-W-221109	59	84	82
410-105162-7	MW-531-W-221109	41	79	94
410-105162-8	DUP-1-WD-221109	58	83	80
410-105162-9	DUP-2-WD-221109	36 cn	7 S1- cn	29 S1- cn
LCS 410-318311/2-A	Lab Control Sample	96	80	99
MB 410-318311/1-A	Method Blank	97	79	95

**Surrogate Legend**

- BAPd12 = Benzo(a)pyrene-d12 (Surr)
- MNPd10 = 1-Methylnaphthalene-d10 (Surr)
- FLN10 = Fluoranthene-d10 (Surr)

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## 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	TFT-F1 (50-150)	
410-105162-1	MW-521-W-221109	99	
410-105162-2	MW-525-W-221109	99	
410-105162-3	MW-8R-W-221109	101	
410-105162-3 MS	MW-8R-W-221109 MS	92	
410-105162-3 MSD	MW-8R-W-221109 MSD	93	
410-105162-4	MW-534-W-221109	99	
410-105162-5	MW-532-W-221109	99	
410-105162-6	MW-526-W-221109	99	
410-105162-7	MW-531-W-221109	99	
410-105162-8	DUP-1-WD-221109	99	
410-105162-9	DUP-2-WD-221109	99	
LCS 410-316643/5	Lab Control Sample	92	
LCS 410-317741/5	Lab Control Sample	92	
LCSD 410-316643/6	Lab Control Sample Dup	91	
LCSD 410-317741/6	Lab Control Sample Dup	92	
MB 410-316643/4	Method Blank	101	
MB 410-317741/4	Method Blank	100	

**Surrogate Legend**  
TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Propene1 (43-133)	
410-105162-1	MW-521-W-221109	53	
410-105162-2	MW-525-W-221109	53	
410-105162-3	MW-8R-W-221109	51	
410-105162-3 MS	MW-8R-W-221109 MS	52	
410-105162-3 MSD	MW-8R-W-221109 MSD	52	
410-105162-4	MW-534-W-221109	51	
410-105162-5	MW-532-W-221109	52	
410-105162-6	MW-526-W-221109	54	
410-105162-7	MW-531-W-221109	54	
410-105162-8	DUP-1-WD-221109	53	
410-105162-9	DUP-2-WD-221109	53	
LCS 410-318166/2-A	Lab Control Sample	96	
LCSD 410-318166/19-A	Lab Control Sample Dup	95	
MB 410-318166/1-A	Method Blank	96	

**Surrogate Legend**  
Propene = Propene

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTP (50-150)	
410-105162-1	MW-521-W-221109	80	

Eurofins Lancaster Laboratories Environment Testing, LLC

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTP (50-150)
410-105162-2	MW-525-W-221109	47 S1- cn
410-105162-3	MW-8R-W-221109	67
410-105162-3 MS	MW-8R-W-221109 MS	56
410-105162-3 MSD	MW-8R-W-221109 MSD	56
410-105162-4	MW-534-W-221109	72
410-105162-5	MW-532-W-221109	53
410-105162-6	MW-526-W-221109	37 S1- cn
410-105162-7	MW-531-W-221109	55
410-105162-8	DUP-1-WD-221109	26 S1- cn
410-105162-8 DU	DUP-1-WD-221109	37 S1- cn
410-105162-9	DUP-2-WD-221109	42 S1- cn
LCS 410-319383/2-B	Lab Control Sample	69
LCS 410-320542/2-B	Lab Control Sample	30 S1-
LCSD 410-319383/3-B	Lab Control Sample Dup	61
LCSD 410-320542/3-B	Lab Control Sample Dup	76
MB 410-319383/1-B	Method Blank	67
MB 410-320542/1-B	Method Blank	52

#### Surrogate Legend

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 410-318223/6

Matrix: Water

Analysis Batch: 318223

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 14:37	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/16/22 14:37	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/16/22 14:37	1
Dibromofluoromethane (Surr)	104		80 - 120					11/16/22 14:37	1
Toluene-d8 (Surr)	97		80 - 120					11/16/22 14:37	1

Lab Sample ID: LCS 410-318223/4

Matrix: Water

Analysis Batch: 318223

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	17.8		ug/L		89	80 - 120	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					
4-Bromofluorobenzene (Surr)	93		80 - 120					
Dibromofluoromethane (Surr)	104		80 - 120					
Toluene-d8 (Surr)	95		80 - 120					

Lab Sample ID: LCSD 410-318223/5

Matrix: Water

Analysis Batch: 318223

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	20.0	19.5		ug/L		98	80 - 120	9	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	94		80 - 120						
4-Bromofluorobenzene (Surr)	92		80 - 120						
Dibromofluoromethane (Surr)	104		80 - 120						
Toluene-d8 (Surr)	96		80 - 120						

Lab Sample ID: MB 410-318225/6

Matrix: Water

Analysis Batch: 318225

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 14:48	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					11/16/22 14:48	1
4-Bromofluorobenzene (Surr)	91		80 - 120					11/16/22 14:48	1
Dibromofluoromethane (Surr)	103		80 - 120					11/16/22 14:48	1
Toluene-d8 (Surr)	94		80 - 120					11/16/22 14:48	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 410-318225/4

Matrix: Water

Analysis Batch: 318225

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	20.8		ug/L		104	80 - 120
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dichloroethane-d4 (Surr)	96		80 - 120				
4-Bromofluorobenzene (Surr)	94		80 - 120				
Dibromofluoromethane (Surr)	104		80 - 120				
Toluene-d8 (Surr)	95		80 - 120				

Lab Sample ID: LCSD 410-318225/5

Matrix: Water

Analysis Batch: 318225

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	20.0	18.7		ug/L		94	80 - 120	11	30
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	95		80 - 120						
4-Bromofluorobenzene (Surr)	95		80 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
Toluene-d8 (Surr)	96		80 - 120						

Lab Sample ID: 410-105162-3 MS

Matrix: Water

Analysis Batch: 318225

Client Sample ID: MW-8R-W-221109 MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	22.6		ug/L		113	80 - 120
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dichloroethane-d4 (Surr)	95		80 - 120						
4-Bromofluorobenzene (Surr)	93		80 - 120						
Dibromofluoromethane (Surr)	104		80 - 120						
Toluene-d8 (Surr)	94		80 - 120						

Lab Sample ID: 410-105162-3 MSD

Matrix: Water

Analysis Batch: 318225

Client Sample ID: MW-8R-W-221109 MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	22.1		ug/L		110	80 - 120	2	30
<b>Surrogate</b>											
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
1,2-Dichloroethane-d4 (Surr)	93		80 - 120								
4-Bromofluorobenzene (Surr)	93		80 - 120								
Dibromofluoromethane (Surr)	103		80 - 120								
Toluene-d8 (Surr)	94		80 - 120								

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 410-318311/1-A**

**Matrix: Water**

**Analysis Batch: 318485**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 318311**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.010	ug/L		11/16/22 15:37	11/17/22 07:36	1
Benzo[a]pyrene	ND		0.050	0.010	ug/L		11/16/22 15:37	11/17/22 07:36	1
Benzo[b]fluoranthene	ND		0.050	0.010	ug/L		11/16/22 15:37	11/17/22 07:36	1
Benzo[k]fluoranthene	ND		0.050	0.010	ug/L		11/16/22 15:37	11/17/22 07:36	1
Chrysene	ND		0.050	0.010	ug/L		11/16/22 15:37	11/17/22 07:36	1
Dibenz(a,h)anthracene	ND		0.050	0.020	ug/L		11/16/22 15:37	11/17/22 07:36	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.020	ug/L		11/16/22 15:37	11/17/22 07:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Benzo(a)pyrene-d12 (Surr)	97		10 - 110	11/16/22 15:37	11/17/22 07:36	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111	11/16/22 15:37	11/17/22 07:36	1
Fluoranthene-d10 (Surr)	95		47 - 128	11/16/22 15:37	11/17/22 07:36	1

**Lab Sample ID: LCS 410-318311/2-A**

**Matrix: Water**

**Analysis Batch: 318485**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 318311**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	1.00	0.863		ug/L		86	60 - 120
Benzo[b]fluoranthene	1.00	0.875		ug/L		87	58 - 122
Benzo[k]fluoranthene	1.00	0.835		ug/L		83	57 - 128
Chrysene	1.00	0.850		ug/L		85	55 - 123
Dibenz(a,h)anthracene	1.00	0.886		ug/L		89	50 - 121
Indeno[1,2,3-cd]pyrene	1.00	0.913		ug/L		91	47 - 143

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	96		10 - 110
1-Methylnaphthalene-d10 (Surr)	80		36 - 111
Fluoranthene-d10 (Surr)	99		47 - 128

**Lab Sample ID: 410-105162-3 MS**

**Matrix: Water**

**Analysis Batch: 318485**

**Client Sample ID: MW-8R-W-221109 MS**

**Prep Type: Total/NA**

**Prep Batch: 318311**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Benzo[a]anthracene	0.011	J	1.02	0.960		ug/L		93	61 - 122
Benzo[a]pyrene	0.011	J	1.02	0.813		ug/L		78	60 - 120
Benzo[b]fluoranthene	0.013	J	1.02	0.828		ug/L		80	58 - 122
Benzo[k]fluoranthene	0.012	J	1.02	0.768		ug/L		74	57 - 128
Chrysene	ND		1.02	0.876		ug/L		86	55 - 123
Dibenz(a,h)anthracene	0.021	J	1.02	0.827		ug/L		81	50 - 121
Indeno[1,2,3-cd]pyrene	0.022	J	1.02	0.856		ug/L		81	47 - 143

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Benzo(a)pyrene-d12 (Surr)	89		10 - 110
1-Methylnaphthalene-d10 (Surr)	73		36 - 111



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 410-105162-3 MS

Matrix: Water

Analysis Batch: 318485

Client Sample ID: MW-8R-W-221109 MS

Prep Type: Total/NA

Prep Batch: 318311

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
Fluoranthene-d10 (Surr)	90		47 - 128

Lab Sample ID: 410-105162-3 MSD

Matrix: Water

Analysis Batch: 318485

Client Sample ID: MW-8R-W-221109 MSD

Prep Type: Total/NA

Prep Batch: 318311

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	0.011	J	1.02	0.932		ug/L		90	61 - 122	3	30	
Benzo[a]pyrene	0.011	J	1.02	0.776		ug/L		75	60 - 120	5	30	
Benzo[b]fluoranthene	0.013	J	1.02	0.785		ug/L		75	58 - 122	5	30	
Benzo[k]fluoranthene	0.012	J	1.02	0.736		ug/L		71	57 - 128	4	30	
Chrysene	ND		1.02	0.859		ug/L		84	55 - 123	2	30	
Dibenz(a,h)anthracene	0.021	J	1.02	0.730		ug/L		71	50 - 121	12	30	
Indeno[1,2,3-cd]pyrene	0.022	J	1.02	0.757		ug/L		72	47 - 143	12	30	

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
Benzo(a)pyrene-d12 (Surr)	85		10 - 110
1-Methylnaphthalene-d10 (Surr)	71		36 - 111
Fluoranthene-d10 (Surr)	89		47 - 128

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-316643/4

Matrix: Water

Analysis Batch: 316643

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 12:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 12:27	1

Lab Sample ID: LCS 410-316643/5

Matrix: Water

Analysis Batch: 316643

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
C7-C12 (1C)	1100	1000		ug/L		91	64 - 131	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

Lab Sample ID: LCSD 410-316643/6

Matrix: Water

Analysis Batch: 316643

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
C7-C12 (1C)	1100	1010		ug/L		92	64 - 131	1	30	

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# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	91		50 - 150

**Lab Sample ID: 410-105162-3 MS**  
**Matrix: Water**  
**Analysis Batch: 316643**

**Client Sample ID: MW-8R-W-221109 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	ND		1120	1030		ug/L		92	80 - 120

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

**Lab Sample ID: 410-105162-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 316643**

**Client Sample ID: MW-8R-W-221109 MSD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C7-C12 (1C)	ND		1120	1010		ug/L		91	80 - 120	1	30

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	93		50 - 150

**Lab Sample ID: MB 410-317741/4**  
**Matrix: Water**  
**Analysis Batch: 317741**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 13:56	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/15/22 13:56	1

**Lab Sample ID: LCS 410-317741/5**  
**Matrix: Water**  
**Analysis Batch: 317741**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	935		ug/L		85	64 - 131

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

**Lab Sample ID: LCSD 410-317741/6**  
**Matrix: Water**  
**Analysis Batch: 317741**

**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
C7-C12 (1C)	1100	902		ug/L		82	64 - 131	4	30

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 410-317741/6  
Matrix: Water  
Analysis Batch: 317741

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
a,a,a-Trifluorotoluene (fid) (1C)	92		50 - 150

## Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 410-318166/1-A  
Matrix: Water  
Analysis Batch: 318172

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 318166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 09:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	96		43 - 133	11/16/22 09:45	11/16/22 09:53	1

Lab Sample ID: LCS 410-318166/2-A  
Matrix: Water  
Analysis Batch: 318172

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 318166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	59.8	61.1		ug/L		102	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Propene (1C)	96		43 - 133

Lab Sample ID: LCSD 410-318166/19-A  
Matrix: Water  
Analysis Batch: 318172

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 318166

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methane (1C)	59.8	61.2		ug/L		102	85 - 115	0	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Propene (1C)	95		43 - 133

Lab Sample ID: 410-105162-3 MS  
Matrix: Water  
Analysis Batch: 318172

Client Sample ID: MW-8R-W-221109 MS  
Prep Type: Total/NA  
Prep Batch: 318166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Methane (1C)	ND	F1	59.8	35.3	F1	ug/L		59	85 - 115

Surrogate	MS %Recovery	MS Qualifier	Limits
Propene (1C)	52		43 - 133

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 410-105162-3 MSD

Matrix: Water

Analysis Batch: 318172

Client Sample ID: MW-8R-W-221109 MSD

Prep Type: Total/NA

Prep Batch: 318166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Methane (1C)	ND	F1	59.8	35.7	F1	ug/L		60	85 - 115	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
Propene (1C)	52		43 - 133								

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Lab Sample ID: MB 410-319383/1-B

Matrix: Water

Analysis Batch: 321156

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 319383

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		11/21/22 09:12	11/28/22 12:47	1
C24-C40	ND		250	100	ug/L		11/21/22 09:12	11/28/22 12:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	67		50 - 150				11/21/22 09:12	11/28/22 12:47	1

Lab Sample ID: LCS 410-319383/2-B

Matrix: Water

Analysis Batch: 321156

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 319383

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	163		ug/L		27	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
o-terphenyl (Surr)	69		50 - 150				

Lab Sample ID: LCSD 410-319383/3-B

Matrix: Water

Analysis Batch: 321156

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 319383

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
C12-C24	600	159		ug/L		26	14 - 115	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
o-terphenyl (Surr)	61		50 - 150						

Lab Sample ID: 410-105162-3 MS

Matrix: Water

Analysis Batch: 321158

Client Sample ID: MW-8R-W-221109 MS

Prep Type: Total/NA

Prep Batch: 319383

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	ND	F1	618	123	F1	ug/L		20	30 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
o-terphenyl (Surr)	56		50 - 150						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Lab Sample ID: 410-105162-3 MSD

Matrix: Water

Analysis Batch: 321158

Client Sample ID: MW-8R-W-221109 MSD

Prep Type: Total/NA

Prep Batch: 319383

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
C12-C24	ND	F1	622	128	F1	ug/L		21	30 - 115	4	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
<i>o-terphenyl (Surr)</i>	56		50 - 150								

Lab Sample ID: MB 410-320542/1-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 320542

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
C12-C24	ND		100	45	ug/L		11/23/22 08:00	12/01/22 12:45	1
C24-C40	ND		250	100	ug/L		11/23/22 08:00	12/01/22 12:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-terphenyl (Surr)</i>	52		50 - 150				11/23/22 08:00	12/01/22 12:45	1

Lab Sample ID: LCS 410-320542/2-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
C12-C24	600	49.8	J *	ug/L		8	14 - 115		
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	30	S1-	50 - 150						

Lab Sample ID: LCSD 410-320542/3-B

Matrix: Water

Analysis Batch: 322536

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Result	Qualifier				Limits		
C12-C24	600	232	*1	ug/L		39	14 - 115	129	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-terphenyl (Surr)</i>	76		50 - 150						

Lab Sample ID: 410-105162-8 DU

Matrix: Water

Analysis Batch: 322536

Client Sample ID: DUP-1-WD-221109

Prep Type: Total/NA

Prep Batch: 320542

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND	*- *1 cn	ND	*- *1 cn	ug/L		NC	20
C24-C40	ND	cn	ND	cn	ug/L		NC	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-terphenyl (Surr)</i>	37	S1- cn	50 - 150					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-316263/5**  
**Matrix: Water**  
**Analysis Batch: 316263**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		110	50	ug/L			11/10/22 11:27	1

**Lab Sample ID: LCS 410-316263/3**  
**Matrix: Water**  
**Analysis Batch: 316263**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	750	707		ug/L		94	90 - 110

**Lab Sample ID: LCSD 410-316263/4**  
**Matrix: Water**  
**Analysis Batch: 316263**

**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
Nitrogen, Nitrate	750	708		ug/L		94	90 - 110	0	20

**Lab Sample ID: 410-105162-3 MS**  
**Matrix: Water**  
**Analysis Batch: 316263**

**Client Sample ID: MW-8R-W-221109 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Nitrate	860		2500	3390		ug/L		101	90 - 110

**Lab Sample ID: 410-105162-3 DU**  
**Matrix: Water**  
**Analysis Batch: 316263**

**Client Sample ID: MW-8R-W-221109 SD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrogen, Nitrate	860		882		ug/L		2	15

**Lab Sample ID: MB 410-316264/5**  
**Matrix: Water**  
**Analysis Batch: 316264**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/10/22 11:27	1

**Lab Sample ID: LCS 410-316264/3**  
**Matrix: Water**  
**Analysis Batch: 316264**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7220		ug/L		96	90 - 110

**Lab Sample ID: LCSD 410-316264/4**  
**Matrix: Water**  
**Analysis Batch: 316264**

**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
Sulfate	7500	7220		ug/L		96	90 - 110	0	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: MB 410-318350/5**  
**Matrix: Water**  
**Analysis Batch: 318350**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/16/22 22:48	1

**Lab Sample ID: LCS 410-318350/3**  
**Matrix: Water**  
**Analysis Batch: 318350**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7800		ug/L		104	90 - 110

**Lab Sample ID: LCSD 410-318350/4**  
**Matrix: Water**  
**Analysis Batch: 318350**

**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
Sulfate	7500	7680		ug/L		102	90 - 110	2	20

**Lab Sample ID: MB 410-318364/5**  
**Matrix: Water**  
**Analysis Batch: 318364**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/17/22 10:09	1

**Lab Sample ID: LCS 410-318364/3**  
**Matrix: Water**  
**Analysis Batch: 318364**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7910		ug/L		105	90 - 110

**Lab Sample ID: LCSD 410-318364/4**  
**Matrix: Water**  
**Analysis Batch: 318364**

**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
Sulfate	7500	7860		ug/L		105	90 - 110	1	20

**Lab Sample ID: MB 410-319179/5**  
**Matrix: Water**  
**Analysis Batch: 319179**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1500	500	ug/L			11/18/22 09:45	1

**Lab Sample ID: LCS 410-319179/3**  
**Matrix: Water**  
**Analysis Batch: 319179**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	7500	7030		ug/L		94	90 - 110

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

**Lab Sample ID: LCSD 410-319179/4**  
**Matrix: Water**  
**Analysis Batch: 319179**

**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
Sulfate	7500	7020		ug/L		94	90 - 110	0	20

**Lab Sample ID: 410-105162-3 MS**  
**Matrix: Water**  
**Analysis Batch: 319179**

**Client Sample ID: MW-8R-W-221109 MS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	230000	F1	250000	574000	F1	ug/L		136	90 - 110

**Lab Sample ID: 410-105162-3 DU**  
**Matrix: Water**  
**Analysis Batch: 319179**

**Client Sample ID: MW-8R-W-221109 SD**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	230000	F1	240000		ug/L		3	15

## Method: 200.8 Rev 5.4 - Metals (ICP/MS)

**Lab Sample ID: MB 410-317313/1-A**  
**Matrix: Water**  
**Analysis Batch: 322651**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 317313**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 09:39	1

**Lab Sample ID: LCS 410-317313/2-A**  
**Matrix: Water**  
**Analysis Batch: 322651**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 317313**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	509		ug/L		102	85 - 115

**Lab Sample ID: MB 410-317322/1-A**  
**Matrix: Water**  
**Analysis Batch: 319297**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 317322**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:40	11/18/22 18:54	1

**Lab Sample ID: LCS 410-317322/2-A**  
**Matrix: Water**  
**Analysis Batch: 319297**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 317322**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	500	513		ug/L		103	85 - 115



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Method: 200.8 Rev 5.4 - Metals (ICP/MS) (Continued)

**Lab Sample ID: 410-105162-5 MS**  
**Matrix: Water**  
**Analysis Batch: 322651**

**Client Sample ID: MW-532-W-221109**  
**Prep Type: Dissolved**  
**Prep Batch: 317313**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	96		500	599		ug/L		101	70 - 130

**Lab Sample ID: 410-105162-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 322651**

**Client Sample ID: MW-532-W-221109**  
**Prep Type: Dissolved**  
**Prep Batch: 317313**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Manganese	96		500	585		ug/L		98	70 - 130	2	20

**Lab Sample ID: 410-105162-5 DU**  
**Matrix: Water**  
**Analysis Batch: 322651**

**Client Sample ID: MW-532-W-221109**  
**Prep Type: Dissolved**  
**Prep Batch: 317313**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Manganese	96		96.6		ug/L		0.4	20

**Lab Sample ID: 410-105162-3 MS**  
**Matrix: Water**  
**Analysis Batch: 319297**

**Client Sample ID: MW-8R-W-221109 MS**  
**Prep Type: Dissolved**  
**Prep Batch: 317322**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	110		500	624		ug/L		103	70 - 130

**Lab Sample ID: 410-105162-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 319297**

**Client Sample ID: MW-8R-W-221109 MSD**  
**Prep Type: Dissolved**  
**Prep Batch: 317322**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Manganese	110		500	631		ug/L		105	70 - 130	1	20

**Lab Sample ID: 410-105162-3 DU**  
**Matrix: Water**  
**Analysis Batch: 319297**

**Client Sample ID: MW-8R-W-221109 SD**  
**Prep Type: Dissolved**  
**Prep Batch: 317322**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Manganese	110		105		ug/L		1	20

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## GC/MS VOA

### Analysis Batch: 318223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	8260D/UST	
MB 410-318223/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-318223/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-318223/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

### Analysis Batch: 318225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-2	MW-525-W-221109	Total/NA	Water	8260D/UST	
410-105162-3	MW-8R-W-221109	Total/NA	Water	8260D/UST	
410-105162-4	MW-534-W-221109	Total/NA	Water	8260D/UST	
410-105162-5	MW-532-W-221109	Total/NA	Water	8260D/UST	
410-105162-6	MW-526-W-221109	Total/NA	Water	8260D/UST	
410-105162-7	MW-531-W-221109	Total/NA	Water	8260D/UST	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	8260D/UST	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	8260D/UST	
MB 410-318225/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-318225/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-318225/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	8260D/UST	
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	8260D/UST	

## GC/MS Semi VOA

### Prep Batch: 318311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	3510C	
410-105162-2	MW-525-W-221109	Total/NA	Water	3510C	
410-105162-3	MW-8R-W-221109	Total/NA	Water	3510C	
410-105162-4	MW-534-W-221109	Total/NA	Water	3510C	
410-105162-5	MW-532-W-221109	Total/NA	Water	3510C	
410-105162-6	MW-526-W-221109	Total/NA	Water	3510C	
410-105162-7	MW-531-W-221109	Total/NA	Water	3510C	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	3510C	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	3510C	
MB 410-318311/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-318311/2-A	Lab Control Sample	Total/NA	Water	3510C	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	3510C	
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	3510C	

### Analysis Batch: 318485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-2	MW-525-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-3	MW-8R-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-4	MW-534-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-5	MW-532-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-6	MW-526-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-7	MW-531-W-221109	Total/NA	Water	8270E SIM	318311
410-105162-8	DUP-1-WD-221109	Total/NA	Water	8270E SIM	318311
410-105162-9	DUP-2-WD-221109	Total/NA	Water	8270E SIM	318311
MB 410-318311/1-A	Method Blank	Total/NA	Water	8270E SIM	318311

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 318485 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-318311/2-A	Lab Control Sample	Total/NA	Water	8270E SIM	318311
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	8270E SIM	318311
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	8270E SIM	318311

## GC VOA

### Analysis Batch: 316643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-3	MW-8R-W-221109	Total/NA	Water	NWTPH-Gx	
MB 410-316643/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-316643/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-316643/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	NWTPH-Gx	
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	NWTPH-Gx	

### Analysis Batch: 317741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-2	MW-525-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-4	MW-534-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-5	MW-532-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-6	MW-526-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-7	MW-531-W-221109	Total/NA	Water	NWTPH-Gx	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	NWTPH-Gx	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	NWTPH-Gx	
MB 410-317741/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-317741/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-317741/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

### Prep Batch: 318166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	RSK-175	
410-105162-2	MW-525-W-221109	Total/NA	Water	RSK-175	
410-105162-3	MW-8R-W-221109	Total/NA	Water	RSK-175	
410-105162-4	MW-534-W-221109	Total/NA	Water	RSK-175	
410-105162-5	MW-532-W-221109	Total/NA	Water	RSK-175	
410-105162-6	MW-526-W-221109	Total/NA	Water	RSK-175	
410-105162-7	MW-531-W-221109	Total/NA	Water	RSK-175	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	RSK-175	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	RSK-175	
MB 410-318166/1-A	Method Blank	Total/NA	Water	RSK-175	
LCS 410-318166/2-A	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 410-318166/19-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	RSK-175	
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	RSK-175	

### Analysis Batch: 318172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	RSK-175	318166
410-105162-2	MW-525-W-221109	Total/NA	Water	RSK-175	318166
410-105162-3	MW-8R-W-221109	Total/NA	Water	RSK-175	318166

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## GC VOA (Continued)

### Analysis Batch: 318172 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-4	MW-534-W-221109	Total/NA	Water	RSK-175	318166
410-105162-5	MW-532-W-221109	Total/NA	Water	RSK-175	318166
410-105162-6	MW-526-W-221109	Total/NA	Water	RSK-175	318166
410-105162-7	MW-531-W-221109	Total/NA	Water	RSK-175	318166
410-105162-8	DUP-1-WD-221109	Total/NA	Water	RSK-175	318166
410-105162-9	DUP-2-WD-221109	Total/NA	Water	RSK-175	318166
MB 410-318166/1-A	Method Blank	Total/NA	Water	RSK-175	318166
LCS 410-318166/2-A	Lab Control Sample	Total/NA	Water	RSK-175	318166
LCS 410-318166/19-A	Lab Control Sample Dup	Total/NA	Water	RSK-175	318166
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	RSK-175	318166
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	RSK-175	318166

## GC Semi VOA

### Prep Batch: 319383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	3510C	
410-105162-2	MW-525-W-221109	Total/NA	Water	3510C	
410-105162-3	MW-8R-W-221109	Total/NA	Water	3510C	
410-105162-4	MW-534-W-221109	Total/NA	Water	3510C	
410-105162-5	MW-532-W-221109	Total/NA	Water	3510C	
MB 410-319383/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCS 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	3510C	
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	3510C	

### Prep Batch: 320542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-6	MW-526-W-221109	Total/NA	Water	3510C	
410-105162-7	MW-531-W-221109	Total/NA	Water	3510C	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	3510C	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	3510C	
MB 410-320542/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCS 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-105162-8 DU	DUP-1-WD-221109	Total/NA	Water	3510C	

### Cleanup Batch: 321018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	3630C	319383
410-105162-2	MW-525-W-221109	Total/NA	Water	3630C	319383
410-105162-3	MW-8R-W-221109	Total/NA	Water	3630C	319383
410-105162-4	MW-534-W-221109	Total/NA	Water	3630C	319383
410-105162-5	MW-532-W-221109	Total/NA	Water	3630C	319383
MB 410-319383/1-B	Method Blank	Total/NA	Water	3630C	319383
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	3630C	319383
LCS 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	319383
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	3630C	319383
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	3630C	319383

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## GC Semi VOA

### Analysis Batch: 321156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-319383/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	321018
LCS 410-319383/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	321018
LCSD 410-319383/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	321018

### Analysis Batch: 321158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	NWTPH-Dx	321018
410-105162-2	MW-525-W-221109	Total/NA	Water	NWTPH-Dx	321018
410-105162-3	MW-8R-W-221109	Total/NA	Water	NWTPH-Dx	321018
410-105162-4	MW-534-W-221109	Total/NA	Water	NWTPH-Dx	321018
410-105162-5	MW-532-W-221109	Total/NA	Water	NWTPH-Dx	321018
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	NWTPH-Dx	321018
410-105162-3 MSD	MW-8R-W-221109 MSD	Total/NA	Water	NWTPH-Dx	321018

### Cleanup Batch: 321951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-6	MW-526-W-221109	Total/NA	Water	3630C	320542
410-105162-7	MW-531-W-221109	Total/NA	Water	3630C	320542
410-105162-8	DUP-1-WD-221109	Total/NA	Water	3630C	320542
410-105162-9	DUP-2-WD-221109	Total/NA	Water	3630C	320542
MB 410-320542/1-B	Method Blank	Total/NA	Water	3630C	320542
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	3630C	320542
LCSD 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	320542
410-105162-8 DU	DUP-1-WD-221109	Total/NA	Water	3630C	320542

### Analysis Batch: 322536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-6	MW-526-W-221109	Total/NA	Water	NWTPH-Dx	321951
410-105162-7	MW-531-W-221109	Total/NA	Water	NWTPH-Dx	321951
410-105162-8	DUP-1-WD-221109	Total/NA	Water	NWTPH-Dx	321951
410-105162-9	DUP-2-WD-221109	Total/NA	Water	NWTPH-Dx	321951
MB 410-320542/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	321951
LCS 410-320542/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	321951
LCSD 410-320542/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	321951
410-105162-8 DU	DUP-1-WD-221109	Total/NA	Water	NWTPH-Dx	321951

## HPLC/IC

### Analysis Batch: 316263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-2	MW-525-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-3	MW-8R-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-4	MW-534-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-5	MW-532-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-6	MW-526-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-7	MW-531-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	EPA 300.0 R2.1	
MB 410-316263/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-316263/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## HPLC/IC (Continued)

### Analysis Batch: 316263 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-316263/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	EPA 300.0 R2.1	
410-105162-3 DU	MW-8R-W-221109 SD	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 316264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-2	MW-525-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-5	MW-532-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-6	MW-526-W-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-8	DUP-1-WD-221109	Total/NA	Water	EPA 300.0 R2.1	
410-105162-9	DUP-2-WD-221109	Total/NA	Water	EPA 300.0 R2.1	
MB 410-316264/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-316264/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-316264/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 318350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-4	MW-534-W-221109	Total/NA	Water	EPA 300.0 R2.1	
MB 410-318350/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-318350/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-318350/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 318364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-7	MW-531-W-221109	Total/NA	Water	EPA 300.0 R2.1	
MB 410-318364/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-318364/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-318364/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

### Analysis Batch: 319179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-3	MW-8R-W-221109	Total/NA	Water	EPA 300.0 R2.1	
MB 410-319179/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-319179/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-319179/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	
410-105162-3 MS	MW-8R-W-221109 MS	Total/NA	Water	EPA 300.0 R2.1	
410-105162-3 DU	MW-8R-W-221109 SD	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 317313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-2	MW-525-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-4	MW-534-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-5	MW-532-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-6	MW-526-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-7	MW-531-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-8	DUP-1-WD-221109	Dissolved	Water	Non-Digest Prep	
410-105162-9	DUP-2-WD-221109	Dissolved	Water	Non-Digest Prep	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Metals (Continued)

### Prep Batch: 317313 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-317313/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-317313/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-105162-5 MS	MW-532-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-5 MSD	MW-532-W-221109	Dissolved	Water	Non-Digest Prep	
410-105162-5 DU	MW-532-W-221109	Dissolved	Water	Non-Digest Prep	

### Prep Batch: 317322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-3	MW-8R-W-221109	Dissolved	Water	Non-Digest Prep	
MB 410-317322/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-317322/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	
410-105162-3 MS	MW-8R-W-221109 MS	Dissolved	Water	Non-Digest Prep	
410-105162-3 MSD	MW-8R-W-221109 MSD	Dissolved	Water	Non-Digest Prep	
410-105162-3 DU	MW-8R-W-221109 SD	Dissolved	Water	Non-Digest Prep	

### Analysis Batch: 319297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-3	MW-8R-W-221109	Dissolved	Water	200.8 Rev 5.4	317322
MB 410-317322/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	317322
LCS 410-317322/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	317322
410-105162-3 MS	MW-8R-W-221109 MS	Dissolved	Water	200.8 Rev 5.4	317322
410-105162-3 MSD	MW-8R-W-221109 MSD	Dissolved	Water	200.8 Rev 5.4	317322
410-105162-3 DU	MW-8R-W-221109 SD	Dissolved	Water	200.8 Rev 5.4	317322

### Analysis Batch: 322651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-105162-1	MW-521-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-2	MW-525-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-4	MW-534-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-5	MW-532-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-6	MW-526-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-7	MW-531-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-8	DUP-1-WD-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-9	DUP-2-WD-221109	Dissolved	Water	200.8 Rev 5.4	317313
MB 410-317313/1-A	Method Blank	Total/NA	Water	200.8 Rev 5.4	317313
LCS 410-317313/2-A	Lab Control Sample	Total/NA	Water	200.8 Rev 5.4	317313
410-105162-5 MS	MW-532-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-5 MSD	MW-532-W-221109	Dissolved	Water	200.8 Rev 5.4	317313
410-105162-5 DU	MW-532-W-221109	Dissolved	Water	200.8 Rev 5.4	317313

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-521-W-221109**

**Lab Sample ID: 410-105162-1**

Date Collected: 11/09/22 13:25

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318223	UKAD	ELLE	11/16/22 21:01
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 14:00
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 17:45
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 11:41
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 14:19
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 18:54
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 18:54
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:12

**Client Sample ID: MW-525-W-221109**

**Lab Sample ID: 410-105162-2**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 15:12
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 14:21
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 18:11
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 11:56
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 14:41
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 19:05
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 19:05
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:08

**Client Sample ID: MW-8R-W-221109**

**Lab Sample ID: 410-105162-3**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 15:36
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 12:56
Total/NA	Analysis	NWTPH-Gx		1	316643	NND8	ELLE	11/11/22 21:48
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 12:11

Eurofins Lancaster Laboratories Environment Testing, LLC



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-8R-W-221109**

**Lab Sample ID: 410-105162-3**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 15:04
Total/NA	Analysis	EPA 300.0 R2.1		50	319179	L4QM	ELLE	11/18/22 11:10
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 19:16
Dissolved	Prep	Non-Digest Prep			317322	UAMX	ELLE	11/14/22 13:40
Dissolved	Analysis	200.8 Rev 5.4		1	319297	S4PD	ELLE	11/18/22 18:58

**Client Sample ID: MW-534-W-221109**

**Lab Sample ID: 410-105162-4**

Date Collected: 11/09/22 09:40

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 16:48
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 14:42
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 18:36
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 13:12
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 16:13
Total/NA	Analysis	EPA 300.0 R2.1		50	318350	L4QM	ELLE	11/17/22 03:49
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 19:49
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:10

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 17:12
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 15:04
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 19:02
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 13:27
Total/NA	Prep	3510C			319383	YDF5	ELLE	11/21/22 09:12
Total/NA	Cleanup	3630C			321018	UKQ8	ELLE	11/27/22 20:20
Total/NA	Analysis	NWTPH-Dx		1	321158	KP5X	ELLE	11/28/22 16:36
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 20:00
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 20:00

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 09:43

**Client Sample ID: MW-526-W-221109**

**Lab Sample ID: 410-105162-6**

Date Collected: 11/09/22 13:10

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 17:36
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 15:25
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 20:19
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 13:42
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 13:54
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 20:11
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 20:11
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:06

**Client Sample ID: MW-531-W-221109**

**Lab Sample ID: 410-105162-7**

Date Collected: 11/09/22 09:16

Matrix: Water

Date Received: 11/10/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 18:00
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 15:47
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 20:44
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 13:58
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 14:17
Total/NA	Analysis	EPA 300.0 R2.1		50	318364	L4QM	ELLE	11/17/22 11:09
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 20:44
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:14

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-1-WD-221109**

**Lab Sample ID: 410-105162-8**

**Date Collected: 11/09/22 00:00**

**Matrix: Water**

**Date Received: 11/10/22 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 18:24
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 16:08
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 21:10
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 14:13
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 14:40
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 20:55
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 20:55
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 10:04

**Client Sample ID: DUP-2-WD-221109**

**Lab Sample ID: 410-105162-9**

**Date Collected: 11/09/22 00:00**

**Matrix: Water**

**Date Received: 11/10/22 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	318225	UKAD	ELLE	11/16/22 18:48
Total/NA	Prep	3510C			318311	QJZ6	ELLE	11/16/22 15:37
Total/NA	Analysis	8270E SIM		1	318485	SJ89	ELLE	11/17/22 16:29
Total/NA	Analysis	NWTPH-Gx		1	317741	NND8	ELLE	11/15/22 21:35
Total/NA	Prep	RSK-175			318166	MB4Z	ELLE	11/16/22 09:45
Total/NA	Analysis	RSK-175		1	318172	LXF2	ELLE	11/16/22 14:28
Total/NA	Prep	3510C			320542	YDF5	ELLE	11/23/22 08:00
Total/NA	Cleanup	3630C			321951	USL7	ELLE	12/01/22 01:45
Total/NA	Analysis	NWTPH-Dx		1	322536	IUSB	ELLE	12/01/22 15:26
Total/NA	Analysis	EPA 300.0 R2.1		5	316263	W3XT	ELLE	11/10/22 21:06
Total/NA	Analysis	EPA 300.0 R2.1		5	316264	W3XT	ELLE	11/10/22 21:06
Dissolved	Prep	Non-Digest Prep			317313	UAMX	ELLE	11/14/22 13:28
Dissolved	Analysis	200.8 Rev 5.4		1	322651	F7JF	ELLE	12/01/22 09:56

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 300.0 R2.1		Water	Nitrogen, Nitrate
EPA 300.0 R2.1		Water	Sulfate
RSK-175	RSK-175	Water	Methane (1C)



# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
RSK-175	Dissolved Gases (GC)	RSK	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
200.8 Rev 5.4	Metals (ICP/MS)	EPA	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE
RSK-175	Dissolved Gases Prep	RSK	ELLE

#### Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-105162-1	MW-521-W-221109	Water	11/09/22 13:25	11/10/22 10:00
410-105162-2	MW-525-W-221109	Water	11/09/22 13:20	11/10/22 10:00
410-105162-3	MW-8R-W-221109	Water	11/09/22 13:20	11/10/22 10:00
410-105162-4	MW-534-W-221109	Water	11/09/22 09:40	11/10/22 10:00
410-105162-5	MW-532-W-221109	Water	11/09/22 09:50	11/10/22 10:00
410-105162-6	MW-526-W-221109	Water	11/09/22 13:10	11/10/22 10:00
410-105162-7	MW-531-W-221109	Water	11/09/22 09:16	11/10/22 10:00
410-105162-8	DUP-1-WD-221109	Water	11/09/22 00:00	11/10/22 10:00
410-105162-9	DUP-2-WD-221109	Water	11/09/22 00:00	11/10/22 10:00

- 1
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- 14
- 15

Chain of Custody Record



410-105162 Chain of Custody

Client Information			Sampler: SAVANNAH GREEN			Lab PM:			COC No:					
Client Contact: Ophelie Enceles			Phone:			E-Mail:			State of Origin: WA					
Company: Arcadis			PWSID:			Analysis Requested			Job #:					
Address: 1100 Olive Way Ste 800			Due Date Requested:			Field Filtered Sample (Yes or No) Element MS/MS (Yes or No)			Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)					
City: Seattle			TAT Requested (days): STAT											
State, Zip: WA 98101			Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Phone:			PO #:											
Email: Ophelie.Enceles@Arcadis.com			Purchase Order not required											
Project Name: Edmonds Terminal			Project #: 30064301			WO #:			Other:					
Site:			SSOW#:			Total Number of Containers			Special Instructions/Note:					
Sample Identification			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=organic)	Field Filtered Sample (Yes or No)			Element MS/MS (Yes or No)				
MW-52J	11/9/22	1325	G	W			X	X	X	X	X	X	14	Trip Blank
MW-52S		1320												NWTPH-Gu +
MW-8R		1320												Benzene only.
MW-8R MS/MSD		1320												
MW-534		0940											4	use standard
MW-532		0950												SGC
MW-526		1310												
<del>MW-531</del> Trip Blank		<del>1325</del>					X	X	X	X	X	X		Quantitative levels for CPANs + Benzene Alkyl
MW-531		0916												
<del>MW-DUP-1</del>		-												
DUP-2		-												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:								
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:					
Relinquished by:			Date/Time:			Company:			Received by:					
Relinquished by:			Date/Time:			Company:			Received by:					
Relinquished by:			Date/Time:			Company:			Received by: JMA					
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooling Temperature(s) °C and Other Remarks: 0.8-1.6			Date/Time: 11/10/22 10:00					

\* Field sampler Added @ AC 1779 11/15/2022

MW

CB

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-105162-1

**Login Number: 105162**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	False	Refer to Job Narrative for details.
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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	False	Headspace greater than 6mm in diameter in some but not all containers



CHEVRON

## DATA REVIEW

Edmonds Terminal  
Edmonds, Washington

*Volatile Organic Compounds, Polycyclic Aromatic Hydrocarbons, Diesel, Motor Oil, and Gasoline Range Petroleum Hydrocarbons, Metals, and General Chemistry Analyses*

SDGs: 410-104778-1, 104-104971, and 410-105162-1

Analyses Performed By:  
Eurofins Environment Testing America  
Lancaster, Pennsylvania

Validation Report: 47888R  
Review Level: Tier II  
Project: 30063675

## DATA REVIEW REPORT

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) 410-104778-1, 104-104971, and 410-105162-1 for samples collected in association with the Edmonds Terminal site in, Edmonds, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets, and chain-of-custody records (COCs). Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	PAH	TPHg	TPHd	Metals	Misc.
MW-504-W-221107	410-104778-1	Water	11/7/2022		X	X	X	X	X	X
MW-505-W-221107	410-104778-2	Water	11/7/2022		X	X	X	X	X	X
MW-506-W-221107	410-104778-3	Water	11/7/2022		X	X	X	X	X	X
MW-507-W-221107	410-104778-4	Water	11/7/2022		X	X	X	X	X	X
MW-509-W-221107	410-104778-5	Water	11/7/2022		X	X	X	X	X	X
MW-515-W-221107	410-104778-6	Water	11/7/2022		X	X	X	X	X	X
MW-516-W-221107	410-104778-7	Water	11/7/2022		X	X	X	X	X	X
MW-517-W-221107	410-104778-8	Water	11/7/2022		X	X	X	X	X	X
QA-T-221107	410-104778-9	Water	11/7/2022		X		X			
MW-530-W-221108	410-104971-1	Water	11/8/2022		X	X	X	X	X	X
MW-ER-W-221108	410-104971-2	Water	11/8/2022		X	X	X	X	X	X
MW-129R-W-221108	410-104971-3	Water	11/8/2022		X	X	X	X	X	X
LM-2-W-221108	410-104971-4	Water	11/8/2022		X	X	X	X	X	X
QA-T-221108	410-104971-6	Water	11/8/2022		X		X			
MW-533-W-221108	410-104971-7	Water	11/8/2022		X	X	X	X	X	X
MW-535-W-221108	410-104971-8	Water	11/8/2022		X	X	X	X	X	X
MW-104-W-221108	410-104971-9	Water	11/8/2022		X	X	X	X	X	X
MW-521-W-221109	410-105162-1	Water	11/9/2022		X	X	X	X	X	X
MW-525-W-221109	410-105162-2	Water	11/9/2022		X	X	X	X	X	X
MW-8R-W-221109	410-105162-3	Water	11/9/2022		X	X	X	X	X	X
MW-534-W-221109	410-105162-4	Water	11/9/2022		X	X	X	X	X	X
MW-532-W-221109	410-105162-5	Water	11/9/2022		X	X	X	X	X	X
MW-526-W-221109	410-105162-6	Water	11/9/2022		X	X	X	X	X	X

## DATA REVIEW REPORT

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	PAH	TPHg	TPHd	Metals	Misc.
MW-531-W-221109	410-105162-7	Water	11/9/2022		X	X	X	X	X	X
DUP-1-WD-221109	410-105162-8	Water	11/9/2022	MW-526-W-221109	X	X	X	X	X	X
DUP-2-WD-221109	410-105162-9	Water	11/9/2022	MW-525-W-221109	X	X	X	X	X	X

Note: As specified on the COCs, sample MW-8R was used in the MS/MSD analyses.

## DATA REVIEW REPORT

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

## DATA REVIEW REPORT

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method RSK-175, SW-846 Methods 8260D and 8270E with selected ion monitoring (SIM), and Northwest Total Petroleum Hydrocarbon Methods NWTPG-Gx and NWTPH-Dx. Data were reviewed in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

## DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## DATA REVIEW REPORT

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and field blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike / Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-8R-W-221109 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

## DATA REVIEW REPORT

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited acceptable results.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Benzene	1.0 U	1.0 U	N/A	N/A	1.0	Acceptable

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Benzene	1.0 U	1.0 U	N/A	N/A	1.0	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR VOCS

VOCs: SW-846 8260D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

### Gas Chromatography/Mass Spectrometry (GC/MS)

#### Tier II Validation

Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment Blanks, Field blanks	X				X
C. Trip blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

## DATA REVIEW REPORT

### DISSOLVED GASES ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Dissolved Gases by RSK-175	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria. However, the vial used in the analysis of sample MW-ER-W-221108 had greater than one milliliter in headspace. The methane result for MW-ER-W-221108 was therefore qualified as estimated.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

#### 3. Matrix Spike/Matrix Spike Duplicate Sample (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample MW-8R-W-221109 was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Compound	MS Recovery	MSD Recovery
410-105162-1	MW-8R-W-221109	Methane	< LL but > 10%	< LL but > 10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented.

## DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

#### 4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

#### 5. Laboratory Duplicate Sample Analysis

Laboratory duplicate sample results are used to assess precision and may be used in addition to or in lieu of the MSD analysis. The laboratory duplicate sample RPD criteria are applied when parent and duplicate sample concentrations are at least five times the RL and are established by the analytical laboratory. In the case where the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

The laboratory duplicate sample analysis exhibited acceptable results.

#### 6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Methane	5.0 U	5.0 U	N/A	N/A	5.0	Acceptable

## DATA REVIEW REPORT

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Methane	5.0 U	5.0 U	N/A	N/A	5.0	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR DISSOLVED GASES

DISSOLVED GASES: RSK-175	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Thermal Conductivity Detector (GC/TCD)</b>					
<b>Tier II Validation</b>					
Holding Times/Temperature/Preservation		X	X		
Reporting Limits (units)		X		X	
Blanks					
A. Method/Calibration Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks	X				X
Matrix Spike Sample (MS) Accuracy (%R)		X	X		
Matrix Spike Duplicate Sample (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

Notes:

%R    Percent recovery  
 RPD    Relative percent difference

## DATA REVIEW REPORT

### POLYCYCLIC AROMATIC HYDROCARBONS (PAH) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270E-SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits, and that all SVOC surrogate recoveries be greater than ten percent.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Surrogate	Recovery
410-105162-1	DUP-2-WD-221109	Benzo(a)pyrene-d <sub>12</sub>	Acceptable
		1-Methylnaphthalene-d <sub>10</sub>	< 10%
		Fluoranthene-d <sub>10</sub>	< LL but > 10%

The sample results associated with surrogate deviations are qualified according to the criteria presented in the following table.

Control Limit	Sample Result	Qualification
> UL (Upper Control Limit)	Non-detect	No Action
	Detect	J

## DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
< LL (Lower Control Limit) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
D - Surrogates diluted below the calibration curve	Non-detect	UJ <sup>1</sup>
	Detect	J <sup>1</sup>

<sup>1</sup> A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-8R-W-221109 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

#### 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

#### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
All Compounds	U	U	N/A	N/A	Varies	Acceptable

## DATA REVIEW REPORT

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
All Compounds	U	U	N/A	N/A	Varies	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR PAHS**

PAHs: SW-846 8270D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Mass Spectrometry (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Surrogates Accuracy (%R)		X	X		
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD RPD	X				X
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent Recovery  
 RPD = Relative Percent Difference

## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE ORANICS (TPH-G/GRO) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-G/GRO by NWTPG-Gx	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-G/GRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

## DATA REVIEW REPORT

Sample MW-8R-W-221109 was used in the MS/MSD analysis. The MS/MSD analysis exhibited acceptable results.

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Laboratory duplicate sample analysis was not performed using a sample from within these SDGs.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Gasoline Range Organics	43 U	43 U	N/A	N/A	43	Acceptable

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Gasoline Range Organics	43 U	43 U	N/A	N/A	43	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR TPH-G/GRO**

TPH-G/GRO: SW-846 NWTPH-Gx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery  
 RPD = Relative percent difference

## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS DIESEL AND MOTOR OIL RANGE ORANICS (TPH-D/MO/DRO) ANALYSIS

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-D/MO/DRO by NWTPH-Dx	Water (Preserved)	14 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Motor oil range hydrocarbons were detected in one of the laboratory method blanks; however, the associated sample results were non-detects. Therefore, qualification of the sample results is not required.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-D/MO/DRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Surrogate	Recovery
410-104778-1	MW-506-W-221107 MW-509-W-221107	o-Terphenyl	< LL but > 10%
410-104971-1	MW-ER-W-221108 LM-2-W-221108	o-Terphenyl	< LL but > 10%
410-105162-1	MW-525-W-221109	o-Terphenyl	< LL but > 10%

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of surrogate deviations, the sample results are qualified as documented.

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Control Limit	Sample Result	Qualification
> UL (Upper Control Limit)	Non-detect	No Action
	Detect	J
< LL (Lower Control Limit) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
D - Surrogates diluted below the calibration curve	Non-detect	UJ <sup>1</sup>
	Detect	J <sup>1</sup>

<sup>1</sup> A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample MW-8R-W-221109 was used in the MS/MSD analysis. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Analyte	MS Recovery	MSD Recovery
410-105162-1	MW-8R-W-221109	DRO (C12-C24)	< LL but > 10%	< LL but > 10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented. Because DRO was the only spiked analyte, the qualification also applies to the motor oil range result.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

## DATA REVIEW REPORT

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Samples MW-533-W-221108 and DUP-1-WD-221109 were used in the laboratory duplicate sample analyses. All analytes associated with laboratory duplicate sample RPDs were within the control limit.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked analytes used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

Samples associated with LCS/LCSD analyses exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Samples	Analyte	LCS Recovery	LCSD Recovery
410-105162-1	MW-526-W-221109 MW-531-W-221109 DUP-1-WD-221109 DUP-2-WD-221109	DRO (C12-C24) Motor Oil (C24-C40)	< 10%	Acceptable

The criteria used to evaluate the RPD between the LCS and LCSD are presented in the following table. In the case of RPD deviations, the sample results are qualified as documented.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

Samples associated with LCS/LCSDs exhibiting RPDs greater than the control limit are presented in the following table.

SDG	Samples	Analyte
410-105162-1	MW-526-W-221109 MW-531-W-221109 DUP-1-WD-221109 DUP-2-WD-221109	DRO (C12-C24) Motor Oil (C24-C40)

The criteria used to evaluate the RPD between the LCS and LCSD are presented in the following table. In the case of RPD deviations, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

## DATA REVIEW REPORT

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Diesel and Motor Oil Range Organics	U	U	N/A	N/A	49/110	Acceptable

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Diesel and Motor Oil Range Organics	U	U	N/A	N/A	49/110	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.



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## DATA VALIDATION CHECKLIST FOR TPH-D/MO/DRO

TPH-D/MO/DRO: NWTPH-Dx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X	X		
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

## DATA REVIEW REPORT

### INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 200.8 and 300.0. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Data Review (October 2004), USEPA Region II SOP HW-3c (July 2004).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within the control limits.
  - \* Duplicate analysis is not within the control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected as unusable. The analyte may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

# DATA REVIEW REPORT

## METALS ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
USEPA 200.8	Water	180 days from collection to analysis	Cool to < 6 °C; pH < 2 with HNO <sub>3</sub>
	Soil	180 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL or were non-detect. Therefore, qualification of the sample results is not required.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) / Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

#### 3.1 MS/MSD Analysis

All metal analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. When MSDs are analyzed, the relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20% for water matrices and 35% for soil matrices. The MS/MSD control limits do not apply for MS/MSDs performed on samples where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and any laboratory qualifier (N) will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Samples MW-504-W-221107, MW-532-W-221109, and MW-8R-W-221109 were used in the MS/MSD analyses. The MS/MSD analyses exhibited acceptable results.

#### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to five times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control

## DATA REVIEW REPORT

limit of one times the RL is applied to the difference between the results for water matrices or two times the RL for soil matrices.

Samples MW-504-W-221107, MW-532-W-221109, and MW-8R-W-221109 were used in the laboratory duplicate sample analyses. The laboratory duplicate sample analyses exhibited RPDs acceptable results.

### 4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries (%R) within the control limits of 80% and 120% for water samples, or between the laboratory-established control limits for soil and sediment samples.

The LCS analyses exhibited acceptable results.

### 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the case where the parent and duplicate sample concentrations are less than five times the reporting limit (RL), a control limit of two times the RL for water matrices and three times the RL for soil matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Manganese	120	130	8.0 %	N/A	2.1	Acceptable

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Manganese	150	140	6.9 %	N/A	2.1	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 6. Serial Dilution (SD) Analysis

The serial dilution analysis is used to assess if a significant physical or chemical interference exists due to sample matrix. Analytes exhibiting concentrations greater than 50 times the MDL in the undiluted sample are evaluated to determine if matrix interference exists. These analytes are required to have less than a 10% difference (%D) between sample results from the undiluted (parent) sample and results associated with the same sample analyzed with a five-fold dilution.

The serial dilution analysis was not performed using a sample from these SDGs.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in

## DATA REVIEW REPORT

this review, the overall data quality is within the guidelines specified in the method.

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## DATA VALIDATION CHECKLIST FOR METALS

Metals: SW-846 200.8	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Inductively Coupled Plasma - Mass Spectrometry (ICP-MS)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X			X
B. Method Blanks		X		X	
C. Equipment and/or Field Blanks	X				X
Matrix Spike (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD RPD	X				X
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
ICP Serial Dilution %D	X				X
Total vs. Dissolved	X				X
Dilution Factor		X		X	
Dry Weight	X				X

**Notes:**

%R = Percent recovery

RPD = Relative percent difference

%D = Percent difference

# DATA REVIEW REPORT

## GENERAL CHEMISTRY ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Nitrate-N by USEPA 300.0	Water	48 hours from collection to analysis	Cool to < 6 °C
Sulfate by USEPA 300.0	Water	28 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

### 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

#### 3.1 MS/MSD Analysis

All analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. The relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD control limits do not apply for MS/MSDs performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and the laboratory qualifier will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Samples MW-515-W-221107, MW-535-W-221108, and MW-8R-W-221109 used in the MS analyses. All recoveries were within the acceptance limits except as follows.

SDG	Sample	Compound	MS Recovery
410-105162-1	MW-8R-W-221109	Sulfate	136 %

The criteria used to evaluate the MS recoveries are presented in the following table. In the case of deviations, the sample results are qualified as documented. The qualifiers are applied to all sample results in the associated analytical preparation batch.

## DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 30%	Non-detect	UJ
	Detect	J
< 30%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS spiking solution concentration.	Detect	No Action
	Non-detect	

### 3.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample RPD criterion is applied when both the parent and duplicate sample concentrations are greater than or equal to five times the reporting limit (RL). A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the detection limit, a control limit of two times the RL for water matrices is applied to the difference between the results.

Samples MW-515-W-221107, MW-535-W-221108, and MW-8R-W-221109 used in the laboratory duplicate sample analyses. The laboratory duplicate sample analyses exhibited acceptable results.

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit recoveries between the control limits of 80% and 120%. The relative percent difference (RPD) between the LCS and LCSD results must be no greater than the established acceptance limit of 20%.

All analytes associated with the LCS/LCSD analysis exhibited recoveries and RPDs within the control limits.

### 5. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 20% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Results for the field duplicate samples are summarized in the following tables.

Sample and Field Duplicate Sample: MW-526-W-221109 and DUP-1-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Nitrate as N	1,700	1,700	0.0 %	0	550	Acceptable
Sulfate	22,000	22,000	0.0 %	0	7,500	Acceptable



## DATA REVIEW REPORT

Sample and Field Duplicate Sample: MW-525-W-221109 and DUP-2-WD-221109						
Compound	Sample Result	Duplicate Result	RPD	Difference	RL	Evaluation
Nitrate as N	550 U	550 U	N/A	N/A	550	Acceptable
Sulfate	33,000	33,000	6.9 %	0	7,500	Acceptable

Notes:

N/A = Not applicable

U = Not detected

The field duplicate samples exhibited acceptable results.

### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: USEPA 300.0	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Ion Chromatograph</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
Matrix Spike Sample (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate Sample (MSD) %R	X				X
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	

**Notes:**

%R - percent recovery

RPD - relative percent difference

## DATA REVIEW REPORT

Validation Performed By: Dennis Dyke

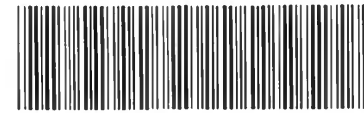
Signature: 

Date: December 14, 2022

# CHAIN OF CUSTODY AND VALIDATED SAMPLE ANALYSIS DATA SHEETS



Chain of Custody Record



410-104778 Chain of Custody

<b>Client Information</b>		Sampler: _____	Lab PM: Katie Grant							
Client Contact: Ophélie Encelet	Phone: _____	E-Mail: _____	State of Origin: _____	Page: Page 1 of 1						
Company: Arcadis	PWSID: _____	<b>Analysis Requested</b>				Job #:				
Address: 1160 Olive Way, Ste 800	Due Date Requested: _____	Field Filtered Sample (Yes or No) <small>Perform MS/MS (M)</small> NWTPH-6X 67-617 NWTPH-Dx w/ 56C Benzene P260D CPAHs 8270b-23M 50G-OR6FM-28D Sulfates 200.2 Manganese RSK-175 Methylene				<b>Preservation Codes:</b> A - HCL                    M - Hexane B - NaOH                N - None C - Zn Acetate        O - AsNaO2 D - Nitric Acid        P - Na2O4S E - NaHSO4            Q - Na2SO3 F - MeOH                R - Na2S2O3 G - Amchlor            S - H2SO4 H - Ascorbic Acid    T - TSP Dodecahydrate I - Ice                    U - Acetone J - DI Water            V - MCAA K - EDTA                W - pH 4-5 L - EDA                  Z - other (specify)				
City: Seattle	TAT Requested (days): STAT									
State, Zip: WA	Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Phone: _____	PO #: _____ Purchase Order not required									
Email: Ophélie.Encelet@Arcadis.com	WO #: _____									
Project Name: Edmonds Terminal	Project #: 30064301									
Site: _____	SSOW#: _____									
<b>Sample Identification</b>	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Total Number of Containers		Special Instructions/Note:			
MW-504	11/7/22	1400	G	W	X	X	X	X	14	
MW-505		1230								
MW-506		1240								
MW-507		1226								
MW-509		1222								
MW-515		1052								
MW-516		1050								
MW-517		1110								
Trip Blank				W	X	X				
<b>Possible Hazard Identification</b>				<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>						
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:						
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:					
<hr/>										
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:					
<hr/>										
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.: _____						
				Cooler Temperature(s) °C and Other Remarks: 32 / 2.0						



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-504-W-221107**

**Lab Sample ID: 410-104778-1**

Date Collected: 11/07/22 14:00

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/14/22 17:03	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/14/22 17:03	1
Dibromofluoromethane (Surr)	101		80 - 120					11/14/22 17:03	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 17:03	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Chrysene	ND		0.052	0.010	ug/L		11/14/22 07:49	11/15/22 10:17	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/14/22 07:49	11/15/22 10:17	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/14/22 07:49	11/15/22 10:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	71		10 - 110				11/14/22 07:49	11/15/22 10:17	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				11/14/22 07:49	11/15/22 10:17	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/14/22 07:49	11/15/22 10:17	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 17:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 17:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 21:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133				11/09/22 11:15	11/09/22 21:39	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 13:56	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 13:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	53		50 - 150				11/21/22 09:12	11/28/22 13:56	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	980		550	250	ug/L			11/09/22 00:51	5
Sulfate	44000		7500	2500	ug/L			11/09/22 00:51	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

## Client Sample ID: MW-504-W-221107

Lab Sample ID: 410-104778-1

Date Collected: 11/07/22 14:00

Matrix: Water

Date Received: 11/08/22 10:20

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.7		2.1	0.98	ug/L		11/07/22 12:55	11/16/22 16:27	1

## Client Sample ID: MW-505-W-221107

Lab Sample ID: 410-104778-2

Date Collected: 11/07/22 12:30

Matrix: Water

Date Received: 11/08/22 10:20

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/14/22 17:27	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/14/22 17:27	1
Dibromofluoromethane (Surr)	101		80 - 120		11/14/22 17:27	1
Toluene-d8 (Surr)	95		80 - 120		11/14/22 17:27	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Chrysene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 10:38	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 10:38	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 10:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	23		10 - 110	11/14/22 07:49	11/15/22 10:38	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	11/14/22 07:49	11/15/22 10:38	1
Fluoranthene-d10 (Surr)	88		47 - 128	11/14/22 07:49	11/15/22 10:38	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/11/22 17:53	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	1200		25	15	ug/L		11/10/22 08:10	11/10/22 12:43	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	88		43 - 133	11/10/22 08:10	11/10/22 12:43	5

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	53	ug/L		11/21/22 09:12	11/28/22 14:41	1
C24-C40	ND		290	120	ug/L		11/21/22 09:12	11/28/22 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	59		50 - 150	11/21/22 09:12	11/28/22 14:41	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-505-W-221107**

**Lab Sample ID: 410-104778-2**

Date Collected: 11/07/22 12:30

Matrix: Water

Date Received: 11/08/22 10:20

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	ca	1100	500	ug/L			11/09/22 01:02	10
<b>Sulfate</b>	<b>110000</b>		15000	5000	ug/L			11/09/22 01:02	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>830</b>		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:16	1

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 17:51	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/14/22 17:51	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/14/22 17:51	1
Dibromofluoromethane (Surr)	103		80 - 120					11/14/22 17:51	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 17:51	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Chrysene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 10:59	1
Dibenz(a,h)anthracene	ND		0.051	0.021	ug/L		11/14/22 07:49	11/15/22 10:59	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.021	ug/L		11/14/22 07:49	11/15/22 10:59	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				11/14/22 07:49	11/15/22 10:59	1
1-Methylnaphthalene-d10 (Surr)	77		36 - 111				11/14/22 07:49	11/15/22 10:59	1
Fluoranthene-d10 (Surr)	75		47 - 128				11/14/22 07:49	11/15/22 10:59	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 18:19	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 18:19	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane (1C)</b>	<b>6000</b>		100	60	ug/L		11/10/22 08:10	11/10/22 13:00	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	98		43 - 133				11/10/22 08:10	11/10/22 13:00	20



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-506-W-221107**

**Lab Sample ID: 410-104778-3**

Date Collected: 11/07/22 12:40

Matrix: Water

Date Received: 11/08/22 10:20

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn UJ	100	47	ug/L		11/21/22 09:12	11/28/22 15:04	1
C24-C40	ND	cn UJ	260	100	ug/L		11/21/22 09:12	11/28/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	48	S1- cn	50 - 150				11/21/22 09:12	11/28/22 15:04	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/09/22 01:13	5
Sulfate	22000		7500	2500	ug/L			11/09/22 01:13	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	4800		21	9.8	ug/L		11/14/22 14:06	11/30/22 09:38	10

**Client Sample ID: MW-507-W-221107**

**Lab Sample ID: 410-104778-4**

Date Collected: 11/07/22 12:26

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 18:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		80 - 120					11/14/22 18:15	1
<i>4-Bromofluorobenzene (Surr)</i>	92		80 - 120					11/14/22 18:15	1
<i>Dibromofluoromethane (Surr)</i>	102		80 - 120					11/14/22 18:15	1
<i>Toluene-d8 (Surr)</i>	96		80 - 120					11/14/22 18:15	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Chrysene	ND		0.053	0.011	ug/L		11/14/22 07:49	11/15/22 11:21	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/14/22 07:49	11/15/22 11:21	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/14/22 07:49	11/15/22 11:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	63		10 - 110				11/14/22 07:49	11/15/22 11:21	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	64		36 - 111				11/14/22 07:49	11/15/22 11:21	1
<i>Fluoranthene-d10 (Surr)</i>	75		47 - 128				11/14/22 07:49	11/15/22 11:21	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 18:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	101		50 - 150					11/11/22 18:45	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-507-W-221107**

**Lab Sample ID: 410-104778-4**

Date Collected: 11/07/22 12:26

Matrix: Water

Date Received: 11/08/22 10:20

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	4.7	J	5.0	3.0	ug/L		11/09/22 11:15	11/09/22 22:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	71		43 - 133				11/09/22 11:15	11/09/22 22:33	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		11/21/22 09:12	11/28/22 15:27	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 15:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150				11/21/22 09:12	11/28/22 15:27	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	250	J	550	250	ug/L			11/09/22 11:04	5
Sulfate	120000		15000	5000	ug/L			11/12/22 22:17	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	12		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:06	1

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 18:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/14/22 18:39	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/14/22 18:39	1
Dibromofluoromethane (Surr)	101		80 - 120					11/14/22 18:39	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 18:39	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Chrysene	ND		0.056	0.011	ug/L		11/14/22 07:49	11/15/22 11:42	1
Dibenz(a,h)anthracene	ND		0.056	0.022	ug/L		11/14/22 07:49	11/15/22 11:42	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.022	ug/L		11/14/22 07:49	11/15/22 11:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	10		10 - 110				11/14/22 07:49	11/15/22 11:42	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111				11/14/22 07:49	11/15/22 11:42	1
Fluoranthene-d10 (Surr)	86		47 - 128				11/14/22 07:49	11/15/22 11:42	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-509-W-221107**

**Lab Sample ID: 410-104778-5**

Date Collected: 11/07/22 12:22

Matrix: Water

Date Received: 11/08/22 10:20

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 19:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150					11/11/22 19:11	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	10		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 22:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/09/22 11:15	11/09/22 22:51	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn UJ	100	47	ug/L		11/21/22 09:12	11/28/22 16:13	1
C24-C40	ND	cn UJ	260	100	ug/L		11/21/22 09:12	11/28/22 16:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	45	S1- cn	50 - 150				11/21/22 09:12	11/28/22 16:13	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	cn	1100	500	ug/L			11/09/22 10:42	10
Sulfate	1300000		150000	50000	ug/L			11/15/22 00:45	100

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1100		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:23	1

**Client Sample ID: MW-515-W-221107**

**Lab Sample ID: 410-104778-6**

Date Collected: 11/07/22 10:52

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120					11/14/22 19:03	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 19:03	1
Dibromofluoromethane (Surr)	104		80 - 120					11/14/22 19:03	1
Toluene-d8 (Surr)	95		80 - 120					11/14/22 19:03	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Chrysene	ND		0.055	0.011	ug/L		11/14/22 07:49	11/15/22 12:03	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 12:03	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/14/22 07:49	11/15/22 12:03	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-515-W-221107**

**Lab Sample ID: 410-104778-6**

Date Collected: 11/07/22 10:52

Matrix: Water

Date Received: 11/08/22 10:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	22		10 - 110	11/14/22 07:49	11/15/22 12:03	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111	11/14/22 07:49	11/15/22 12:03	1
Fluoranthene-d10 (Surr)	89		47 - 128	11/14/22 07:49	11/15/22 12:03	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 19:37	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	100		5.0	3.0	ug/L		11/09/22 11:15	11/09/22 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133	11/09/22 11:15	11/09/22 23:09	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 16:36	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	64		50 - 150	11/21/22 09:12	11/28/22 16:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	ca	1100	500	ug/L			11/09/22 11:15	10
Sulfate	190000		30000	10000	ug/L			11/14/22 21:23	20

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	320		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:38	1

**Client Sample ID: MW-516-W-221107**

**Lab Sample ID: 410-104778-7**

Date Collected: 11/07/22 10:50

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		80 - 120		11/14/22 19:27	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/14/22 19:27	1
Dibromofluoromethane (Surr)	103		80 - 120		11/14/22 19:27	1
Toluene-d8 (Surr)	95		80 - 120		11/14/22 19:27	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Benzo[a]pyrene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-516-W-221107**

**Lab Sample ID: 410-104778-7**

Date Collected: 11/07/22 10:50

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Benzo[k]fluoranthene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Chrysene	ND		0.060	0.012	ug/L		11/14/22 07:49	11/15/22 12:25	1
Dibenz(a,h)anthracene	ND		0.060	0.024	ug/L		11/14/22 07:49	11/15/22 12:25	1
Indeno[1,2,3-cd]pyrene	ND		0.060	0.024	ug/L		11/14/22 07:49	11/15/22 12:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	21		10 - 110				11/14/22 07:49	11/15/22 12:25	1
1-Methylnaphthalene-d10 (Surr)	74		36 - 111				11/14/22 07:49	11/15/22 12:25	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/14/22 07:49	11/15/22 12:25	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 20:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/11/22 20:03	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	100		5.0	3.0	ug/L		11/09/22 11:17	11/09/22 14:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/09/22 11:17	11/09/22 14:04	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	50	ug/L		11/21/22 09:12	11/28/22 16:59	1
C24-C40	ND		280	110	ug/L		11/21/22 09:12	11/28/22 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	58		50 - 150				11/21/22 09:12	11/28/22 16:59	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	ca	1100	500	ug/L			11/09/22 10:53	10
Sulfate	86000		15000	5000	ug/L			11/09/22 10:53	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	730		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:40	1

**Client Sample ID: MW-517-W-221107**

**Lab Sample ID: 410-104778-8**

Date Collected: 11/07/22 11:10

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 19:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 19:51	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: MW-517-W-221107**

**Lab Sample ID: 410-104778-8**

Date Collected: 11/07/22 11:10

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		80 - 120		11/14/22 19:51	1
Dibromofluoromethane (Surr)	102		80 - 120		11/14/22 19:51	1
Toluene-d8 (Surr)	96		80 - 120		11/14/22 19:51	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[a]pyrene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[b]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Benzo[k]fluoranthene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Chrysene	ND		0.051	0.010	ug/L		11/14/22 07:49	11/15/22 12:46	1
Dibenz(a,h)anthracene	ND		0.051	0.020	ug/L		11/14/22 07:49	11/15/22 12:46	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.020	ug/L		11/14/22 07:49	11/15/22 12:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	13		10 - 110	11/14/22 07:49	11/15/22 12:46	1
1-Methylnaphthalene-d10 (Surr)	75		36 - 111	11/14/22 07:49	11/15/22 12:46	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/14/22 07:49	11/15/22 12:46	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	43	J	250	43	ug/L			11/15/22 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/15/22 20:18	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	120		5.0	3.0	ug/L		11/09/22 11:17	11/09/22 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133	11/09/22 11:17	11/09/22 14:19	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 17:22	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 17:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	63		50 - 150	11/21/22 09:12	11/28/22 17:22	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	670	J cn	1100	500	ug/L			11/09/22 12:10	10
Sulfate	96000		15000	5000	ug/L			11/09/22 12:10	10

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1100		2.1	0.98	ug/L		11/14/22 14:06	11/23/22 17:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-104778-1

**Client Sample ID: QA-T-221107**

**Lab Sample ID: 410-104778-9**

Date Collected: 11/07/22 00:00

Matrix: Water

Date Received: 11/08/22 10:20

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 15:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/14/22 15:51	1
4-Bromofluorobenzene (Surr)	94		80 - 120					11/14/22 15:51	1
Dibromofluoromethane (Surr)	99		80 - 120					11/14/22 15:51	1
Toluene-d8 (Surr)	97		80 - 120					11/14/22 15:51	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C7-C12 (1C)</b>	<b>48</b>	<b>J</b>	250	43	ug/L			11/11/22 17:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					11/11/22 17:01	1

Chain of Custody Record



<b>Client Information</b> Client Contact: <b>SAM MILES</b> Company: <b>ARCADIS U.S. INC</b>		Sampler: <b>Peter Bruno</b> Phone: <b>206 853 7428</b>		Lab PM: E-Mail:		410-104971 Chain of Custody <b>WA</b>		COC No: Page: <b>Page 1 of 1</b> Job #:											
Address: <b>11720 UNDCO ROAD</b> City: <b>EDMONDS WA</b> State, Zip: <b>WA</b> PO #: Purchase Order not required Email:		Due Date Requested: TAT Requested (days): <b>STANDARD</b> Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: Purchase Order not required WC #:		<b>Analysis Requested</b>						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)									
Project Name: <b>FORMER EDMONDS TERMINAL</b> Site: <b>FORMER EDMONDS TERMINAL</b>		Project #: SSOW#:		Field Filtered Sample (Yes or No) ISD (Yes or No)		8270D JIN LPAH 64 JEM 300 024FM 280 JALFAT/STP/PA 200.8 MANGANESE NWITH DX WITH STILBA UND 8261B BENZENE 8260D NWITH UNX RSK 175 METHANE		Total Number of Containers											
<b>Sample Identification</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=organic, BT=Trace, A=Air)</b>		<b>Field Filtered Sample (Yes or No)</b>		<b>ISD (Yes or No)</b>		<b>Preservation Code:</b>		<b>Special Instructions/Note:</b>			
MW - 530		11-8-22		10:35		G		W		Y		X		X		X		ONLY 200 S	
MW - ER		11-8-22		12:40		G		W		Y		X		X		X		MANGANESE IS	
MW - 129R		11-8-22		12:15		G		W		Y		X		X		X		FIELD FILTERED	
LM - 2		11-8-22		10:40		G		W		Y		X		X		X			
MW - 525		11-8-22		13:55		G		W		Y		X		X		X		USE STANDARD	
TRIP BLANKS		---		---		---		---		---		---		---		---		JGC	
MW - 533		11-8-22		14:10		G		W		Y		X		X		X			
MW - 535		11-8-22		10:28		G		W		Y		X		X		X		BENZENE & CPAHS	
MW - 104		11-8-22		12:28		G		W		Y		X		X		X		WITH QUANTITATIVE LEVELS < 1 M/L	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological										<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Deliverable Requested: I, II, III, IV, Other (specify)										Special Instructions/QC Requirements:									
Empty Kit Relinquished by:					Date:					Time:					Method of Shipment:				
Relinquished by: <i>[Signature]</i>					Date/Time: 11/8/22 1500					Company: Arcadis					Received by:				
Relinquished by:					Date/Time:					Company:					Received by:				
Relinquished by:					Date/Time:					Company:					Received by: <i>[Signature]</i>				
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Custody Seal No.:					Cooler Temperature(s) °C and Other Remarks: 2.5-5.2					Date/Time: 11/9/22 10:05 Company: ELLET				

\* Field sampler Added 11/10/2022

AEM



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-530-W-221108**

**Lab Sample ID: 410-104971-1**

Date Collected: 11/08/22 10:35

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 22:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		80 - 120					11/14/22 22:15	1
4-Bromofluorobenzene (Surr)	95		80 - 120					11/14/22 22:15	1
Dibromofluoromethane (Surr)	99		80 - 120					11/14/22 22:15	1
Toluene-d8 (Surr)	96		80 - 120					11/14/22 22:15	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 02:12	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 08:07	11/16/22 02:12	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 08:07	11/16/22 02:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	70		10 - 110				11/15/22 08:07	11/16/22 02:12	1
1-Methylnaphthalene-d10 (Surr)	110		36 - 111				11/15/22 08:07	11/16/22 02:12	1
Fluoranthene-d10 (Surr)	83		47 - 128				11/15/22 08:07	11/16/22 02:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 16:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150					11/15/22 16:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	480		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 16:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	58		43 - 133				11/10/22 09:39	11/10/22 16:08	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	48	ug/L		11/21/22 09:12	11/28/22 17:45	1
C24-C40	ND		260	110	ug/L		11/21/22 09:12	11/28/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	57		50 - 150				11/21/22 09:12	11/28/22 17:45	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 00:34	5
Sulfate	1400000		150000	50000	ug/L			11/17/22 12:44	100

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-530-W-221108

Lab Sample ID: 410-104971-1

Date Collected: 11/08/22 10:35

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	260		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:15	1

## Client Sample ID: MW-ER-W-221108

Lab Sample ID: 410-104971-2

Date Collected: 11/08/22 12:40

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			11/14/22 22:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,2-Dichloroethane-d4 (Surr)	94	cn	80 - 120					11/14/22 22:39	1
4-Bromofluorobenzene (Surr)	92	cn	80 - 120					11/14/22 22:39	1
Dibromofluoromethane (Surr)	101	cn	80 - 120					11/14/22 22:39	1
Toluene-d8 (Surr)	96	cn	80 - 120					11/14/22 22:39	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 08:07	11/16/22 01:51	1
Dibenz(a,h)anthracene	ND		0.054	0.021	ug/L		11/15/22 08:07	11/16/22 01:51	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.021	ug/L		11/15/22 08:07	11/16/22 01:51	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Benzo(a)pyrene-d12 (Surr)	65		10 - 110				11/15/22 08:07	11/16/22 01:51	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				11/15/22 08:07	11/16/22 01:51	1
Fluoranthene-d10 (Surr)	87		47 - 128				11/15/22 08:07	11/16/22 01:51	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	1100		250	43	ug/L			11/15/22 16:52	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid) (1C)	98		50 - 150					11/15/22 16:52	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	12000	cn, J	250	150	ug/L		11/11/22 08:30	11/11/22 14:36	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Propene (1C)	96	cn	43 - 133				11/11/22 08:30	11/11/22 14:36	50

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	82	J cn	110	50	ug/L		11/21/22 09:12	11/28/22 18:08	1
C24-C40	ND	cn, UJ	280	110	ug/L		11/21/22 09:12	11/28/22 18:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-terphenyl (Surr)	44	S1- cn	50 - 150				11/21/22 09:12	11/28/22 18:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-ER-W-221108

Lab Sample ID: 410-104971-2

Date Collected: 11/08/22 12:40

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 00:45	5
Sulfate	ND		7500	2500	ug/L			11/10/22 00:45	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5100		20	9.5	ug/L		12/03/22 06:31	12/05/22 19:13	10

## Client Sample ID: MW-129R-W-221108

Lab Sample ID: 410-104971-3

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/14/22 23:02	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/14/22 23:02	1
Dibromofluoromethane (Surr)	102		80 - 120		11/14/22 23:02	1
Toluene-d8 (Surr)	97		80 - 120		11/14/22 23:02	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Chrysene	ND		0.052	0.010	ug/L		11/15/22 16:30	11/16/22 05:41	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/15/22 16:30	11/16/22 05:41	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/15/22 16:30	11/16/22 05:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	53		10 - 110	11/15/22 16:30	11/16/22 05:41	1
1-Methylnaphthalene-d10 (Surr)	91		36 - 111	11/15/22 16:30	11/16/22 05:41	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/15/22 16:30	11/16/22 05:41	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 17:18	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	220		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	58		43 - 133	11/10/22 09:39	11/10/22 16:38	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-129R-W-221108**

**Lab Sample ID: 410-104971-3**

Date Collected: 11/08/22 12:15

Matrix: Water

Date Received: 11/09/22 10:05

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>C12-C24</b>	<b>170</b>		100	47	ug/L		11/21/22 09:12	11/28/22 18:31	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 18:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o-terphenyl (Surr)</i>	59		50 - 150				11/21/22 09:12	11/28/22 18:31	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Nitrogen, Nitrate</b>	<b>550</b>		550	250	ug/L			11/10/22 00:56	5
<b>Sulfate</b>	<b>340000</b>		75000	25000	ug/L			11/17/22 12:53	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>4200</b>		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:11	1

**Client Sample ID: LM-2-W-221108**

**Lab Sample ID: 410-104971-4**

Date Collected: 11/08/22 10:40

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/14/22 23:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2-Dichloroethane-d4 (Surr)</i>	97		80 - 120					11/14/22 23:27	1
<i>4-Bromofluorobenzene (Surr)</i>	93		80 - 120					11/14/22 23:27	1
<i>Dibromofluoromethane (Surr)</i>	101		80 - 120					11/14/22 23:27	1
<i>Toluene-d8 (Surr)</i>	96		80 - 120					11/14/22 23:27	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Chrysene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:02	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:02	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12 (Surr)</i>	52		10 - 110				11/15/22 16:30	11/16/22 06:02	1
<i>1-Methylnaphthalene-d10 (Surr)</i>	78		36 - 111				11/15/22 16:30	11/16/22 06:02	1
<i>Fluoranthene-d10 (Surr)</i>	68		47 - 128				11/15/22 16:30	11/16/22 06:02	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND	ca	5000	860	ug/L			11/15/22 20:43	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid) (1C)</i>	100	cn	50 - 150					11/15/22 20:43	20

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: LM-2-W-221108**

**Lab Sample ID: 410-104971-4**

Date Collected: 11/08/22 10:40

Matrix: Water

Date Received: 11/09/22 10:05

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	2800		50	30	ug/L		11/11/22 08:30	11/11/22 14:54	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	88		43 - 133				11/11/22 08:30	11/11/22 14:54	10

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	<del>ca</del> UJ	100	46	ug/L		11/21/22 09:12	11/28/22 18:54	1
C24-C40	ND	<del>ca</del> UJ	260	100	ug/L		11/21/22 09:12	11/28/22 18:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	37	S1- cn	50 - 150				11/21/22 09:12	11/28/22 18:54	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 01:06	5
Sulfate	150000		38000	13000	ug/L			11/17/22 13:01	25

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	160		2.0	0.95	ug/L		12/03/22 06:31	12/04/22 10:29	1

**Client Sample ID: QA-T-221108**

**Lab Sample ID: 410-104971-6**

Date Collected: 11/08/22 00:00

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/15/22 15:01	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/15/22 15:01	1
Dibromofluoromethane (Surr)	102		80 - 120					11/15/22 15:01	1
Toluene-d8 (Surr)	96		80 - 120					11/15/22 15:01	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	43	J	250	43	ug/L			11/15/22 17:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 17:44	1

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 16:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/15/22 16:50	1

Euofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-533-W-221108**

**Lab Sample ID: 410-104971-7**

Date Collected: 11/08/22 14:10

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		80 - 120		11/15/22 16:50	1
Dibromofluoromethane (Surr)	103		80 - 120		11/15/22 16:50	1
Toluene-d8 (Surr)	97		80 - 120		11/15/22 16:50	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 06:24	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 06:24	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 06:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	79		10 - 110	11/15/22 16:30	11/16/22 06:24	1
1-Methylnaphthalene-d10 (Surr)	86		36 - 111	11/15/22 16:30	11/16/22 06:24	1
Fluoranthene-d10 (Surr)	81		47 - 128	11/15/22 16:30	11/16/22 06:24	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	100		50 - 150		11/15/22 18:10	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	57		43 - 133	11/10/22 09:39	11/10/22 18:06	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 12:47	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 12:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	79		50 - 150	11/21/22 09:12	11/28/22 12:47	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1400		550	250	ug/L			11/10/22 01:49	5
Sulfate	740000		150000	50000	ug/L			11/16/22 23:31	100

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:07	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-535-W-221108**

**Lab Sample ID: 410-104971-8**

Date Collected: 11/08/22 10:28

Matrix: Water

Date Received: 11/09/22 10:05

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/15/22 15:25	1
4-Bromofluorobenzene (Surr)	93		80 - 120					11/15/22 15:25	1
Dibromofluoromethane (Surr)	100		80 - 120					11/15/22 15:25	1
Toluene-d8 (Surr)	96		80 - 120					11/15/22 15:25	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[a]pyrene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[b]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Benzo[k]fluoranthene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Chrysene	ND		0.053	0.011	ug/L		11/15/22 16:30	11/16/22 06:45	1
Dibenz(a,h)anthracene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:45	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.021	ug/L		11/15/22 16:30	11/16/22 06:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	82		10 - 110				11/15/22 16:30	11/16/22 06:45	1
1-Methylnaphthalene-d10 (Surr)	94		36 - 111				11/15/22 16:30	11/16/22 06:45	1
Fluoranthene-d10 (Surr)	77		47 - 128				11/15/22 16:30	11/16/22 06:45	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 19:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	97		50 - 150					11/15/22 19:27	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	56		43 - 133				11/10/22 09:39	11/10/22 18:23	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 13:33	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 13:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	74		50 - 150				11/21/22 09:12	11/28/22 13:33	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND	✖	1100	500	ug/L			11/10/22 03:37	10
Sulfate	680000		150000	50000	ug/L			11/16/22 09:21	100

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

## Client Sample ID: MW-535-W-221108

Lab Sample ID: 410-104971-8

Date Collected: 11/08/22 10:28

Matrix: Water

Date Received: 11/09/22 10:05

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	2.9		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:09	1

## Client Sample ID: MW-104-W-221108

Lab Sample ID: 410-104971-9

Date Collected: 11/08/22 12:28

Matrix: Water

Date Received: 11/09/22 10:05

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/15/22 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120		11/15/22 15:49	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/15/22 15:49	1
Dibromofluoromethane (Surr)	101		80 - 120		11/15/22 15:49	1
Toluene-d8 (Surr)	95		80 - 120		11/15/22 15:49	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Chrysene	ND		0.054	0.011	ug/L		11/15/22 16:30	11/16/22 07:07	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 07:07	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/15/22 16:30	11/16/22 07:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	13		10 - 110	11/15/22 16:30	11/16/22 07:07	1
1-Methylnaphthalene-d10 (Surr)	94		36 - 111	11/15/22 16:30	11/16/22 07:07	1
Fluoranthene-d10 (Surr)	88		47 - 128	11/15/22 16:30	11/16/22 07:07	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	50	J	250	43	ug/L			11/15/22 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	96		50 - 150		11/15/22 19:52	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	330		5.0	3.0	ug/L		11/10/22 09:39	11/10/22 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	64		43 - 133	11/10/22 09:39	11/10/22 18:39	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 13:56	1
C24-C40	ND		270	110	ug/L		11/21/22 09:12	11/28/22 13:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	76		50 - 150	11/21/22 09:12	11/28/22 13:56	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-104971-1

**Client Sample ID: MW-104-W-221108**

**Lab Sample ID: 410-104971-9**

Date Collected: 11/08/22 12:28

Matrix: Water

Date Received: 11/09/22 10:05

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 04:09	5
<b>Sulfate</b>	<b>210000</b>		75000	25000	ug/L			11/16/22 09:32	50

## Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Manganese</b>	<b>1700</b>		2.1	0.98	ug/L		11/14/22 13:50	11/28/22 17:13	1

Chain of Custody Record



410-105162 Chain of Custody

Client Information		Sampler: <b>SAVANNAH GREEN</b>		Lab PM:		COC No:	
Client Contact: <b>Ophelie Enceles</b>		Phone:		E-Mail:		Page: <b>Page 1 of 1</b>	
Company: <b>Arcadis</b>		PWSID:		State of Origin: <b>WA</b>		Job #:	
Address: <b>1100 Olive Way Ste 800</b>		Due Date Requested:		<b>Analysis Requested</b> NWTPH-Gx NWTPH-Dx WISEC CPASIS 8270D-SIM SWRKH Nitrate 300-0264m-287 Manganese 200, P 8240D Benzene Method RSK-17S			
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>					
State, Zip: <b>WA 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Phone:		PO #:					
Email: <b>Ophelie.Enceles@Arcadis.com</b>		Purchase Order not required					
Project Name: <b>Edmonds Terminal</b>		Project #: <b>30064301</b>		WO #:		Preservation Codes:	
Site:		SSOW#:		Field Filtered Sample (Yes or No)		Total Number of Containers	
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=organic)	Special Instructions/Note:	
						A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
						Other:	
						Preservation Code: <input checked="" type="checkbox"/> S	
MW-52J	11/9/22	1325	G	W		14	Trip Blank
MW-52S		1320					NWTPH-Gx +
MW-8R		1320					Benzene only
MW-8R MS/MSD		1320				18	
MW-534		0940				4	use standard
MW-532		0950					SGC
MW-526		1310					
<del>MW-531</del> Trip Blank		<del>1325</del>					Quantitative levels for CPASIS + Benzene Al mg/L
MW-531		0916					
<del>MW-DUP-1</del>		-					
<del>MW-DUP-2</del>		-					
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooling Temperature(s) °C and Other Remarks: <b>0.8-1.6</b>					

MW

\* Field sampler Added @ AC 1779 11/15/2022

CB

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-521-W-221109**

**Lab Sample ID: 410-105162-1**

Date Collected: 11/09/22 13:25

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 21:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120					11/16/22 21:01	1
4-Bromofluorobenzene (Surr)	91		80 - 120					11/16/22 21:01	1
Dibromofluoromethane (Surr)	103		80 - 120					11/16/22 21:01	1
Toluene-d8 (Surr)	97		80 - 120					11/16/22 21:01	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Chrysene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 14:00	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 14:00	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 14:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	90		10 - 110				11/16/22 15:37	11/17/22 14:00	1
1-Methylnaphthalene-d10 (Surr)	76		36 - 111				11/16/22 15:37	11/17/22 14:00	1
Fluoranthene-d10 (Surr)	97		47 - 128				11/16/22 15:37	11/17/22 14:00	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 17:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 17:45	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 11:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133				11/16/22 09:45	11/16/22 11:41	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	53	ug/L		11/21/22 09:12	11/28/22 14:19	1
C24-C40	ND		290	120	ug/L		11/21/22 09:12	11/28/22 14:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	80		50 - 150				11/21/22 09:12	11/28/22 14:19	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 18:54	5
Sulfate	40000		7500	2500	ug/L			11/10/22 18:54	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Client Sample ID: MW-521-W-221109

Lab Sample ID: 410-105162-1

Date Collected: 11/09/22 13:25

Matrix: Water

Date Received: 11/10/22 10:00

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:12	1

## Client Sample ID: MW-525-W-221109

Lab Sample ID: 410-105162-2

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/16/22 15:12	1
4-Bromofluorobenzene (Surr)	93		80 - 120		11/16/22 15:12	1
Dibromofluoromethane (Surr)	104		80 - 120		11/16/22 15:12	1
Toluene-d8 (Surr)	94		80 - 120		11/16/22 15:12	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Chrysene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 14:21	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 14:21	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	65		10 - 110	11/16/22 15:37	11/17/22 14:21	1
1-Methylnaphthalene-d10 (Surr)	69		36 - 111	11/16/22 15:37	11/17/22 14:21	1
Fluoranthene-d10 (Surr)	83		47 - 128	11/16/22 15:37	11/17/22 14:21	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 18:11	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 11:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133	11/16/22 09:45	11/16/22 11:56	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	cn UJ	110	49	ug/L		11/21/22 09:12	11/28/22 14:41	1
C24-C40	ND	cn UJ	270	110	ug/L		11/21/22 09:12	11/28/22 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	47	S1- cn	50 - 150	11/21/22 09:12	11/28/22 14:41	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

## Client Sample ID: MW-525-W-221109

## Lab Sample ID: 410-105162-2

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

### Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 19:05	5
Sulfate	33000		7500	2500	ug/L			11/10/22 19:05	5

### Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	150		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:08	1

## Client Sample ID: MW-8R-W-221109

## Lab Sample ID: 410-105162-3

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

### Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 15:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		80 - 120		11/16/22 15:36	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/16/22 15:36	1
Dibromofluoromethane (Surr)	104		80 - 120		11/16/22 15:36	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 15:36	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.011	J	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Benzo[a]pyrene	0.011	J	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Benzo[b]fluoranthene	0.013	J	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Benzo[k]fluoranthene	0.012	J	0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Chrysene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 12:56	1
Dibenz(a,h)anthracene	0.021	J	0.052	0.021	ug/L		11/16/22 15:37	11/17/22 12:56	1
Indeno[1,2,3-cd]pyrene	0.022	J	0.052	0.021	ug/L		11/16/22 15:37	11/17/22 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110	11/16/22 15:37	11/17/22 12:56	1
1-Methylnaphthalene-d10 (Surr)	70		36 - 111	11/16/22 15:37	11/17/22 12:56	1
Fluoranthene-d10 (Surr)	86		47 - 128	11/16/22 15:37	11/17/22 12:56	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/11/22 21:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150		11/11/22 21:48	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND	<del>F1</del> UJ	5.0	3.0	ug/L		11/16/22 09:45	11/16/22 12:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	51		43 - 133	11/16/22 09:45	11/16/22 12:11	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-8R-W-221109**

**Lab Sample ID: 410-105162-3**

Date Collected: 11/09/22 13:20

Matrix: Water

Date Received: 11/10/22 10:00

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND	<del>F1</del> UJ	100	46	ug/L		11/21/22 09:12	11/28/22 15:04	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	67		50 - 150				11/21/22 09:12	11/28/22 15:04	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	860		550	250	ug/L			11/10/22 19:16	5
Sulfate	230000	<del>E1</del> J	75000	25000	ug/L			11/18/22 11:10	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	110		2.1	0.98	ug/L		11/14/22 13:40	11/18/22 18:58	1

**Client Sample ID: MW-534-W-221109**

**Lab Sample ID: 410-105162-4**

Date Collected: 11/09/22 09:40

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 16:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>1,2</i> -Dichloroethane- <i>d4</i> (Surr)	93		80 - 120					11/16/22 16:48	1
<i>4</i> -Bromofluorobenzene (Surr)	92		80 - 120					11/16/22 16:48	1
<i>Dibromofluoromethane</i> (Surr)	104		80 - 120					11/16/22 16:48	1
<i>Toluene-d8</i> (Surr)	94		80 - 120					11/16/22 16:48	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[a]pyrene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[b]fluoranthene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Benzo[k]fluoranthene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Chrysene	ND		0.052	0.010	ug/L		11/16/22 15:37	11/17/22 14:42	1
Dibenz(a,h)anthracene	ND		0.052	0.021	ug/L		11/16/22 15:37	11/17/22 14:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.021	ug/L		11/16/22 15:37	11/17/22 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Benzo(a)pyrene-d12</i> (Surr)	60		10 - 110				11/16/22 15:37	11/17/22 14:42	1
<i>1-Methylnaphthalene-d10</i> (Surr)	83		36 - 111				11/16/22 15:37	11/17/22 14:42	1
<i>Fluoranthene-d10</i> (Surr)	100		47 - 128				11/16/22 15:37	11/17/22 14:42	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 18:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a</i> -Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 18:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-534-W-221109**

**Lab Sample ID: 410-105162-4**

Date Collected: 11/09/22 09:40

Matrix: Water

Date Received: 11/10/22 10:00

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	360		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	51		43 - 133				11/16/22 09:45	11/16/22 13:12	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	47	ug/L		11/21/22 09:12	11/28/22 16:13	1
C24-C40	ND		260	100	ug/L		11/21/22 09:12	11/28/22 16:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -terphenyl (Surr)	72		50 - 150				11/21/22 09:12	11/28/22 16:13	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 19:49	5
Sulfate	180000		75000	25000	ug/L			11/17/22 03:49	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	950		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:10	1

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 17:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		80 - 120					11/16/22 17:12	1
4-Bromofluorobenzene (Surr)	90		80 - 120					11/16/22 17:12	1
Dibromofluoromethane (Surr)	102		80 - 120					11/16/22 17:12	1
Toluene-d8 (Surr)	94		80 - 120					11/16/22 17:12	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[a]pyrene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[b]fluoranthene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Benzo[k]fluoranthene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Chrysene	ND		0.057	0.011	ug/L		11/16/22 15:37	11/17/22 15:04	1
Dibenz(a,h)anthracene	ND		0.057	0.023	ug/L		11/16/22 15:37	11/17/22 15:04	1
Indeno[1,2,3-cd]pyrene	ND		0.057	0.023	ug/L		11/16/22 15:37	11/17/22 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	85		10 - 110				11/16/22 15:37	11/17/22 15:04	1
1-Methylnaphthalene-d10 (Surr)	80		36 - 111				11/16/22 15:37	11/17/22 15:04	1
Fluoranthene-d10 (Surr)	95		47 - 128				11/16/22 15:37	11/17/22 15:04	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-532-W-221109**

**Lab Sample ID: 410-105162-5**

Date Collected: 11/09/22 09:50

Matrix: Water

Date Received: 11/10/22 10:00

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 19:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 19:02	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	11		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	52		43 - 133				11/16/22 09:45	11/16/22 13:27	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		11/21/22 09:12	11/28/22 16:36	1
C24-C40	130	J	270	110	ug/L		11/21/22 09:12	11/28/22 16:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	53		50 - 150				11/21/22 09:12	11/28/22 16:36	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 20:00	5
Sulfate	11000		7500	2500	ug/L			11/10/22 20:00	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	96		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 09:43	1

**Client Sample ID: MW-526-W-221109**

**Lab Sample ID: 410-105162-6**

Date Collected: 11/09/22 13:10

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/16/22 17:36	1
4-Bromofluorobenzene (Surr)	90		80 - 120					11/16/22 17:36	1
Dibromofluoromethane (Surr)	101		80 - 120					11/16/22 17:36	1
Toluene-d8 (Surr)	95		80 - 120					11/16/22 17:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[a]pyrene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[b]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Benzo[k]fluoranthene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Chrysene	ND		0.056	0.011	ug/L		11/16/22 15:37	11/17/22 15:25	1
Dibenz(a,h)anthracene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 15:25	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.023	ug/L		11/16/22 15:37	11/17/22 15:25	1

Eurofins Lancaster Laboratories Environment Testing, LLC



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-526-W-221109**

**Lab Sample ID: 410-105162-6**

Date Collected: 11/09/22 13:10

Matrix: Water

Date Received: 11/10/22 10:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	59		10 - 110	11/16/22 15:37	11/17/22 15:25	1
1-Methylnaphthalene-d10 (Surr)	84		36 - 111	11/16/22 15:37	11/17/22 15:25	1
Fluoranthene-d10 (Surr)	82		47 - 128	11/16/22 15:37	11/17/22 15:25	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	52	J	250	43	ug/L			11/15/22 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 20:19	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133	11/16/22 09:45	11/16/22 13:42	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>R ND</del>	<del>* *1 cn</del>	<del>110</del>	<del>50</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 13:54	1
C24-C40	<del>R ND</del>	<del>cn</del>	<del>200</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 13:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	37	S1- cn	50 - 150	11/23/22 08:00	12/01/22 13:54	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1700		550	250	ug/L			11/10/22 20:11	5
Sulfate	22000		7500	2500	ug/L			11/10/22 20:11	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	120		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:06	1

**Client Sample ID: MW-531-W-221109**

**Lab Sample ID: 410-105162-7**

Date Collected: 11/09/22 09:16

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120		11/16/22 18:00	1
4-Bromofluorobenzene (Surr)	92		80 - 120		11/16/22 18:00	1
Dibromofluoromethane (Surr)	103		80 - 120		11/16/22 18:00	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 18:00	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Benzo[a]pyrene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1

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# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: MW-531-W-221109**

**Lab Sample ID: 410-105162-7**

Date Collected: 11/09/22 09:16

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Benzo[k]fluoranthene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Chrysene	ND		0.055	0.011	ug/L		11/16/22 15:37	11/17/22 15:47	1
Dibenz(a,h)anthracene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 15:47	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.022	ug/L		11/16/22 15:37	11/17/22 15:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	41		10 - 110				11/16/22 15:37	11/17/22 15:47	1
1-Methylnaphthalene-d10 (Surr)	79		36 - 111				11/16/22 15:37	11/17/22 15:47	1
Fluoranthene-d10 (Surr)	94		47 - 128				11/16/22 15:37	11/17/22 15:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 20:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 20:44	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	17		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 13:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	54		43 - 133				11/16/22 09:45	11/16/22 13:58	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	<del>ND</del>	<del>* *1 on</del>	<del>110</del>	<del>49</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 14:17	1
C24-C40	<del>ND</del>	<del></del>	<del>270</del>	<del>110</del>	<del>ug/L</del>		11/23/22 08:00	12/01/22 14:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	55		50 - 150				11/23/22 08:00	12/01/22 14:17	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	330	J	550	250	ug/L			11/10/22 20:44	5
Sulfate	210000		75000	25000	ug/L			11/17/22 11:09	50

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	89		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:14	1

**Client Sample ID: DUP-1-WD-221109**

**Lab Sample ID: 410-105162-8**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		80 - 120					11/16/22 18:24	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-1-WD-221109**

**Lab Sample ID: 410-105162-8**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		80 - 120		11/16/22 18:24	1
Dibromofluoromethane (Surr)	102		80 - 120		11/16/22 18:24	1
Toluene-d8 (Surr)	95		80 - 120		11/16/22 18:24	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[a]pyrene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[b]fluoranthene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Benzo[k]fluoranthene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Chrysene	ND		0.054	0.011	ug/L		11/16/22 15:37	11/17/22 16:08	1
Dibenz(a,h)anthracene	ND		0.054	0.022	ug/L		11/16/22 15:37	11/17/22 16:08	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.022	ug/L		11/16/22 15:37	11/17/22 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	58		10 - 110	11/16/22 15:37	11/17/22 16:08	1
1-Methylnaphthalene-d10 (Surr)	83		36 - 111	11/16/22 15:37	11/17/22 16:08	1
Fluoranthene-d10 (Surr)	80		47 - 128	11/16/22 15:37	11/17/22 16:08	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 21:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150		11/15/22 21:10	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 14:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133	11/16/22 09:45	11/16/22 14:13	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	*-1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 14:40	1
C24-C40	R ND	cn	270	110	ug/L		11/23/22 08:00	12/01/22 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	26	S1- cn	50 - 150	11/23/22 08:00	12/01/22 14:40	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	1700		550	250	ug/L			11/10/22 20:55	5
Sulfate	22000		7500	2500	ug/L			11/10/22 20:55	5

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	130		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 10:04	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-2-WD-221109**

**Lab Sample ID: 410-105162-9**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			11/16/22 18:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		80 - 120					11/16/22 18:48	1
4-Bromofluorobenzene (Surr)	92		80 - 120					11/16/22 18:48	1
Dibromofluoromethane (Surr)	101		80 - 120					11/16/22 18:48	1
Toluene-d8 (Surr)	95		80 - 120					11/16/22 18:48	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	R ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[a]pyrene	R ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[b]fluoranthene	R ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Benzo[k]fluoranthene	R ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Chrysene	R ND	cn	0.055	0.011	ug/L		11/16/22 15:37	11/17/22 16:29	1
Dibenz(a,h)anthracene	R ND	cn	0.055	0.022	ug/L		11/16/22 15:37	11/17/22 16:29	1
Indeno[1,2,3-cd]pyrene	R ND	cn	0.055	0.022	ug/L		11/16/22 15:37	11/17/22 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Benzo(a)pyrene-d12 (Surr)	36	cn	10 - 110				11/16/22 15:37	11/17/22 16:29	1
1-Methylnaphthalene-d10 (Surr)	7	S1- cn	36 - 111				11/16/22 15:37	11/17/22 16:29	1
Fluoranthene-d10 (Surr)	29	S1- cn	47 - 128				11/16/22 15:37	11/17/22 16:29	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			11/15/22 21:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	99		50 - 150					11/15/22 21:35	1

**Method: RSK-175 - Dissolved Gases (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (1C)	ND		5.0	3.0	ug/L		11/16/22 09:45	11/16/22 14:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Propene (1C)	53		43 - 133				11/16/22 09:45	11/16/22 14:28	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	R ND	*- *1 cn	110	49	ug/L		11/23/22 08:00	12/01/22 15:26	1
C24-C40	R ND	cn	270	110	ug/L		11/23/22 08:00	12/01/22 15:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	42	S1- cn	50 - 150				11/23/22 08:00	12/01/22 15:26	1

**Method: EPA 300.0 R2.1 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Nitrate	ND		550	250	ug/L			11/10/22 21:06	5
Sulfate	33000		7500	2500	ug/L			11/10/22 21:06	5

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-105162-1

**Client Sample ID: DUP-2-WD-221109**

**Lab Sample ID: 410-105162-9**

Date Collected: 11/09/22 00:00

Matrix: Water

Date Received: 11/10/22 10:00

**Method: EPA 200.8 Rev 5.4 - Metals (ICP/MS) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	140		2.1	0.98	ug/L		11/14/22 13:28	12/01/22 09:56	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Ophelie Encelle  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/30/2022 12:27:49 PM

## JOB DESCRIPTION

Edmonds Terminal

## JOB NUMBER

410-109803-1

## Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## Authorization



Generated  
12/30/2022 12:27:49 PM

Authorized for release by  
Amek Carter, Project Manager  
[Loran.Carter@et.eurofinsus.com](mailto:Loran.Carter@et.eurofinsus.com)  
(717)556-7252

## Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

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**Job ID: 410-109803-1**

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**Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC**

**Narrative**

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**Job Narrative  
410-109803-1**

**Receipt**

The samples were received on 12/20/2022 11:08 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.3°C

**GC/MS VOA**

Method 8260D\_UST: The continuing calibration verification (CCV) associated with batch 410-330420 recovered above the upper control limit for Benzene. Non-detections of the affected analytes are reported. Any detections are considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**GC Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-109803-1**

No Detections.

**Client Sample ID: MW-531**

**Lab Sample ID: 410-109803-2**

No Detections.

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-109803-3**

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-109803-1**

Date Collected: 12/16/22 12:45

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 19:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 120					12/27/22 19:46	1
4-Bromofluorobenzene (Surr)	93		80 - 120					12/27/22 19:46	1
Dibromofluoromethane (Surr)	112		80 - 120					12/27/22 19:46	1
Toluene-d8 (Surr)	93		80 - 120					12/27/22 19:46	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 22:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 22:27	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	54	ug/L		12/29/22 15:51	12/30/22 12:13	1
C24-C40	ND		300	120	ug/L		12/29/22 15:51	12/30/22 12:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70		50 - 150				12/29/22 15:51	12/30/22 12:13	1

**Client Sample ID: MW-531**

**Lab Sample ID: 410-109803-2**

Date Collected: 12/16/22 12:05

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 20:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		80 - 120					12/27/22 20:10	1
4-Bromofluorobenzene (Surr)	90		80 - 120					12/27/22 20:10	1
Dibromofluoromethane (Surr)	107		80 - 120					12/27/22 20:10	1
Toluene-d8 (Surr)	91		80 - 120					12/27/22 20:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 22:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 22:53	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		12/29/22 15:51	12/30/22 12:36	1
C24-C40	ND		270	110	ug/L		12/29/22 15:51	12/30/22 12:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	54		50 - 150				12/29/22 15:51	12/30/22 12:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-109803-3**

Date Collected: 12/16/22 00:00

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 16:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		80 - 120					12/27/22 16:10	1
4-Bromofluorobenzene (Surr)	91		80 - 120					12/27/22 16:10	1
Dibromofluoromethane (Surr)	107		80 - 120					12/27/22 16:10	1
Toluene-d8 (Surr)	92		80 - 120					12/27/22 16:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 16:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 16:51	1

# Surrogate Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-109803-1	MW-526	90	93	112	93
410-109803-2	MW-531	86	90	107	91
410-109803-3	Trip Blank	87	91	107	92
LCS 410-330420/4	Lab Control Sample	91	92	109	93
LCS 410-330420/5	Lab Control Sample Dup	93	93	112	92
MB 410-330420/6	Method Blank	89	93	109	92

**Surrogate Legend**

DCA = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DBFM = Dibromofluoromethane (Surr)  
TOL = Toluene-d8 (Surr)

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TFT-F1 (50-150)
410-109803-1	MW-526	101
410-109803-2	MW-531	101
410-109803-3	Trip Blank	101
LCS 410-330467/5	Lab Control Sample	92
LCS 410-330467/6	Lab Control Sample Dup	93
MB 410-330467/4	Method Blank	101

**Surrogate Legend**

TFT-F = a,a,a-Trifluorotoluene (fid)

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		OTP (50-150)
410-109803-1	MW-526	70
410-109803-2	MW-531	54
410-109803-2 DU	MW-531	54
LCS 410-331292/2-B	Lab Control Sample	77
LCS 410-331292/3-B	Lab Control Sample Dup	73
MB 410-331292/1-B	Method Blank	83

**Surrogate Legend**

OTP = o- terphenyl (Surr)

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Method: 8260D/UST - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 410-330420/6**  
**Matrix: Water**  
**Analysis Batch: 330420**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.30	ug/L			12/27/22 14:34	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		80 - 120					12/27/22 14:34	1
4-Bromofluorobenzene (Surr)	93		80 - 120					12/27/22 14:34	1
Dibromofluoromethane (Surr)	109		80 - 120					12/27/22 14:34	1
Toluene-d8 (Surr)	92		80 - 120					12/27/22 14:34	1

**Lab Sample ID: LCS 410-330420/4**  
**Matrix: Water**  
**Analysis Batch: 330420**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	20.0	22.4		ug/L		112	80 - 120	
Surrogate	%Recovery	LCS Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	91		80 - 120					
4-Bromofluorobenzene (Surr)	92		80 - 120					
Dibromofluoromethane (Surr)	109		80 - 120					
Toluene-d8 (Surr)	93		80 - 120					

**Lab Sample ID: LCSD 410-330420/5**  
**Matrix: Water**  
**Analysis Batch: 330420**

**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	20.0	20.3		ug/L		101	80 - 120	10	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
1,2-Dichloroethane-d4 (Surr)	93		80 - 120						
4-Bromofluorobenzene (Surr)	93		80 - 120						
Dibromofluoromethane (Surr)	112		80 - 120						
Toluene-d8 (Surr)	92		80 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-330467/4**  
**Matrix: Water**  
**Analysis Batch: 330467**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 15:08	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 15:08	1



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCS 410-330467/5**  
**Matrix: Water**  
**Analysis Batch: 330467**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12 (1C)	1100	907		ug/L		82	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS</b>	<b>Limits</b>			
a,a,a-Trifluorotoluene (fid) (1C)	92			50 - 150			

**Lab Sample ID: LCSD 410-330467/6**  
**Matrix: Water**  
**Analysis Batch: 330467**

**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
C7-C12 (1C)	1100	953		ug/L		87	64 - 131	5	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD</b>	<b>Limits</b>					
a,a,a-Trifluorotoluene (fid) (1C)	93			50 - 150					

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH

**Lab Sample ID: MB 410-331292/1-B**  
**Matrix: Water**  
**Analysis Batch: 331409**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 331292**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		100	45	ug/L		12/29/22 15:51	12/30/22 11:06	1
C24-C40	ND		250	100	ug/L		12/29/22 15:51	12/30/22 11:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB</b>	<b>Limits</b>					
o-terphenyl (Surr)	83			50 - 150					
				<b>Prepared</b>			<b>Analyzed</b>		<b>Dil Fac</b>
				12/29/22 15:51			12/30/22 11:06		1

**Lab Sample ID: LCS 410-331292/2-B**  
**Matrix: Water**  
**Analysis Batch: 331409**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 331292**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C12-C24	600	205		ug/L		34	14 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS</b>	<b>Limits</b>			
o-terphenyl (Surr)	77			50 - 150			

**Lab Sample ID: LCSD 410-331292/3-B**  
**Matrix: Water**  
**Analysis Batch: 331409**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 331292**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C12-C24	600	218		ug/L		36	14 - 115	6	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD</b>	<b>Limits</b>					
o-terphenyl (Surr)	73			50 - 150					

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH (Continued)

Lab Sample ID: 410-109803-2 DU

Matrix: Water

Analysis Batch: 331409

Client Sample ID: MW-531

Prep Type: Total/NA

Prep Batch: 331292

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
C12-C24	ND		ND		ug/L		NC	20
C24-C40	ND		ND		ug/L		NC	20
Surrogate	%Recovery	DU	DU	Qualifier	Limits			
<i>o</i> -terphenyl (Surr)	54				50 - 150			



# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## GC/MS VOA

### Analysis Batch: 330420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109803-1	MW-526	Total/NA	Water	8260D/UST	
410-109803-2	MW-531	Total/NA	Water	8260D/UST	
410-109803-3	Trip Blank	Total/NA	Water	8260D/UST	
MB 410-330420/6	Method Blank	Total/NA	Water	8260D/UST	
LCS 410-330420/4	Lab Control Sample	Total/NA	Water	8260D/UST	
LCSD 410-330420/5	Lab Control Sample Dup	Total/NA	Water	8260D/UST	

## GC VOA

### Analysis Batch: 330467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109803-1	MW-526	Total/NA	Water	NWTPH-Gx	
410-109803-2	MW-531	Total/NA	Water	NWTPH-Gx	
410-109803-3	Trip Blank	Total/NA	Water	NWTPH-Gx	
MB 410-330467/4	Method Blank	Total/NA	Water	NWTPH-Gx	
LCS 410-330467/5	Lab Control Sample	Total/NA	Water	NWTPH-Gx	
LCSD 410-330467/6	Lab Control Sample Dup	Total/NA	Water	NWTPH-Gx	

## GC Semi VOA

### Prep Batch: 331292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109803-1	MW-526	Total/NA	Water	3510C	
410-109803-2	MW-531	Total/NA	Water	3510C	
MB 410-331292/1-B	Method Blank	Total/NA	Water	3510C	
LCS 410-331292/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 410-331292/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
410-109803-2 DU	MW-531	Total/NA	Water	3510C	

### Analysis Batch: 331409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109803-1	MW-526	Total/NA	Water	NWTPH-Dx	331447
410-109803-2	MW-531	Total/NA	Water	NWTPH-Dx	331447
MB 410-331292/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	331447
LCS 410-331292/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	331447
LCSD 410-331292/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	331447
410-109803-2 DU	MW-531	Total/NA	Water	NWTPH-Dx	331447

### Cleanup Batch: 331447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109803-1	MW-526	Total/NA	Water	3630C	331292
410-109803-2	MW-531	Total/NA	Water	3630C	331292
MB 410-331292/1-B	Method Blank	Total/NA	Water	3630C	331292
LCS 410-331292/2-B	Lab Control Sample	Total/NA	Water	3630C	331292
LCSD 410-331292/3-B	Lab Control Sample Dup	Total/NA	Water	3630C	331292
410-109803-2 DU	MW-531	Total/NA	Water	3630C	331292

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-109803-1**

Date Collected: 12/16/22 12:45

Matrix: Water

Date Received: 12/20/22 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	330420	UKAD	ELLE	12/27/22 19:46
Total/NA	Analysis	NWTPH-Gx		1	330467	B9BF	ELLE	12/27/22 22:27
Total/NA	Prep	3510C			331292	QJZ6	ELLE	12/29/22 15:51
Total/NA	Cleanup	3630C			331447	USL7	ELLE	12/30/22 05:09
Total/NA	Analysis	NWTPH-Dx		1	331409	UHEW	ELLE	12/30/22 12:13

**Client Sample ID: MW-531**

**Lab Sample ID: 410-109803-2**

Date Collected: 12/16/22 12:05

Matrix: Water

Date Received: 12/20/22 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	330420	UKAD	ELLE	12/27/22 20:10
Total/NA	Analysis	NWTPH-Gx		1	330467	B9BF	ELLE	12/27/22 22:53
Total/NA	Prep	3510C			331292	QJZ6	ELLE	12/29/22 15:51
Total/NA	Cleanup	3630C			331447	USL7	ELLE	12/30/22 05:09
Total/NA	Analysis	NWTPH-Dx		1	331409	UHEW	ELLE	12/30/22 12:36

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-109803-3**

Date Collected: 12/16/22 00:00

Matrix: Water

Date Received: 12/20/22 11:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D/UST		1	330420	UKAD	ELLE	12/27/22 16:10
Total/NA	Analysis	NWTPH-Gx		1	330467	B9BF	ELLE	12/27/22 16:51

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C457	04-11-23

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# Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

Method	Method Description	Protocol	Laboratory
8260D/UST	Volatile Organic Compounds by GC/MS	SW846	ELLE
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	ELLE
NWTPH-Dx	Semi-Volatile Petroleum Products by NWTPH	NWTPH	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
3630C	Silica Gel Cleanup	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

**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:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-109803-1	MW-526	Water	12/16/22 12:45	12/20/22 11:08
410-109803-2	MW-531	Water	12/16/22 12:05	12/20/22 11:08
410-109803-3	Trip Blank	Water	12/16/22 00:00	12/20/22 11:08

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**Eurofins FGS, Seattle**

5755 8th Street East  
Tacoma, WA 98424

**Chain of Custody Record**



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<b>Client Information</b>		Sampler: <u>Trevor Bryant</u>	Lab PM: <u>Amek Carter</u>	Carrier: <u>410-109803 Chain of Custody</u>								
Client Contact: <u>Trevor Bryant</u>		Phone:	E-Mail: <u>Amek.Carter@et.eurofins.com</u>	State of:								
Company: <u>Arcadis</u>		PWSID:	Page 1 of 1									
Address: <u>1100 Olive way ste 300</u>		<b>Analysis Requested</b>		Job #:								
City: <u>Seattle,</u>		Due Date Requested:	Preservation Codes: A - HCL                      M - Hexane B - NaOH                     N - None C - Zn Acetate              O - AsNaO2 D - Nitric Acid              P - Na2O4S E - NaHSO4                  Q - Na2SO3 F - MeOH                     R - Na2S2O3 G - Amchlor                 S - H2SO4 H - Ascorbic Acid          T - TSP Dodecahydrate I - Ice                         U - Acetone J - DI Water                 V - MCAA K - EDTA                     W - pH 4-5 L - EDA                        Z - other (specify)									
State, Zip: <u>WA 98101</u>		TAT Requested (days): <u>5 day TAT</u>										
Phone: <u>-</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No										
Email: <u>Trevor.Bryant@Arcadis.com</u>		PO #: Purchase Order not required										
Project Name: <u>Edmonds Terminal</u>		WO #:										
Site:		Project #: <u>30064301</u>	Other:									
SSOW#:		Field Filtered Sample (Yes or No)		Total Number of containers								
		Form IIS/MS/MS/MS or No										
		NWTPH-GW										
		NWTPH-DW W/ SEC										
		8260 D - Benzene										
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soild, Overstol, ST-Tissue, A-Air)	Field Filtered Sample (Yes or No)	Form IIS/MS/MS/MS or No	Total Number of containers	Special Instructions/Note:			
				Preservation Code:		X	X	S				
<u>MW-526</u>		<u>12/16/22</u>	<u>1245</u>	<u>G</u>	<u>W</u>	<u>N</u>	<u>N</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>8</u>	<u>use standard</u>
<u>MW-531</u>		<u>12/16/22</u>	<u>1205</u>	<u>G</u>	<u>W</u>	<u>N</u>	<u>N</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>8</u>	<u>SGC</u>
<u>Trip Blank</u>		<u>-</u>	<u>-</u>	<u>-</u>	<u>W</u>			<u>X</u>	<u>X</u>		<u>4</u>	
												<u>Report quantitative levels of Benzene &lt;1 µg/L</u>
												<u>resample of 526 + 531</u>
<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>										
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months										
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:										
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:								
Relinquished by: <u>[Signature]</u>		Date/Time: <u>12/19/22</u>	Company: <u>Arcadis</u>	Received by: <u>Fedex</u>		Date/Time:						
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:						
Relinquished by:		Date/Time:	Company:	Received by: <u>[Signature]</u>		Date/Time: <u>12/19/22 1108 AM</u>						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>1.3</u> <u>ACH</u>								

MB



## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 410-109803-1

**Login Number: 109803**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 1**

**Creator: Ballard, Megan**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



CHEVRON

## DATA REVIEW

Edmonds Terminal  
Edmonds, Washington

*Volatile Organic Compounds, Diesel, Motor Oil, and  
Gasoline Range Petroleum Hydrocarbons Analyses*

SDG: 410-109803-1

Analyses Performed By:  
Eurofins Environment Testing America  
Lancaster, Pennsylvania

Validation Report: 48148R  
Review Level: Tier II  
Project: 30063675

## DATA REVIEW REPORT

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) 410-109803-1 for samples collected in association with the Edmonds Terminal site in, Edmonds, Washington. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Included with this assessment are the validation annotated sample result sheets, and chain-of-custody records (COCs). Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis					
					VOC	PAH	TPHg	TPHd	Metals	Misc.
MW-526	410-105564-1	Water	12/16/2022		X		X	X		
MW-531	410-105564-2	Water	12/16/2022		X		X	X		
Trip Blank	410-105564-3	Water	12/16/2022		X		X			

## DATA REVIEW REPORT

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

## DATA REVIEW REPORT

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and Northwest Total Petroleum Hydrocarbon Methods NWTPG-Gx and NWTPH-Dx. Data were reviewed in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

## DATA REVIEW REPORT

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260D	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., laboratory method blanks and field blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike / Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD analysis was not performed using a sample from this SDG.

## DATA REVIEW REPORT

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited acceptable results.

### 6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. The control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the reporting limit (RL), a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Field duplicate samples were not collected for this SDG.

### 7. Other (Calibration)

The laboratory noted that the continuing calibration verification analysis exhibited a response greater than the upper control limit for the compound benzene. Because benzene was not detected in the associated samples, no qualification is required.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR VOCS

VOCs: SW-846 8260D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

### Gas Chromatography/Mass Spectrometry (GC/MS)

#### Tier II Validation

Holding Times		X		X	
Reporting Limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment Blanks, Field blanks	X				X
C. Trip blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Laboratory Control Sample (LCS) Accuracy (%R)		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD	X				X
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference



## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE ORANICS (TPH-G/GRO) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-G/GRO by NWTPG-Gx	Water (Preserved)	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to analysis	Cool to < 6 °C

All samples were analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-G/GRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

## DATA REVIEW REPORT

The MS/MSD analysis was not performed using a sample from this SDG.

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

Laboratory duplicate sample analysis was not performed using a sample from within these SDGs.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Field duplicate samples were not collected for this SDG.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

**DATA REVIEW REPORT**

**DATA VALIDATION CHECKLIST FOR TPH-G/GRO**

TPH-G/GRO: SW-846 NWTPH-Gx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment and/or Field Blanks	X				X
C. Trip Blanks		X		X	
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD	X				X
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

## DATA REVIEW REPORT

### TOTAL PETROLEUM HYDROCARBONS DIESEL AND MOTOR OIL RANGE ORANICS (TPH-D/MO/DRO) ANALYSIS

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TPH-D/MO/DRO by NWTPH-Dx	Water (Preserved)	14 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C; pH < 2 with HCl
	Water (Unpreserved)	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time and preservation criteria.

#### 2. Blank Contamination

QA blanks (i.e., laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed, otherwise the result is qualified as not detected (UB) at either the sample reporting limit or the concentration detected in the sample, whichever is greater.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

#### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic analytes are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The TPH-D/MO/DRO analysis requires all surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited acceptable surrogate recoveries.

#### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked analytes used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. When an MSD analysis is performed, the relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the analyte concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD analysis was not performed using a sample from this SDG.

## DATA REVIEW REPORT

### 5. Laboratory Duplicate Sample Analysis

The laboratory duplicate sample analysis is used to assess the precision of the analytical method. The RPD between the duplicate sample results must be within the laboratory-established control limit. The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). When the parent and duplicate sample concentrations are less than five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil matrices is applied to the difference between the results.

The laboratory duplicate sample analysis was not performed using a sample from this SDG.

### 6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked analytes used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analysis exhibited acceptable results.

### 7. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 25% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices or three times the RL for soil matrices is applied to the difference between the results.

Field duplicate samples were not collected for this SDG.

### 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA REVIEW REPORT

## DATA VALIDATION CHECKLIST FOR TPH-D/MO/DRO

TPH-D/MO/DRO: NWTPH-Dx	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>Gas Chromatography/Flame Ionization Detector (GC/FID)</b>					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field/Trip Blanks	X				X
Surrogates Accuracy (%R)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD	X				X
Dilution Factor		X		X	

%R = Percent recovery

RPD = Relative percent difference

# DATA REVIEW REPORT

Validation Performed By: Dennis Dyke

Signature:   
\_\_\_\_\_

Date: January 4, 2023

Peer Review By: Joe Houser

Date: January 5, 2023

# CHAIN OF CUSTODY AND VALIDATED SAMPLE ANALYSIS DATA SHEETS





**Eurofins FGS, Seattle**

5755 8th Street East  
Tacoma, WA 98424

**Chain of Custody Record**



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<b>Client Information</b>		Sampler: <u>Trevor Bryant</u>		Lab PM: <u>Amek Carter</u>		Carrier: <u>410-109803 Chain of Custody</u>		Page 1 of 1						
Client Contact: <u>Trevor Bryant</u>		Phone:		E-Mail: <u>trevor.bryant@eurofins.com</u>		State of:		Job #:						
Company: <u>Arcadis</u>		PWSID:		<b>Analysis Requested</b>						Preservation Codes:				
Address: <u>1100 Olive way ste 300</u>		Due Date Requested:		Field Filtered Sample (Yes or No) Form HSN/Analysis or No MWTPH-GW MWTPH-DW W/ SEC 8260 D - Benzene						Total Number of containers 2 8 4 2		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		
City: <u>Seattle,</u>		TAT Requested (days): <u>5 day TAT</u>												
State, Zip: <u>WA 98101</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No												
Phone: <u>-</u>		PO #: Purchase Order not required												
Email: <u>Trevor.Bryant@Arcadis.com</u>		WO #:												
Project Name: <u>Edmonds Terminal</u>		Project #: <u>30064301</u>								Other:				
Site:		SSOW#:												
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soild, Overstok, ST=Issue, A=Air)	Field Filtered Sample (Yes or No)						Special Instructions/Note:		
						Preservation Code: <input checked="" type="checkbox"/> S								
MW-526		12/16/22	1245	G	W	N	N	X	X	X			2	use standard
MW-531		12/16/22	1205	G	W	N	N	X	X	X			8	SGC
Trip Blank		-	-	-	W			X	X				4	
														Report quantitative levels of Benzene < 1 µg/L
														resample of 526 + 531
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>								
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:								
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:								
Relinquished by: <u>[Signature]</u>		Date/Time: <u>12/19/22</u>		Company: <u>Arcadis</u>		Received by: <u>Fedex</u>		Date/Time:		Company:				
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:				
Relinquished by:		Date/Time:		Company:		Received by: <u>[Signature]</u>		Date/Time: <u>12/19/22 1108 AM</u>		Company: <u>ANA</u>				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>1.3</u> <u>ACH</u>										

MB



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: MW-526**

**Lab Sample ID: 410-109803-1**

Date Collected: 12/16/22 12:45

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 19:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		80 - 120					12/27/22 19:46	1
4-Bromofluorobenzene (Surr)	93		80 - 120					12/27/22 19:46	1
Dibromofluoromethane (Surr)	112		80 - 120					12/27/22 19:46	1
Toluene-d8 (Surr)	93		80 - 120					12/27/22 19:46	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 22:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 22:27	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		120	54	ug/L		12/29/22 15:51	12/30/22 12:13	1
C24-C40	ND		300	120	ug/L		12/29/22 15:51	12/30/22 12:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	70		50 - 150				12/29/22 15:51	12/30/22 12:13	1

**Client Sample ID: MW-531**

**Lab Sample ID: 410-109803-2**

Date Collected: 12/16/22 12:05

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 20:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		80 - 120					12/27/22 20:10	1
4-Bromofluorobenzene (Surr)	90		80 - 120					12/27/22 20:10	1
Dibromofluoromethane (Surr)	107		80 - 120					12/27/22 20:10	1
Toluene-d8 (Surr)	91		80 - 120					12/27/22 20:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 22:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 22:53	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C24	ND		110	49	ug/L		12/29/22 15:51	12/30/22 12:36	1
C24-C40	ND		270	110	ug/L		12/29/22 15:51	12/30/22 12:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-terphenyl (Surr)	54		50 - 150				12/29/22 15:51	12/30/22 12:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Edmonds Terminal

Job ID: 410-109803-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 410-109803-3**

Date Collected: 12/16/22 00:00

Matrix: Water

Date Received: 12/20/22 11:08

**Method: SW846 8260D/UST - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	cn	1.0	0.30	ug/L			12/27/22 16:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		80 - 120					12/27/22 16:10	1
4-Bromofluorobenzene (Surr)	91		80 - 120					12/27/22 16:10	1
Dibromofluoromethane (Surr)	107		80 - 120					12/27/22 16:10	1
Toluene-d8 (Surr)	92		80 - 120					12/27/22 16:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12 (1C)	ND		250	43	ug/L			12/27/22 16:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid) (1C)	101		50 - 150					12/27/22 16:51	1

# Appendix E

## Discharge Monitoring Reports



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 01/01/2022 - 01/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Sa	1/1/22											
2-Su	1/2/22											
2-M	1/3/22											
2-T	1/4/22											
2-W	1/5/22	62	7.06	<0.24	<100	<65	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
2-Th	1/6/22											
2-F	1/7/22											
2-Sa	1/8/22											
3-Su	1/9/22											
3-M	1/10/22	66	7.73	<0.24	<100	<33	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
3-T	1/11/22											
3-W	1/12/22											
3-Th	1/13/22											
3-F	1/14/22											
3-Sa	1/15/22											
4-Su	1/16/22											
4-M	1/17/22											
4-T	1/18/22	70	7.99	<0.24	<14	<72	<0.010	<0.016	<0.012	<0.013	<0.018	<0.012
4-W	1/19/22											
4-Th	1/20/22											
4-F	1/21/22											
4-Sa	1/22/22											
5-Su	1/23/22											
5-M	1/24/22	56	8.22	<0.24	<14	<67	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
5-T	1/25/22											
5-W	1/26/22											
5-Th	1/27/22											
5-F	1/28/22											
5-Sa	1/29/22											
6-Su	1/30/22											
6-M	1/31/22	77	8.00	<0.24	<14	<73	<0.010	<0.015	<0.012	<0.013	<0.017	<0.015
Daily Minimum			7.06									
			>= 6.0 (RO)									
Daily Maximum		77	8.22	<0.24	<100	<73	<0.01	<0.016	<0.012	<0.013	<0.018	<0.015
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Sa	1/1/22		
2-Su	1/2/22		
2-M	1/3/22		
2-T	1/4/22		
2-W	1/5/22	<0.015	<0.014
2-Th	1/6/22		
2-F	1/7/22		
2-Sa	1/8/22		
3-Su	1/9/22		
3-M	1/10/22	<0.016	<0.015
3-T	1/11/22		
3-W	1/12/22		
3-Th	1/13/22		
3-F	1/14/22		
3-Sa	1/15/22		
4-Su	1/16/22		
4-M	1/17/22		
4-T	1/18/22	<0.017	<0.016
4-W	1/19/22		
4-Th	1/20/22		
4-F	1/21/22		
4-Sa	1/22/22		
5-Su	1/23/22		
5-M	1/24/22	<0.015	<0.014
5-T	1/25/22		
5-W	1/26/22		
5-Th	1/27/22		
5-F	1/28/22		
5-Sa	1/29/22		
6-Su	1/30/22		
6-M	1/31/22	<0.016	<0.015
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.017	<0.016
		Report Only	Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

2/25/2022 7:39:48 AM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 02/01/2022 - 02/28/2022

Outfall: 002 - Willow Creek

Version: 2

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
1-T	2/1/22											
1-W	2/2/22											
1-Th	2/3/22											
1-F	2/4/22											
1-Sa	2/5/22											
2-Su	2/6/22											
2-M	2/7/22	70	8.30	<0.24	<14	<72	<0.010	<0.015	<0.012	<0.013	<0.018	<0.012
2-T	2/8/22											
2-W	2/9/22											
2-Th	2/10/22											
2-F	2/11/22											
2-Sa	2/12/22											
3-Su	2/13/22											
3-M	2/14/22	91	8.29	<0.24	<14	<66	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
3-T	2/15/22											
3-W	2/16/22											
3-Th	2/17/22											
3-F	2/18/22											
3-Sa	2/19/22											
4-Su	2/20/22											
4-M	2/21/22											
4-T	2/22/22	90	8.22	<0.24	<14	130*	<0.010	<0.016	<0.012	<0.013	<0.018	<0.012
4-W	2/23/22											
4-Th	2/24/22											
4-F	2/25/22											
4-Sa	2/26/22											
5-Su	2/27/22											
5-M	2/28/22	77	8.13	<0.24	<14	<66	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
Daily Minimum			8.22									
			>= 6.0 (RO)									
Daily Maximum		91	8.3	<0.24	<14	130*	<0.01	<0.016	<0.012	<0.013	<0.018	<0.012
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection





Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-T	2/1/22		
1-W	2/2/22		
1-Th	2/3/22		
1-F	2/4/22		
1-Sa	2/5/22		
2-Su	2/6/22		
2-M	2/7/22	<0.017	<0.015
2-T	2/8/22		
2-W	2/9/22		
2-Th	2/10/22		
2-F	2/11/22		
2-Sa	2/12/22		
3-Su	2/13/22		
3-M	2/14/22	<0.015	<0.014
3-T	2/15/22		
3-W	2/16/22		
3-Th	2/17/22		
3-F	2/18/22		
3-Sa	2/19/22		
4-Su	2/20/22		
4-M	2/21/22		
4-T	2/22/22	<0.017	<0.016
4-W	2/23/22		
4-Th	2/24/22		
4-F	2/25/22		
4-Sa	2/26/22		
5-Su	2/27/22		
5-M	2/28/22	<0.016	<0.015
Daily Minimum			
Daily Maximum		<0.017 Report Only	<0.016 Report Only



## Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Petroleum Hydrocarbons Diesel (NWTPH Dx) (semi- volatile) Micrograms/L (ug/L)	Daily Maximum	130	Compound was found in the laboratory method blank (0.0710 J mg/L) and sample.
DPE	Petroleum Hydrocarbons Diesel (NWTPH Dx) (semi- volatile) Micrograms/L (ug/L)	2/22/2022	130	Compound was found in the laboratory method blank (0.0710 J mg/L) and sample.

*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

6/16/2022 7:38:30 AM

Signature

Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 03/01/2022 - 03/31/2022

Outfall: 002 - Willow Creek

Version: 2

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
1-T	3/1/22											
1-W	3/2/22											
1-Th	3/3/22											
1-F	3/4/22											
1-Sa	3/5/22											
2-Su	3/6/22											
2-M	3/7/22											
2-T	3/8/22	84	7.95	<0.24	<14	<69	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
2-W	3/9/22											
2-Th	3/10/22											
2-F	3/11/22											
2-Sa	3/12/22											
3-Su	3/13/22											
3-M	3/14/22	95	7.62	<0.24	J 24	<72	J 0.009	<0.013	J 0.013	<0.011	<0.015	<0.010
3-T	3/15/22											
3-W	3/16/22											
3-Th	3/17/22											
3-F	3/18/22											
3-Sa	3/19/22											
4-Su	3/20/22											
4-M	3/21/22	69	8.05	<0.24	<14	<66	<0.009	<0.014	<0.011	<0.012	<0.016	<0.011
4-T	3/22/22											
4-W	3/23/22											
4-Th	3/24/22											
4-F	3/25/22											
4-Sa	3/26/22											
5-Su	3/27/22											
5-M	3/28/22	92	7.60	<0.24	<14	<71	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
5-T	3/29/22											
5-W	3/30/22											
5-Th	3/31/22											
Daily Minimum			7.60									
			>= 6.0 (RO)									
Daily Maximum		95	8.05	<0.24	J 24	<72	J 0.009	<0.015	J 0.013	<0.013	<0.017	<0.012
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-T	3/1/22		
1-W	3/2/22		
1-Th	3/3/22		
1-F	3/4/22		
1-Sa	3/5/22		
2-Su	3/6/22		
2-M	3/7/22		
2-T	3/8/22	<0.016	<0.015
2-W	3/9/22		
2-Th	3/10/22		
2-F	3/11/22		
2-Sa	3/12/22		
3-Su	3/13/22		
3-M	3/14/22	<0.014	<0.013
3-T	3/15/22		
3-W	3/16/22		
3-Th	3/17/22		
3-F	3/18/22		
3-Sa	3/19/22		
4-Su	3/20/22		
4-M	3/21/22	<0.015	<0.014
4-T	3/22/22		
4-W	3/23/22		
4-Th	3/24/22		
4-F	3/25/22		
4-Sa	3/26/22		
5-Su	3/27/22		
5-M	3/28/22	<0.016	<0.015
5-T	3/29/22		
5-W	3/30/22		
5-Th	3/31/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016	<0.015
		Report Only	Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

4/27/2022 8:55:52 AM

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Signature

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Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 04/01/2022 - 04/30/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-F	4/1/22											
1-Sa	4/2/22											
2-Su	4/3/22											
2-M	4/4/22	96	7.30	<0.24	<14	<67	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
2-T	4/5/22											
2-W	4/6/22											
2-Th	4/7/22											
2-F	4/8/22											
2-Sa	4/9/22											
3-Su	4/10/22											
3-M	4/11/22	74	8.00	<0.24	<14	<67	<0.010	<0.015	<0.012	<0.013	<0.017	<0.012
3-T	4/12/22											
3-W	4/13/22											
3-Th	4/14/22											
3-F	4/15/22											
3-Sa	4/16/22											
4-Su	4/17/22											
4-M	4/18/22	72	7.63	<0.24	<14	<67	<0.016	<0.015	<0.023	<0.013	<0.04	<0.023
4-T	4/19/22											
4-W	4/20/22											
4-Th	4/21/22											
4-F	4/22/22											
4-Sa	4/23/22											
5-Su	4/24/22											
5-M	4/25/22	90	7.77	<0.24	<14	J 78*	<0.017*	<0.016	<0.024	<0.013	<0.041	<0.024
5-T	4/26/22											
5-W	4/27/22											
5-Th	4/28/22											
5-F	4/29/22											
5-Sa	4/30/22											
Daily Minimum			7.30 ≥ 6.0 (RO)									
Daily Maximum		96 ≤ 100 (RO)	8 ≤ 9.0 (RO)	<0.24 ≤ 16 (RO)	<14 ≤ 800 (RO)	J 78* ≤ 500 (RO)	<0.017 ≤ 0.05 (RO)	<0.016 Report Only	<0.024 Report Only	<0.013 Report Only	<0.041 Report Only	<0.024 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-F	4/1/22		
1-Sa	4/2/22		
2-Su	4/3/22		
2-M	4/4/22	<0.016	<0.015
2-T	4/5/22		
2-W	4/6/22		
2-Th	4/7/22		
2-F	4/8/22		
2-Sa	4/9/22		
3-Su	4/10/22		
3-M	4/11/22	<0.016	<0.015
3-T	4/12/22		
3-W	4/13/22		
3-Th	4/14/22		
3-F	4/15/22		
3-Sa	4/16/22		
4-Su	4/17/22		
4-M	4/18/22	<0.016	<0.015
4-T	4/19/22		
4-W	4/20/22		
4-Th	4/21/22		
4-F	4/22/22		
4-Sa	4/23/22		
5-Su	4/24/22		
5-M	4/25/22	<0.017	<0.016*
5-T	4/26/22		
5-W	4/27/22		
5-Th	4/28/22		
5-F	4/29/22		
5-Sa	4/30/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.017*	<0.016
		Report Only	Report Only



## Outfall: 002 - Willow Creek

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
DPE	Petroleum Hydrocarbons Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L)	Daily Maximum	J 78	Laboratory method blank detection
DPE	Petroleum Hydrocarbons Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L)	4/25/2022	J 78	Laboratory method blank detection
DPE	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L)	4/25/2022	B <0.017	*1
DPE	Dibenzo(a,h)anthracene Micrograms/L (ug/L)	Daily Maximum	B <0.017	*1
DPE	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L)	4/25/2022	B <0.016	*1

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James Kiernan

Signature

5/27/2022 12:23:34 PM

Date





Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 05/01/2022 - 05/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Su	5/1/22											
1-M	5/2/22	92	7.71	<0.2	<19	<69	<0.017	<0.016	<0.024	<0.013	<0.041	<0.024
1-T	5/3/22											
1-W	5/4/22											
1-Th	5/5/22											
1-F	5/6/22											
1-Sa	5/7/22											
2-Su	5/8/22											
2-M	5/9/22	94	7.74	<0.24	<19	<67	J 0.019	J 0.037	<0.022	<0.012	J 0.06	<0.022
2-T	5/10/22											
2-W	5/11/22											
2-Th	5/12/22											
2-F	5/13/22											
2-Sa	5/14/22											
3-Su	5/15/22											
3-M	5/16/22	94	7.92	<0.24	<19	<68	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
3-T	5/17/22											
3-W	5/18/22											
3-Th	5/19/22											
3-F	5/20/22											
3-Sa	5/21/22											
4-Su	5/22/22											
4-M	5/23/22	92	7.20	<0.24	<19	<68	<0.016	<0.014	<0.023	<0.012	<0.038	<0.023
4-T	5/24/22											
4-W	5/25/22											
4-Th	5/26/22											
4-F	5/27/22											
4-Sa	5/28/22											
5-Su	5/29/22											
5-M	5/30/22											
5-T	5/31/22	92	7.78	<0.2	<19	<66	<0.016	<0.014	<0.023	<0.012	<0.038	<0.023
Daily Minimum			7.20									
			>= 6.0 (RO)									
Daily Maximum		94	7.92	<0.24	<19	<69	J 0.019	J 0.037	<0.024	<0.013	J 0.06	<0.024
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Su	5/1/22		
1-M	5/2/22	<0.017	<0.016
1-T	5/3/22		
1-W	5/4/22		
1-Th	5/5/22		
1-F	5/6/22		
1-Sa	5/7/22		
2-Su	5/8/22		
2-M	5/9/22	J 0.017	<0.014
2-T	5/10/22		
2-W	5/11/22		
2-Th	5/12/22		
2-F	5/13/22		
2-Sa	5/14/22		
3-Su	5/15/22		
3-M	5/16/22	<0.016	<0.015
3-T	5/17/22		
3-W	5/18/22		
3-Th	5/19/22		
3-F	5/20/22		
3-Sa	5/21/22		
4-Su	5/22/22		
4-M	5/23/22	<0.015	<0.014
4-T	5/24/22		
4-W	5/25/22		
4-Th	5/26/22		
4-F	5/27/22		
4-Sa	5/28/22		
5-Su	5/29/22		
5-M	5/30/22		
5-T	5/31/22	<0.015	<0.014
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		J 0.017 Report Only	<0.016 Report Only



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James Kiernan

6/23/2022 7:33:00 AM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 06/01/2022 - 06/30/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
1-W	6/1/22											
1-Th	6/2/22											
1-F	6/3/22											
1-Sa	6/4/22											
2-Su	6/5/22											
2-M	6/6/22	93	7.81	<0.2	<19	J 88	<0.016	<0.014	<0.023	<0.012	<0.038	<0.023
2-T	6/7/22											
2-W	6/8/22											
2-Th	6/9/22											
2-F	6/10/22											
2-Sa	6/11/22											
3-Su	6/12/22											
3-M	6/13/22											
3-T	6/14/22											
3-W	6/15/22	92	7.87	<0.2	<22	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
3-Th	6/16/22											
3-F	6/17/22											
3-Sa	6/18/22											
4-Su	6/19/22											
4-M	6/20/22	93	7.76	<0.2	<22	<68	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
4-T	6/21/22											
4-W	6/22/22											
4-Th	6/23/22											
4-F	6/24/22											
4-Sa	6/25/22											
5-Su	6/26/22											
5-M	6/27/22	93	7.85	<0.2	<22	<67	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
5-T	6/28/22											
5-W	6/29/22											
5-Th	6/30/22											
Daily Minimum			7.76 ≥ 6.0 (RO)									
Daily Maximum		93 ≤ 100 (RO)	7.87 ≤ 9.0 (RO)	<0.2 ≤ 16 (RO)	<22 ≤ 800 (RO)	J 88 ≤ 500 (RO)	<0.016 ≤ 0.05 (RO)	<0.015 Report Only	<0.023 Report Only	<0.013 Report Only	<0.039 Report Only	<0.023 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-W	6/1/22		
1-Th	6/2/22		
1-F	6/3/22		
1-Sa	6/4/22		
2-Su	6/5/22		
2-M	6/6/22	<0.015	<0.014
2-T	6/7/22		
2-W	6/8/22		
2-Th	6/9/22		
2-F	6/10/22		
2-Sa	6/11/22		
3-Su	6/12/22		
3-M	6/13/22		
3-T	6/14/22		
3-W	6/15/22	<0.015	<0.014
3-Th	6/16/22		
3-F	6/17/22		
3-Sa	6/18/22		
4-Su	6/19/22		
4-M	6/20/22	<0.016	<0.015
4-T	6/21/22		
4-W	6/22/22		
4-Th	6/23/22		
4-F	6/24/22		
4-Sa	6/25/22		
5-Su	6/26/22		
5-M	6/27/22	<0.015	<0.014
5-T	6/28/22		
5-W	6/29/22		
5-Th	6/30/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016	<0.015
		Report Only	Report Only



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James kiernan

7/26/2022 2:21:30 PM

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Signature

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Date



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 07/01/2022 - 07/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (11,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-F	7/1/22											
1-Sa	7/2/22											
2-Su	7/3/22											
2-M	7/4/22											
2-T	7/5/22	93	7.99	<0.24	<14	<67	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
2-W	7/6/22											
2-Th	7/7/22											
2-F	7/8/22											
2-Sa	7/9/22											
3-Su	7/10/22											
3-M	7/11/22	91	7.73	<0.2	<43	<67	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
3-T	7/12/22											
3-W	7/13/22											
3-Th	7/14/22											
3-F	7/15/22											
3-Sa	7/16/22											
4-Su	7/17/22											
4-M	7/18/22											
4-T	7/19/22	91	7.95	<0.24	<14	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
4-W	7/20/22											
4-Th	7/21/22											
4-F	7/22/22											
4-Sa	7/23/22											
5-Su	7/24/22											
5-M	7/25/22											
5-T	7/26/22											
5-W	7/27/22	92	7.79	<0.24	<14	<69	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
5-Th	7/28/22											
5-F	7/29/22											
5-Sa	7/30/22											
6-Su	7/31/22											
Daily Minimum			7.73									
			>= 6.0 (RO)									
Daily Maximum		93	7.99	<0.24	<43	<69	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-F	7/1/22		
1-Sa	7/2/22		
2-Su	7/3/22		
2-M	7/4/22		
2-T	7/5/22	<0.015	<0.014
2-W	7/6/22		
2-Th	7/7/22		
2-F	7/8/22		
2-Sa	7/9/22		
3-Su	7/10/22		
3-M	7/11/22	<0.015	<0.014
3-T	7/12/22		
3-W	7/13/22		
3-Th	7/14/22		
3-F	7/15/22		
3-Sa	7/16/22		
4-Su	7/17/22		
4-M	7/18/22		
4-T	7/19/22	<0.015	<0.014
4-W	7/20/22		
4-Th	7/21/22		
4-F	7/22/22		
4-Sa	7/23/22		
5-Su	7/24/22		
5-M	7/25/22		
5-T	7/26/22		
5-W	7/27/22	<0.016	<0.015
5-Th	7/28/22		
5-F	7/29/22		
5-Sa	7/30/22		
6-Su	7/31/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016 Report Only	<0.015 Report Only





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James kiernan

8/26/2022 12:32:40 PM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 08/01/2022 - 08/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Ox) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-M	8/1/22	93	7.98	<0.20	<43	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
1-T	8/2/22											
1-W	8/3/22											
1-Th	8/4/22											
1-F	8/5/22											
1-Sa	8/6/22											
2-Su	8/7/22											
2-M	8/8/22	93	7.75	<0.24	J 26	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
2-T	8/9/22											
2-W	8/10/22											
2-Th	8/11/22											
2-F	8/12/22											
2-Sa	8/13/22											
3-Su	8/14/22											
3-M	8/15/22	92	7.75	<0.24	<14	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
3-T	8/16/22											
3-W	8/17/22											
3-Th	8/18/22											
3-F	8/19/22											
3-Sa	8/20/22											
4-Su	8/21/22											
4-M	8/22/22											
4-T	8/23/22											
4-W	8/24/22											
4-Th	8/25/22	96	7.52	<0.24	<14	<68	<0.015	<0.014	<0.022	<0.012	<0.037	<0.022
4-F	8/26/22											
4-Sa	8/27/22											
5-Su	8/28/22											
5-M	8/29/22											
5-T	8/30/22	92	8.11	<0.24	<14	<72	<0.016	<0.015	<0.024	<0.013	<0.04	<0.024
5-W	8/31/22											
Daily Minimum			7.52									
			>= 6.0 (RO)									
Daily Maximum		96	8.11	<0.24	J 26	<72	<0.016	<0.015	<0.024	<0.013	<0.04	<0.024
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-M	8/1/22	<0.015	<0.014
1-T	8/2/22		
1-W	8/3/22		
1-Th	8/4/22		
1-F	8/5/22		
1-Sa	8/6/22		
2-Su	8/7/22		
2-M	8/8/22	<0.015	<0.014
2-T	8/9/22		
2-W	8/10/22		
2-Th	8/11/22		
2-F	8/12/22		
2-Sa	8/13/22		
3-Su	8/14/22		
3-M	8/15/22	<0.015	<0.014
3-T	8/16/22		
3-W	8/17/22		
3-Th	8/18/22		
3-F	8/19/22		
3-Sa	8/20/22		
4-Su	8/21/22		
4-M	8/22/22		
4-T	8/23/22		
4-W	8/24/22		
4-Th	8/25/22	<0.015	<0.014
4-F	8/26/22		
4-Sa	8/27/22		
5-Su	8/28/22		
5-M	8/29/22		
5-T	8/30/22	<0.016	<0.015
5-W	8/31/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016	<0.015
		Report Only	Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

9/26/2022 7:23:47 AM

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**Signature**

---

**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 09/01/2022 - 09/30/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Th	9/1/22											
1-F	9/2/22											
1-Sa	9/3/22											
2-Su	9/4/22											
2-M	9/5/22											
2-T	9/6/22	91	8.35	<0.24	<14	<68	<0.016	<0.015	<0.023	<0.012	<0.038	<0.023
2-W	9/7/22											
2-Th	9/8/22											
2-F	9/9/22											
2-Sa	9/10/22											
3-Su	9/11/22											
3-M	9/12/22	96	7.66	<0.2	<43	<69	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
3-T	9/13/22											
3-W	9/14/22											
3-Th	9/15/22											
3-F	9/16/22											
3-Sa	9/17/22											
4-Su	9/18/22											
4-M	9/19/22	92	7.72	<0.2	<43	<66	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
4-T	9/20/22											
4-W	9/21/22											
4-Th	9/22/22											
4-F	9/23/22											
4-Sa	9/24/22											
5-Su	9/25/22											
5-M	9/26/22	92	7.65	<0.2	<43	<66	<0.016	<0.014	<0.023	<0.012	<0.038	<0.023
5-T	9/27/22											
5-W	9/28/22											
5-Th	9/29/22											
5-F	9/30/22											
Daily Minimum			7.65 ≥ 6.0 (RO)									
Daily Maximum		96 ≤ 100 (RO)	8.35 ≤ 9.0 (RO)	<0.24 ≤ 16 (RO)	<43 ≤ 800 (RO)	<69 ≤ 500 (RO)	<0.016 ≤ 0.05 (RO)	<0.015 Report Only	<0.023 Report Only	<0.013 Report Only	<0.039 Report Only	<0.023 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Th	9/1/22		
1-F	9/2/22		
1-Sa	9/3/22		
2-Su	9/4/22		
2-M	9/5/22		
2-T	9/6/22	<0.016	<0.015
2-W	9/7/22		
2-Th	9/8/22		
2-F	9/9/22		
2-Sa	9/10/22		
3-Su	9/11/22		
3-M	9/12/22	<0.016	<0.015
3-T	9/13/22		
3-W	9/14/22		
3-Th	9/15/22		
3-F	9/16/22		
3-Sa	9/17/22		
4-Su	9/18/22		
4-M	9/19/22	<0.015	<0.014
4-T	9/20/22		
4-W	9/21/22		
4-Th	9/22/22		
4-F	9/23/22		
4-Sa	9/24/22		
5-Su	9/25/22		
5-M	9/26/22	<0.015	<0.014
5-T	9/27/22		
5-W	9/28/22		
5-Th	9/29/22		
5-F	9/30/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016	<0.015
		Report Only	Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

10/21/2022 12:40:58 PM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 10/01/2022 - 10/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Sa	10/1/22											
2-Su	10/2/22											
2-M	10/3/22	90	7.89	<0.20	<43	<68	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
2-T	10/4/22											
2-W	10/5/22											
2-Th	10/6/22											
2-F	10/7/22											
2-Sa	10/8/22											
3-Su	10/9/22											
3-M	10/10/22											
3-T	10/11/22	85	7.62	<0.20	<43	<67	<0.015	<0.014	<0.022	<0.012	<0.038	<0.022
3-W	10/12/22											
3-Th	10/13/22											
3-F	10/14/22											
3-Sa	10/15/22											
4-Su	10/16/22											
4-M	10/17/22	97	7.84	<0.20	<43	<67	<0.016	<0.014	<0.023	<0.012	<0.038	<0.023
4-T	10/18/22											
4-W	10/19/22											
4-Th	10/20/22											
4-F	10/21/22											
4-Sa	10/22/22											
5-Su	10/23/22											
5-M	10/24/22	88	7.71	<0.24	<14	<69	<0.016	<0.015	<0.024	<0.013	<0.041	<0.024
5-T	10/25/22											
5-W	10/26/22											
5-Th	10/27/22											
5-F	10/28/22											
5-Sa	10/29/22											
6-Su	10/30/22											
6-M	10/31/22	84	7.83	<0.24	<14	<71	<0.017	<0.016	<0.025	<0.014	<0.043	<0.025
Daily Minimum			7.62									
			>= 6.0 (RO)									
Daily Maximum		97	7.89	<0.24	<43	<71	<0.017	<0.016	<0.025	<0.014	<0.043	<0.025
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection





Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Sa	10/1/22		
2-Su	10/2/22		
2-M	10/3/22	<0.016	<0.015
2-T	10/4/22		
2-W	10/5/22		
2-Th	10/6/22		
2-F	10/7/22		
2-Sa	10/8/22		
3-Su	10/9/22		
3-M	10/10/22		
3-T	10/11/22	<0.015	<0.014
3-W	10/12/22		
3-Th	10/13/22		
3-F	10/14/22		
3-Sa	10/15/22		
4-Su	10/16/22		
4-M	10/17/22	<0.015	<0.014
4-T	10/18/22		
4-W	10/19/22		
4-Th	10/20/22		
4-F	10/21/22		
4-Sa	10/22/22		
5-Su	10/23/22		
5-M	10/24/22	<0.016	<0.015
5-T	10/25/22		
5-W	10/26/22		
5-Th	10/27/22		
5-F	10/28/22		
5-Sa	10/29/22		
6-Su	10/30/22		
6-M	10/31/22	<0.017	<0.016
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.017	<0.016
		Report Only	Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James kiernan

11/22/2022 8:12:21 AM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 11/01/2022 - 11/30/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow Gallons/minute (gpm) Weekly Metered/Recorded	pH Standard Units Weekly Grab	Benzene Micrograms/L (ug/L) Weekly Grab	NWTPHGx Gasoline (NWTPH Gx) (volatile) Micrograms/L (ug/L) Weekly Grab	NWTPHDx Diesel (NWTPH Dx) (semi-volatile) Micrograms/L (ug/L) Weekly Grab	Polynuclear Aromatic Hydrocarbons (PAH) Carcinogenic PAHs Micrograms/L (ug/L) Weekly Calculated	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (3,4-Benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene (1,1,12-benzofluoranthene) Micrograms/L (ug/L) Weekly Grab	Chrysene Micrograms/L (ug/L) Weekly Grab	Benzofluoranthene Micrograms/L (ug/L) Weekly Grab
Week	Monitoring Point	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-T	11/1/22											
1-W	11/2/22											
1-Th	11/3/22											
1-F	11/4/22											
1-Sa	11/5/22											
2-Su	11/6/22											
2-M	11/7/22											
2-T	11/8/22											
2-W	11/9/22	90	7.69	<0.24	J 14	<70	<0.017	<0.016	<0.025	<0.014	<0.042	<0.025
2-Th	11/10/22											
2-F	11/11/22											
2-Sa	11/12/22											
3-Su	11/13/22											
3-M	11/14/22											
3-T	11/15/22											
3-W	11/16/22	90	7.82	<0.24	<14	<69	<0.016	<0.015	<0.024	<0.013	<0.040	<0.024
3-Th	11/17/22											
3-F	11/18/22											
3-Sa	11/19/22											
4-Su	11/20/22											
4-M	11/21/22	71.6	8.02	<0.24	<14	<66	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
4-T	11/22/22											
4-W	11/23/22											
4-Th	11/24/22											
4-F	11/25/22											
4-Sa	11/26/22											
5-Su	11/27/22											
5-M	11/28/22	88	7.85	<0.20	<43	<67	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
5-T	11/29/22											
5-W	11/30/22											
Daily Minimum			7.69 ≥ 6.0 (RO)									
Daily Maximum		90 ≤ 100 (RO)	8.02 ≤ 9.0 (RO)	<0.24 ≤ 16 (RO)	J 14 ≤ 800 (RO)	<70 ≤ 500 (RO)	<0.017 ≤ 0.05 (RO)	<0.016 Report Only	<0.025 Report Only	<0.014 Report Only	<0.042 Report Only	<0.025 Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-T	11/1/22		
1-W	11/2/22		
1-Th	11/3/22		
1-F	11/4/22		
1-Sa	11/5/22		
2-Su	11/6/22		
2-M	11/7/22		
2-T	11/8/22		
2-W	11/9/22	<0.017	<0.016
2-Th	11/10/22		
2-F	11/11/22		
2-Sa	11/12/22		
3-Su	11/13/22		
3-M	11/14/22		
3-T	11/15/22		
3-W	11/16/22	<0.016	<0.015
3-Th	11/17/22		
3-F	11/18/22		
3-Sa	11/19/22		
4-Su	11/20/22		
4-M	11/21/22	<0.016	<0.015
4-T	11/22/22		
4-W	11/23/22		
4-Th	11/24/22		
4-F	11/25/22		
4-Sa	11/26/22		
5-Su	11/27/22		
5-M	11/28/22	<0.016	<0.015
5-T	11/29/22		
5-W	11/30/22		
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.017 Report Only	<0.016 Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James Kiernan

12/19/2022 4:46:00 PM

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**Signature**

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**Date**



Permit Number: WA0991007

Permittee: Former Unocal Edmonds Bulk Terminal

Facility County: Snohomish

Receiving Waterbody: Shelleberger Creek

Monitoring Period: 12/01/2022 - 12/31/2022

Outfall: 002 - Willow Creek

Version: 1

Week	Monitoring Point	Flow	pH	Benzene	NWTPHGx	NWTPHDx	Polynuclear Aromatic Hydrocarbons (PAH)	Benzofluoranthene	Benzofluoranthene (3,4-Benzofluoranthene)	Benzofluoranthene (11,12-benzofluoranthene)	Chrysene	Benzofluoranthene
		gpm Weekly Metered/Recorded	Standard Units Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Calculated	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab	Micrograms/L (ug/L) Weekly Grab
DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE	DPE
1-Th	12/1/22											
1-F	12/2/22											
1-Sa	12/3/22											
2-Su	12/4/22											
2-M	12/5/22	80.3	7.81	<0.2	J 61	<67	<0.016	<0.015	<0.023	<0.012	<0.039	<0.023
2-T	12/6/22											
2-W	12/7/22											
2-Th	12/8/22											
2-F	12/9/22											
2-Sa	12/10/22											
3-Su	12/11/22											
3-M	12/12/22	80	8.07	<0.2	<43	<68	J 0.017	J 0.021	<0.023	<0.013	<0.039	<0.023
3-T	12/13/22											
3-W	12/14/22											
3-Th	12/15/22											
3-F	12/16/22											
3-Sa	12/17/22											
4-Su	12/18/22											
4-M	12/19/22	85	8.14	<0.24	<14	<70	<0.016	<0.015	<0.023	<0.013	<0.039	<0.023
4-T	12/20/22											
4-W	12/21/22											
4-Th	12/22/22											
4-F	12/23/22											
4-Sa	12/24/22											
5-Su	12/25/22	C	C	C	C	C	C	C	C	C	C	C
5-M	12/26/22	C	C	C	C	C	C	C	C	C	C	C
5-T	12/27/22	C	C	C	C	C	C	C	C	C	C	C
5-W	12/28/22	C	C	C	C	C	C	C	C	C	C	C
5-Th	12/29/22	C	C	C	C	C	C	C	C	C	C	C
5-F	12/30/22	C	C	C	C	C	C	C	C	C	C	C
5-Sa	12/31/22	C	C	C	C	C	C	C	C	C	C	C
Daily Minimum			7.81									
			>= 6.0 (RO)									
Daily Maximum		85	8.14	<0.24	J 61	<70	J 0.017	J 0.021	<0.023	<0.013	<0.039	<0.023
		<= 100 (RO)	<= 9.0 (RO)	<= 16 (RO)	<= 800 (RO)	<= 500 (RO)	<= 0.05 (RO)	Report Only	Report Only	Report Only	Report Only	Report Only

Reporting Codes Used: B - Below Detection Limit/No Detection, C - No Discharge, J - Estimated Value/Below Quantitation Limit



Week	Monitoring Point	Dibenzofuran/fluorene Micrograms/L (ug/L) Weekly Grab	Indeno(1,2,3-cd)pyrene Micrograms/L (ug/L) Weekly Grab
		DPE	DPE
1-Th	12/1/22		
1-F	12/2/22		
1-Sa	12/3/22		
2-Su	12/4/22		
2-M	12/5/22	<0.016	<0.015
2-T	12/6/22		
2-W	12/7/22		
2-Th	12/8/22		
2-F	12/9/22		
2-Sa	12/10/22		
3-Su	12/11/22		
3-M	12/12/22	<0.016	<0.015
3-T	12/13/22		
3-W	12/14/22		
3-Th	12/15/22		
3-F	12/16/22		
3-Sa	12/17/22		
4-Su	12/18/22		
4-M	12/19/22	<0.016	<0.015
4-T	12/20/22		
4-W	12/21/22		
4-Th	12/22/22		
4-F	12/23/22		
4-Sa	12/24/22		
5-Su	12/25/22	C	C
5-M	12/26/22	C	C
5-T	12/27/22	C	C
5-W	12/28/22	C	C
5-Th	12/29/22	C	C
5-F	12/30/22	C	C
5-Sa	12/31/22	C	C
<b>Daily Minimum</b>			
<b>Daily Maximum</b>		<0.016 Report Only	<0.015 Report Only



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

James kiernan

1/23/2023 7:29:26 AM

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**Signature**

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**Date**



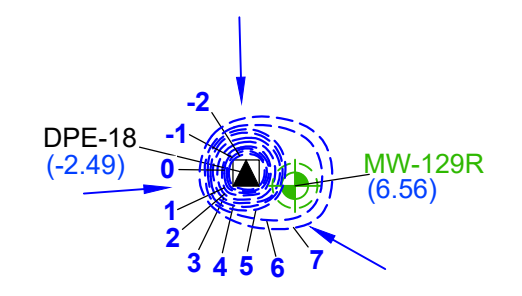
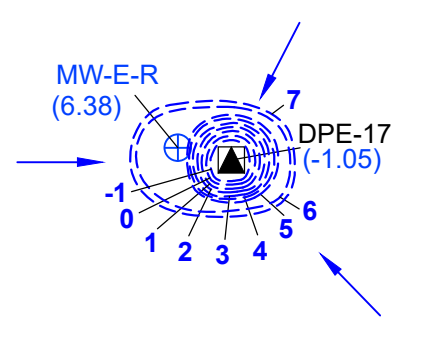
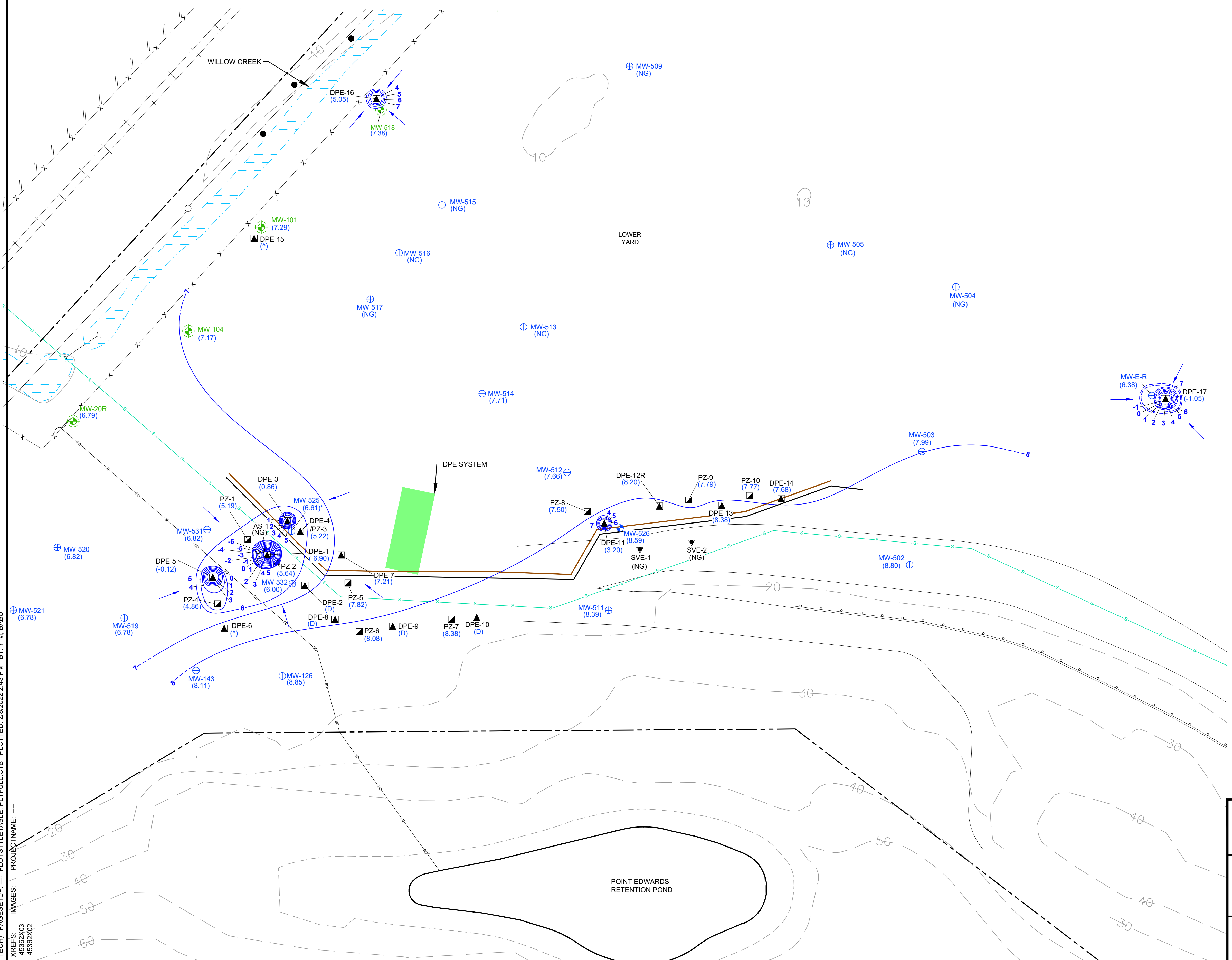
# Appendix F

## Potentiometric Surface Maps

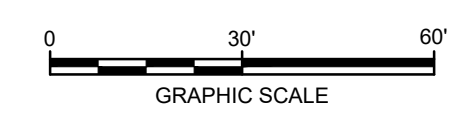
CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER LD: R. OBERLANDER PIC: (Opt) PM: (Read) TM: (Opt) LXR: (Opt) ON: OFF=REF  
 C:\Users\ymlb2640\OneDrive\Arcadis\US-CHEVRON-FORMER UNOCAL BULK FUEL TERMINAL-EDMONDS\Washington\ProjectFiles\20220101\Progress\01-DWG\GWM-1022-F01-POTENTIOMETRIC SURFACE MAP JANUARY 2022.dwg LAYOUT: 1 - SAVED: 2/1/2022 10:19 AM ACADVER: 24.05 (LMS)  
 TECH: PAGES/SETUP: PLOT/STYLE/TABLE: PLT/FULL.CTB PLOTTED: 2/8/2022 2:43 PM BY: Y. M. BABU  
 XREFS: IMAGES: PROJECTNAME: 45362X03 45362X02

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	Off	Off	D	D	D	On	Off	Off	Off	Off	On	On	On

- LEGEND:**
- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
  - MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
  - MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
  - PZ-1 ▣ PIEZOMETER LOCATION
  - AS-1 ▲ AIR SPARGE WELL LOCATION
  - DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
  - SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
  - S WSDOT STORMWATER LINE
  - POINT EDWARDS STORM DRAIN LINE
  - 20-MIL POLYETHYLENE SHEETING
  - DPE DUAL-PHASE EXTRACTION
  - (8.85) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
  - 8.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
  - ← INFERRED GROUNDWATER FLOW DIRECTION
  - (NG) NOT GAUGED
  - (\*) UNDER REPAIR
  - ANOMALOUS DATA, NOT USED IN CONTOURING
  - (D) DISCONNECTED
  - NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
  - WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

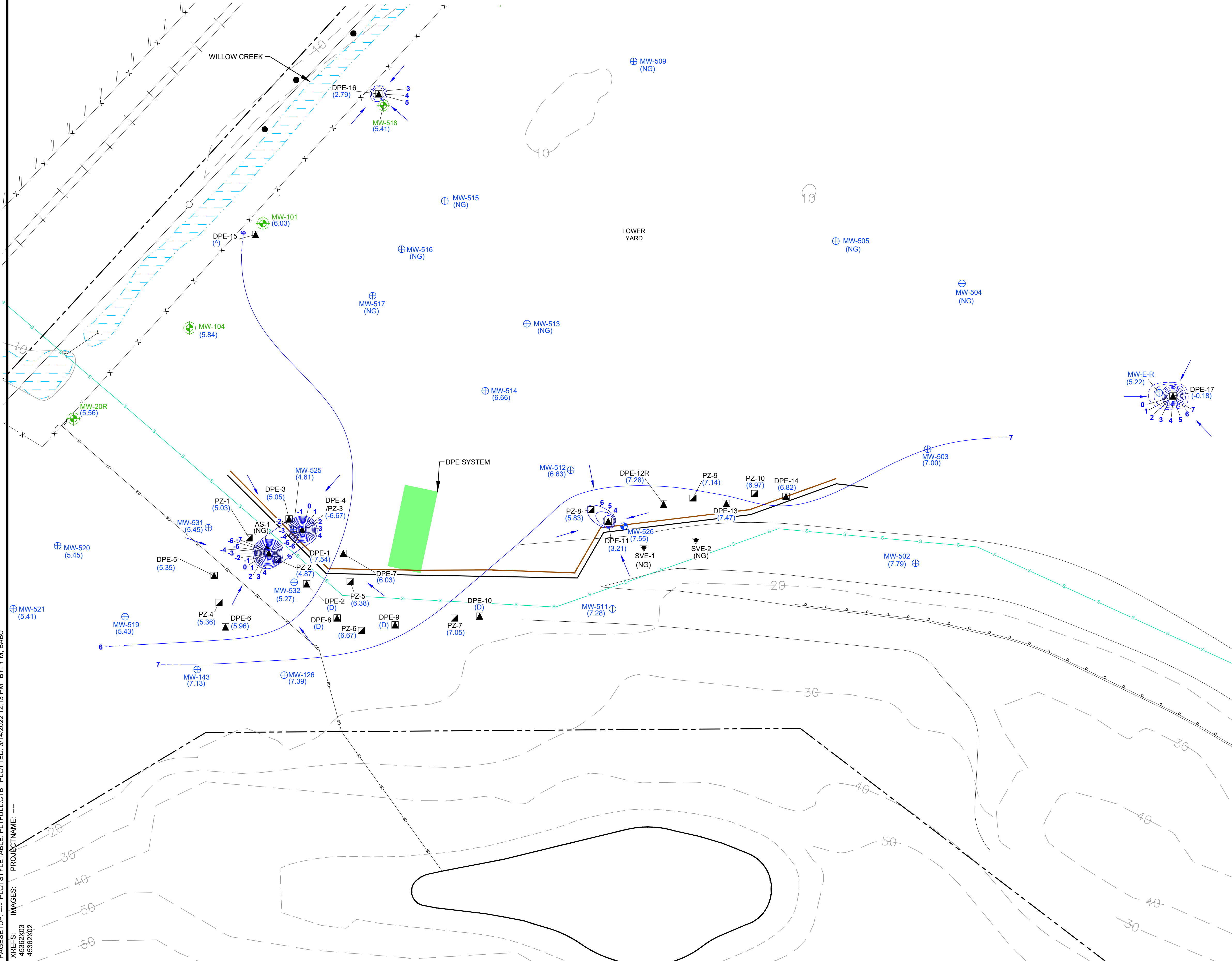
**POTENTIOMETRIC SURFACE MAP  
 JANUARY 12, 2022**

**ARCADIS**

FIGURE  
**1**

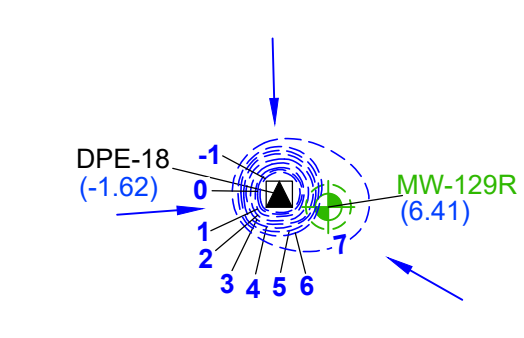
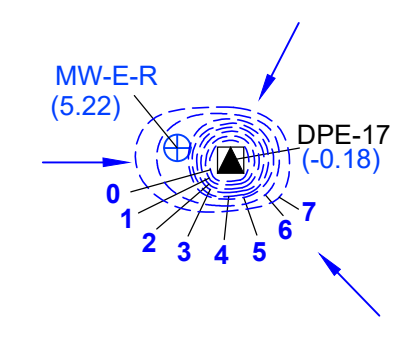
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 XREFS: IMAGES: PROJECTNAME: ---  
 45362X03  
 45362X02

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	Off	On	Off	Off	Off	D	D	D	On	Off	Off	Off	Off	On	On	On

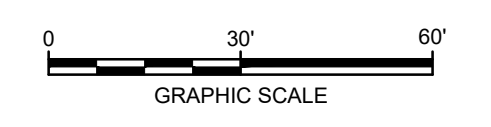


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- S WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.28) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (\*) UNDER REPAIR
- (D) DISCONNECTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
1. 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  2. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
 VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  3. SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  4. SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



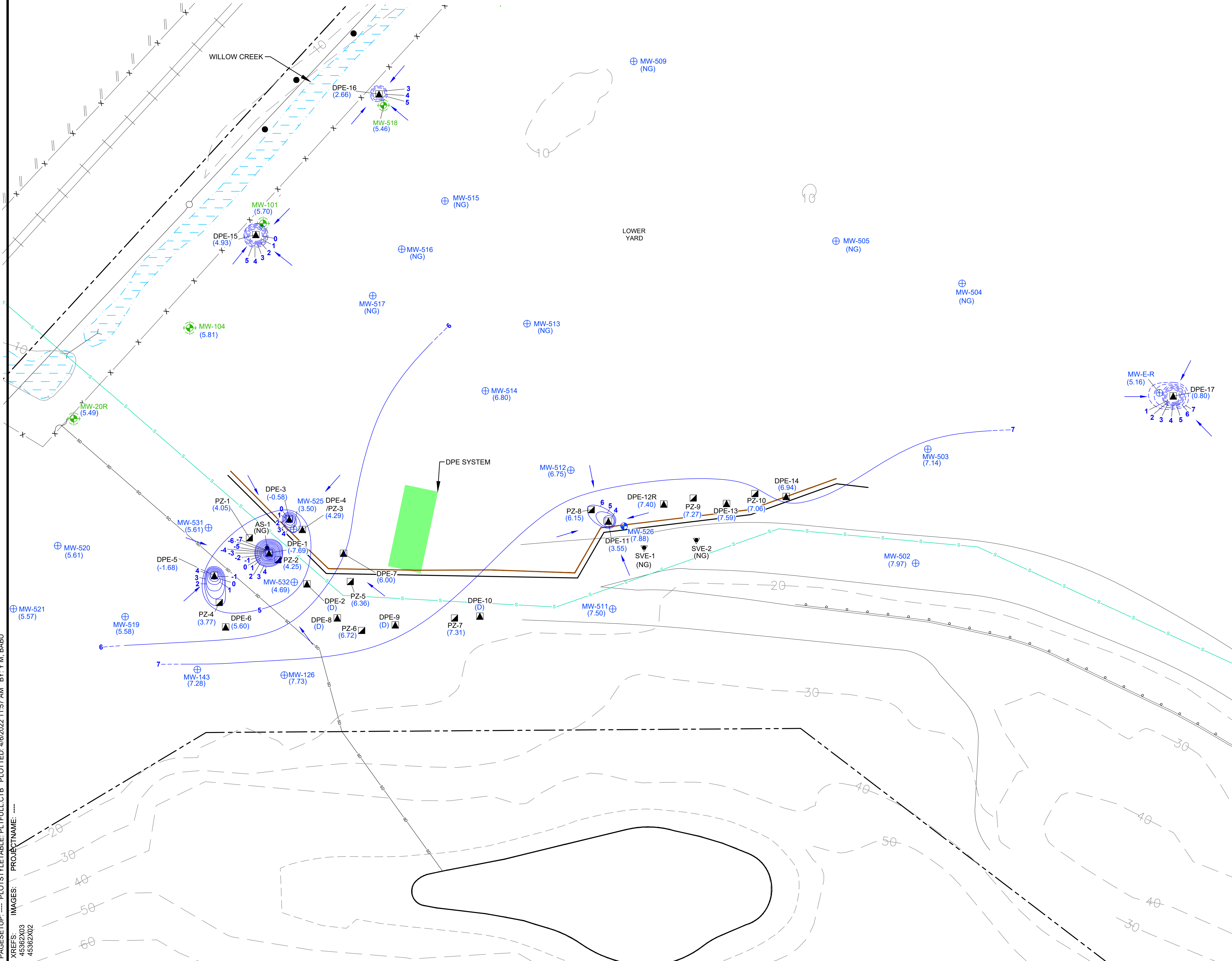
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP  
 FEBRUARY 16, 2021**

FIGURE  
**1**

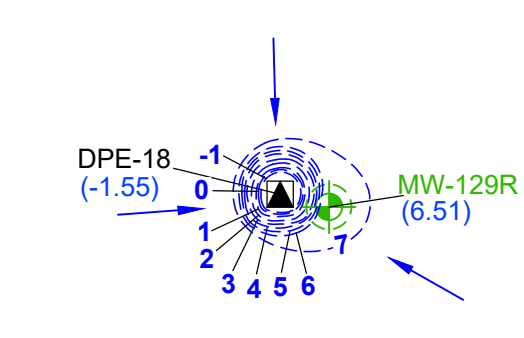
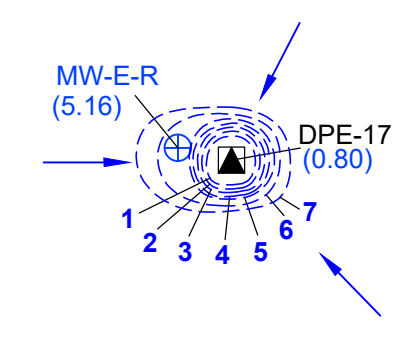
CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD, DB: R. OBERLANDER, LD: P. OBERLANDER, PIC:(Opt), Lyr:(Read), TM:(Opt), Lyr:(Icons)+, OFF:=REF, C:\Users\ymp2640\Documents\ArcGIS\Projects\EDMONDS\Washington\ProjectFiles\2022\10-In Progress\01-DWG\GWM-F01-POTENTIOMETRIC SURFACE MAP MARCH 2022.dwg LAYOUT: 1 - SAVED: 4/6/2022 11:55 AM ACADVER: 24.05 (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLT\FULL.CTB PLOTTED: 4/6/2022 11:57 AM BY: Y. M. BABU

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	Off	Off	D	D	D	On	Off	Off	Off	On	On	On	On

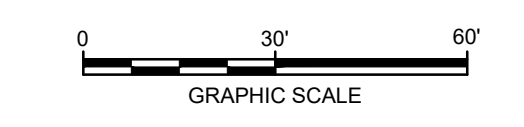


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.97) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
EDMONDS, WASHINGTON

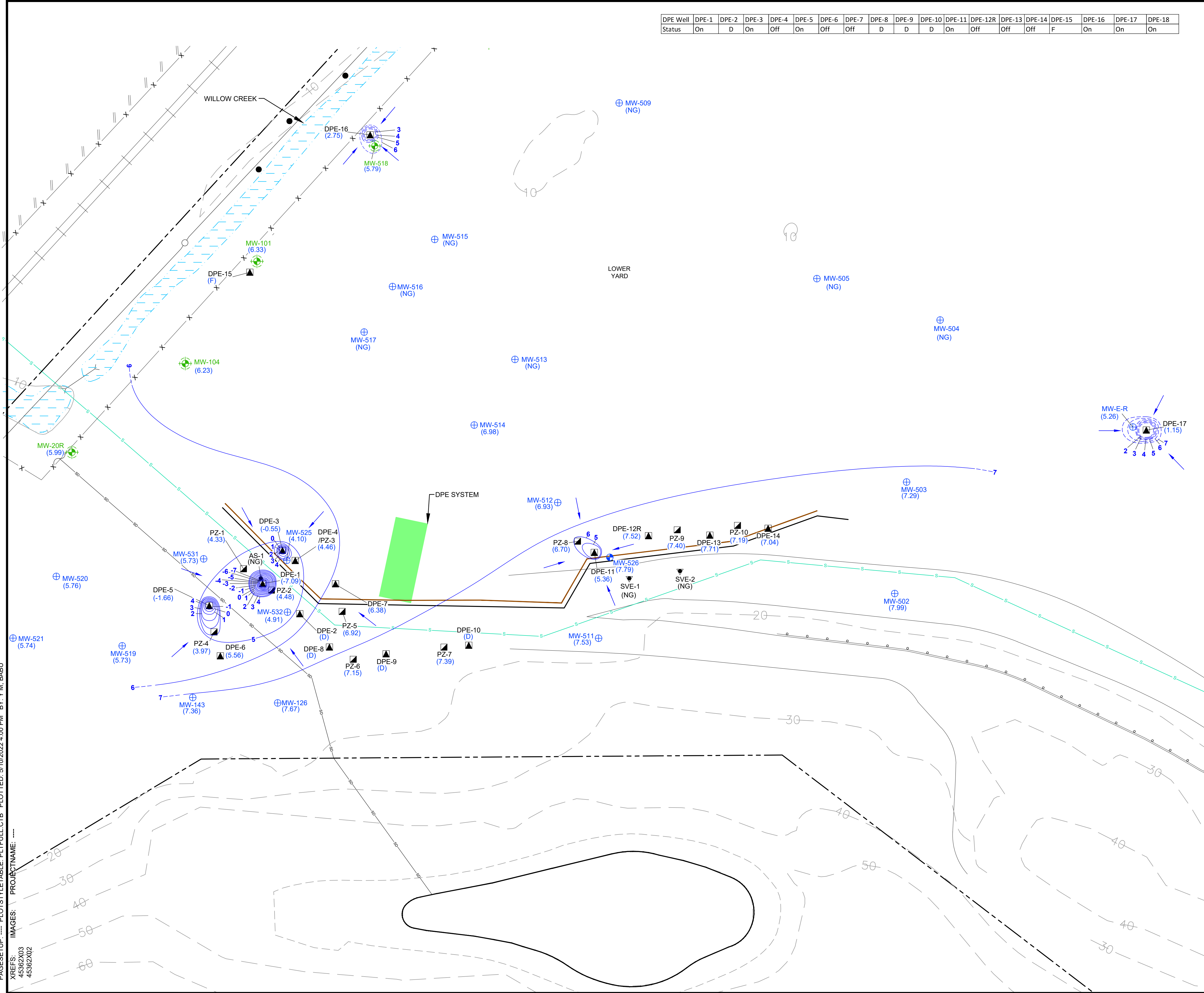
**POTENTIOMETRIC SURFACE MAP  
MARCH 16, 2022**

**ARCADIS**

FIGURE  
**1**

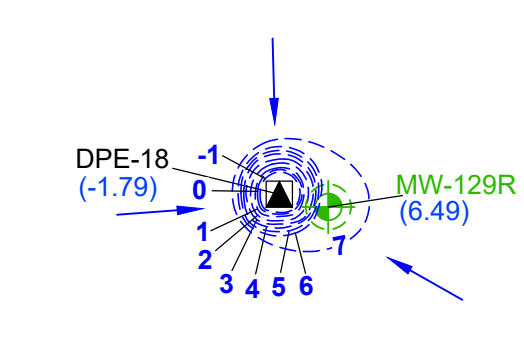
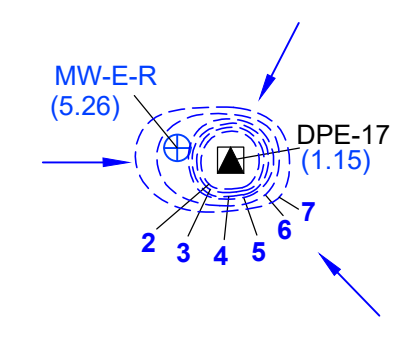
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 45362X03  
 45362X02

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	Off	Off	D	D	D	On	Off	Off	Off	F	On	On	On

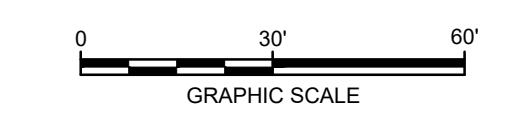


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▲ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- (7.99) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- (F) FAULTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98).  
 VERTICAL DATUM: N.A.V.D. 88  
 UNITS: U.S. SURVEY FEET  
 HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP  
 APRIL 22, 2022**

**ARCADIS**

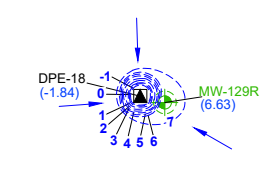
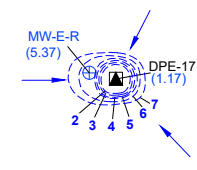
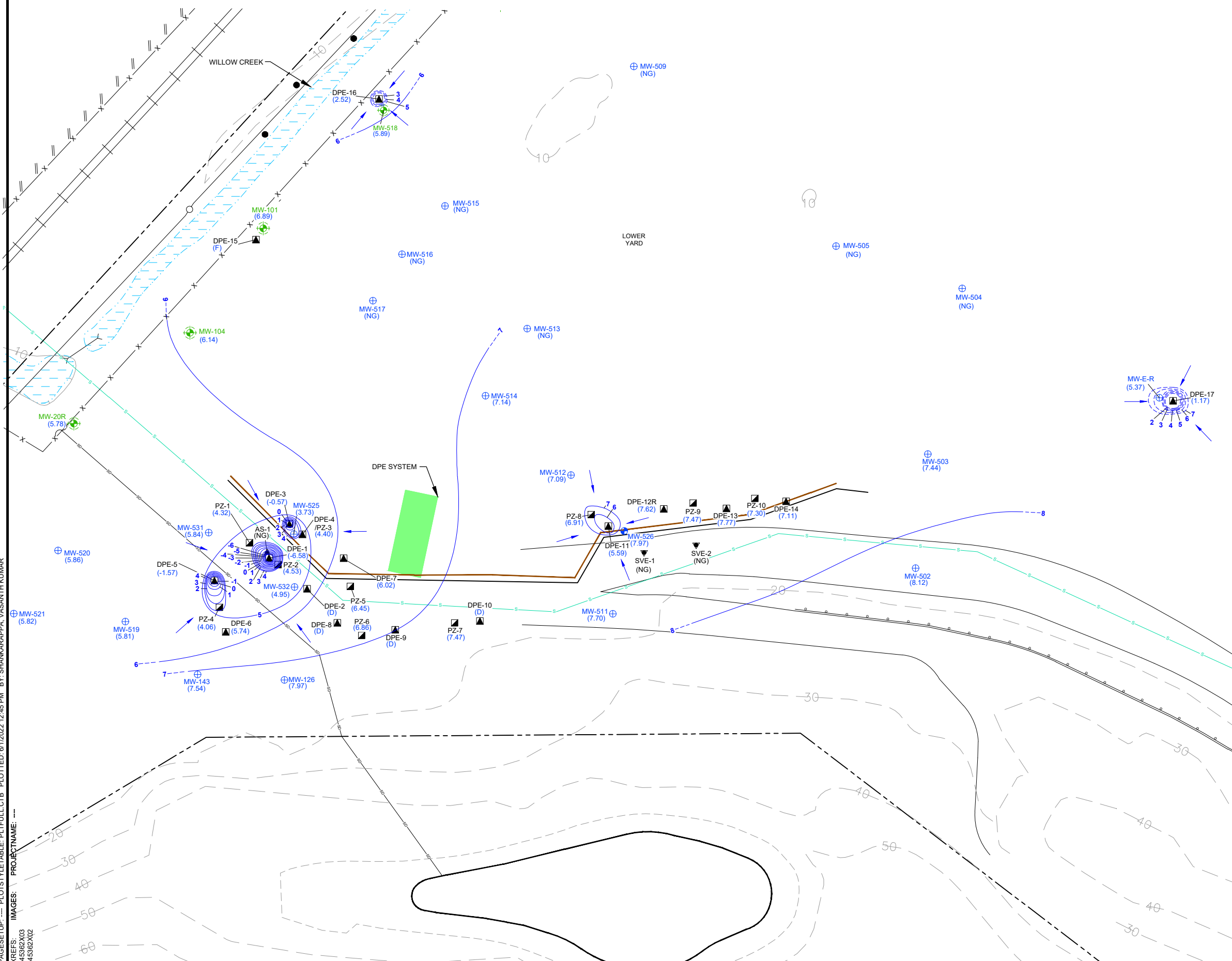
FIGURE  
**1**

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD\_DB: R. OBERLANDER, LD: R. OBERLANDER, PIC: (Cpt), PM: (Res), TM: (Cpt), LVR: (CONV) ON: OFF: REF: C:\Users\shankar\Documents\ACCD\Projects\UNOCAL CHEVRON\FORMER UNOCAL BULK FUEL TERMINAL\EDMONDS\Washington\Project Files\20220101\Progress\01-DWG\GWM-F01-POTENTIOMETRIC SURFACE MAP MAY 2022.dwg LAYOUT: 1 SAVED: 5/26/2022 4:33 PM ACADVER: 24.1S (LMS TECH) PAGES: 1 PLOT STYLE TABLE: PLT\FULL.ctb PLOTTED: 6/1/2022 12:45 PM BY: SHANKARAPPA, VASANTH KUMAR XREFS: IMAGES: PROJECTNAME: 45362X03 45362X02

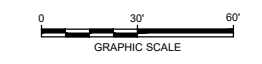
DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	Off	Off	D	D	D	On	Off	Off	Off	F	On	On	On

**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (8.12) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- (F) FAULTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
EDMONDS, WASHINGTON

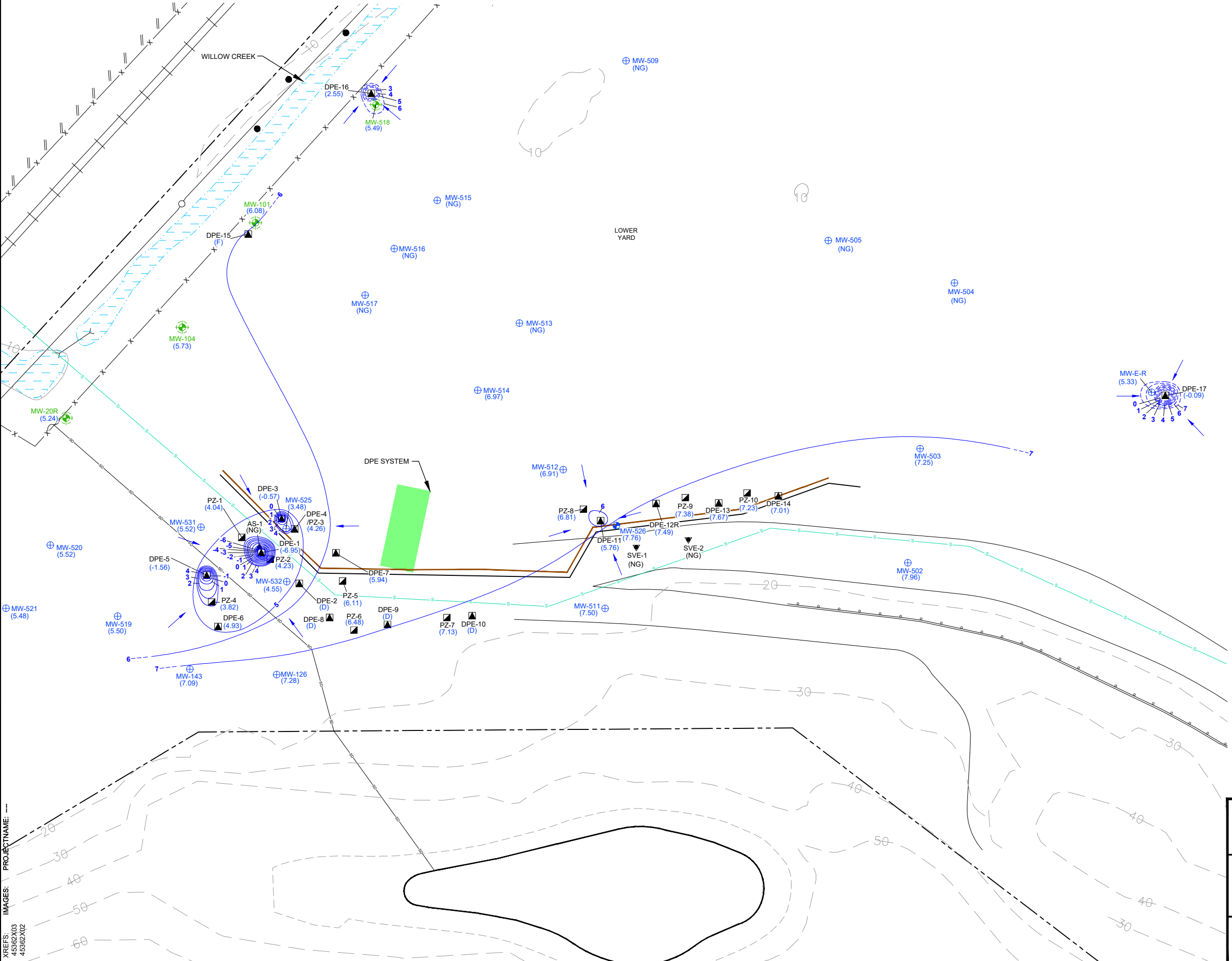
**POTENTIOMETRIC SURFACE MAP  
MAY 18, 2022**

**ARCADIS**

FIGURE  
**1**

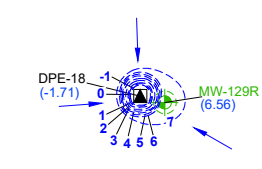
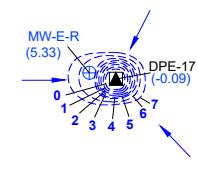
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DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	On	Off	Off	D	D	D	On	Off	Off	Off	F	On	On	On

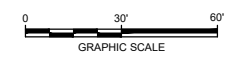


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.96) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- (F) FAULTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
  - HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE (NAD 83/98). VERTICAL DATUM: N.A.V.D. 88. UNITS: U.S. SURVEY FEET. HORIZONTAL AND VERTICAL CONTROL ESTABLISHED BY GPS VIA VERTICAL REFERENCE STATION NETWORK (VRSN).
  - SOUTHEAST PORTION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STORMWATER LINE HAS NOT BEEN SURVEYED.
  - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



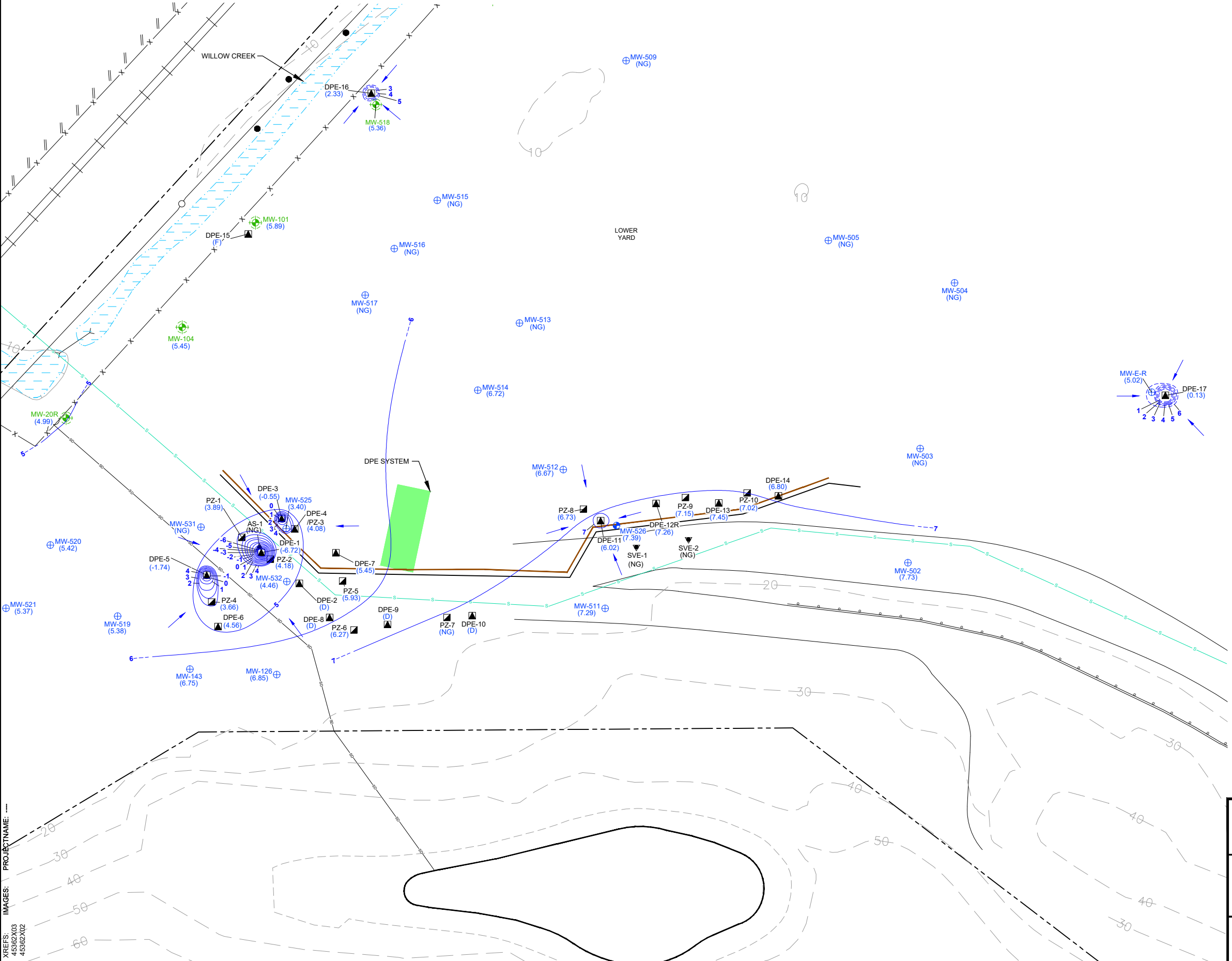
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP  
 JUNE 22, 2022**



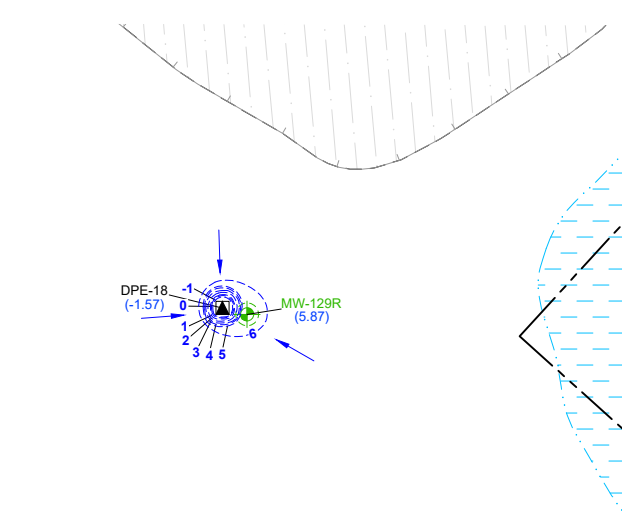
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DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
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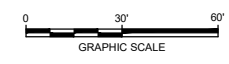


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.73) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- (F) FAULTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
- 20-MIL POLYETHYLENE SHEETING INSTALLED UPON COMPLETION OF PHASE I EXCAVATION. SHEETING REACHES TO APPROXIMATELY 7.5 FEET ABOVE MEAN SEA LEVEL.
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  - SCREEN OF REMEDIATION WELLS DPE-11, DPE-12R, DPE-13 AND DPE-14 IS INSTALLED BELOW THE 20-MIL POLYETHYLENE SHEETING.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP  
 JULY 27, 2022**

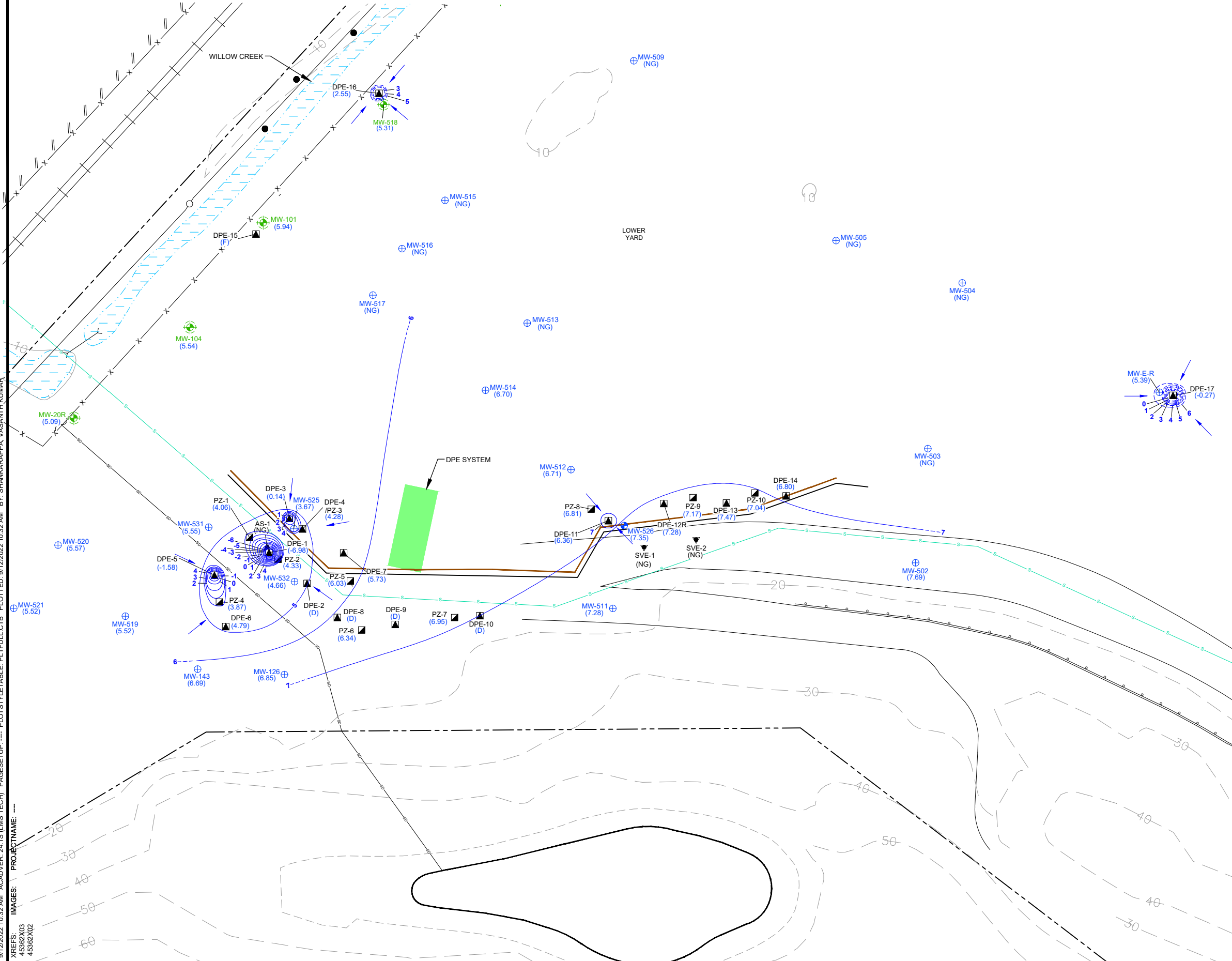
**ARCADIS**

FIGURE  
**1**



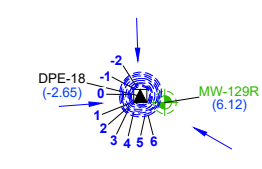
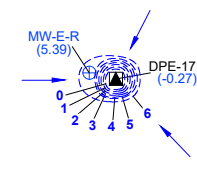
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DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
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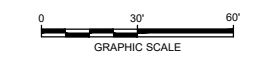


**LEGEND:**

- FORMER UNOCAL EDMONDS BULK FUEL TERMINAL PROPERTY BOUNDARY
- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
- PZ-1 ▣ PIEZOMETER LOCATION
- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (7.69) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
- (F) FAULTED
- NAVD88 NATIONAL AMERICAN VERTICAL DATUM OF 1988
- WSDOT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



- NOTES:**
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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

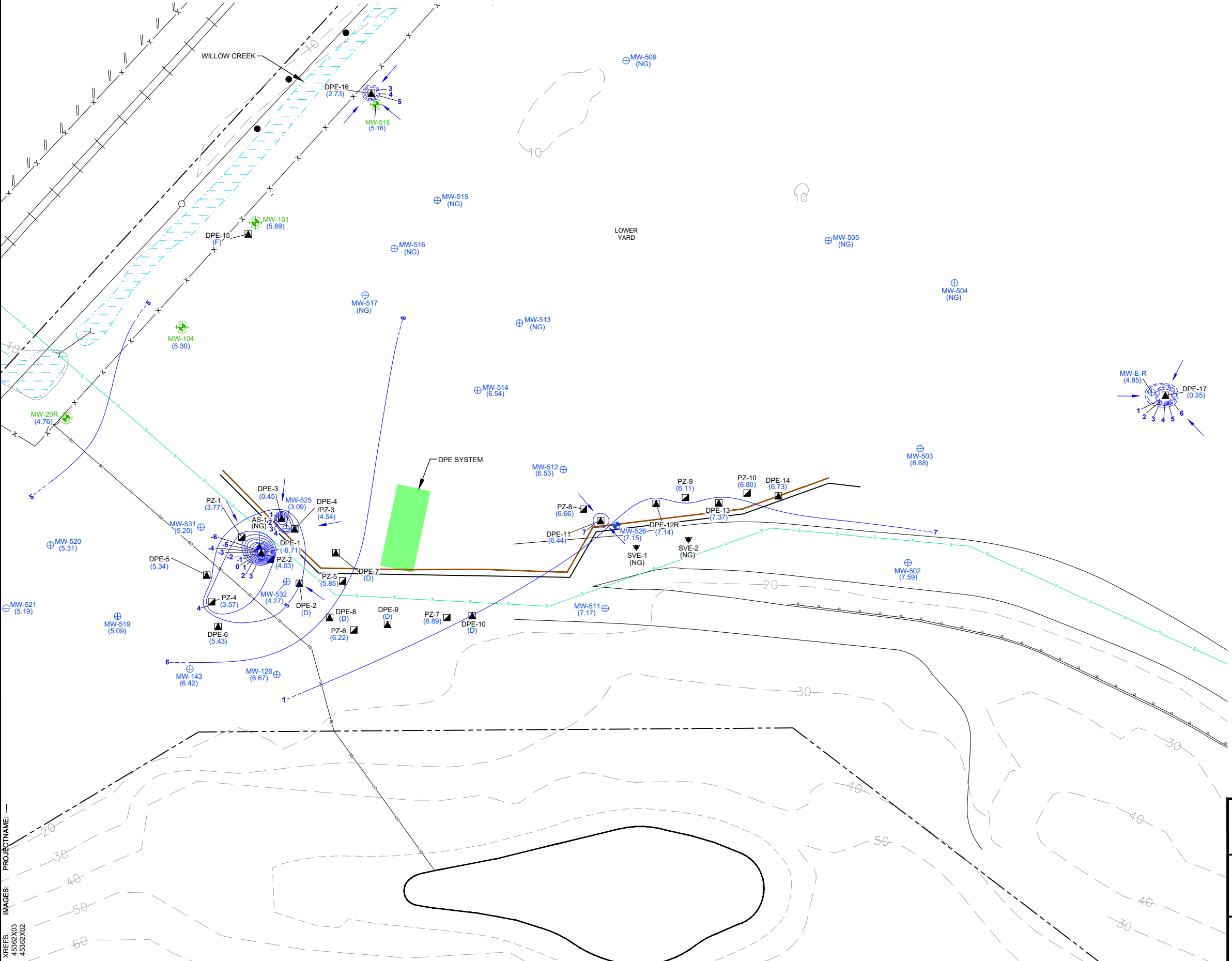
**POTENTIOMETRIC SURFACE MAP  
 AUGUST 10, 2022**

**ARCADIS**

FIGURE  
**1**

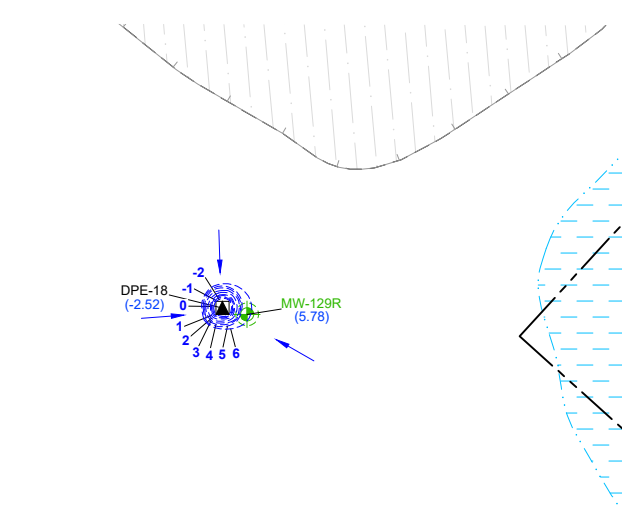
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DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	Off	Off	D	D	D	D	On	Off	Off	Off	Off	On	On	On

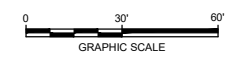


**LEGEND:**

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- MW-515 ⊕ INTERIOR MONITORING WELL LOCATION
- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
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- AS-1 ▲ AIR SPARGE WELL LOCATION
- DPE-10 ▣ DUAL PHASE EXTRACTION (DPE) WELL LOCATION
- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
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- DPE DUAL-PHASE EXTRACTION
- (7.69) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 7.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
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- (NG) NOT GAUGED
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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

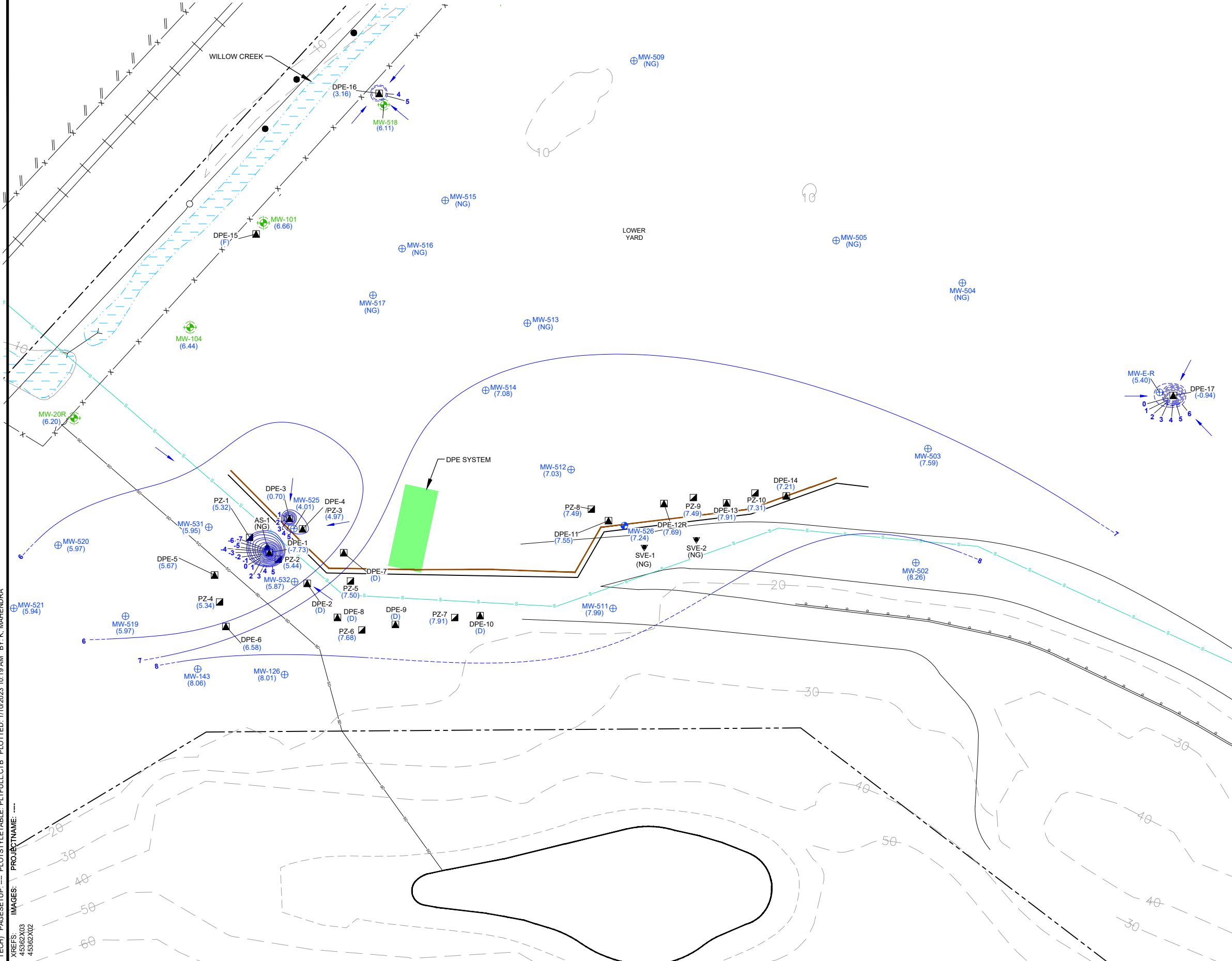
**POTENTIOMETRIC SURFACE MAP  
 SEPTEMBER 16, 2022**

**ARCADIS**

FIGURE  
**1**

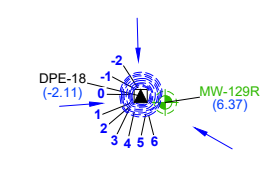
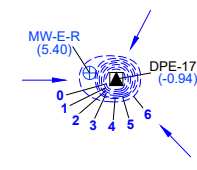
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 45362X03  
 45362X02

DPE Well	DPE-1	DPE-2	DPE-3	DPE-4	DPE-5	DPE-6	DPE-7	DPE-8	DPE-9	DPE-10	DPE-11	DPE-12R	DPE-13	DPE-14	DPE-15	DPE-16	DPE-17	DPE-18
Status	On	D	On	Off	Off	Off	D	D	D	D	On	Off	Off	Off	F	On	On	On

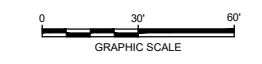


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- MW-518 ⊕ PERIMETER MONITORING WELL LOCATION
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- SVE-1 ▼ SOIL VAPOR EXTRACTION (SVE) WELL LOCATION
- WSDOT STORMWATER LINE
- POINT EDWARDS STORM DRAIN LINE
- 20-MIL POLYETHYLENE SHEETING
- DPE DUAL-PHASE EXTRACTION
- (8.26) GROUNDWATER ELEVATION IN FEET ABOVE NAVD88
- 8.00 --- POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- ← INFERRED GROUNDWATER FLOW DIRECTION
- (NG) NOT GAUGED
- (D) DISCONNECTED
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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
 FORMER UNOCAL EDMONDS BULK FUEL TERMINAL  
 EDMONDS, WASHINGTON

**POTENTIOMETRIC SURFACE MAP  
 DECEMBER 19, 2022**

**ARCADIS**

FIGURE  
**1**

# Appendix G

**Outfall #002 Laboratory Analytical Results and Chain of Custody Documentation**

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-108982-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
1/18/2022 8:34:36 PM

Elaine Walker, Project Manager II  
(253)248-4972  
[m.elaine.walker@eurofinset.com](mailto:m.elaine.walker@eurofinset.com)

### LINKS

Review your project  
results through  
**Total Access**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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Sample Summary . . . . .	16
Chain of Custody . . . . .	17
Receipt Checklists . . . . .	18

# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

---

**Job ID: 580-108982-1**

---

**Laboratory: Eurofins Seattle**

---

**Narrative**

**Job Narrative  
580-108982-1**

**Receipt**

Three samples were received on 1/5/2022 12:19 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.6° C.

**Receipt Exceptions**

3 of the 4 vials provide for the Trip Blank were prepared by another laboratory.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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



# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-108982-1**

Date Collected: 01/05/22 09:55

Matrix: Water

Date Received: 01/05/22 12:19

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/10/22 14:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	95		79 - 122					01/10/22 14:05	1
4-Bromofluorobenzene (Surr)	104		78 - 120					01/10/22 14:05	1
Dibromofluoromethane (Surr)	108		80 - 120					01/10/22 14:05	1
1,2-Dichloroethane-d4 (Surr)	105		78 - 120					01/10/22 14:05	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		01/11/22 17:38	01/12/22 03:01	1
Chrysene	ND		0.10	0.016	ug/L		01/11/22 17:38	01/12/22 03:01	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		01/11/22 17:38	01/12/22 03:01	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		01/11/22 17:38	01/12/22 03:01	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/11/22 17:38	01/12/22 03:01	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		01/11/22 17:38	01/12/22 03:01	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/11/22 17:38	01/12/22 03:01	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	88		29 - 150				01/11/22 17:38	01/12/22 03:01	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/06/22 14:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	86		50 - 150					01/06/22 14:43	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/06/22 10:45	01/07/22 02:50	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/06/22 10:45	01/07/22 02:50	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	80		50 - 150				01/06/22 10:45	01/07/22 02:50	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

**Client Sample ID: DUP-1**

**Lab Sample ID: 580-108982-2**

**Date Collected: 01/05/22 09:55**

**Matrix: Water**

**Date Received: 01/05/22 12:19**

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/10/22 16:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		79 - 122					01/10/22 16:58	1
4-Bromofluorobenzene (Surr)	102		78 - 120					01/10/22 16:58	1
Dibromofluoromethane (Surr)	106		80 - 120					01/10/22 16:58	1
1,2-Dichloroethane-d4 (Surr)	106		78 - 120					01/10/22 16:58	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		01/11/22 17:38	01/12/22 04:14	1
Chrysene	ND		0.10	0.016	ug/L		01/11/22 17:38	01/12/22 04:14	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		01/11/22 17:38	01/12/22 04:14	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		01/11/22 17:38	01/12/22 04:14	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/11/22 17:38	01/12/22 04:14	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		01/11/22 17:38	01/12/22 04:14	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/11/22 17:38	01/12/22 04:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		29 - 150				01/11/22 17:38	01/12/22 04:14	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/06/22 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		50 - 150					01/06/22 15:56	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		01/06/22 10:45	01/07/22 03:50	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		01/06/22 10:45	01/07/22 03:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150				01/06/22 10:45	01/07/22 03:50	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-108982-3**

Date Collected: 01/05/22 09:55

Matrix: Water

Date Received: 01/05/22 12:19

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/18/22 07:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		79 - 122		01/18/22 07:44	1
4-Bromofluorobenzene (Surr)	100		78 - 120		01/18/22 07:44	1
Dibromofluoromethane (Surr)	107		80 - 120		01/18/22 07:44	1
1,2-Dichloroethane-d4 (Surr)	107		78 - 120		01/18/22 07:44	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/06/22 13:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		50 - 150		01/06/22 13:29	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-377900/7**  
**Matrix: Water**  
**Analysis Batch: 377900**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/10/22 12:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122					01/10/22 12:52	1
4-Bromofluorobenzene (Surr)	97		78 - 120					01/10/22 12:52	1
Dibromofluoromethane (Surr)	105		80 - 120					01/10/22 12:52	1
1,2-Dichloroethane-d4 (Surr)	106		78 - 120					01/10/22 12:52	1

**Lab Sample ID: LCS 580-377900/4**  
**Matrix: Water**  
**Analysis Batch: 377900**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	5.00	5.52		ug/L		110	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	103		78 - 120				
Dibromofluoromethane (Surr)	100		80 - 120				
1,2-Dichloroethane-d4 (Surr)	95		78 - 120				

**Lab Sample ID: LCSD 580-377900/5**  
**Matrix: Water**  
**Analysis Batch: 377900**

**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	5.00	5.33		ug/L		107	80 - 122	3	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	94		79 - 122						
4-Bromofluorobenzene (Surr)	104		78 - 120						
Dibromofluoromethane (Surr)	99		80 - 120						
1,2-Dichloroethane-d4 (Surr)	103		78 - 120						

**Lab Sample ID: 580-108982-1 MS**  
**Matrix: Water**  
**Analysis Batch: 377900**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		5.00	5.63		ug/L		113	80 - 122
Surrogate	MS %Recovery	MS Qualifier	Limits						
Toluene-d8 (Surr)	100		79 - 122						
4-Bromofluorobenzene (Surr)	105		78 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
1,2-Dichloroethane-d4 (Surr)	102		78 - 120						

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 580-108982-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 377900**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		5.00	5.78		ug/L		116	80 - 122	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
Toluene-d8 (Surr)	94		79 - 122								
4-Bromofluorobenzene (Surr)	109		78 - 120								
Dibromofluoromethane (Surr)	101		80 - 120								
1,2-Dichloroethane-d4 (Surr)	102		78 - 120								

**Lab Sample ID: MB 580-378626/7**  
**Matrix: Water**  
**Analysis Batch: 378626**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		1.0	0.24	ug/L			01/18/22 01:35	1	
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>				
Toluene-d8 (Surr)	97		79 - 122		01/18/22 01:35	1				
4-Bromofluorobenzene (Surr)	96		78 - 120		01/18/22 01:35	1				
Dibromofluoromethane (Surr)	110		80 - 120		01/18/22 01:35	1				
1,2-Dichloroethane-d4 (Surr)	109		78 - 120		01/18/22 01:35	1				

**Lab Sample ID: LCS 580-378626/4**  
**Matrix: Water**  
**Analysis Batch: 378626**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	5.00	5.20		ug/L		104	80 - 122
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
Toluene-d8 (Surr)	100		79 - 122				
4-Bromofluorobenzene (Surr)	105		78 - 120				
Dibromofluoromethane (Surr)	101		80 - 120				
1,2-Dichloroethane-d4 (Surr)	96		78 - 120				

**Lab Sample ID: LCSD 580-378626/5**  
**Matrix: Water**  
**Analysis Batch: 378626**

**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	5.00	5.00		ug/L		100	80 - 122	4	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD Limits</b>						
Toluene-d8 (Surr)	100		79 - 122						
4-Bromofluorobenzene (Surr)	107		78 - 120						
Dibromofluoromethane (Surr)	101		80 - 120						
1,2-Dichloroethane-d4 (Surr)	95		78 - 120						

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-378055/1-A**  
**Matrix: Water**  
**Analysis Batch: 378066**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 378055**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/11/22 17:38	01/12/22 00:37	1
Chrysene	ND		0.10	0.016	ug/L		01/11/22 17:38	01/12/22 00:37	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/11/22 17:38	01/12/22 00:37	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/11/22 17:38	01/12/22 00:37	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/11/22 17:38	01/12/22 00:37	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/11/22 17:38	01/12/22 00:37	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/11/22 17:38	01/12/22 00:37	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	121		29 - 150	01/11/22 17:38	01/12/22 00:37	1

**Lab Sample ID: LCS 580-378055/2-A**  
**Matrix: Water**  
**Analysis Batch: 378066**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 378055**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits	%Rec.
Chrysene	4.00	3.74		ug/L		93	47 - 120	
Benzo[b]fluoranthene	4.00	4.10		ug/L		102	43 - 120	
Benzo[k]fluoranthene	4.00	3.91		ug/L		98	41 - 121	
Benzo[a]pyrene	4.00	3.96		ug/L		99	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.94		ug/L		98	45 - 123	
Dibenz(a,h)anthracene	4.00	3.83		ug/L		96	54 - 123	

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	100		29 - 150

**Lab Sample ID: LCSD 580-378055/3-A**  
**Matrix: Water**  
**Analysis Batch: 378066**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 378055**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chrysene	4.00	3.77		ug/L		94	47 - 120	1	30
Benzo[b]fluoranthene	4.00	3.77		ug/L		94	43 - 120	8	35
Benzo[k]fluoranthene	4.00	3.40		ug/L		85	41 - 121	14	35
Benzo[a]pyrene	4.00	4.00		ug/L		100	51 - 120	1	31
Indeno[1,2,3-cd]pyrene	4.00	4.06		ug/L		102	45 - 123	3	35
Dibenz(a,h)anthracene	4.00	3.77		ug/L		94	54 - 123	2	35

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	95		29 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: 580-108982-1 MS**  
**Matrix: Water**  
**Analysis Batch: 378066**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**  
**Prep Batch: 378055**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	ND		4.03	4.20		ug/L		104	55 - 123
Chrysene	ND		4.03	3.43		ug/L		85	47 - 120
Benzo[b]fluoranthene	ND		4.03	3.58		ug/L		89	43 - 120
Benzo[k]fluoranthene	ND		4.03	3.35		ug/L		83	41 - 121
Benzo[a]pyrene	ND		4.03	3.61		ug/L		90	51 - 120
Indeno[1,2,3-cd]pyrene	ND		4.03	3.76		ug/L		93	45 - 123
Dibenz(a,h)anthracene	ND		4.03	3.87		ug/L		96	54 - 123
<b>MS MS</b>									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	97		29 - 150						

**Lab Sample ID: 580-108982-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 378066**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**  
**Prep Batch: 378055**  
**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	ND		4.04	4.04		ug/L		100	55 - 123	4	31
Chrysene	ND		4.04	3.52		ug/L		87	47 - 120	3	30
Benzo[b]fluoranthene	ND		4.04	2.82		ug/L		70	43 - 120	24	35
Benzo[k]fluoranthene	ND		4.04	2.72		ug/L		67	41 - 121	21	35
Benzo[a]pyrene	ND		4.04	3.23		ug/L		80	51 - 120	11	31
Indeno[1,2,3-cd]pyrene	ND		4.04	3.15		ug/L		78	45 - 123	18	35
Dibenz(a,h)anthracene	ND		4.04	3.16		ug/L		78	54 - 123	20	35
<b>MSD MSD</b>											
Surrogate	%Recovery	Qualifier	Limits								
Terphenyl-d14	102		29 - 150								

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 580-377597/3**  
**Matrix: Water**  
**Analysis Batch: 377597**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/06/22 12:16	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	89		50 - 150		01/06/22 12:16	1			

**Lab Sample ID: LCS 580-377597/4**  
**Matrix: Water**  
**Analysis Batch: 377597**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.974		mg/L		97	79 - 120

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCS 580-377597/4**  
**Matrix: Water**  
**Analysis Batch: 377597**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		50 - 150

**Lab Sample ID: LCSD 580-377597/5**  
**Matrix: Water**  
**Analysis Batch: 377597**

**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	1.00	0.959		mg/L		96	79 - 120	2	10

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		50 - 150

**Lab Sample ID: 580-108982-1 MS**  
**Matrix: Water**  
**Analysis Batch: 377597**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	ND		1.00	1.02		mg/L		102	79 - 120

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		50 - 150

**Lab Sample ID: 580-108982-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 377597**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	ND		1.00	1.02		mg/L		102	79 - 120	0	10

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-377585/1-B**  
**Matrix: Water**  
**Analysis Batch: 377650**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 377585**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/06/22 10:45	01/07/22 01:49	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/06/22 10:45	01/07/22 01:49	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
o-Terphenyl	84		50 - 150	01/06/22 10:45	01/07/22 01:49	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCS 580-377585/2-B**  
**Matrix: Water**  
**Analysis Batch: 377650**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 377585**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	4.00	2.98		mg/L		75	50 - 120
Motor Oil (>C24-C36)	4.00	3.65		mg/L		91	64 - 120
		<b>LCS LCS</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	74		50 - 150				

**Lab Sample ID: LCSD 580-377585/3-B**  
**Matrix: Water**  
**Analysis Batch: 377650**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 377585**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	4.00	3.20		mg/L		80	50 - 120	7	26
Motor Oil (>C24-C36)	4.00	4.06		mg/L		102	64 - 120	11	24
		<b>LCSD LCSD</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	84		50 - 150						

**Lab Sample ID: 580-108982-1 MS**  
**Matrix: Water**  
**Analysis Batch: 377650**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**  
**Prep Batch: 377585**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	ND		4.12	3.07		mg/L		75	50 - 120
Motor Oil (>C24-C36)	ND		4.12	3.93		mg/L		96	64 - 120
		<b>MS MS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	80		50 - 150						

**Lab Sample ID: 580-108982-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 377650**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**  
**Prep Batch: 377585**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
#2 Diesel (C10-C24)	ND		4.24	3.06		mg/L		72	50 - 120	1	26
Motor Oil (>C24-C36)	ND		4.24	3.84		mg/L		91	64 - 120	2	24
		<b>MSD MSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
<i>o-Terphenyl</i>	73		50 - 150								

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-108982-1

Date Collected: 01/05/22 09:55

Matrix: Water

Date Received: 01/05/22 12:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	377900	01/10/22 14:05	B1M	FGS SEA
Total/NA	Prep	3510C			378055	01/11/22 17:38	JHR	FGS SEA
Total/NA	Analysis	8270E SIM		1	378066	01/12/22 03:01	E1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	377597	01/06/22 14:43	JBT	FGS SEA
Total/NA	Prep	3510C			377585	01/06/22 10:45	M1E	FGS SEA
Total/NA	Cleanup	3630C			377657	01/06/22 19:38	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	377650	01/07/22 02:50	JAE	FGS SEA

## Client Sample ID: DUP-1

Lab Sample ID: 580-108982-2

Date Collected: 01/05/22 09:55

Matrix: Water

Date Received: 01/05/22 12:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	377900	01/10/22 16:58	B1M	FGS SEA
Total/NA	Prep	3510C			378055	01/11/22 17:38	JHR	FGS SEA
Total/NA	Analysis	8270E SIM		1	378066	01/12/22 04:14	E1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	377597	01/06/22 15:56	JBT	FGS SEA
Total/NA	Prep	3510C			377585	01/06/22 10:45	M1E	FGS SEA
Total/NA	Cleanup	3630C			377657	01/06/22 19:38	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	377650	01/07/22 03:50	JAE	FGS SEA

## Client Sample ID: Trip Blank

Lab Sample ID: 580-108982-3

Date Collected: 01/05/22 09:55

Matrix: Water

Date Received: 01/05/22 12:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	378626	01/18/22 07:44	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	377597	01/06/22 13:29	JBT	FGS SEA

**Laboratory References:**

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-108982-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-108982-1	Outfall #002	Water	01/05/22 09:55	01/05/22 12:19
580-108982-2	DUP-1	Water	01/05/22 09:55	01/05/22 12:19
580-108982-3	Trip Blank	Water	01/05/22 09:55	01/05/22 12:19

1

2

3

4

5

6

7

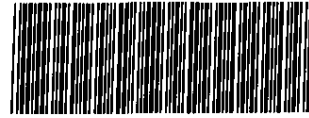
8

9

10

11

**Chain of Custody Rec**



<b>Client Information</b>		Sampler: <b>J. SEPICL</b>		Lab PM:		COC No: <b>1 OF 1</b>	
Client Contact: <b>SAM MILES</b>		Phone:		E-Mail:		Page: <b>Page 1 of 1</b>	
Company: <b>ARCADIS</b>		PWSID:		<b>Analysis Requested</b>  NITPH - G.X NITPH - DX W/SGC BENZENE EPA 624 CPAHS B270 SIM		Job #:	
Address: <b>11720 UNOCO ROAD</b>		Due Date Requested:				Preservation Codes:	
City: <b>EDMONDS, WA</b>		TAT Requested (days): <b>STANDARD</b>				A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate            O - As/NaO2 D - Nitric Acid            P - Na2O4S E - NaHSO4                Q - Na2SO3 F - MeOH                    R - Na2S2O3 G - Amchlor                S - H2SO4 H - Ascorbic Acid        T - TSP Dodecahydrate I - Ice                         U - Acetone J - DI Water                V - MCAA K - EDTA                    W - pH 4-5 L - EDA                      Z - other (specify)	
State, Zip: <b>WASHINGTON</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No				Other:	
Project Name: <b>EDMONDS TERMINAL</b>		Project #: <b>3606 4301</b>					
Site:		SSOW#:					
<b>Sample Identification</b>		<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>	
						<b>Matrix (W=water, S=solid, O=water/oil, ST=Tissue, A=Air)</b>	
						<b>Preservation Code:</b>	
						<b>Special Instructions/Note:</b>	
<b>OUTFALL #002</b>		01/05/22		0955		G W M-	
<b>OUTFALL #002 -MS</b>		01/05/22		0955		G W NY	
<b>OUTFALL #002 -MSD</b>		01/05/22		0955		G W NY	
<b>DUP-1</b>		01/05/22		---		G W M-	
<b>TRIP BLANK</b>		---		---		---	
						* USE STANDARD SGC	
						* BENZENE AND CPAHS	
						W/QUANTITATIVE <1 MG/L	
						* PH 7.06	
						* 62 GPM	
<b>Possible Hazard Identification</b>				<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: <b>AS</b>		Date/Time: <b>01/05/2022</b>		Company: <b>ARCADIS</b>		Received by: <b>[Signature]</b>	
Relinquished by:		Date/Time:		Company:		Date/Time: <b>1/5/22 1219</b>	
Relinquished by:		Date/Time:		Company:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>IR9 0.6/0.1</b>			



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-108982-1

**Login Number: 108982**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-109130-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
1/23/2022 2:57:27 PM

Elaine Walker, Project Manager II  
(253)248-4972  
[m.elaine.walker@eurofinset.com](mailto:m.elaine.walker@eurofinset.com)

### LINKS

Review your project  
results through  
**Total Access**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

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**Job ID: 580-109130-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-109130-1**

**Receipt**

Two samples were received on 1/10/2022 12:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.9° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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 laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-378154 and 580-378176 and analytical batch 580-378133 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109130-1**

**Date Collected: 01/10/22 09:30**

**Matrix: Water**

**Date Received: 01/10/22 12:15**

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/19/22 17:48	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	95		79 - 122					01/19/22 17:48	1
<i>4-Bromofluorobenzene (Surr)</i>	93		78 - 120					01/19/22 17:48	1
<i>Dibromofluoromethane (Surr)</i>	89		80 - 120					01/19/22 17:48	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	90		78 - 120					01/19/22 17:48	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		01/12/22 09:33	01/14/22 06:14	1
Chrysene	ND		0.11	0.017	ug/L		01/12/22 09:33	01/14/22 06:14	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		01/12/22 09:33	01/14/22 06:14	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		01/12/22 09:33	01/14/22 06:14	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		01/12/22 09:33	01/14/22 06:14	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		01/12/22 09:33	01/14/22 06:14	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		01/12/22 09:33	01/14/22 06:14	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Terphenyl-d14</i>	95		29 - 150				01/12/22 09:33	01/14/22 06:14	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/12/22 16:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>4-Bromofluorobenzene (Surr)</i>	84		50 - 150					01/12/22 16:30	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.055	0.033	mg/L		01/12/22 15:51	01/13/22 01:27	1
Motor Oil (>C24-C36)	ND	+	0.18	0.048	mg/L		01/12/22 15:51	01/13/22 01:27	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	100		50 - 150				01/12/22 15:51	01/13/22 01:27	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109130-2**

**Date Collected: 01/10/22 00:00**

**Matrix: Water**

**Date Received: 01/10/22 12:15**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/19/22 18:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122		01/19/22 18:12	1
4-Bromofluorobenzene (Surr)	89		78 - 120		01/19/22 18:12	1
Dibromofluoromethane (Surr)	90		80 - 120		01/19/22 18:12	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120		01/19/22 18:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/12/22 15:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		50 - 150		01/12/22 15:17	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-378749/4**  
**Matrix: Water**  
**Analysis Batch: 378749**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/19/22 13:29	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122					01/19/22 13:29	1
4-Bromofluorobenzene (Surr)	92		78 - 120					01/19/22 13:29	1
Dibromofluoromethane (Surr)	88		80 - 120					01/19/22 13:29	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					01/19/22 13:29	1

**Lab Sample ID: LCS 580-378749/5**  
**Matrix: Water**  
**Analysis Batch: 378749**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	23.6		ug/L		118	80 - 122
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	99		78 - 120				
Dibromofluoromethane (Surr)	90		80 - 120				
1,2-Dichloroethane-d4 (Surr)	90		78 - 120				

**Lab Sample ID: LCSD 580-378749/6**  
**Matrix: Water**  
**Analysis Batch: 378749**

**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	20.0	22.6		ug/L		113	80 - 122	4	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	98		79 - 122						
4-Bromofluorobenzene (Surr)	98		78 - 120						
Dibromofluoromethane (Surr)	86		80 - 120						
1,2-Dichloroethane-d4 (Surr)	88		78 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-378076/1-A**  
**Matrix: Water**  
**Analysis Batch: 378266**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 378076**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/12/22 09:30	01/13/22 19:47	1
Chrysene	ND		0.10	0.016	ug/L		01/12/22 09:30	01/13/22 19:47	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/12/22 09:30	01/13/22 19:47	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/12/22 09:30	01/13/22 19:47	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/12/22 09:30	01/13/22 19:47	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/12/22 09:30	01/13/22 19:47	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/12/22 09:30	01/13/22 19:47	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	92		29 - 150	01/12/22 09:30	01/13/22 19:47	1

Lab Sample ID: LCS 580-378076/2-A  
Matrix: Water  
Analysis Batch: 378266

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 378076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	4.19		ug/L		105	55 - 123
Chrysene	4.00	3.53		ug/L		88	47 - 120
Benzo[b]fluoranthene	4.00	3.72		ug/L		93	43 - 120
Benzo[k]fluoranthene	4.00	3.48		ug/L		87	41 - 121
Benzo[a]pyrene	4.00	3.66		ug/L		92	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.37		ug/L		109	45 - 123
Dibenz(a,h)anthracene	4.00	3.83		ug/L		96	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	75		29 - 150

Lab Sample ID: LCSD 580-378076/3-A  
Matrix: Water  
Analysis Batch: 378266

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 378076

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzo[a]anthracene	4.00	4.37		ug/L		109	55 - 123	4	31
Chrysene	4.00	3.79		ug/L		95	47 - 120	7	30
Benzo[b]fluoranthene	4.00	4.13		ug/L		103	43 - 120	10	35
Benzo[k]fluoranthene	4.00	3.75		ug/L		94	41 - 121	8	35
Benzo[a]pyrene	4.00	4.01		ug/L		100	51 - 120	9	31
Indeno[1,2,3-cd]pyrene	4.00	4.52		ug/L		113	45 - 123	3	35
Dibenz(a,h)anthracene	4.00	4.19		ug/L		105	54 - 123	9	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	84		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-378127/3  
Matrix: Water  
Analysis Batch: 378127

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.25	0.10	mg/L			01/12/22 13:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		50 - 150		01/12/22 13:40	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCS 580-378127/4**  
**Matrix: Water**  
**Analysis Batch: 378127**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	0.935		mg/L		93	79 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	94		50 - 150				

**Lab Sample ID: LCSD 580-378127/5**  
**Matrix: Water**  
**Analysis Batch: 378127**

**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	1.00	0.932		mg/L		93	79 - 120	0	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	97		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-378154/1-B**  
**Matrix: Water**  
**Analysis Batch: 378133**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 378154**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.055	0.033	mg/L		01/12/22 15:51	01/13/22 00:26	1
Motor Oil (>C24-C36)	ND		0.18	0.048	mg/L		01/12/22 15:51	01/13/22 00:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	93		50 - 150				01/12/22 15:51	01/13/22 00:26	1

**Lab Sample ID: LCS 580-378154/2-B**  
**Matrix: Water**  
**Analysis Batch: 378133**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 378154**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	4.00	3.88		mg/L		97	50 - 120
Motor Oil (>C24-C36)	4.00	5.36	*+	mg/L		134	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
o-Terphenyl	96		50 - 150				

**Lab Sample ID: LCSD 580-378154/3-B**  
**Matrix: Water**  
**Analysis Batch: 378133**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 378154**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	4.16		mg/L		104	50 - 120	7	26
Motor Oil (>C24-C36)	4.00	5.08	*+	mg/L		127	64 - 120	5	24

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-378154/3-B  
Matrix: Water  
Analysis Batch: 378133

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 378154

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	102		50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Client Sample ID: Outfall #002

Date Collected: 01/10/22 09:30

Date Received: 01/10/22 12:15

## Lab Sample ID: 580-109130-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	378749	01/19/22 17:48	JSM	FGS SEA
Total/NA	Prep	3510C			378076	01/12/22 09:33	M1E	FGS SEA
Total/NA	Analysis	8270E SIM		1	378266	01/14/22 06:14	E1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	378127	01/12/22 16:30	CJ	FGS SEA
Total/NA	Prep	3510C			378154	01/12/22 15:51	M1E	FGS SEA
Total/NA	Cleanup	3630C			378176	01/12/22 18:27	M1E	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	378133	01/13/22 01:27	T1W	FGS SEA

## Client Sample ID: Trip Blank

Date Collected: 01/10/22 00:00

Date Received: 01/10/22 12:15

## Lab Sample ID: 580-109130-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	378749	01/19/22 18:12	JSM	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	378127	01/12/22 15:17	CJ	FGS SEA

### Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109130-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109130-1	Outfall #002	Water	01/10/22 09:30	01/10/22 12:15
580-109130-2	Trip Blank	Water	01/10/22 00:00	01/10/22 12:15

1

2

3

4

5

6

7

8

9

10

11



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-109130-1

**Login Number: 109130**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-109456-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 1:58:40 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?

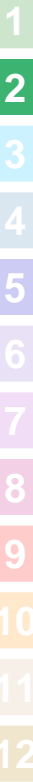


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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

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**Job ID: 580-109456-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-109456-1**

**REVISION 1 10/18/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 1/19/2022 12:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0° C.

**GC/MS VOA**

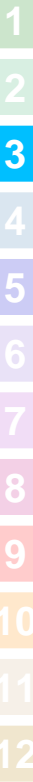
No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.





# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109456-1**

Date Collected: 01/18/22 12:45

Matrix: Water

Date Received: 01/19/22 12:30

## Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/27/22 01:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		79 - 122		01/27/22 01:36	1
4-Bromofluorobenzene (Surr)	113		78 - 120		01/27/22 01:36	1
Dibromofluoromethane (Surr)	102		80 - 120		01/27/22 01:36	1
1,2-Dichloroethane-d4 (Surr)	98		78 - 120		01/27/22 01:36	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			01/28/22 20:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		77 - 123		01/28/22 20:03	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		01/24/22 19:04	01/25/22 18:02	1
Chrysene	ND		0.11	0.018	ug/L		01/24/22 19:04	01/25/22 18:02	1
Benzo[b]fluoranthene	ND		0.056	0.012	ug/L		01/24/22 19:04	01/25/22 18:02	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		01/24/22 19:04	01/25/22 18:02	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		01/24/22 19:04	01/25/22 18:02	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		01/24/22 19:04	01/25/22 18:02	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		01/24/22 19:04	01/25/22 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		29 - 150	01/24/22 19:04	01/25/22 18:02	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		01/26/22 19:49	01/27/22 22:37	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		01/26/22 19:49	01/27/22 22:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150	01/26/22 19:49	01/27/22 22:37	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109456-2**

**Date Collected: 01/18/22 00:00**

**Matrix: Water**

**Date Received: 01/19/22 12:30**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/27/22 02:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		79 - 122		01/27/22 02:01	1
4-Bromofluorobenzene (Surr)	115		78 - 120		01/27/22 02:01	1
Dibromofluoromethane (Surr)	117		80 - 120		01/27/22 02:01	1
1,2-Dichloroethane-d4 (Surr)	94		78 - 120		01/27/22 02:01	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			01/28/22 20:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		77 - 123		01/28/22 20:28	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-379481/5**  
**Matrix: Water**  
**Analysis Batch: 379481**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			01/26/22 19:08	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		79 - 122					01/26/22 19:08	1
4-Bromofluorobenzene (Surr)	112		78 - 120					01/26/22 19:08	1
Dibromofluoromethane (Surr)	105		80 - 120					01/26/22 19:08	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120					01/26/22 19:08	1

**Lab Sample ID: LCS 580-379481/6**  
**Matrix: Water**  
**Analysis Batch: 379481**

**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	8.35		ug/L		84	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	96		79 - 122					
4-Bromofluorobenzene (Surr)	107		78 - 120					
Dibromofluoromethane (Surr)	95		80 - 120					
1,2-Dichloroethane-d4 (Surr)	95		78 - 120					

**Lab Sample ID: LCSD 580-379481/7**  
**Matrix: Water**  
**Analysis Batch: 379481**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	8.90		ug/L		89	80 - 122	6	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	109		78 - 120						
Dibromofluoromethane (Surr)	109		80 - 120						
1,2-Dichloroethane-d4 (Surr)	94		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-379654/5**  
**Matrix: Water**  
**Analysis Batch: 379654**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			01/28/22 12:59	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		77 - 123					01/28/22 12:59	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-379654/8**  
**Matrix: Water**  
**Analysis Batch: 379654**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.860		mg/L		86	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	100		77 - 123				

**Lab Sample ID: LCSD 580-379654/9**  
**Matrix: Water**  
**Analysis Batch: 379654**

**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	1.00	0.874		mg/L		87	55 - 148	2	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	103		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-379215/1-A**  
**Matrix: Water**  
**Analysis Batch: 379234**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 379215**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/24/22 19:04	01/25/22 11:07	1
Chrysene	ND		0.10	0.016	ug/L		01/24/22 19:04	01/25/22 11:07	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/24/22 19:04	01/25/22 11:07	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/24/22 19:04	01/25/22 11:07	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/24/22 19:04	01/25/22 11:07	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/24/22 19:04	01/25/22 11:07	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/24/22 19:04	01/25/22 11:07	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	95		29 - 150				01/24/22 19:04	01/25/22 11:07	1

**Lab Sample ID: LCS 580-379215/2-A**  
**Matrix: Water**  
**Analysis Batch: 379234**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 379215**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	4.31		ug/L		108	55 - 123
Chrysene	4.00	3.53		ug/L		88	47 - 120
Benzo[b]fluoranthene	4.00	3.63		ug/L		91	43 - 120
Benzo[k]fluoranthene	4.00	3.51		ug/L		88	41 - 121
Benzo[a]pyrene	4.00	3.57		ug/L		89	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.18		ug/L		104	45 - 123
Dibenz(a,h)anthracene	4.00	3.89		ug/L		97	54 - 123

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-379215/2-A**  
**Matrix: Water**  
**Analysis Batch: 379234**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 379215**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	88		29 - 150

**Lab Sample ID: LCSD 580-379215/3-A**  
**Matrix: Water**  
**Analysis Batch: 379234**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 379215**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.64		ug/L		91	55 - 123	17	31	
Chrysene	4.00	2.90		ug/L		72	47 - 120	20	30	
Benzo[b]fluoranthene	4.00	3.09		ug/L		77	43 - 120	16	35	
Benzo[k]fluoranthene	4.00	2.95		ug/L		74	41 - 121	17	35	
Benzo[a]pyrene	4.00	3.05		ug/L		76	51 - 120	16	31	
Indeno[1,2,3-cd]pyrene	4.00	3.58		ug/L		90	45 - 123	15	35	
Dibenz(a,h)anthracene	4.00	3.33		ug/L		83	54 - 123	15	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	75		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-379437/1-B**  
**Matrix: Water**  
**Analysis Batch: 379467**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 379437**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					Prepared	Analyzed			
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		01/26/22 17:20	01/27/22 14:25		1	
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		01/26/22 17:20	01/27/22 14:25		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier		Prepared	Analyzed			
o-Terphenyl	78		50 - 150	01/26/22 17:20	01/27/22 14:25		1	

**Lab Sample ID: LCS 580-379437/2-B**  
**Matrix: Water**  
**Analysis Batch: 379467**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 379437**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	2.00	1.63		mg/L		81	50 - 120	
Motor Oil (>C24-C36)	2.00	2.04		mg/L		102	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	83		50 - 150

**Lab Sample ID: LCSD 580-379437/3-B**  
**Matrix: Water**  
**Analysis Batch: 379467**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 379437**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	2.00	1.67		mg/L		84	50 - 120	3	26	

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-379437/3-B**  
**Matrix: Water**  
**Analysis Batch: 379467**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 379437**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	2.00	2.07		mg/L		104	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150

- 1
- 2
- 3
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- 8
- 9
- 10
- 11
- 12

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109456-1**

**Date Collected: 01/18/22 12:45**

**Matrix: Water**

**Date Received: 01/19/22 12:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	379481	BNM	EET SEA	01/27/22 01:36
Total/NA	Analysis	NWTPH-Gx		1	379654	CJ	EET SEA	01/28/22 20:03
Total/NA	Prep	3510C			379215	JHR	EET SEA	01/24/22 19:04
Total/NA	Analysis	8270E SIM		1	379234	E1L	EET SEA	01/25/22 18:02
Total/NA	Prep	3510C			379437	M1E	EET SEA	01/26/22 19:49
Total/NA	Cleanup	3630C			379469	JAE	EET SEA	01/26/22 23:51
Total/NA	Analysis	NWTPH-Dx		1	379467	JAE	EET SEA	01/27/22 22:37

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109456-2**

**Date Collected: 01/18/22 00:00**

**Matrix: Water**

**Date Received: 01/19/22 12:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	379481	BNM	EET SEA	01/27/22 02:01
Total/NA	Analysis	NWTPH-Gx		1	379654	CJ	EET SEA	01/28/22 20:28

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
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- 5
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- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109456-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109456-1	Outfall #002	Water	01/18/22 12:45	01/19/22 12:30
580-109456-2	Trip Blank	Water	01/18/22 00:00	01/19/22 12:30

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# Chain of Custody Record

530-109456 Chain of Custody

Client Contact: <b>Kim Joltz</b>		Sampler: <b>Trevor Bryant</b>		Lab PM: <b>Elaine Walker</b>		Carrier Tracking No(s):		COC No: -			
Company: <b>CEMC</b>		PWSID:		Analysis Requested		Job #:		Page: Page 1 of 1			
Address: <b>1100 Olive Way</b>		Due Date Requested:		Field Filtered Sample (Yes or No) NUTPH-6X NUTPH-D x U / SEC 624 - Benzene 8170-SIM CPALs		Total Number of Containers		Preservation Codes:			
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>						A - HCL		M - Hexane	
State, Zip: <b>WA 98101</b>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						B - NaOH		N - None	
Phone:		PO #:						C - Zn Acetate		O - AsNaO2	
Email: <b>Ophelie.Enceite@arcds.com</b>		Purchase Order not required		D - Nitric Acid		P - Na2O4S		E - NaHSO4			
Project Name: <b>Edmonds Terminal</b>		WO #:		F - MeOH		Q - Na2SO3		R - Na2S2O3			
Site:		Project #: <b>30063401</b>		G - Amchlor		S - H2SO4		T - TSP Dodecahydrate			
SSOW#:		BT=Tissue, A=Air		H - Ascorbic Acid		U - Acetone		V - MCAA			
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)			
								Other:			
								Special Instructions/Note:			
Outfall #00Z		1/18/22		1245		G		W			
Trip Blank		-		-		-		W			
								10 use standard			
								4 SOC.			
								Report quantitative levels for Benzene & CPALs <1 ug/L			
								70 gpm			
								7.99 pH			
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <b>[Signature]</b>		Date/Time: <b>1/19/22 @ 1230</b>		Company: <b>ANA</b>		Received by: <b>[Signature]</b>		Date/Time: <b>1/19/22 1230</b>			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>A3=2.0/2.0</b>							

Sm R Wet/Bus W/Cs

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-109456-1

**Login Number: 109456**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

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	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

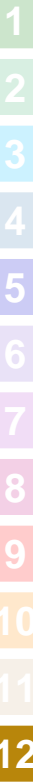
As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-109675-1

Client Project/Site: Chevron Edmonds Terminal  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
10/18/2022 1:53:13 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

**Job ID: 580-109675-1**

**Laboratory: Eurofins Seattle**

## Narrative

### Job Narrative 580-109675-1

#### REVISION 1 10/18/2022

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

#### Receipt

Two samples were received on 1/26/2022 12:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5° C.

#### Receipt Exceptions

The following sample(s) was received at the laboratory without a sample collection time documented on the chain of custody: There was no date or time on the blank samples. It was given the default date of 01/24/2022 and time of 00:01.

#### GC/MS VOA

Method NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-380065 recovered outside control limits for the following analytes: Gasoline. The LCS and LCSD recoveries were in control and the associated samples were ND.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109675-1**

**Date Collected: 01/24/22 11:00**

**Matrix: Water**

**Date Received: 01/26/22 12:10**

## Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/02/22 01:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122		02/02/22 01:07	1
4-Bromofluorobenzene (Surr)	111		78 - 120		02/02/22 01:07	1
Dibromofluoromethane (Surr)	108		80 - 120		02/02/22 01:07	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120		02/02/22 01:07	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			02/02/22 01:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		77 - 123		02/02/22 01:07	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		01/31/22 13:32	02/01/22 13:09	1
Chrysene	ND		0.10	0.016	ug/L		01/31/22 13:32	02/01/22 13:09	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		01/31/22 13:32	02/01/22 13:09	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		01/31/22 13:32	02/01/22 13:09	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/31/22 13:32	02/01/22 13:09	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		01/31/22 13:32	02/01/22 13:09	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/31/22 13:32	02/01/22 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	69		29 - 150	01/31/22 13:32	02/01/22 13:09	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		02/02/22 13:41	02/03/22 09:40	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		02/02/22 13:41	02/03/22 09:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	02/02/22 13:41	02/03/22 09:40	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109675-2**

Date Collected: 01/24/22 00:01

Matrix: Water

Date Received: 01/26/22 12:10

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/01/22 23:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		79 - 122					02/01/22 23:54	1
4-Bromofluorobenzene (Surr)	108		78 - 120					02/01/22 23:54	1
Dibromofluoromethane (Surr)	93		80 - 120					02/01/22 23:54	1
1,2-Dichloroethane-d4 (Surr)	93		78 - 120					02/01/22 23:54	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			02/01/22 23:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		77 - 123					02/01/22 23:54	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-380061/5**  
**Matrix: Water**  
**Analysis Batch: 380061**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/01/22 20:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122					02/01/22 20:40	1
4-Bromofluorobenzene (Surr)	117		78 - 120					02/01/22 20:40	1
Dibromofluoromethane (Surr)	114		80 - 120					02/01/22 20:40	1
1,2-Dichloroethane-d4 (Surr)	97		78 - 120					02/01/22 20:40	1

**Lab Sample ID: LCS 580-380061/6**  
**Matrix: Water**  
**Analysis Batch: 380061**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.9		ug/L		109	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	112		79 - 122					
4-Bromofluorobenzene (Surr)	118		78 - 120					
Dibromofluoromethane (Surr)	112		80 - 120					
1,2-Dichloroethane-d4 (Surr)	94		78 - 120					

**Lab Sample ID: LCSD 580-380061/7**  
**Matrix: Water**  
**Analysis Batch: 380061**

**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	9.23		ug/L		92	80 - 122	17	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	114		78 - 120						
Dibromofluoromethane (Surr)	114		80 - 120						
1,2-Dichloroethane-d4 (Surr)	91		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-380065/5**  
**Matrix: Water**  
**Analysis Batch: 380065**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/01/22 20:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		77 - 123					02/01/22 20:40	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-380065/8**  
**Matrix: Water**  
**Analysis Batch: 380065**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.00		mg/L		100	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	109		77 - 123				

**Lab Sample ID: LCSD 580-380065/9**  
**Matrix: Water**  
**Analysis Batch: 380065**

**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	1.00	1.26	*1	mg/L		126	55 - 148	23	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	119		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-379860/1-A**  
**Matrix: Water**  
**Analysis Batch: 379914**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 379860**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		01/31/22 13:32	02/01/22 11:07	1
Chrysene	ND		0.10	0.016	ug/L		01/31/22 13:32	02/01/22 11:07	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		01/31/22 13:32	02/01/22 11:07	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		01/31/22 13:32	02/01/22 11:07	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		01/31/22 13:32	02/01/22 11:07	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		01/31/22 13:32	02/01/22 11:07	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		01/31/22 13:32	02/01/22 11:07	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	101		29 - 150				01/31/22 13:32	02/01/22 11:07	1

**Lab Sample ID: LCS 580-379860/2-A**  
**Matrix: Water**  
**Analysis Batch: 379914**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 379860**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	4.43		ug/L		111	55 - 123
Chrysene	4.00	3.74		ug/L		93	47 - 120
Benzo[b]fluoranthene	4.00	3.70		ug/L		92	43 - 120
Benzo[k]fluoranthene	4.00	3.51		ug/L		88	41 - 121
Benzo[a]pyrene	4.00	3.65		ug/L		91	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.20		ug/L		105	45 - 123
Dibenz(a,h)anthracene	4.00	3.83		ug/L		96	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-379860/2-A**  
**Matrix: Water**  
**Analysis Batch: 379914**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 379860**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	96		29 - 150

**Lab Sample ID: LCSD 580-379860/3-A**  
**Matrix: Water**  
**Analysis Batch: 379914**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 379860**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	4.62		ug/L		116	55 - 123	4	31
Chrysene	4.00	3.82		ug/L		95	47 - 120	2	30
Benzo[b]fluoranthene	4.00	4.05		ug/L		101	43 - 120	9	35
Benzo[k]fluoranthene	4.00	3.92		ug/L		98	41 - 121	11	35
Benzo[a]pyrene	4.00	4.13		ug/L		103	51 - 120	12	31
Indeno[1,2,3-cd]pyrene	4.00	4.21		ug/L		105	45 - 123	0	35
Dibenz(a,h)anthracene	4.00	4.16		ug/L		104	54 - 123	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	100		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-380121/1-B**  
**Matrix: Water**  
**Analysis Batch: 380191**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 380121**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/02/22 13:40	02/03/22 08:40	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/02/22 13:40	02/03/22 08:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150	02/02/22 13:40	02/03/22 08:40	1

**Lab Sample ID: LCS 580-380121/2-B**  
**Matrix: Water**  
**Analysis Batch: 380191**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380121**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.73		mg/L		93	50 - 120
Motor Oil (>C24-C36)	4.00	4.13		mg/L		103	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	91		50 - 150

**Lab Sample ID: LCSD 580-380121/3-B**  
**Matrix: Water**  
**Analysis Batch: 380191**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380121**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.67		mg/L		92	50 - 120	2	26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-380121/3-B**  
**Matrix: Water**  
**Analysis Batch: 380191**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380121**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD
							Limits	RPD	
Motor Oil (>C24-C36)	4.00	4.22		mg/L		106	64 - 120	2	24

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	85		50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109675-1**

**Date Collected: 01/24/22 11:00**

**Matrix: Water**

**Date Received: 01/26/22 12:10**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	380061	BNM	EET SEA	02/02/22 01:07
Total/NA	Analysis	NWTPH-Gx		1	380065	BNM	EET SEA	02/02/22 01:07
Total/NA	Prep	3510C			379860	M1E	EET SEA	01/31/22 13:32
Total/NA	Analysis	8270E SIM		1	379914	E1L	EET SEA	02/01/22 13:09
Total/NA	Prep	3510C			380121	JHR	EET SEA	02/02/22 13:41
Total/NA	Cleanup	3630C			380172	JHR	EET SEA	02/02/22 19:07
Total/NA	Analysis	NWTPH-Dx		1	380191	JAE	EET SEA	02/03/22 09:40

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109675-2**

**Date Collected: 01/24/22 00:01**

**Matrix: Water**

**Date Received: 01/26/22 12:10**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	380061	BNM	EET SEA	02/01/22 23:54
Total/NA	Analysis	NWTPH-Gx		1	380065	BNM	EET SEA	02/01/22 23:54

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109675-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109675-1	Outfall #002	Water	01/24/22 11:00	01/26/22 12:10
580-109675-2	Trip Blank	Water	01/24/22 00:01	01/26/22 12:10

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**Eurofins FGS, Seattle**

5755 8th Street East  
Tacoma, WA 98424

**Chain of Custody Record**

eurofins Environment Testing America

<b>Client Information</b>			Sampler: D Gilbert		Lab PM:		Carrier Tracking No(s):		COC No:																																																																																																																																																																																																																																																								
Client Contact: Ophelie ENCELLE			Phone:		E-Mail:		State of Origin:		Page: Page 1 of 1																																																																																																																																																																																																																																																								
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Address: 1100 Olive Way, Suite 800 Seattle WA, 98101			Date Date Requested:							<table border="1" style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> <tr><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td><td style="width:5%;"> </td></tr> </table>																																																																																																																																																																																																																																																							
Date Date Requested:			TAT Requested (days): Standard		Field Filtered Sample (Yes or No) Perform MMSO (see p. 16)					<b>Preservation Codes:</b>																																																																																																																																																																																																																																																							
Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No			PO #: Purchase Order not required							Total Number of Containers		A - HCL                    M - Hexane B - NaOH                N - None C - Zn Acetate        O - AsNaO2 D - Nitric Acid        P - Na2O4S E - NaHSO4            Q - Na2SO3 F - MeOH                R - Na2S2O3 G - Amchlor            S - H2SO4 H - Ascorbic Acid    T - TSP Dodecahydrate I - Ice                    U - Acetone J - DI Water            V - MCAA K - EDTA                W - pH 4-5 L - EDA                  Z - other (specify)																																																																																																																																																																																																																																																					
Project Name: FORMER Edmonds Terminal			Project #:		Special Instructions/Note:		<table border="1" style="width:100%; border-collapse: collapse; font-size: 8px;"> <tr><th style="width:15%;">Sample Identification</th><th style="width:10%;">Sample Date</th><th style="width:10%;">Sample Time</th><th style="width:10%;">Sample Type (C=comp, G=grab)</th><th style="width:10%;">Matrix (W=water, S=solid, O=waste/soil, BT=BIOM, AN=Air)</th><th style="width:5%;">S</th><th style="width:5%;">X</th><th style="width:5%;">X</th><th style="width:5%;">X</th><th style="width:5%;">X</th><th style="width:5%;">X</th><th style="width:5%;">X</th></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>					Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=BIOM, AN=Air)	S	X	X	X	X	X	X																																																																																																																																																																																																																																										
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=BIOM, AN=Air)	S	X						X	X	X	X	X																																																																																																																																																																																																																																																	
Site: Edmonds Terminal			SSOW#:		580-109675 Chain of Custody					<p style="font-size: 12px;">* use standard SGC</p> <p style="font-size: 12px;">* BENZENE and c-PATHs with alternative &lt;1µg/l</p> <p style="font-size: 12px;">pH 8.20 56 GPM</p>																																																																																																																																																																																																																																																							

Possible Hazard Identification  
 Non-Hazard     Flammable     Skin Irritant     Poison B     Unknown     Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client     Disposal By Lab     Archive For \_\_\_\_\_ Months

Deliverable Requested: I, II, III, IV, Other (specify)                      Special Instructions/QC Requirements:

Empty Kit Relinquished by:                      Date:                      Time:                      Method of Shipment: @lab 1345

Relinquished by: Ophelie Encelle                      Date/Time: 1/26 12:10                      Company: Arcadis                      Received by: [Signature]                      Date/Time: 1/26/22 12:10                      Company: GFCO

Relinquished by:                      Date/Time:                      Company:                      Received by:                      Date/Time:                      Company:

Relinquished by:                      Date/Time:                      Company:                      Received by:                      Date/Time:                      Company:

Custody Seals Intact:  Yes  No                      Custody Seal No.:                      Cooler Temperature(s) °C and Other Remarks:

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-109675-1

**Login Number: 109675**

**List Number: 1**

**Creator: Vallelunga, Diana L**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No date or time on COC or sample containers
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-109831-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 2:04:42 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

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**Job ID: 580-109831-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-109831-1**

**REVISION 1 10/18/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 2/1/2022 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.3° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC Semi VOA**

Method NWTPH-Dx: The method blank for preparation batch 580-380382 and 580-380415 and analytical batch 580-380528 contained C10-C24 hydrocarbons above the method detection limit. This target analyte concentration was less than the reporting limit (RL) and the associated client sample was non-detect; therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109831-1**

**Date Collected: 01/31/22 10:00**

**Matrix: Water**

**Date Received: 02/01/22 13:30**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/09/22 16:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122		02/09/22 16:48	1
4-Bromofluorobenzene (Surr)	106		78 - 120		02/09/22 16:48	1
Dibromofluoromethane (Surr)	106		80 - 120		02/09/22 16:48	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120		02/09/22 16:48	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/10/22 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123		02/10/22 21:53	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		02/02/22 13:30	02/04/22 17:11	1
Chrysene	ND		0.11	0.017	ug/L		02/02/22 13:30	02/04/22 17:11	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		02/02/22 13:30	02/04/22 17:11	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		02/02/22 13:30	02/04/22 17:11	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		02/02/22 13:30	02/04/22 17:11	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		02/02/22 13:30	02/04/22 17:11	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		02/02/22 13:30	02/04/22 17:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	90		29 - 150	02/02/22 13:30	02/04/22 17:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.073	mg/L		02/04/22 13:31	02/07/22 22:15	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		02/04/22 13:31	02/07/22 22:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150	02/04/22 13:31	02/07/22 22:15	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109831-2**

**Date Collected: 01/31/22 00:00**

**Matrix: Water**

**Date Received: 02/01/22 13:30**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/09/22 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		79 - 122		02/09/22 16:24	1
4-Bromofluorobenzene (Surr)	109		78 - 120		02/09/22 16:24	1
Dibromofluoromethane (Surr)	103		80 - 120		02/09/22 16:24	1
1,2-Dichloroethane-d4 (Surr)	101		78 - 120		02/09/22 16:24	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/10/22 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123		02/10/22 21:30	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-380753/5**  
**Matrix: Water**  
**Analysis Batch: 380753**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/09/22 13:54	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		79 - 122					02/09/22 13:54	1
4-Bromofluorobenzene (Surr)	102		78 - 120					02/09/22 13:54	1
Dibromofluoromethane (Surr)	97		80 - 120					02/09/22 13:54	1
1,2-Dichloroethane-d4 (Surr)	104		78 - 120					02/09/22 13:54	1

**Lab Sample ID: LCS 580-380753/28**  
**Matrix: Water**  
**Analysis Batch: 380753**

**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	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	107		79 - 122					
4-Bromofluorobenzene (Surr)	101		78 - 120					
Dibromofluoromethane (Surr)	102		80 - 120					
1,2-Dichloroethane-d4 (Surr)	101		78 - 120					

**Lab Sample ID: LCSD 580-380753/29**  
**Matrix: Water**  
**Analysis Batch: 380753**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.1		ug/L		101	80 - 122	12	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	107		78 - 120						
Dibromofluoromethane (Surr)	111		80 - 120						
1,2-Dichloroethane-d4 (Surr)	99		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-380880/4**  
**Matrix: Water**  
**Analysis Batch: 380880**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/10/22 12:23	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123					02/10/22 12:23	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-380880/5**  
**Matrix: Water**  
**Analysis Batch: 380880**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.962		mg/L		96	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	95		77 - 123				

**Lab Sample ID: LCSD 580-380880/6**  
**Matrix: Water**  
**Analysis Batch: 380880**

**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	1.00	0.985		mg/L		99	55 - 148	2	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	93		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-380109/1-A**  
**Matrix: Water**  
**Analysis Batch: 380330**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 380109**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/02/22 13:30	02/04/22 14:43	1
Chrysene	ND		0.10	0.016	ug/L		02/02/22 13:30	02/04/22 14:43	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/02/22 13:30	02/04/22 14:43	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/02/22 13:30	02/04/22 14:43	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/02/22 13:30	02/04/22 14:43	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/02/22 13:30	02/04/22 14:43	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		02/02/22 13:30	02/04/22 14:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	126		29 - 150				02/02/22 13:30	02/04/22 14:43	1

**Lab Sample ID: LCS 580-380109/2-A**  
**Matrix: Water**  
**Analysis Batch: 380330**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380109**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.91		ug/L		98	55 - 123
Chrysene	4.00	3.38		ug/L		84	47 - 120
Benzo[b]fluoranthene	4.00	3.30		ug/L		83	43 - 120
Benzo[k]fluoranthene	4.00	3.23		ug/L		81	41 - 121
Benzo[a]pyrene	4.00	3.37		ug/L		84	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.13		ug/L		103	45 - 123
Dibenz(a,h)anthracene	4.00	3.52		ug/L		88	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-380109/2-A**  
**Matrix: Water**  
**Analysis Batch: 380330**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380109**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	90		29 - 150

**Lab Sample ID: LCSD 580-380109/3-A**  
**Matrix: Water**  
**Analysis Batch: 380330**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380109**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	4.19		ug/L		105	55 - 123	7	31	
Chrysene	4.00	3.49		ug/L		87	47 - 120	3	30	
Benzo[b]fluoranthene	4.00	3.63		ug/L		91	43 - 120	9	35	
Benzo[k]fluoranthene	4.00	3.29		ug/L		82	41 - 121	2	35	
Benzo[a]pyrene	4.00	3.44		ug/L		86	51 - 120	2	31	
Indeno[1,2,3-cd]pyrene	4.00	4.34		ug/L		108	45 - 123	5	35	
Dibenz(a,h)anthracene	4.00	3.66		ug/L		91	54 - 123	4	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	87		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-380382/1-A**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/04/22 13:31	02/08/22 00:16	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/04/22 13:31	02/08/22 00:16	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	97		50 - 150	02/04/22 13:31	02/08/22 00:16	1

**Lab Sample ID: MB 580-380382/1-B**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	0.0672	J	0.11	0.065	mg/L		02/04/22 13:31	02/07/22 20:35	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/04/22 13:31	02/07/22 20:35	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	100		50 - 150	02/04/22 13:31	02/07/22 20:35	1

**Lab Sample ID: LCS 580-380382/2-A**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.52		mg/L		88	50 - 120	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCS 580-380382/2-A**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Motor Oil (>C24-C36)	4.00	4.08		mg/L		102	64 - 120
		<b>LCS LCS</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	86		50 - 150				

**Lab Sample ID: LCS 580-380382/2-B**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.69		mg/L		92	50 - 120
Motor Oil (>C24-C36)	4.00	4.29		mg/L		107	64 - 120
		<b>LCS LCS</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	89		50 - 150				

**Lab Sample ID: LCSD 580-380382/3-A**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.62		mg/L		91	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	4.05		mg/L		101	64 - 120	1	24
		<b>LCSD LCSD</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	89		50 - 150						

**Lab Sample ID: LCSD 580-380382/3-B**  
**Matrix: Water**  
**Analysis Batch: 380528**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380382**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.80		mg/L		95	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	4.25		mg/L		106	64 - 120	1	24
		<b>LCSD LCSD</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	91		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-109831-1**

**Date Collected: 01/31/22 10:00**

**Matrix: Water**

**Date Received: 02/01/22 13:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	380753	BNM	EET SEA	02/09/22 16:48
Total/NA	Analysis	NWTPH-Gx		1	380880	JSM	EET SEA	02/10/22 21:53
Total/NA	Prep	3510C			380109	M1E	EET SEA	02/02/22 13:30
Total/NA	Analysis	8270E SIM		1	380330	TL1	EET SEA	02/04/22 17:11
Total/NA	Prep	3510C			380382	M1E	EET SEA	02/04/22 13:31
Total/NA	Cleanup	3630C			380415	M1E	EET SEA	02/04/22 17:37
Total/NA	Analysis	NWTPH-Dx		1	380528	JAE	EET SEA	02/07/22 22:15

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-109831-2**

**Date Collected: 01/31/22 00:00**

**Matrix: Water**

**Date Received: 02/01/22 13:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	380753	BNM	EET SEA	02/09/22 16:24
Total/NA	Analysis	NWTPH-Gx		1	380880	JSM	EET SEA	02/10/22 21:30

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-109831-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109831-1	Outfall #002	Water	01/31/22 10:00	02/01/22 13:30
580-109831-2	Trip Blank	Water	01/31/22 00:00	02/01/22 13:30

1

2

3

4

5

6

7

8

9

10

11

12



# Chain of Custody Record

530-109831 Chain of Custody

Client Contact: <b>Daphnie Encelle</b>		Sampler: <b>D Gilbert</b>		Lab PM:		Carrier Tracking No(s):		COC No:					
Phone:		E-Mail:		State of Origin:		Page:		Page 1 of 1					
Company: <b>Arcadis</b>		PWSID:		Analysis Requested					Job #:				
Address: <b>1100 Olive way, suite 500</b>		Due Date Requested:							Field Filtered Sample (Yes or No) Perform (Submit) (Yes or No)		Total Number of Containers		Preservation Codes:
City: <b>SPokane</b>		TAT Requested (days): <b>Standard</b>		8270 SIM PATHS NWTPHIX W/56C NWTPH-6X BENZENE 624		A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate              O - AsNaO2 D - Nitric Acid              P - Na2O4S E - NaHSO4                  Q - Na2SO3 F - MeOH                    R - Na2S2O3 G - Amchlor                S - H2SO4 H - Ascorbic Acid          T - TSP Dodecahydrate I - Ice                         U - Acetone J - DI Water                V - MCAA K - EDTA                    W - pH 4-5 L - EDA                      Z - other (specify)		Other:					
State, Zip: <b>WA, 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No				Preservation Codes:		Special Instructions/Note:					
Phone:		PO #:				Purchase Order not required		* use standard 56C					
Email:		WO #:				Project Name: <b>EDMONDS TERMINAL</b>		76.5 g PM pH: 8					
Project #:		SSOW#:				Site: <b>K</b>		11/18/2022 (Rev. 1)					
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, AA=air)	Field Filtered Sample (Yes or No)	Perform (Submit) (Yes or No)	Total Number of Containers	Special Instructions/Note:					
Outfall #002 trip blank	1-31-22	1000	G	W	X	S		BENZENE and PATHS w quantitative < 1 mg/L					

Possible Hazard Identification:  Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month):  Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: **@/ub 1330**

Relinquished by: <b>Daphnie Encelle</b>	Date/Time: <b>11:45 2/1/22</b>	Company: <b>Arcadis</b>	Received by: <b>[Signature]</b>	Date/Time: <b>2/1/22 1145</b>	Company: <b>ETC</b>
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact:  Yes  No      Custody Seal No.: \_\_\_\_\_      Cooler Temperature(s) °C and Other Remarks: **A3 = 3.3/3.3**

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-109831-1

**Login Number: 109831**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-110046-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
2/21/2022 6:00:45 PM

Elaine Walker, Project Manager II  
(253)248-4972  
[m.elaine.walker@eurofinset.com](mailto:m.elaine.walker@eurofinset.com)

### LINKS

Review your project  
results through  
**Total Access**

Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

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**Job ID: 580-110046-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-110046-1**

**Receipt**

The samples were received on 2/7/2022 12:40 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.9° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

Method NWTPH-Dx: The method blank for preparation batch 580-381649 and analytical batch 580-381680 contained DRO (C10-C24) and Motor Oil (>C24-C36) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.





# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110046-1**

**Date Collected: 02/07/22 11:30**

**Matrix: Water**

**Date Received: 02/07/22 12:40**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/17/22 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		79 - 122		02/17/22 02:45	1
4-Bromofluorobenzene (Surr)	108		78 - 120		02/17/22 02:45	1
Dibromofluoromethane (Surr)	103		80 - 120		02/17/22 02:45	1
1,2-Dichloroethane-d4 (Surr)	105		78 - 120		02/17/22 02:45	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/17/22 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		77 - 123		02/17/22 02:45	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		02/11/22 11:18	02/11/22 18:08	1
Chrysene	ND		0.11	0.018	ug/L		02/11/22 11:18	02/11/22 18:08	1
Benzo[b]fluoranthene	ND		0.055	0.012	ug/L		02/11/22 11:18	02/11/22 18:08	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		02/11/22 11:18	02/11/22 18:08	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		02/11/22 11:18	02/11/22 18:08	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		02/11/22 11:18	02/11/22 18:08	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		02/11/22 11:18	02/11/22 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		29 - 150	02/11/22 11:18	02/11/22 18:08	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		02/18/22 16:03	02/18/22 22:35	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		02/18/22 16:03	02/18/22 22:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	02/18/22 16:03	02/18/22 22:35	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110046-2**

**Date Collected: 02/07/22 00:01**

**Matrix: Water**

**Date Received: 02/07/22 12:40**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/17/22 03:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		79 - 122		02/17/22 03:10	1
4-Bromofluorobenzene (Surr)	105		78 - 120		02/17/22 03:10	1
Dibromofluoromethane (Surr)	104		80 - 120		02/17/22 03:10	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120		02/17/22 03:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/17/22 03:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		77 - 123		02/17/22 03:10	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-381419/5**  
**Matrix: Water**  
**Analysis Batch: 381419**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/16/22 23:55	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		79 - 122					02/16/22 23:55	1
4-Bromofluorobenzene (Surr)	107		78 - 120					02/16/22 23:55	1
Dibromofluoromethane (Surr)	104		80 - 120					02/16/22 23:55	1
1,2-Dichloroethane-d4 (Surr)	105		78 - 120					02/16/22 23:55	1

**Lab Sample ID: LCS 580-381419/6**  
**Matrix: Water**  
**Analysis Batch: 381419**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.98		ug/L		100	80 - 122
Surrogate	%Recovery	LCS Qualifier	LCS Limits				
Toluene-d8 (Surr)	101		79 - 122				
4-Bromofluorobenzene (Surr)	109		78 - 120				
Dibromofluoromethane (Surr)	110		80 - 120				
1,2-Dichloroethane-d4 (Surr)	101		78 - 120				

**Lab Sample ID: LCSD 580-381419/7**  
**Matrix: Water**  
**Analysis Batch: 381419**

**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	9.76		ug/L		98	80 - 122	2	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	108		78 - 120						
Dibromofluoromethane (Surr)	111		80 - 120						
1,2-Dichloroethane-d4 (Surr)	101		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-381423/5**  
**Matrix: Water**  
**Analysis Batch: 381423**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/16/22 23:55	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		77 - 123					02/16/22 23:55	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-381423/8**  
**Matrix: Water**  
**Analysis Batch: 381423**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1.00	1.09		mg/L		109	55 - 148
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	106		77 - 123				

**Lab Sample ID: LCSD 580-381423/9**  
**Matrix: Water**  
**Analysis Batch: 381423**

**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	1.00	1.06		mg/L		106	55 - 148	3	10
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	111		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-380989/1-A**  
**Matrix: Water**  
**Analysis Batch: 381017**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 380989**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/11/22 11:18	02/11/22 16:55	1
Chrysene	ND		0.10	0.016	ug/L		02/11/22 11:18	02/11/22 16:55	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/11/22 11:18	02/11/22 16:55	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/11/22 11:18	02/11/22 16:55	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/11/22 11:18	02/11/22 16:55	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/11/22 11:18	02/11/22 16:55	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		02/11/22 11:18	02/11/22 16:55	1
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	99		29 - 150				02/11/22 11:18	02/11/22 16:55	1

**Lab Sample ID: LCS 580-380989/2-A**  
**Matrix: Water**  
**Analysis Batch: 381017**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380989**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	4.00	4.16		ug/L		104	55 - 123
Chrysene	4.00	3.62		ug/L		90	47 - 120
Benzo[b]fluoranthene	4.00	3.93		ug/L		98	43 - 120
Benzo[k]fluoranthene	4.00	3.80		ug/L		95	41 - 121
Benzo[a]pyrene	4.00	3.86		ug/L		96	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.22		ug/L		105	45 - 123
Dibenz(a,h)anthracene	4.00	4.15		ug/L		104	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-380989/2-A**  
**Matrix: Water**  
**Analysis Batch: 381017**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 380989**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	87		29 - 150

**Lab Sample ID: LCSD 580-380989/3-A**  
**Matrix: Water**  
**Analysis Batch: 381017**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 380989**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec.		RPD	Limit
		Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	4.00	3.98		ug/L		99	55 - 123	4	31	
Chrysene	4.00	3.35		ug/L		84	47 - 120	8	30	
Benzo[b]fluoranthene	4.00	3.67		ug/L		92	43 - 120	7	35	
Benzo[k]fluoranthene	4.00	3.38		ug/L		84	41 - 121	12	35	
Benzo[a]pyrene	4.00	3.55		ug/L		89	51 - 120	8	31	
Indeno[1,2,3-cd]pyrene	4.00	4.25		ug/L		106	45 - 123	1	35	
Dibenz(a,h)anthracene	4.00	3.81		ug/L		95	54 - 123	8	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	84		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-381649/1-A**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					Prepared	Analyzed			
#2 Diesel (C10-C24)	0.0874	J	0.11	0.065	mg/L		02/18/22 16:03	02/18/22 23:15		1	
Motor Oil (>C24-C36)	0.113	J	0.35	0.096	mg/L		02/18/22 16:03	02/18/22 23:15		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier		Prepared	Analyzed			
o-Terphenyl	97		50 - 150	02/18/22 16:03	02/18/22 23:15		1	

**Lab Sample ID: MB 580-381649/1-B**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					Prepared	Analyzed			
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		02/18/22 16:03	02/18/22 21:35		1	
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		02/18/22 16:03	02/18/22 21:35		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier		Prepared	Analyzed			
o-Terphenyl	99		50 - 150	02/18/22 16:03	02/18/22 21:35		1	

**Lab Sample ID: LCS 580-381649/2-A**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.55		mg/L		89	50 - 120	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCS 580-381649/2-A**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Motor Oil (>C24-C36)	4.00	3.93		mg/L		98	64 - 120
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	83		50 - 150				

**Lab Sample ID: LCS 580-381649/2-B**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**  
**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	4.00	3.72		mg/L		93	50 - 120
Motor Oil (>C24-C36)	4.00	4.08		mg/L		102	64 - 120
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	90		50 - 150				

**Lab Sample ID: LCSD 580-381649/3-A**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**  
**%Rec.**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.57		mg/L		89	50 - 120	1	26
Motor Oil (>C24-C36)	4.00	3.98		mg/L		100	64 - 120	1	24
<b>LCSD LCSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	85		50 - 150						

**Lab Sample ID: LCSD 580-381649/3-B**  
**Matrix: Water**  
**Analysis Batch: 381680**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 381649**  
**%Rec.**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.63		mg/L		91	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	4.07		mg/L		102	64 - 120	0	24
<b>LCSD LCSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	87		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110046-1**

**Date Collected: 02/07/22 11:30**

**Matrix: Water**

**Date Received: 02/07/22 12:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	381419	02/17/22 02:45	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	381423	02/17/22 02:45	B1M	FGS SEA
Total/NA	Prep	3510C			380989	02/11/22 11:18	M1E	FGS SEA
Total/NA	Analysis	8270E SIM		1	381017	02/11/22 18:08	T1L	FGS SEA
Total/NA	Prep	3510C			381649	02/18/22 16:03	M1E	FGS SEA
Total/NA	Cleanup	3630C			381682	02/18/22 18:32	JAE	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	381680	02/18/22 22:35	T1W	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110046-2**

**Date Collected: 02/07/22 00:01**

**Matrix: Water**

**Date Received: 02/07/22 12:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	381419	02/17/22 03:10	B1M	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	381423	02/17/22 03:10	B1M	FGS SEA

**Laboratory References:**

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110046-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-110046-1	Outfall #002	Water	02/07/22 11:30	02/07/22 12:40
580-110046-2	Trip Blank	Water	02/07/22 00:01	02/07/22 12:40

1

2

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11



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-110046-1

**Login Number: 110046**

**List Number: 1**

**Creator: Blankinship, Tom X**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
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	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-110303-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 2:20:57 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

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**Job ID: 580-110303-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-110303-1**

**REVISION 1 10/18/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 2/14/2022 12:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.0° C.

**GC/MS VOA**

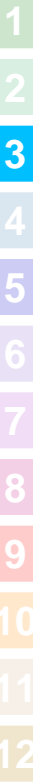
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110303-1**

**Date Collected: 02/14/22 09:45**

**Matrix: Water**

**Date Received: 02/14/22 12:30**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/21/22 19:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		79 - 122		02/21/22 19:26	1
4-Bromofluorobenzene (Surr)	107		78 - 120		02/21/22 19:26	1
Dibromofluoromethane (Surr)	114		80 - 120		02/21/22 19:26	1
1,2-Dichloroethane-d4 (Surr)	111		78 - 120		02/21/22 19:26	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/21/22 19:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		77 - 123		02/21/22 19:26	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		02/18/22 10:27	02/22/22 18:54	1
Chrysene	ND		0.10	0.016	ug/L		02/18/22 10:27	02/22/22 18:54	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		02/18/22 10:27	02/22/22 18:54	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		02/18/22 10:27	02/22/22 18:54	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/18/22 10:27	02/22/22 18:54	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		02/18/22 10:27	02/22/22 18:54	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		02/18/22 10:27	02/22/22 18:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	97		29 - 150	02/18/22 10:27	02/22/22 18:54	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		02/24/22 13:01	03/01/22 17:02	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		02/24/22 13:01	03/01/22 17:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	87		50 - 150	02/24/22 13:01	03/01/22 17:02	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110303-2**

Date Collected: 02/14/22 00:01

Matrix: Water

Date Received: 02/14/22 12:30

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/21/22 17:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		79 - 122		02/21/22 17:48	1
4-Bromofluorobenzene (Surr)	101		78 - 120		02/21/22 17:48	1
Dibromofluoromethane (Surr)	100		80 - 120		02/21/22 17:48	1
1,2-Dichloroethane-d4 (Surr)	108		78 - 120		02/21/22 17:48	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/21/22 17:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		02/21/22 17:48	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-381734/5**  
**Matrix: Water**  
**Analysis Batch: 381734**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/21/22 12:13	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		79 - 122					02/21/22 12:13	1
4-Bromofluorobenzene (Surr)	108		78 - 120					02/21/22 12:13	1
Dibromofluoromethane (Surr)	107		80 - 120					02/21/22 12:13	1
1,2-Dichloroethane-d4 (Surr)	109		78 - 120					02/21/22 12:13	1

**Lab Sample ID: LCS 580-381734/6**  
**Matrix: Water**  
**Analysis Batch: 381734**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.43		ug/L		94	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	93		79 - 122					
4-Bromofluorobenzene (Surr)	104		78 - 120					
Dibromofluoromethane (Surr)	103		80 - 120					
1,2-Dichloroethane-d4 (Surr)	105		78 - 120					

**Lab Sample ID: LCSD 580-381734/7**  
**Matrix: Water**  
**Analysis Batch: 381734**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	80 - 122	11	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	107		78 - 120						
Dibromofluoromethane (Surr)	107		80 - 120						
1,2-Dichloroethane-d4 (Surr)	106		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-381738/5**  
**Matrix: Water**  
**Analysis Batch: 381738**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/21/22 12:13	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		77 - 123					02/21/22 12:13	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-381738/8**  
**Matrix: Water**  
**Analysis Batch: 381738**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.931		mg/L		93	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	107		77 - 123				

**Lab Sample ID: LCSD 580-381738/9**  
**Matrix: Water**  
**Analysis Batch: 381738**

**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	1.00	0.875		mg/L		88	55 - 148	6	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	100		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-381592/1-A**  
**Matrix: Water**  
**Analysis Batch: 381874**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 381592**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/18/22 10:27	02/22/22 16:03	1
Chrysene	ND		0.10	0.016	ug/L		02/18/22 10:27	02/22/22 16:03	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/18/22 10:27	02/22/22 16:03	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/18/22 10:27	02/22/22 16:03	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/18/22 10:27	02/22/22 16:03	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/18/22 10:27	02/22/22 16:03	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		02/18/22 10:27	02/22/22 16:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	97		29 - 150				02/18/22 10:27	02/22/22 16:03	1

**Lab Sample ID: LCS 580-381592/2-A**  
**Matrix: Water**  
**Analysis Batch: 381874**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 381592**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.35		ug/L		84	55 - 123
Chrysene	4.00	3.53		ug/L		88	47 - 120
Benzo[b]fluoranthene	4.00	3.29		ug/L		82	43 - 120
Benzo[k]fluoranthene	4.00	3.70		ug/L		92	41 - 121
Benzo[a]pyrene	4.00	3.61		ug/L		90	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.30		ug/L		82	45 - 123
Dibenz(a,h)anthracene	4.00	3.64		ug/L		91	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-381592/2-A**  
**Matrix: Water**  
**Analysis Batch: 381874**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 381592**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	82		29 - 150

**Lab Sample ID: LCSD 580-381592/3-A**  
**Matrix: Water**  
**Analysis Batch: 381874**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 381592**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.41		ug/L	-	85	55 - 123	2	31	
Chrysene	4.00	3.59		ug/L	-	90	47 - 120	2	30	
Benzo[b]fluoranthene	4.00	3.39		ug/L	-	85	43 - 120	3	35	
Benzo[k]fluoranthene	4.00	3.83		ug/L	-	96	41 - 121	3	35	
Benzo[a]pyrene	4.00	3.71		ug/L	-	93	51 - 120	3	31	
Indeno[1,2,3-cd]pyrene	4.00	3.44		ug/L	-	86	45 - 123	4	35	
Dibenz(a,h)anthracene	4.00	3.73		ug/L	-	93	54 - 123	2	35	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	82		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-382137/1-B**  
**Matrix: Water**  
**Analysis Batch: 382481**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 382137**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L	-	02/24/22 13:01	03/01/22 16:03	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L	-	02/24/22 13:01	03/01/22 16:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	02/24/22 13:01	03/01/22 16:03	1

**Lab Sample ID: LCS 580-382137/2-B**  
**Matrix: Water**  
**Analysis Batch: 382481**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 382137**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	3.41		mg/L	-	85	50 - 120	
Motor Oil (>C24-C36)	4.00	3.59		mg/L	-	90	64 - 120	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	94		50 - 150

**Lab Sample ID: LCSD 580-382137/3-B**  
**Matrix: Water**  
**Analysis Batch: 382481**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 382137**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.51		mg/L	-	88	50 - 120	3	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-382137/3-B  
 Matrix: Water  
 Analysis Batch: 382481

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 382137

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.67		mg/L		92	64 - 120	2	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		95							50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-110303-1

Date Collected: 02/14/22 09:45

Matrix: Water

Date Received: 02/14/22 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	381734	BNM	EET SEA	02/21/22 19:26
Total/NA	Analysis	NWTPH-Gx		1	381738	CJ	EET SEA	02/21/22 19:26
Total/NA	Prep	3510C			381592	JJY	EET SEA	02/18/22 10:27
Total/NA	Analysis	8270E SIM		1	381874	TL1	EET SEA	02/22/22 18:54
Total/NA	Prep	3510C			382137	JJY	EET SEA	02/24/22 13:01
Total/NA	Cleanup	3630C			382511	JAE	EET SEA	03/01/22 12:54
Total/NA	Analysis	NWTPH-Dx		1	382481	JAE	EET SEA	03/01/22 17:02

## Client Sample ID: Trip Blank

Lab Sample ID: 580-110303-2

Date Collected: 02/14/22 00:01

Matrix: Water

Date Received: 02/14/22 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	381734	BNM	EET SEA	02/21/22 17:48
Total/NA	Analysis	NWTPH-Gx		1	381738	CJ	EET SEA	02/21/22 17:48

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110303-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-110303-1	Outfall #002	Water	02/14/22 09:45	02/14/22 12:30
580-110303-2	Trip Blank	Water	02/14/22 00:01	02/14/22 12:30

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-110303-1

**Login Number: 110303**

**List Number: 1**

**Creator: Blankinship, Tom X**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-110668-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 2:32:33 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

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**Job ID: 580-110668-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-110668-1**

**REVISION 1 10/18/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 2/23/2022 2:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.7° C.

**GC/MS VOA**

Method 624.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 580-382447 recovered outside control limits for the following analytes: Benzene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

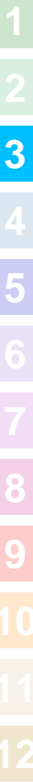
**GC/MS Semi VOA**

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 method blank for preparation batch 580-382381 and 580-382424 and analytical batch 580-382474 contained #2 Diesel (C10-C24) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

### GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110668-1**

**Date Collected: 02/22/22 12:30**

**Matrix: Water**

**Date Received: 02/23/22 14:35**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*+	1.0	0.24	ug/L			03/01/22 05:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		79 - 122		03/01/22 05:47	1
4-Bromofluorobenzene (Surr)	99		78 - 120		03/01/22 05:47	1
Dibromofluoromethane (Surr)	101		80 - 120		03/01/22 05:47	1
1,2-Dichloroethane-d4 (Surr)	112		78 - 120		03/01/22 05:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/01/22 05:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		77 - 123		03/01/22 05:47	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		02/24/22 09:44	03/09/22 16:08	1
Chrysene	ND		0.11	0.018	ug/L		02/24/22 09:44	03/09/22 16:08	1
Benzo[b]fluoranthene	ND		0.056	0.012	ug/L		02/24/22 09:44	03/09/22 16:08	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		02/24/22 09:44	03/09/22 16:08	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		02/24/22 09:44	03/09/22 16:08	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		02/24/22 09:44	03/09/22 16:08	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		02/24/22 09:44	03/09/22 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	72		29 - 150	02/24/22 09:44	03/09/22 16:08	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.13	B	0.12	0.072	mg/L		02/28/22 10:22	03/01/22 15:00	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		02/28/22 10:22	03/01/22 15:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	109		50 - 150	02/28/22 10:22	03/01/22 15:00	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110668-2**

**Date Collected: 02/22/22 00:00**

**Matrix: Water**

**Date Received: 02/23/22 14:35**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*+	1.0	0.24	ug/L			03/01/22 06:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		79 - 122		03/01/22 06:37	1
4-Bromofluorobenzene (Surr)	100		78 - 120		03/01/22 06:37	1
Dibromofluoromethane (Surr)	110		80 - 120		03/01/22 06:37	1
1,2-Dichloroethane-d4 (Surr)	112		78 - 120		03/01/22 06:37	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/01/22 06:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		77 - 123		03/01/22 06:37	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-382447/16**  
**Matrix: Water**  
**Analysis Batch: 382447**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			02/28/22 21:38	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		79 - 122					02/28/22 21:38	1
4-Bromofluorobenzene (Surr)	103		78 - 120					02/28/22 21:38	1
Dibromofluoromethane (Surr)	100		80 - 120					02/28/22 21:38	1
1,2-Dichloroethane-d4 (Surr)	108		78 - 120					02/28/22 21:38	1

**Lab Sample ID: LCS 580-382447/17**  
**Matrix: Water**  
**Analysis Batch: 382447**

**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	12.7	*+	ug/L		127	80 - 122		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
Toluene-d8 (Surr)	106		79 - 122						
4-Bromofluorobenzene (Surr)	101		78 - 120						
Dibromofluoromethane (Surr)	106		80 - 120						
1,2-Dichloroethane-d4 (Surr)	108		78 - 120						

**Lab Sample ID: LCSD 580-382447/18**  
**Matrix: Water**  
**Analysis Batch: 382447**

**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	12.8	*+	ug/L		128	80 - 122	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	109		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
1,2-Dichloroethane-d4 (Surr)	107		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-382451/16**  
**Matrix: Water**  
**Analysis Batch: 382451**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			02/28/22 21:38	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		77 - 123					02/28/22 21:38	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-382451/19**  
**Matrix: Water**  
**Analysis Batch: 382451**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.24		mg/L		124	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	110		77 - 123				

**Lab Sample ID: LCSD 580-382451/20**  
**Matrix: Water**  
**Analysis Batch: 382451**

**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	1.00	1.26		mg/L		126	55 - 148	2	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	112		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-382088/1-A**  
**Matrix: Water**  
**Analysis Batch: 382243**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 382088**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		02/24/22 09:44	02/25/22 15:25	1
Chrysene	ND		0.10	0.016	ug/L		02/24/22 09:44	02/25/22 15:25	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		02/24/22 09:44	02/25/22 15:25	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		02/24/22 09:44	02/25/22 15:25	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		02/24/22 09:44	02/25/22 15:25	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		02/24/22 09:44	02/25/22 15:25	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		02/24/22 09:44	02/25/22 15:25	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	84		29 - 150				02/24/22 09:44	02/25/22 15:25	1

**Lab Sample ID: LCS 580-382088/2-A**  
**Matrix: Water**  
**Analysis Batch: 382243**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 382088**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.55		ug/L		89	55 - 123
Chrysene	4.00	2.93		ug/L		73	47 - 120
Benzo[b]fluoranthene	4.00	3.35		ug/L		84	43 - 120
Benzo[k]fluoranthene	4.00	3.15		ug/L		79	41 - 121
Benzo[a]pyrene	4.00	2.96		ug/L		74	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.57		ug/L		89	45 - 123
Dibenz(a,h)anthracene	4.00	3.39		ug/L		85	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID:** LCS 580-382088/2-A  
**Matrix:** Water  
**Analysis Batch:** 382243

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 382088

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	78		29 - 150

**Lab Sample ID:** LCSD 580-382088/3-A  
**Matrix:** Water  
**Analysis Batch:** 382243

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 382088

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	Limit
Benzo[a]anthracene	4.00	3.70		ug/L	-	92	55 - 123	4	31	
Chrysene	4.00	3.00		ug/L	-	75	47 - 120	2	30	
Benzo[b]fluoranthene	4.00	3.37		ug/L	-	84	43 - 120	1	35	
Benzo[k]fluoranthene	4.00	2.98		ug/L	-	75	41 - 121	5	35	
Benzo[a]pyrene	4.00	2.87		ug/L	-	72	51 - 120	3	31	
Indeno[1,2,3-cd]pyrene	4.00	3.74		ug/L	-	93	45 - 123	5	35	
Dibenz(a,h)anthracene	4.00	3.34		ug/L	-	83	54 - 123	2	35	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	79		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID:** MB 580-382381/1-B  
**Matrix:** Water  
**Analysis Batch:** 382474

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 382381

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
							Date	Time	Date	Time	
#2 Diesel (C10-C24)	0.0710	J	0.11	0.065	mg/L	-	02/28/22	10:22	03/01/22	11:59	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L	-	02/28/22	10:22	03/01/22	11:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared		Analyzed		Dil Fac
				Date	Time	Date	Time	
o-Terphenyl	97		50 - 150	02/28/22	10:22	03/01/22	11:59	1

**Lab Sample ID:** LCS 580-382381/2-B  
**Matrix:** Water  
**Analysis Batch:** 382474

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 382381

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	3.49		mg/L	-	87	50 - 120	
Motor Oil (>C24-C36)	4.00	4.02		mg/L	-	100	64 - 120	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	90		50 - 150

**Lab Sample ID:** LCSD 580-382381/3-B  
**Matrix:** Water  
**Analysis Batch:** 382474

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 382381

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	Limit
#2 Diesel (C10-C24)	4.00	3.41		mg/L	-	85	50 - 120	2	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-382381/3-B**  
**Matrix: Water**  
**Analysis Batch: 382474**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 382381**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.90		mg/L		98	64 - 120	3	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	85		50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110668-1**

**Date Collected: 02/22/22 12:30**

**Matrix: Water**

**Date Received: 02/23/22 14:35**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	382447	BNM	EET SEA	03/01/22 05:47
Total/NA	Analysis	NWTPH-Gx		1	382451	BNM	EET SEA	03/01/22 05:47
Total/NA	Prep	3510C			382088	JJY	EET SEA	02/24/22 09:44
Total/NA	Analysis	8270E SIM		1	383303	E1L	EET SEA	03/09/22 16:08
Total/NA	Prep	3510C			382381	JJY	EET SEA	02/28/22 10:22
Total/NA	Cleanup	3630C			382424	M1E	EET SEA	02/28/22 15:16
Total/NA	Analysis	NWTPH-Dx		1	382474	ADB	EET SEA	03/01/22 15:00

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110668-2**

**Date Collected: 02/22/22 00:00**

**Matrix: Water**

**Date Received: 02/23/22 14:35**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	382447	BNM	EET SEA	03/01/22 06:37
Total/NA	Analysis	NWTPH-Gx		1	382451	BNM	EET SEA	03/01/22 06:37

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110668-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-110668-1	Outfall #002	Water	02/22/22 12:30	02/23/22 14:35
580-110668-2	Trip Blank	Water	02/22/22 00:00	02/23/22 14:35

1

2

3

4

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7

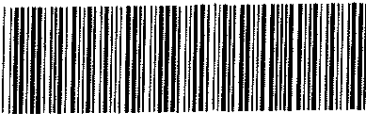
8

9

10

11

12



# Chain of Custody Record

580-110668 Chain of Custody

Client Contact: <b>Opélie Encelle</b>		Sampler: <b>Trevor Bryant</b>	Lab PM: <b>Elaine Walker</b>	Carrier Tracking No(s):	COC No:	
Company: <b>Arcadis</b>		Phone: -	E-Mail:	State of Origin:	Page: <b>Page 1 of 1</b>	
Address: <b>1100 ONE way Suite 800</b>		Due Date Requested:		Analysis Requested		
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>		Job #:		
State, Zip: <b>WA 98101</b>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Preservation Codes:		
Project Name: <b>Edmonds Terminal</b>		Purchase Order not required		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA		
Project #: <b>50064301</b>		SSOW#:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH-4.5 Z - other (specify)		
Site:		Field Filtered Sample (Yes or No)		Total Number of Containers		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil)	Special Instructions/Note:
Outfall #002		2/22/22	1230	G	W	<input checked="" type="checkbox"/> * Use standard <input checked="" type="checkbox"/> SGC <input checked="" type="checkbox"/> * Report cPAHs <input checked="" type="checkbox"/> * Benzene w/ equivalent levels < 1 mg/L 90 gpm 8.27 pH
TRIP Blank		-	-	-	W	

Possible Hazard Identification:  Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month):  Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: **2/ab 1435**

Relinquished by: <b>Opélie Encelle</b>	Date/Time: <b>1:05 2/24/22</b>	Company: <b>Arcadis</b>	Received by: <b>Tom [Signature]</b>	Date/Time: <b>2/23/22 1305</b>	Company: <b>ETGS</b>
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact:  Yes  No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: **Lab Cool Sm Blu / wet / other**

IRB 07/05

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-110668-1

**Login Number: 110668**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

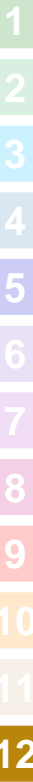
As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-110796-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 2:37:02 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

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**Job ID: 580-110796-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-110796-1**

**REVISION 1 10/18/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 2/28/2022 1:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.3° C.

**GC/MS VOA**

Method 624.1: Surrogate recovery for the following sample was outside the upper control limit: Outfall #002 (580-110796-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-383112 recovered outside control limits high for the following analyte by 1%: Gasoline. Because the LCS was biased high and the associated samples were ND, reanalysis was not performed.

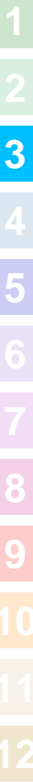
No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-110796-1**

**Date Collected: 02/28/22 09:30**

**Matrix: Water**

**Date Received: 02/28/22 13:00**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/04/22 21:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		79 - 122		03/04/22 21:14	1
4-Bromofluorobenzene (Surr)	111		78 - 120		03/04/22 21:14	1
Dibromofluoromethane (Surr)	124	S1+	80 - 120		03/04/22 21:14	1
1,2-Dichloroethane-d4 (Surr)	116		78 - 120		03/04/22 21:14	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/04/22 21:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		77 - 123		03/04/22 21:14	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		03/07/22 09:41	03/08/22 15:10	1
Chrysene	ND		0.10	0.017	ug/L		03/07/22 09:41	03/08/22 15:10	1
Benzo[b]fluoranthene	ND		0.052	0.012	ug/L		03/07/22 09:41	03/08/22 15:10	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		03/07/22 09:41	03/08/22 15:10	1
Benzo[a]pyrene	ND		0.10	0.012	ug/L		03/07/22 09:41	03/08/22 15:10	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		03/07/22 09:41	03/08/22 15:10	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		03/07/22 09:41	03/08/22 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	81		29 - 150	03/07/22 09:41	03/08/22 15:10	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		03/11/22 09:50	03/12/22 14:46	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		03/11/22 09:50	03/12/22 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150	03/11/22 09:50	03/12/22 14:46	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-110796-2**

**Date Collected: 02/28/22 00:00**

**Matrix: Water**

**Date Received: 02/28/22 13:00**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/08/22 04:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		79 - 122		03/08/22 04:13	1
4-Bromofluorobenzene (Surr)	101		78 - 120		03/08/22 04:13	1
Dibromofluoromethane (Surr)	109		80 - 120		03/08/22 04:13	1
1,2-Dichloroethane-d4 (Surr)	114		78 - 120		03/08/22 04:13	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			03/08/22 04:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		03/08/22 04:13	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-382955/5**  
**Matrix: Water**  
**Analysis Batch: 382955**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/04/22 18:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		79 - 122					03/04/22 18:45	1
4-Bromofluorobenzene (Surr)	98		78 - 120					03/04/22 18:45	1
Dibromofluoromethane (Surr)	102		80 - 120					03/04/22 18:45	1
1,2-Dichloroethane-d4 (Surr)	109		78 - 120					03/04/22 18:45	1

**Lab Sample ID: LCS 580-382955/6**  
**Matrix: Water**  
**Analysis Batch: 382955**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	10.0	9.32		ug/L		93	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	95		79 - 122				
4-Bromofluorobenzene (Surr)	103		78 - 120				
Dibromofluoromethane (Surr)	98		80 - 120				
1,2-Dichloroethane-d4 (Surr)	105		78 - 120				

**Lab Sample ID: LCSD 580-382955/7**  
**Matrix: Water**  
**Analysis Batch: 382955**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.8		ug/L		108	80 - 122	15	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	107		78 - 120						
Dibromofluoromethane (Surr)	112		80 - 120						
1,2-Dichloroethane-d4 (Surr)	107		78 - 120						

**Lab Sample ID: MB 580-383108/5**  
**Matrix: Water**  
**Analysis Batch: 383108**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/07/22 22:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		79 - 122					03/07/22 22:06	1
4-Bromofluorobenzene (Surr)	100		78 - 120					03/07/22 22:06	1
Dibromofluoromethane (Surr)	105		80 - 120					03/07/22 22:06	1
1,2-Dichloroethane-d4 (Surr)	116		78 - 120					03/07/22 22:06	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 580-383108/6**  
**Matrix: Water**  
**Analysis Batch: 383108**

**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	8.67		ug/L		87	80 - 122
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Toluene-d8 (Surr)	97		79 - 122				
4-Bromofluorobenzene (Surr)	104		78 - 120				
Dibromofluoromethane (Surr)	96		80 - 120				
1,2-Dichloroethane-d4 (Surr)	105		78 - 120				

**Lab Sample ID: LCSD 580-383108/7**  
**Matrix: Water**  
**Analysis Batch: 383108**

**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	7.95		ug/L		80	80 - 122	9	20
<b>LCSD LCSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
Toluene-d8 (Surr)	95		79 - 122						
4-Bromofluorobenzene (Surr)	102		78 - 120						
Dibromofluoromethane (Surr)	98		80 - 120						
1,2-Dichloroethane-d4 (Surr)	105		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-382959/5**  
**Matrix: Water**  
**Analysis Batch: 382959**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/04/22 18:45	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	98		77 - 123					03/04/22 18:45	1

**Lab Sample ID: LCS 580-382959/8**  
**Matrix: Water**  
**Analysis Batch: 382959**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.15		mg/L		115	55 - 148
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	104		77 - 123				

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCSD 580-382959/9**  
**Matrix: Water**  
**Analysis Batch: 382959**

**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	1.00	1.05		mg/L		105	55 - 148	9	10
		<b>LCS D LCS D</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	100		77 - 123						

**Lab Sample ID: MB 580-383112/5**  
**Matrix: Water**  
**Analysis Batch: 383112**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/07/22 22:06	1
		<b>MB MB</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
4-Bromofluorobenzene (Surr)	100		77 - 123				03/07/22 22:06	1	

**Lab Sample ID: LCS 580-383112/8**  
**Matrix: Water**  
**Analysis Batch: 383112**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline	1.00	1.35		mg/L		135	55 - 148		
		<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	108		77 - 123						

**Lab Sample ID: LCSD 580-383112/9**  
**Matrix: Water**  
**Analysis Batch: 383112**

**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	1.00	1.17	*1	mg/L		117	55 - 148	14	10
		<b>LCS D LCS D</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	102		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-383034/1-A**  
**Matrix: Water**  
**Analysis Batch: 383158**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383034**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/07/22 09:41	03/08/22 12:19	1
Chrysene	ND		0.10	0.016	ug/L		03/07/22 09:41	03/08/22 12:19	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/07/22 09:41	03/08/22 12:19	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/07/22 09:41	03/08/22 12:19	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/07/22 09:41	03/08/22 12:19	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/07/22 09:41	03/08/22 12:19	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: MB 580-383034/1-A**  
**Matrix: Water**  
**Analysis Batch: 383158**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383034**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/07/22 09:41	03/08/22 12:19	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	96		29 - 150				03/07/22 09:41	03/08/22 12:19	1

**Lab Sample ID: LCS 580-383034/2-A**  
**Matrix: Water**  
**Analysis Batch: 383158**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383034**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.82		ug/L		95	55 - 123
Chrysene	4.00	3.05		ug/L		76	47 - 120
Benzo[b]fluoranthene	4.00	3.02		ug/L		75	43 - 120
Benzo[k]fluoranthene	4.00	3.36		ug/L		84	41 - 121
Benzo[a]pyrene	4.00	2.90		ug/L		73	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.64		ug/L		91	45 - 123
Dibenz(a,h)anthracene	4.00	3.42		ug/L		86	54 - 123
Surrogate	%Recovery	LCS Qualifier	Limits				
Terphenyl-d14	80		29 - 150				

**Lab Sample ID: LCSD 580-383034/3-A**  
**Matrix: Water**  
**Analysis Batch: 383158**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383034**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzo[a]anthracene	4.00	4.20		ug/L		105	55 - 123	10	31
Chrysene	4.00	3.43		ug/L		86	47 - 120	12	30
Benzo[b]fluoranthene	4.00	3.46		ug/L		87	43 - 120	14	35
Benzo[k]fluoranthene	4.00	3.79		ug/L		95	41 - 121	12	35
Benzo[a]pyrene	4.00	3.33		ug/L		83	51 - 120	14	31
Indeno[1,2,3-cd]pyrene	4.00	4.44		ug/L		111	45 - 123	20	35
Dibenz(a,h)anthracene	4.00	3.93		ug/L		98	54 - 123	14	35
Surrogate	%Recovery	LCSD Qualifier	Limits						
Terphenyl-d14	91		29 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-383561/1-B**  
**Matrix: Water**  
**Analysis Batch: 383668**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383561**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/11/22 09:50	03/12/22 13:46	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/11/22 09:50	03/12/22 13:46	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: MB 580-383561/1-B**  
**Matrix: Water**  
**Analysis Batch: 383668**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383561**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	96		50 - 150	03/11/22 09:50	03/12/22 13:46	1

**Lab Sample ID: LCS 580-383561/2-B**  
**Matrix: Water**  
**Analysis Batch: 383668**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383561**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Motor Oil (>C24-C36)	4.00	4.53		mg/L		113	64 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	87		50 - 150

**Lab Sample ID: LCSD 580-383561/3-B**  
**Matrix: Water**  
**Analysis Batch: 383668**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383561**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
#2 Diesel (C10-C24)	4.00	4.06		mg/L		101	50 - 120	1	26
Motor Oil (>C24-C36)	4.00	4.62		mg/L		115	64 - 120	2	24

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
o-Terphenyl	93		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Client Sample ID: Outfall #002

Date Collected: 02/28/22 09:30

Date Received: 02/28/22 13:00

## Lab Sample ID: 580-110796-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	382955	BNM	EET SEA	03/04/22 21:14
Total/NA	Analysis	NWTPH-Gx		1	382959	BNM	EET SEA	03/04/22 21:14
Total/NA	Prep	3510C			383034	JJY	EET SEA	03/07/22 09:41
Total/NA	Analysis	8270E SIM		1	383158	W1T	EET SEA	03/08/22 15:10
Total/NA	Prep	3510C			383561	JJY	EET SEA	03/11/22 09:50
Total/NA	Cleanup	3630C			383656	M1E	EET SEA	03/11/22 19:07
Total/NA	Analysis	NWTPH-Dx		1	383668	JAE	EET SEA	03/12/22 14:46

## Client Sample ID: Trip Blank

Date Collected: 02/28/22 00:00

Date Received: 02/28/22 13:00

## Lab Sample ID: 580-110796-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	383108	BNM	EET SEA	03/08/22 04:13
Total/NA	Analysis	NWTPH-Gx		1	383112	BNM	EET SEA	03/08/22 04:13

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-110796-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-110796-1	Outfall #002	Water	02/28/22 09:30	02/28/22 13:00
580-110796-2	Trip Blank	Water	02/28/22 00:00	02/28/22 13:00

1

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# Chain of Custody Record

580-110796 Chain of Custody

Sampler: <b>D Gilbert</b>		Lab PM:		Carrier Tracking No(s):		COC No:			
Client Contact: <b>Ophélie Encelle</b>		Phone:		E-Mail:		State of Origin:			
Company: <b>Arcadis</b>		PWSID:		Analysis Requested		Job #:			
Address: <b>1100 Olive Way, Suite 800</b>		Due Date Requested:		<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Performs MS/MSD (Yes or No)</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of Containers</p>		Preservation Codes:			
City: <b>Seattle</b>		TAT Requested (days): <b>Standard</b>				<p style="writing-mode: vertical-rl; transform: rotate(180deg);">NWPH-6X</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">NWPH-DX W/SGC</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Benzene EPA 624</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">cPAHs 8270 5E4A</p>		<p>A - HCL                      M - Hexane</p> <p>B - NaOH                  N - None</p> <p>C - Zn Acetate            O - AsNaO2</p> <p>D - Nitric Acid            P - Na2O4S</p> <p>E - NaHSO4                Q - Na2SO3</p> <p>F - MeOH                  R - Na2S2O3</p> <p>G - Amchlor              S - H2SO4</p> <p>H - Ascorbic Acid        T - TSP Dodecahydrate</p> <p>I - Ice                      U - Acetone</p> <p>J - DI Water              V - MCAA</p> <p>K - EDTA                  W - pH 4-5</p> <p>L - EDA                    Z - other (specify)</p>	
State, Zip: <b>WA, 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						Other:	
Phone:		PO #:							
Email:		Purchase Order not required							
Project Name: <b>Edmonds Terminal</b>		Project #:							
Site:		SSOW#:							
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Performs MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:	
OUTfall #002	2-28-22	0930	G	W	X	X	X		
Trip Blank	-	-	-	W	X	X	X	* use standard SGC	
								* Benzene and cPAHs w quantitative < 1ug/L	
								# 8.13 77 GPM	
Possible Hazard Identification				Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:			
Relinquished by: <b>DYG</b>		Date/Time: <b>2/28 1242</b>		Company:		Received by: <b>[Signature]</b>			
Relinquished by:		Date/Time:		Company:		Date/Time: <b>2/28/22 1242</b>			
Relinquished by:		Date/Time:		Company:		Date/Time:			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>Med Blw West/Bus</b>					

Med Blw West/Bus  
IIR 5.314 P

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-110796-1

**Login Number: 110796**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-111203-1

Client Project/Site: Chevron Edmonds Terminal  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
10/18/2022 2:42:08 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

**Job ID: 580-111203-1**

**Laboratory: Eurofins Seattle**

## Narrative

### Job Narrative 580-111203-1

#### REVISION 1 10/18/2022

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

#### Receipt

Two samples were received on 3/9/2022 12:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.0° C.

#### GC/MS VOA

Method 624.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-384341 recovered outside control limits for the following analytes: Benzene. The LCS and LCSD recoveries were in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E SIM: (LCS 580-383712/2-A) was incorrectly spiked. Associated client samples were re-extracted. In cases of out-of-hold data, two sets of data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time
S1-	Surrogate recovery exceeds control limits, low biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111203-1**

Date Collected: 03/08/22 11:15

Matrix: Water

Date Received: 03/09/22 12:00

## Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0	0.24	ug/L			03/18/22 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		79 - 122		03/18/22 16:25	1
4-Bromofluorobenzene (Surr)	108		78 - 120		03/18/22 16:25	1
Dibromofluoromethane (Surr)	97		80 - 120		03/18/22 16:25	1
1,2-Dichloroethane-d4 (Surr)	108		78 - 120		03/18/22 16:25	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/18/22 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		77 - 123		03/18/22 16:25	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	*- *1	0.054	0.015	ug/L		03/14/22 09:21	03/14/22 21:24	1
Chrysene	ND	*- *1	0.11	0.017	ug/L		03/14/22 09:21	03/14/22 21:24	1
Benzo[b]fluoranthene	ND	*- *1	0.054	0.012	ug/L		03/14/22 09:21	03/14/22 21:24	1
Benzo[k]fluoranthene	ND	*- *1	0.054	0.013	ug/L		03/14/22 09:21	03/14/22 21:24	1
Benzo[a]pyrene	ND	*- *1	0.11	0.012	ug/L		03/14/22 09:21	03/14/22 21:24	1
Indeno[1,2,3-cd]pyrene	ND	*- *1	0.054	0.015	ug/L		03/14/22 09:21	03/14/22 21:24	1
Dibenz(a,h)anthracene	ND	*- *1	0.11	0.016	ug/L		03/14/22 09:21	03/14/22 21:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		29 - 150	03/14/22 09:21	03/14/22 21:24	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.055	0.015	ug/L		03/18/22 15:17	03/20/22 00:32	1
Chrysene	ND	H	0.11	0.018	ug/L		03/18/22 15:17	03/20/22 00:32	1
Benzo[b]fluoranthene	ND	H	0.055	0.012	ug/L		03/18/22 15:17	03/20/22 00:32	1
Benzo[k]fluoranthene	ND	H	0.055	0.013	ug/L		03/18/22 15:17	03/20/22 00:32	1
Benzo[a]pyrene	ND	H	0.11	0.012	ug/L		03/18/22 15:17	03/20/22 00:32	1
Indeno[1,2,3-cd]pyrene	ND	H	0.055	0.015	ug/L		03/18/22 15:17	03/20/22 00:32	1
Dibenz(a,h)anthracene	ND	H	0.11	0.017	ug/L		03/18/22 15:17	03/20/22 00:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	71		29 - 150	03/18/22 15:17	03/20/22 00:32	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		03/20/22 15:07	03/22/22 17:48	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		03/20/22 15:07	03/22/22 17:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	99		50 - 150	03/20/22 15:07	03/22/22 17:48	1

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# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111203-2**

**Date Collected: 03/08/22 00:01**

**Matrix: Water**

**Date Received: 03/09/22 12:00**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0	0.24	ug/L			03/18/22 16:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	93		79 - 122		03/18/22 16:00	1
4-Bromofluorobenzene (Surr)	108		78 - 120		03/18/22 16:00	1
Dibromofluoromethane (Surr)	94		80 - 120		03/18/22 16:00	1
1,2-Dichloroethane-d4 (Surr)	106		78 - 120		03/18/22 16:00	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/18/22 16:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		77 - 123		03/18/22 16:00	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-384341/5**  
**Matrix: Water**  
**Analysis Batch: 384341**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/18/22 13:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		79 - 122					03/18/22 13:32	1
4-Bromofluorobenzene (Surr)	120		78 - 120					03/18/22 13:32	1
Dibromofluoromethane (Surr)	108		80 - 120					03/18/22 13:32	1
1,2-Dichloroethane-d4 (Surr)	105		78 - 120					03/18/22 13:32	1

**Lab Sample ID: LCS 580-384341/6**  
**Matrix: Water**  
**Analysis Batch: 384341**

**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	8.72		ug/L		87	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	93		79 - 122					
4-Bromofluorobenzene (Surr)	110		78 - 120					
Dibromofluoromethane (Surr)	93		80 - 120					
1,2-Dichloroethane-d4 (Surr)	101		78 - 120					

**Lab Sample ID: LCSD 580-384341/7**  
**Matrix: Water**  
**Analysis Batch: 384341**

**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	11.6	*1	ug/L		116	80 - 122	29	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	112		78 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
1,2-Dichloroethane-d4 (Surr)	104		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-384345/5**  
**Matrix: Water**  
**Analysis Batch: 384345**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0140	J	0.050	0.014	mg/L			03/18/22 13:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		77 - 123					03/18/22 13:32	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-384345/8**  
**Matrix: Water**  
**Analysis Batch: 384345**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.16		mg/L		116	55 - 148
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>LCS</b>	<b>Qualifier</b>	<b>Limits</b>			
4-Bromofluorobenzene (Surr)	115			77 - 123			

**Lab Sample ID: LCSD 580-384345/9**  
**Matrix: Water**  
**Analysis Batch: 384345**

**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	1.00	1.08		mg/L		108	55 - 148	7	10
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>LCSD</b>	<b>Qualifier</b>	<b>Limits</b>					
4-Bromofluorobenzene (Surr)	109			77 - 123					

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-383712/1-A**  
**Matrix: Water**  
**Analysis Batch: 383692**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383712**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/14/22 09:21	03/14/22 17:52	1
Chrysene	ND		0.10	0.016	ug/L		03/14/22 09:21	03/14/22 17:52	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/14/22 09:21	03/14/22 17:52	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/14/22 09:21	03/14/22 17:52	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/14/22 09:21	03/14/22 17:52	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/14/22 09:21	03/14/22 17:52	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/14/22 09:21	03/14/22 17:52	1
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>MB</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	98			29 - 150			03/14/22 09:21	03/14/22 17:52	1

**Lab Sample ID: LCS 580-383712/2-A**  
**Matrix: Water**  
**Analysis Batch: 383692**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383712**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	0.118	*	ug/L		3	55 - 123
Chrysene	4.00	0.118	*	ug/L		3	47 - 120
Benzo[b]fluoranthene	4.00	0.113	*	ug/L		3	43 - 120
Benzo[k]fluoranthene	4.00	0.123	*	ug/L		3	41 - 121
Benzo[a]pyrene	4.00	0.107	*	ug/L		3	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	0.142	*	ug/L		4	45 - 123
Dibenz(a,h)anthracene	4.00	0.123	*	ug/L		3	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-383712/2-A**  
**Matrix: Water**  
**Analysis Batch: 383692**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383712**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	5	S1-	29 - 150

**Lab Sample ID: LCSD 580-383712/3-A**  
**Matrix: Water**  
**Analysis Batch: 383692**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383712**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	4.00	3.62	*1	ug/L		91	55 - 123	187	31	
Chrysene	4.00	3.50	*1	ug/L		88	47 - 120	187	30	
Benzo[b]fluoranthene	4.00	3.76	*1	ug/L		94	43 - 120	188	35	
Benzo[k]fluoranthene	4.00	3.75	*1	ug/L		94	41 - 121	187	35	
Benzo[a]pyrene	4.00	3.47	*1	ug/L		87	51 - 120	188	31	
Indeno[1,2,3-cd]pyrene	4.00	3.91	*1	ug/L		98	45 - 123	186	35	
Dibenz(a,h)anthracene	4.00	3.89	*1	ug/L		97	54 - 123	188	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	88		29 - 150

**Lab Sample ID: MB 580-384316/1-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/18/22 11:02	03/19/22 19:26	1
Chrysene	ND		0.10	0.016	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/18/22 11:02	03/19/22 19:26	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/18/22 11:02	03/19/22 19:26	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/18/22 11:02	03/19/22 19:26	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	70		29 - 150	03/18/22 11:02	03/19/22 19:26	1

**Lab Sample ID: LCS 580-384316/2-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
Benzo[a]anthracene	4.00	2.33		ug/L		58	55 - 123	
Chrysene	4.00	2.27		ug/L		57	47 - 120	
Benzo[b]fluoranthene	4.00	2.35		ug/L		59	43 - 120	
Benzo[k]fluoranthene	4.00	2.35		ug/L		59	41 - 121	
Benzo[a]pyrene	4.00	2.14		ug/L		54	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	2.37		ug/L		59	45 - 123	
Dibenz(a,h)anthracene	4.00	2.33		ug/L		58	54 - 123	

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-384316/2-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	62		29 - 150

**Lab Sample ID: LCSD 580-384316/3-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Benzo[a]anthracene	4.00	2.71		ug/L		68	55 - 123	15	31	
Chrysene	4.00	2.61		ug/L		65	47 - 120	14	30	
Benzo[b]fluoranthene	4.00	2.78		ug/L		69	43 - 120	17	35	
Benzo[k]fluoranthene	4.00	2.73		ug/L		68	41 - 121	15	35	
Benzo[a]pyrene	4.00	2.51		ug/L		63	51 - 120	16	31	
Indeno[1,2,3-cd]pyrene	4.00	2.59		ug/L		65	45 - 123	9	35	
Dibenz(a,h)anthracene	4.00	2.67		ug/L		67	54 - 123	14	35	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	70		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-384455/1-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 384455**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/20/22 15:06	03/22/22 15:07	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/20/22 15:06	03/22/22 15:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150	03/20/22 15:06	03/22/22 15:07	1

**Lab Sample ID: LCS 580-384455/2-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384455**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
#2 Diesel (C10-C24)	4.00	3.41		mg/L		85	50 - 120	
Motor Oil (>C24-C36)	4.00	4.22		mg/L		105	64 - 120	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	63		50 - 150

**Lab Sample ID: LCSD 580-384455/3-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384455**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.99		mg/L		100	50 - 120	16	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-384455/3-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384455**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.64		mg/L		116	64 - 120	10	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	69		50 - 150





# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111203-1**

**Date Collected: 03/08/22 11:15**

**Matrix: Water**

**Date Received: 03/09/22 12:00**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	384341	BNM	EET SEA	03/18/22 16:25
Total/NA	Analysis	NWTPH-Gx		1	384345	BNM	EET SEA	03/18/22 16:25
Total/NA	Prep	3510C			383712	M1E	EET SEA	03/14/22 09:21
Total/NA	Analysis	8270E SIM		1	383692	T1L	EET SEA	03/14/22 21:24
Total/NA	Prep	3510C	RE		384316	ASL	EET SEA	03/18/22 15:17
Total/NA	Analysis	8270E SIM	RE	1	384517	W1T	EET SEA	03/20/22 00:32
Total/NA	Prep	3510C			384455	JHR	EET SEA	03/20/22 15:07
Total/NA	Cleanup	3630C			384500	JHR	EET SEA	03/21/22 09:40
Total/NA	Analysis	NWTPH-Dx		1	384663	JAE	EET SEA	03/22/22 17:48

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111203-2**

**Date Collected: 03/08/22 00:01**

**Matrix: Water**

**Date Received: 03/09/22 12:00**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	384341	BNM	EET SEA	03/18/22 16:00
Total/NA	Analysis	NWTPH-Gx		1	384345	BNM	EET SEA	03/18/22 16:00

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111203-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111203-1	Outfall #002	Water	03/08/22 11:15	03/09/22 12:00
580-111203-2	Trip Blank	Water	03/08/22 00:01	03/09/22 12:00

1

2

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10

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12



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-111203-1

**Login Number: 111203**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-111355-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 2:50:05 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

**Job ID: 580-111355-1**

**Laboratory: Eurofins Seattle**

## Narrative

### Job Narrative 580-111355-1

#### REVISION 1 10/18/2022

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

#### Receipt

Two samples were received on 3/14/2022 3:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.8° C.

#### GC/MS VOA

Method 624.1: Surrogate recovery for the following samples were outside the upper control limit: Trip Blank (580-111355-2) and (MB 580-384996/5). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method NWTPH-Dx: The method blank for preparation batch 580-384606 and 580-384669 and analytical batch 580-384663 contained Motor Oil (>C24-C36) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method NWTPH-Dx: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-384606 and 580-384669 and analytical batch 580-384663 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). These analytes were biased high in the LCS and were not detected above the reporting limit in the associated sample; therefore, the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111355-1**

Date Collected: 03/14/22 09:15

Matrix: Water

Date Received: 03/14/22 15:15

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/24/22 20:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122		03/24/22 20:56	1
4-Bromofluorobenzene (Surr)	90		78 - 120		03/24/22 20:56	1
Dibromofluoromethane (Surr)	113		80 - 120		03/24/22 20:56	1
1,2-Dichloroethane-d4 (Surr)	120		78 - 120		03/24/22 20:56	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/24/22 20:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123		03/24/22 20:56	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.046	0.013	ug/L		03/18/22 15:18	03/20/22 00:51	1
Chrysene	ND		0.091	0.015	ug/L		03/18/22 15:18	03/20/22 00:51	1
<b>Benzo[b]fluoranthene</b>	<b>0.013</b>	<b>J</b>	0.046	0.010	ug/L		03/18/22 15:18	03/20/22 00:51	1
Benzo[k]fluoranthene	ND		0.046	0.011	ug/L		03/18/22 15:18	03/20/22 00:51	1
Benzo[a]pyrene	ND		0.091	0.010	ug/L		03/18/22 15:18	03/20/22 00:51	1
Indeno[1,2,3-cd]pyrene	ND		0.046	0.013	ug/L		03/18/22 15:18	03/20/22 00:51	1
Dibenz(a,h)anthracene	ND		0.091	0.014	ug/L		03/18/22 15:18	03/20/22 00:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	72		29 - 150	03/18/22 15:18	03/20/22 00:51	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		03/22/22 09:37	03/22/22 21:30	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.30</b>	<b>J B *+</b>	0.39	0.11	mg/L		03/22/22 09:37	03/22/22 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150	03/22/22 09:37	03/22/22 21:30	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111355-2**

**Date Collected: 03/14/22 00:00**

**Matrix: Water**

**Date Received: 03/14/22 15:15**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/24/22 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122		03/24/22 21:20	1
4-Bromofluorobenzene (Surr)	85		78 - 120		03/24/22 21:20	1
Dibromofluoromethane (Surr)	115		80 - 120		03/24/22 21:20	1
1,2-Dichloroethane-d4 (Surr)	123	S1+	78 - 120		03/24/22 21:20	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/24/22 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123		03/24/22 21:20	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-384996/5**  
**Matrix: Water**  
**Analysis Batch: 384996**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			03/24/22 11:47	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		79 - 122					03/24/22 11:47	1
4-Bromofluorobenzene (Surr)	85		78 - 120					03/24/22 11:47	1
Dibromofluoromethane (Surr)	112		80 - 120					03/24/22 11:47	1
1,2-Dichloroethane-d4 (Surr)	121	S1+	78 - 120					03/24/22 11:47	1

**Lab Sample ID: LCS 580-384996/6**  
**Matrix: Water**  
**Analysis Batch: 384996**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	10.0	10.3		ug/L		103	80 - 122		
Surrogate	%Recovery	LCS Qualifier	Limits						
Toluene-d8 (Surr)	100		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 120						
Dibromofluoromethane (Surr)	111		80 - 120						
1,2-Dichloroethane-d4 (Surr)	118		78 - 120						

**Lab Sample ID: LCSD 580-384996/7**  
**Matrix: Water**  
**Analysis Batch: 384996**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.4		ug/L		104	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	96		78 - 120						
Dibromofluoromethane (Surr)	112		80 - 120						
1,2-Dichloroethane-d4 (Surr)	119		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-384997/5**  
**Matrix: Water**  
**Analysis Batch: 384997**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			03/24/22 11:47	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123					03/24/22 11:47	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-384997/8**  
**Matrix: Water**  
**Analysis Batch: 384997**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.01		mg/L		101	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	95		77 - 123				

**Lab Sample ID: LCSD 580-384997/9**  
**Matrix: Water**  
**Analysis Batch: 384997**

**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	1.00	1.06		mg/L		106	55 - 148	5	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	91		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-384316/1-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/18/22 11:02	03/19/22 19:26	1
Chrysene	ND		0.10	0.016	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/18/22 11:02	03/19/22 19:26	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/18/22 11:02	03/19/22 19:26	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/18/22 11:02	03/19/22 19:26	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/18/22 11:02	03/19/22 19:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	70		29 - 150				03/18/22 11:02	03/19/22 19:26	1

**Lab Sample ID: LCS 580-384316/2-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	2.33		ug/L		58	55 - 123
Chrysene	4.00	2.27		ug/L		57	47 - 120
Benzo[b]fluoranthene	4.00	2.35		ug/L		59	43 - 120
Benzo[k]fluoranthene	4.00	2.35		ug/L		59	41 - 121
Benzo[a]pyrene	4.00	2.14		ug/L		54	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.37		ug/L		59	45 - 123
Dibenz(a,h)anthracene	4.00	2.33		ug/L		58	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-384316/2-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	62		29 - 150

**Lab Sample ID: LCSD 580-384316/3-A**  
**Matrix: Water**  
**Analysis Batch: 384517**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384316**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	2.71		ug/L		68	55 - 123	15	31	
Chrysene	4.00	2.61		ug/L		65	47 - 120	14	30	
Benzo[b]fluoranthene	4.00	2.78		ug/L		69	43 - 120	17	35	
Benzo[k]fluoranthene	4.00	2.73		ug/L		68	41 - 121	15	35	
Benzo[a]pyrene	4.00	2.51		ug/L		63	51 - 120	16	31	
Indeno[1,2,3-cd]pyrene	4.00	2.59		ug/L		65	45 - 123	9	35	
Dibenz(a,h)anthracene	4.00	2.67		ug/L		67	54 - 123	14	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	70		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-384606/1-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 384606**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/22/22 09:37	03/22/22 18:29	1
Motor Oil (>C24-C36)	0.111	J	0.35	0.096	mg/L		03/22/22 09:37	03/22/22 18:29	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	89		50 - 150	03/22/22 09:37	03/22/22 18:29	1

**Lab Sample ID: LCS 580-384606/2-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384606**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	4.13		mg/L		103	50 - 120	
Motor Oil (>C24-C36)	4.00	5.53	*+	mg/L		138	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	79		50 - 150

**Lab Sample ID: LCSD 580-384606/3-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384606**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	4.24		mg/L		106	50 - 120	3	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-384606/3-B**  
**Matrix: Water**  
**Analysis Batch: 384663**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384606**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	RPD	Limit
Motor Oil (>C24-C36)	4.00	4.93	*+	mg/L		123	64 - 120	11	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	72		50 - 150





# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111355-1**

**Date Collected: 03/14/22 09:15**

**Matrix: Water**

**Date Received: 03/14/22 15:15**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	384996	BNM	EET SEA	03/24/22 20:56
Total/NA	Analysis	NWTPH-Gx		1	384997	BNM	EET SEA	03/24/22 20:56
Total/NA	Prep	3510C			384316	ASL	EET SEA	03/18/22 15:18
Total/NA	Analysis	8270E SIM		1	384517	W1T	EET SEA	03/20/22 00:51
Total/NA	Prep	3510C			384606	JJY	EET SEA	03/22/22 09:37
Total/NA	Cleanup	3630C			384669	JJY	EET SEA	03/22/22 13:00
Total/NA	Analysis	NWTPH-Dx		1	384663	JAE	EET SEA	03/22/22 21:30

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111355-2**

**Date Collected: 03/14/22 00:00**

**Matrix: Water**

**Date Received: 03/14/22 15:15**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	384996	BNM	EET SEA	03/24/22 21:20
Total/NA	Analysis	NWTPH-Gx		1	384997	BNM	EET SEA	03/24/22 21:20

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111355-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111355-1	Outfall #002	Water	03/14/22 09:15	03/14/22 15:15
580-111355-2	Trip Blank	Water	03/14/22 00:00	03/14/22 15:15

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# Chain of Custody Record

580-111355 Chain of Custody

Client Contact: <b>Ophélie Encelle</b>		Sampler: <b>Trevor Bryant</b>		Lab PM: <b>Elaine Walker</b>		Carrier Tracking No(s):		COC No:									
Company: <b>Arcadis</b>		PWSID:		E-Mail: <b>Elaine.Walker</b>		State of Origin:		Page: Page 1 of 1									
Address: <b>1100 Olive Way Ste 800</b>		Due Date Requested:		Analysis Requested						Job #:							
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>															
State, Zip: <b>48101, WA</b>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Field Filtered Sample (Yes or No) Perform Method (Yes or No)		NWTPH-G G24 Benzene NWTPH-D 8270-SIA		Total Number of Containers		Preservation Codes:							
Phone:		PO #: Purchase Order not required								A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)					
Email: <b>Ophelie.Encelle@Arcadis.com</b>		WO #:		Special Instructions/Note:		X X X X		X		use standard SGL  Report exact level of CPAW & Benzene (1 mg/l)  95 gpm 7.62 pH							
Project Name: <b>Edmonds Terminal</b>		Project #: <b>30064301</b>															
Site:		SSOW#:		Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Preservation Code:		X X S	
Owlfall #002		3/19/22		0915		G		W									
Trio Blank		-		-		-		W									
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:													
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment: <b>@ Lab 1515</b>											
Relinquished by: <b>Trevor Bryant</b>		Date/Time: <b>3/19/22 1246</b>		Company: <b>Arcadis</b>		Received by: <i>[Signature]</i>		Date/Time: <b>3/14/22 1246</b>		Company: <b>ETCS</b>							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <b>TRR 58/6.0 W/L3 10/18/2022 (Rev. 1)</b> <b>LAB P. Bryant</b>													

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-111355-1

**Login Number: 111355**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

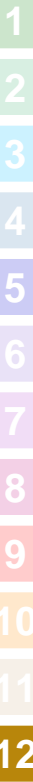
As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-111629-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/18/2022 3:03:55 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

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**Job ID: 580-111629-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-111629-1**

**REVISION 2 October 18, 2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Revision 1: April 25, 2022**

This revision was required to correct the 624.1 Benzene results which were inadvertently reported as detects, but should be ND.

**Receipt**

Two samples were received on 3/21/2022 1:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.9° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111629-1**

**Date Collected: 03/21/22 10:00**

**Matrix: Water**

**Date Received: 03/21/22 12:20**

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/04/22 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122		04/04/22 19:51	1
4-Bromofluorobenzene (Surr)	85		78 - 120		04/04/22 19:51	1
Dibromofluoromethane (Surr)	93		80 - 120		04/04/22 19:51	1
1,2-Dichloroethane-d4 (Surr)	94		78 - 120		04/04/22 19:51	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/04/22 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123		04/04/22 19:51	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		03/23/22 13:50	03/24/22 16:41	1
Chrysene	ND		0.10	0.016	ug/L		03/23/22 13:50	03/24/22 16:41	1
Benzo[b]fluoranthene	ND		0.051	0.011	ug/L		03/23/22 13:50	03/24/22 16:41	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		03/23/22 13:50	03/24/22 16:41	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/23/22 13:50	03/24/22 16:41	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		03/23/22 13:50	03/24/22 16:41	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/23/22 13:50	03/24/22 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	97		29 - 150	03/23/22 13:50	03/24/22 16:41	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		03/27/22 14:57	03/29/22 22:37	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		03/27/22 14:57	03/29/22 22:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	03/27/22 14:57	03/29/22 22:37	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111629-2**

**Date Collected: 03/21/22 00:00**

**Matrix: Water**

**Date Received: 03/21/22 12:20**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/04/22 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		79 - 122		04/04/22 19:27	1
4-Bromofluorobenzene (Surr)	82		78 - 120		04/04/22 19:27	1
Dibromofluoromethane (Surr)	92		80 - 120		04/04/22 19:27	1
1,2-Dichloroethane-d4 (Surr)	96		78 - 120		04/04/22 19:27	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/04/22 19:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		77 - 123		04/04/22 19:27	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-386275/5**  
**Matrix: Water**  
**Analysis Batch: 386275**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/04/22 13:31	1
Surrogate	%Recovery	MB Qualifier	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101			79 - 122				04/04/22 13:31	1
4-Bromofluorobenzene (Surr)	88			78 - 120				04/04/22 13:31	1
Dibromofluoromethane (Surr)	91			80 - 120				04/04/22 13:31	1
1,2-Dichloroethane-d4 (Surr)	94			78 - 120				04/04/22 13:31	1

**Lab Sample ID: LCS 580-386275/6**  
**Matrix: Water**  
**Analysis Batch: 386275**

**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	80 - 122		
Surrogate	%Recovery	LCS Qualifier	LCS Qualifier	Limits					
Toluene-d8 (Surr)	101			79 - 122					
4-Bromofluorobenzene (Surr)	93			78 - 120					
Dibromofluoromethane (Surr)	89			80 - 120					
1,2-Dichloroethane-d4 (Surr)	90			78 - 120					

**Lab Sample ID: LCSD 580-386275/7**  
**Matrix: Water**  
**Analysis Batch: 386275**

**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	11.6		ug/L		116	80 - 122	2	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Qualifier	Limits					
Toluene-d8 (Surr)	103			79 - 122					
4-Bromofluorobenzene (Surr)	93			78 - 120					
Dibromofluoromethane (Surr)	90			80 - 120					
1,2-Dichloroethane-d4 (Surr)	97			78 - 120					

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-386276/5**  
**Matrix: Water**  
**Analysis Batch: 386276**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/04/22 13:31	1
Surrogate	%Recovery	MB Qualifier	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88			77 - 123				04/04/22 13:31	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-386276/8**  
**Matrix: Water**  
**Analysis Batch: 386276**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.882		mg/L		88	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	93		77 - 123				

**Lab Sample ID: LCSD 580-386276/9**  
**Matrix: Water**  
**Analysis Batch: 386276**

**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	1.00	0.890		mg/L		89	55 - 148	1	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	92		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-384887/1-A**  
**Matrix: Water**  
**Analysis Batch: 384983**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 384887**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/23/22 13:50	03/24/22 11:52	1
Chrysene	ND		0.10	0.016	ug/L		03/23/22 13:50	03/24/22 11:52	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/23/22 13:50	03/24/22 11:52	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/23/22 13:50	03/24/22 11:52	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/23/22 13:50	03/24/22 11:52	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/23/22 13:50	03/24/22 11:52	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/23/22 13:50	03/24/22 11:52	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	93		29 - 150				03/23/22 13:50	03/24/22 11:52	1

**Lab Sample ID: LCS 580-384887/2-A**  
**Matrix: Water**  
**Analysis Batch: 384983**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384887**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.17		ug/L		79	55 - 123
Chrysene	4.00	3.06		ug/L		77	47 - 120
Benzo[b]fluoranthene	4.00	3.07		ug/L		77	43 - 120
Benzo[k]fluoranthene	4.00	3.33		ug/L		83	41 - 121
Benzo[a]pyrene	4.00	2.95		ug/L		74	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.22		ug/L		81	45 - 123
Dibenz(a,h)anthracene	4.00	3.23		ug/L		81	54 - 123

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-384887/2-A**  
**Matrix: Water**  
**Analysis Batch: 384983**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 384887**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	98		29 - 150

**Lab Sample ID: LCSD 580-384887/3-A**  
**Matrix: Water**  
**Analysis Batch: 384983**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 384887**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	2.97		ug/L		74	55 - 123	6	31
Chrysene	4.00	2.94		ug/L		74	47 - 120	4	30
Benzo[b]fluoranthene	4.00	3.05		ug/L		76	43 - 120	1	35
Benzo[k]fluoranthene	4.00	3.23		ug/L		81	41 - 121	3	35
Benzo[a]pyrene	4.00	2.89		ug/L		72	51 - 120	2	31
Indeno[1,2,3-cd]pyrene	4.00	3.10		ug/L		77	45 - 123	4	35
Dibenz(a,h)anthracene	4.00	3.14		ug/L		79	54 - 123	3	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	92		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-385308/1-B**  
**Matrix: Water**  
**Analysis Batch: 385621**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 385308**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		03/27/22 14:57	03/29/22 21:16	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		03/27/22 14:57	03/29/22 21:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150	03/27/22 14:57	03/29/22 21:16	1

**Lab Sample ID: LCS 580-385308/2-B**  
**Matrix: Water**  
**Analysis Batch: 385621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 385308**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.84		mg/L		96	50 - 120
Motor Oil (>C24-C36)	4.00	4.12		mg/L		103	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	74		50 - 150

**Lab Sample ID: LCSD 580-385308/3-B**  
**Matrix: Water**  
**Analysis Batch: 385621**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 385308**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	4.30		mg/L		108	50 - 120	11	26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-385308/3-B**  
**Matrix: Water**  
**Analysis Batch: 385621**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 385308**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.68		mg/L		117	64 - 120	13	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	75		50 - 150





# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-111629-1

Date Collected: 03/21/22 10:00

Matrix: Water

Date Received: 03/21/22 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	386275	JSM	EET SEA	04/04/22 19:51
Total/NA	Analysis	NWTPH-Gx		1	386276	JSM	EET SEA	04/04/22 19:51
Total/NA	Prep	3510C			384887	JJY	EET SEA	03/23/22 13:50
Total/NA	Analysis	8270E SIM		1	384983	W1T	EET SEA	03/24/22 16:41
Total/NA	Prep	3510C			385308	JBT	EET SEA	03/27/22 14:57
Total/NA	Cleanup	3630C			385401	JAE	EET SEA	03/28/22 13:58
Total/NA	Analysis	NWTPH-Dx		1	385621	W1T	EET SEA	03/29/22 22:37

## Client Sample ID: Trip Blank

Lab Sample ID: 580-111629-2

Date Collected: 03/21/22 00:00

Matrix: Water

Date Received: 03/21/22 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	386275	JSM	EET SEA	04/04/22 19:27
Total/NA	Analysis	NWTPH-Gx		1	386276	JSM	EET SEA	04/04/22 19:27

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111629-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111629-1	Outfall #002	Water	03/21/22 10:00	03/21/22 12:20
580-111629-2	Trip Blank	Water	03/21/22 00:00	03/21/22 12:20

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# Chevron Northwest Region Analysis Request



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental  
 Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 Instructions on reverse side correspond with circled numbers.



580-111629 Chain of Custody

ody

1 Client Information				4 Matrix				5 Analyses Requested												6 Remarks																																					
Facility #		WBS		<input type="checkbox"/> Sediment <input type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Total Number of Containers		BTEX + MTBE		8021		8260		Naphth		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method																							
Site Address						8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method			
Chevron PM						8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method			
Lead Consultant						8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method			
Consultant/Office						8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method			
Consultant Project Mgr.				8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method					
Consultant Phone #				8021				8260				Naphth				Oxygenates				NWTPH-Gx				NWTPH-Dx with Silica Gel Cleanup				NWTPH-Dx without Silica Gel Cleanup				WA VPH				WA EPH				Lead				Total				Diss.				Method					
Sampler		Collected		3		8021		8260		Naphth		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method																									
Date		Time				8021		8260		Naphth		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method																									
Sample Identification		Date		Time		Grab		Composite		Soil		Water		Oil		Total Number of Containers		BTEX + MTBE		8021		8260		Naphth		8260 full scan		Oxygenates		NWTPH-Gx		NWTPH-Dx with Silica Gel Cleanup		NWTPH-Dx without Silica Gel Cleanup		WA VPH		WA EPH		Lead		Total		Diss.		Method											
Outfall #002		3/21/22		1000						X				10						X		X								X		X																									
Trip Blank		-		-										6						X										X		X																									
Turnaround Time Requested (TAT) (please circle)		Relinquished by		Date		Time		Received by		Date		Time		Relinquished by		Date		Time		Received by		Date		Time		Relinquished by Commercial Carrier		Received by		Date		Time		Temperature Upon Receipt		Custody Seals Intact?		Yes		No																	
Standard 5 day 4 day		R. Bruno		3/21/22		1220		K. Miller		3/21/22		1220		UPS		FedEx		Other		SM B BLS/WCT						128		5.9/6.1		C		Yes		No																							
72 hour 48 hour 24 hour		Relinquished by		Date		Time		Received by		Date		Time		UPS		FedEx		Other		SM B BLS/WCT						128		5.9/6.1		C		Yes		No																							
Data Package (circle if required)		EDD (circle if required)		Relinquished by Commercial Carrier		Received by		Date		Time		Temperature Upon Receipt		Custody Seals Intact?		Yes		No																																							
Type I - Full		CVX-RTBU-FI_05 (default)		UPS		FedEx		Other		SM B BLS/WCT		128		5.9/6.1		C		Yes		No																																					
Type VI (Raw Data)		Other:		Temperature Upon Receipt		Custody Seals Intact?		Yes		No																																															

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-111629-1

**Login Number: 111629**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/18/2022

Samuel Miles  
Arcadis U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

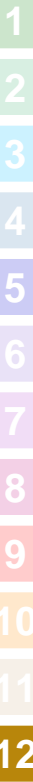
As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-111895-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/20/2022 1:56:07 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

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**Job ID: 580-111895-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

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**Job Narrative  
580-111895-1**

**REVISION 2: October 20, 2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Revision 1: April 21, 2022**

The client noted that the Benzene results for the sample and trip blank were the almost the same. Upon review by the laboratory, it was determined that the instrument incorrectly identified the data and the result should be ND.

**Receipt**

Two samples were received on 3/28/2022 3:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 8.4° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-111895-1**

**Date Collected: 03/28/22 11:50**

**Matrix: Water**

**Date Received: 03/28/22 15:05**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/08/22 05:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122		04/08/22 05:18	1
4-Bromofluorobenzene (Surr)	84		78 - 120		04/08/22 05:18	1
Dibromofluoromethane (Surr)	90		80 - 120		04/08/22 05:18	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120		04/08/22 05:18	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/08/22 14:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123		04/08/22 14:04	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		03/29/22 10:13	03/30/22 00:31	1
Chrysene	ND		0.11	0.017	ug/L		03/29/22 10:13	03/30/22 00:31	1
Benzo[b]fluoranthene	ND		0.055	0.012	ug/L		03/29/22 10:13	03/30/22 00:31	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		03/29/22 10:13	03/30/22 00:31	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		03/29/22 10:13	03/30/22 00:31	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		03/29/22 10:13	03/30/22 00:31	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		03/29/22 10:13	03/30/22 00:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	101		29 - 150	03/29/22 10:13	03/30/22 00:31	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.071	mg/L		04/06/22 10:17	04/11/22 15:32	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.14</b>	<b>J</b>	0.38	0.10	mg/L		04/06/22 10:17	04/11/22 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		50 - 150	04/06/22 10:17	04/11/22 15:32	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-111895-2**

**Date Collected: 03/28/22 00:00**

**Matrix: Water**

**Date Received: 03/28/22 15:05**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/08/22 05:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	104		79 - 122					04/08/22 05:42	1
<i>4-Bromofluorobenzene (Surr)</i>	82		78 - 120					04/08/22 05:42	1
<i>Dibromofluoromethane (Surr)</i>	90		80 - 120					04/08/22 05:42	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	95		78 - 120					04/08/22 05:42	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/08/22 13:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	84		77 - 123					04/08/22 13:40	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-386766/5**  
**Matrix: Water**  
**Analysis Batch: 386766**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/07/22 23:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122					04/07/22 23:45	1
4-Bromofluorobenzene (Surr)	87		78 - 120					04/07/22 23:45	1
Dibromofluoromethane (Surr)	89		80 - 120					04/07/22 23:45	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					04/07/22 23:45	1

**Lab Sample ID: LCS 580-386766/6**  
**Matrix: Water**  
**Analysis Batch: 386766**

**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	11.7		ug/L		117	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	102		79 - 122					
4-Bromofluorobenzene (Surr)	94		78 - 120					
Dibromofluoromethane (Surr)	90		80 - 120					
1,2-Dichloroethane-d4 (Surr)	90		78 - 120					

**Lab Sample ID: LCSD 580-386766/7**  
**Matrix: Water**  
**Analysis Batch: 386766**

**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	11.7		ug/L		117	80 - 122	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 120						
Dibromofluoromethane (Surr)	92		80 - 120						
1,2-Dichloroethane-d4 (Surr)	89		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-386874/5**  
**Matrix: Water**  
**Analysis Batch: 386874**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/08/22 11:42	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123					04/08/22 11:42	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-386874/8**  
**Matrix: Water**  
**Analysis Batch: 386874**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.933		mg/L		93	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	94		77 - 123				

**Lab Sample ID: LCSD 580-386874/9**  
**Matrix: Water**  
**Analysis Batch: 386874**

**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	1.00	0.902		mg/L		90	55 - 148	3	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	96		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-385471/1-A**  
**Matrix: Water**  
**Analysis Batch: 385623**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 385471**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		03/29/22 09:53	03/29/22 21:40	1
Chrysene	ND		0.10	0.016	ug/L		03/29/22 09:53	03/29/22 21:40	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		03/29/22 09:53	03/29/22 21:40	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		03/29/22 09:53	03/29/22 21:40	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		03/29/22 09:53	03/29/22 21:40	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		03/29/22 09:53	03/29/22 21:40	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		03/29/22 09:53	03/29/22 21:40	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	102		29 - 150				03/29/22 09:53	03/29/22 21:40	1

**Lab Sample ID: LCS 580-385471/2-A**  
**Matrix: Water**  
**Analysis Batch: 385623**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 385471**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.49		ug/L		87	55 - 123
Chrysene	4.00	2.96		ug/L		74	47 - 120
Benzo[b]fluoranthene	4.00	3.18		ug/L		80	43 - 120
Benzo[k]fluoranthene	4.00	3.34		ug/L		83	41 - 121
Benzo[a]pyrene	4.00	3.33		ug/L		83	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.05		ug/L		76	45 - 123
Dibenz(a,h)anthracene	4.00	3.27		ug/L		82	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-385471/2-A**  
**Matrix: Water**  
**Analysis Batch: 385623**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 385471**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	98		29 - 150

**Lab Sample ID: LCSD 580-385471/3-A**  
**Matrix: Water**  
**Analysis Batch: 385623**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 385471**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	4.00	3.67		ug/L		92	55 - 123	5	31	
Chrysene	4.00	3.10		ug/L		78	47 - 120	5	30	
Benzo[b]fluoranthene	4.00	3.25		ug/L		81	43 - 120	2	35	
Benzo[k]fluoranthene	4.00	3.43		ug/L		86	41 - 121	3	35	
Benzo[a]pyrene	4.00	3.45		ug/L		86	51 - 120	3	31	
Indeno[1,2,3-cd]pyrene	4.00	3.40		ug/L		85	45 - 123	11	35	
Dibenz(a,h)anthracene	4.00	3.45		ug/L		86	54 - 123	6	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	104		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-386518/1-B**  
**Matrix: Water**  
**Analysis Batch: 387023**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386518**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					Prepared	Analyzed			
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/06/22 10:17	04/11/22 14:33		1	
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		04/06/22 10:17	04/11/22 14:33		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier		Prepared	Analyzed			
o-Terphenyl	72		50 - 150	04/06/22 10:17	04/11/22 14:33		1	

**Lab Sample ID: LCS 580-386518/2-B**  
**Matrix: Water**  
**Analysis Batch: 387023**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386518**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.00		mg/L		75	50 - 120	
Motor Oil (>C24-C36)	4.00	3.72		mg/L		93	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	82		50 - 150

**Lab Sample ID: LCSD 580-386518/3-B**  
**Matrix: Water**  
**Analysis Batch: 387023**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 386518**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
#2 Diesel (C10-C24)	4.00	3.33		mg/L		83	50 - 120	10	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-386518/3-B**  
**Matrix: Water**  
**Analysis Batch: 387023**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 386518**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.13		mg/L		103	64 - 120	10	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	82		50 - 150





# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-111895-1

Date Collected: 03/28/22 11:50

Matrix: Water

Date Received: 03/28/22 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	386766	BNM	EET SEA	04/08/22 05:18
Total/NA	Analysis	NWTPH-Gx		1	386874	BNM	EET SEA	04/08/22 14:04
Total/NA	Prep	3510C			385471	ASL	EET SEA	03/29/22 10:13
Total/NA	Analysis	8270E SIM		1	385623	E1L	EET SEA	03/30/22 00:31
Total/NA	Prep	3510C			386518	KLW	EET SEA	04/06/22 10:17
Total/NA	Cleanup	3630C			387068	JAE	EET SEA	04/11/22 13:14
Total/NA	Analysis	NWTPH-Dx		1	387023	JAE	EET SEA	04/11/22 15:32

## Client Sample ID: Trip Blank

Lab Sample ID: 580-111895-2

Date Collected: 03/28/22 00:00

Matrix: Water

Date Received: 03/28/22 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	386766	BNM	EET SEA	04/08/22 05:42
Total/NA	Analysis	NWTPH-Gx		1	386874	BNM	EET SEA	04/08/22 13:40

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-111895-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111895-1	Outfall #002	Water	03/28/22 11:50	03/28/22 15:05
580-111895-2	Trip Blank	Water	03/28/22 00:00	03/28/22 15:05

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530-111895 Chain of Custody

# Chain of Custody Record

Client Contact: <b>Ophélie Encelle</b>		Sampler: <b>Trevor Bryant</b>		Lab PM: <b>Elaine Walker</b>		Carrier Tracking No(s):		COC No:			
Company: <b>Arcadis</b>		Phone:		E-Mail:		State of Origin: <b>WA</b>		Page: Page 1 of 1			
Address: <b>1100 Olive Way Ste 800</b>		Due Date Requested:		Analysis Requested						Job #:	
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>									
State, Zip: <b>WA 98101</b>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Field Filtered Sample (Yes or No) Pretreated (Yes or No)		NUTRA-6x Benzene by G241 NUTRA-D <sub>2</sub> cPAHs by 8270-SSM		Total Number of Containers		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	
Project Name: <b>Edmonds Terminal</b>		Project #: <b>30064301</b>									
Site:		SSOW#:		Purchase Order not required		Purchase Order #:		Purchase Order #:		Purchase Order #:	
Email: <b>Ophélie.Encelle@Arcadis.com</b>		WO #:		Matrix (W=water, S=solid, O=waste/oil, BT=Trace, A=Air)		Matrix		Matrix		Matrix	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix		Special Instructions/Note:	
Outfall #002		3/28/22		1150		G W		W		10 - use standard	
Trap Blank		-		-		-		W		4 SGC	
										* report quantitative levels of Benzene & cPAHs 1ug/L	
										pH - 7.60 92 gpm	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment: <b>@ Lab 1305</b>					
Relinquished by: <b>L RA</b>		Date/Time: <b>3/28/22 1245</b>		Company: <b>ANA</b>		Received by: <b>[Signature]</b>		Date/Time: <b>3/28/22 1245</b>		Company: <b>ECTM</b>	
Relinquished by:		Date/Time:		Comp:		Therm. ID: <b>IRB</b> Cor: <b>8.4</b> ° Unc: <b>8.6</b> °		Date/Time:		Company:	
Relinquished by:		Date/Time:		Comp:		Cooler Desc: <b>MB</b>		Date/Time:		Company:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Packing: <b>BUO</b>		FedEx:		Date/Time:		Company:	
				Cust. Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		UPS:		Date/Time:		Company:	
				Other: <b>Lab Cour: <input checked="" type="checkbox"/></b>				Date/Time:		Company:	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-111895-1

**Login Number: 111895**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/20/2022

Samuel Miles  
ARCADIS U.S. Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-112158-1  
Client Project/Site: Chevron Edmonds Terminal  
Revision: 2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
10/20/2022 2:04:10 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

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**Job ID: 580-112158-1**

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**Laboratory: Eurofins Seattle**

## Narrative

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### Job Narrative 580-112158-1

#### REVISION 2: October 20, 2022

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

#### Revision 1: April 21, 2022

The client noted that the Benzene results for the samples and trip blank were the same. Upon review by the laboratory, it was determined that the instrument incorrectly identified the data and the result should be ND.

#### Receipt

Three samples were received on 4/4/2022 2:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.0° C.

#### Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: Dup-1 (580-112158-2). A time of 0001 was used for login.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-112158-1**

**Date Collected: 04/04/22 10:00**

**Matrix: Water**

**Date Received: 04/04/22 14:10**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/13/22 05:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122		04/13/22 05:47	1
4-Bromofluorobenzene (Surr)	85		78 - 120		04/13/22 05:47	1
Dibromofluoromethane (Surr)	89		80 - 120		04/13/22 05:47	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120		04/13/22 05:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/13/22 05:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123		04/13/22 05:47	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		04/08/22 11:35	04/09/22 07:56	1
Chrysene	ND		0.11	0.017	ug/L		04/08/22 11:35	04/09/22 07:56	1
Benzo[b]fluoranthene	ND		0.053	0.012	ug/L		04/08/22 11:35	04/09/22 07:56	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		04/08/22 11:35	04/09/22 07:56	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		04/08/22 11:35	04/09/22 07:56	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		04/08/22 11:35	04/09/22 07:56	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		04/08/22 11:35	04/09/22 07:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	103		29 - 150	04/08/22 11:35	04/09/22 07:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		04/06/22 10:17	04/15/22 17:05	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		04/06/22 10:17	04/15/22 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150	04/06/22 10:17	04/15/22 17:05	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

**Client Sample ID: Dup-1**

**Lab Sample ID: 580-112158-2**

**Date Collected: 04/04/22 00:01**

**Matrix: Water**

**Date Received: 04/04/22 14:10**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/13/22 06:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		79 - 122		04/13/22 06:11	1
4-Bromofluorobenzene (Surr)	86		78 - 120		04/13/22 06:11	1
Dibromofluoromethane (Surr)	86		80 - 120		04/13/22 06:11	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120		04/13/22 06:11	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/13/22 06:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		77 - 123		04/13/22 06:11	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		04/08/22 11:35	04/09/22 08:20	1
Chrysene	ND		0.10	0.017	ug/L		04/08/22 11:35	04/09/22 08:20	1
Benzo[b]fluoranthene	ND		0.052	0.012	ug/L		04/08/22 11:35	04/09/22 08:20	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		04/08/22 11:35	04/09/22 08:20	1
Benzo[a]pyrene	ND		0.10	0.012	ug/L		04/08/22 11:35	04/09/22 08:20	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		04/08/22 11:35	04/09/22 08:20	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		04/08/22 11:35	04/09/22 08:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		29 - 150	04/08/22 11:35	04/09/22 08:20	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		04/06/22 10:17	04/15/22 17:25	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		04/06/22 10:17	04/15/22 17:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	64		50 - 150	04/06/22 10:17	04/15/22 17:25	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-112158-3**

**Date Collected: 04/04/22 00:00**

**Matrix: Water**

**Date Received: 04/04/22 14:10**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/13/22 06:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122		04/13/22 06:34	1
4-Bromofluorobenzene (Surr)	83		78 - 120		04/13/22 06:34	1
Dibromofluoromethane (Surr)	90		80 - 120		04/13/22 06:34	1
1,2-Dichloroethane-d4 (Surr)	92		78 - 120		04/13/22 06:34	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/13/22 06:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		77 - 123		04/13/22 06:34	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-387216/5**  
**Matrix: Water**  
**Analysis Batch: 387216**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/12/22 23:29	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122					04/12/22 23:29	1
4-Bromofluorobenzene (Surr)	87		78 - 120					04/12/22 23:29	1
Dibromofluoromethane (Surr)	88		80 - 120					04/12/22 23:29	1
1,2-Dichloroethane-d4 (Surr)	90		78 - 120					04/12/22 23:29	1

**Lab Sample ID: LCS 580-387216/6**  
**Matrix: Water**  
**Analysis Batch: 387216**

**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	11.5		ug/L		115	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	102		79 - 122					
4-Bromofluorobenzene (Surr)	92		78 - 120					
Dibromofluoromethane (Surr)	89		80 - 120					
1,2-Dichloroethane-d4 (Surr)	91		78 - 120					

**Lab Sample ID: LCSD 580-387216/7**  
**Matrix: Water**  
**Analysis Batch: 387216**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	11.3		ug/L		113	80 - 122	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	90		78 - 120						
Dibromofluoromethane (Surr)	87		80 - 120						
1,2-Dichloroethane-d4 (Surr)	90		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-387217/5**  
**Matrix: Water**  
**Analysis Batch: 387217**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/12/22 23:29	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		77 - 123					04/12/22 23:29	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-387217/8**  
**Matrix: Water**  
**Analysis Batch: 387217**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.818		mg/L		82	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	91		77 - 123				

**Lab Sample ID: LCSD 580-387217/9**  
**Matrix: Water**  
**Analysis Batch: 387217**

**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	1.00	0.838		mg/L		84	55 - 148	2	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	93		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-386864/1-A**  
**Matrix: Water**  
**Analysis Batch: 386960**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386864**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/08/22 11:35	04/09/22 02:43	1
Chrysene	ND		0.10	0.016	ug/L		04/08/22 11:35	04/09/22 02:43	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/08/22 11:35	04/09/22 02:43	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/08/22 11:35	04/09/22 02:43	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/08/22 11:35	04/09/22 02:43	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/08/22 11:35	04/09/22 02:43	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		04/08/22 11:35	04/09/22 02:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	105		29 - 150				04/08/22 11:35	04/09/22 02:43	1

**Lab Sample ID: LCS 580-386864/2-A**  
**Matrix: Water**  
**Analysis Batch: 386960**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386864**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.22		ug/L		80	55 - 123
Chrysene	4.00	3.06		ug/L		76	47 - 120
Benzo[b]fluoranthene	4.00	2.73		ug/L		68	43 - 120
Benzo[k]fluoranthene	4.00	3.32		ug/L		83	41 - 121
Benzo[a]pyrene	4.00	3.08		ug/L		77	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.80		ug/L		70	45 - 123
Dibenz(a,h)anthracene	4.00	2.98		ug/L		75	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-386864/2-A**  
**Matrix: Water**  
**Analysis Batch: 386960**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386864**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	105		29 - 150

**Lab Sample ID: LCSD 580-386864/3-A**  
**Matrix: Water**  
**Analysis Batch: 386960**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 386864**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.23		ug/L	-	81	55 - 123	0	31	
Chrysene	4.00	3.01		ug/L	-	75	47 - 120	1	30	
Benzo[b]fluoranthene	4.00	2.76		ug/L	-	69	43 - 120	1	35	
Benzo[k]fluoranthene	4.00	3.17		ug/L	-	79	41 - 121	5	35	
Benzo[a]pyrene	4.00	3.04		ug/L	-	76	51 - 120	1	31	
Indeno[1,2,3-cd]pyrene	4.00	2.71		ug/L	-	68	45 - 123	3	35	
Dibenz(a,h)anthracene	4.00	2.76		ug/L	-	69	54 - 123	8	35	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	103		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-386519/1-B**  
**Matrix: Water**  
**Analysis Batch: 387604**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386519**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
							Date	Time	Date	Time	
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L	-	04/06/22	10:17	04/15/22	16:07	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L	-	04/06/22	10:17	04/15/22	16:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared		Analyzed		Dil Fac
o-Terphenyl	72		50 - 150	04/06/22	10:17	04/15/22	16:07	1

**Lab Sample ID: LCS 580-386519/2-B**  
**Matrix: Water**  
**Analysis Batch: 387604**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386519**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	2.56		mg/L	-	64	50 - 120	
Motor Oil (>C24-C36)	4.00	2.96		mg/L	-	74	64 - 120	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	66		50 - 150

**Lab Sample ID: LCSD 580-386519/3-B**  
**Matrix: Water**  
**Analysis Batch: 387604**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 386519**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.11		mg/L	-	78	50 - 120	19	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-386519/3-B  
 Matrix: Water  
 Analysis Batch: 387604

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 386519

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.58		mg/L		89	64 - 120	19	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	76		50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Client Sample ID: Outfall #002

Date Collected: 04/04/22 10:00

Date Received: 04/04/22 14:10

## Lab Sample ID: 580-112158-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	387216	BNM	EET SEA	04/13/22 05:47
Total/NA	Analysis	NWTPH-Gx		1	387217	BNM	EET SEA	04/13/22 05:47
Total/NA	Prep	3510C			386864	KLW	EET SEA	04/08/22 11:35
Total/NA	Analysis	8270E SIM		1	386960	JCM	EET SEA	04/09/22 07:56
Total/NA	Prep	3510C			386519	ASL	EET SEA	04/06/22 10:17
Total/NA	Cleanup	3630C			387587	Y1F	EET SEA	04/15/22 11:46
Total/NA	Analysis	NWTPH-Dx		1	387604	JAE	EET SEA	04/15/22 17:05

## Client Sample ID: Dup-1

Date Collected: 04/04/22 00:01

Date Received: 04/04/22 14:10

## Lab Sample ID: 580-112158-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	387216	BNM	EET SEA	04/13/22 06:11
Total/NA	Analysis	NWTPH-Gx		1	387217	BNM	EET SEA	04/13/22 06:11
Total/NA	Prep	3510C			386864	KLW	EET SEA	04/08/22 11:35
Total/NA	Analysis	8270E SIM		1	386960	JCM	EET SEA	04/09/22 08:20
Total/NA	Prep	3510C			386519	ASL	EET SEA	04/06/22 10:17
Total/NA	Cleanup	3630C			387587	Y1F	EET SEA	04/15/22 11:46
Total/NA	Analysis	NWTPH-Dx		1	387604	JAE	EET SEA	04/15/22 17:25

## Client Sample ID: Trip Blank

Date Collected: 04/04/22 00:00

Date Received: 04/04/22 14:10

## Lab Sample ID: 580-112158-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	387216	BNM	EET SEA	04/13/22 06:34
Total/NA	Analysis	NWTPH-Gx		1	387217	BNM	EET SEA	04/13/22 06:34

### Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112158-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-112158-1	Outfall #002	Water	04/04/22 10:00	04/04/22 14:10
580-112158-2	Dup-1	Water	04/04/22 00:01	04/04/22 14:10
580-112158-3	Trip Blank	Water	04/04/22 00:00	04/04/22 14:10

1

2

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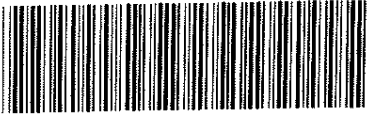
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12



# Chain of Custody Record

580-112158 Chain of Custody

Client Contact: <b>OPHELIE ENCELLE</b>		Sampler: <b>D Gilbert</b>		Lab PM:	Carrier Tracking No(s):	COC No:			
Company: <b>Arcadis</b>		Phone:		E-Mail:	State of Origin:	Page: <b>Page 1 of 1</b>			
Address: <b>1100 Olive way suite 80</b>		Due Date Requested:		<b>Analysis Requested</b>				Job #:	
City: <b>Seattle</b>		TAT Requested (days): <b>Standard</b>							
State, Zip: <b>WA, 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)				<b>Preservation Codes:</b> A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate            O - AsNaO2 D - Nitric Acid            P - Na2O4S E - NaHSO4                Q - Na2SO3 F - MeOH                    R - Na2S2O3 G - Amchlor                S - H2SO4 H - Ascorbic Acid        T - TSP Dodecahydrate I - Ice                        U - Acetone J - DI Water                V - MCAA K - EDTA                    W - pH 4-5 L - EDA                      Z - other (specify)	
Project Name: <b>EDMONDS Terminal</b>		PO #: Purchase Order not required							
Site:		SSOW#:		Total Number of containers PAHs 6270 SIM AAIPH-Dx w/SGC BENZENE 624 NWI PH 6X				<b>Special Instructions/Note:</b> * use standard SGC * BENZENE and PAHs w quantitative < 1 ug/L 96 9PM PH 7.30	
Sample Identification		Sample Date							
								Preservation Code:	
Outfall #002		4-4-22		1000		G		W	
Dup-1		4-4-22		-		G		W	
Trip Blank									

**Possible Hazard Identification**  
 Non-Hazard    Flammable    Skin Irritant    Poison B    Unknown    Radiological

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client    Disposal By Lab    Archive For \_\_\_\_\_ Months

Empty Kit Relinquished by: **JG Y**   Date: **4/14/22 1200**   Time:   Method of Shipment: **@ lab 14:10**

Relinquished by: **JG Y**   Date/Time: **4/14/22 1200**   Company:   Received by: **[Signature]**   Date/Time: **4/14/22 1200**   Company: **CCRNW**

Relinquished by:   Date/Time:   Company:   Therm. ID: **IP9**   Cor: **9.0** °   Unc: **9.4** °

Relinquished by:   Date/Time:   Company:   Cooler Dsc: **MB**   FedEx:   Company:

Cust. Seal: Yes  No    Packing: **Bulk**   UPS:   Company:

Custody Seals Intact:  Yes  No   Custody Seal No.:

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-112158-1

**Login Number: 112158**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

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	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	False	No time given for sample -2
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	

10/20/2022

Samuel Miles  
ARCADIS U.S. Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-112474-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/20/2022 2:14:11 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



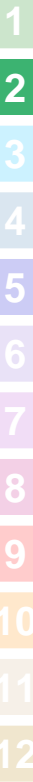
Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.





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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

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**Job ID: 580-112474-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-112474-1**

**REVISION 1 10/20/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 4/11/2022 2:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 8.5° C.

**GC/MS VOA**

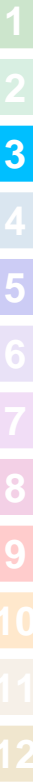
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-112474-1**

**Date Collected: 04/11/22 10:15**

**Matrix: Water**

**Date Received: 04/11/22 12:40**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/18/22 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122		04/18/22 21:19	1
4-Bromofluorobenzene (Surr)	89		78 - 120		04/18/22 21:19	1
Dibromofluoromethane (Surr)	95		80 - 120		04/18/22 21:19	1
1,2-Dichloroethane-d4 (Surr)	96		78 - 120		04/18/22 21:19	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/18/22 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		77 - 123		04/18/22 21:19	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		04/15/22 10:11	04/19/22 14:51	1
Chrysene	ND		0.11	0.017	ug/L		04/15/22 10:11	04/19/22 14:51	1
Benzo[b]fluoranthene	ND		0.054	0.012	ug/L		04/15/22 10:11	04/19/22 14:51	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		04/15/22 10:11	04/19/22 14:51	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		04/15/22 10:11	04/19/22 14:51	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		04/15/22 10:11	04/19/22 14:51	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		04/15/22 10:11	04/19/22 14:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	124		29 - 150	04/15/22 10:11	04/19/22 14:51	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		04/13/22 10:31	04/18/22 17:37	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		04/13/22 10:31	04/18/22 17:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	73		50 - 150	04/13/22 10:31	04/18/22 17:37	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-112474-2**

**Date Collected: 04/11/22 00:00**

**Matrix: Water**

**Date Received: 04/11/22 12:40**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/18/22 21:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122		04/18/22 21:43	1
4-Bromofluorobenzene (Surr)	91		78 - 120		04/18/22 21:43	1
Dibromofluoromethane (Surr)	94		80 - 120		04/18/22 21:43	1
1,2-Dichloroethane-d4 (Surr)	97		78 - 120		04/18/22 21:43	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/18/22 21:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		77 - 123		04/18/22 21:43	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-387784/5**  
**Matrix: Water**  
**Analysis Batch: 387784**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/18/22 18:56	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122					04/18/22 18:56	1
4-Bromofluorobenzene (Surr)	91		78 - 120					04/18/22 18:56	1
Dibromofluoromethane (Surr)	97		80 - 120					04/18/22 18:56	1
1,2-Dichloroethane-d4 (Surr)	97		78 - 120					04/18/22 18:56	1

**Lab Sample ID: LCS 580-387784/6**  
**Matrix: Water**  
**Analysis Batch: 387784**

**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	11.6		ug/L		116	80 - 122		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
Toluene-d8 (Surr)	101		79 - 122						
4-Bromofluorobenzene (Surr)	97		78 - 120						
Dibromofluoromethane (Surr)	97		80 - 120						
1,2-Dichloroethane-d4 (Surr)	91		78 - 120						

**Lab Sample ID: LCSD 580-387784/7**  
**Matrix: Water**  
**Analysis Batch: 387784**

**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	11.8		ug/L		118	80 - 122	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 120						
Dibromofluoromethane (Surr)	98		80 - 120						
1,2-Dichloroethane-d4 (Surr)	93		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-387785/5**  
**Matrix: Water**  
**Analysis Batch: 387785**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0274	J	0.050	0.014	mg/L			04/18/22 18:56	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		77 - 123					04/18/22 18:56	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-387785/8**  
**Matrix: Water**  
**Analysis Batch: 387785**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.996		mg/L		100	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	100		77 - 123				

**Lab Sample ID: LCSD 580-387785/9**  
**Matrix: Water**  
**Analysis Batch: 387785**

**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	1.00	1.01		mg/L		101	55 - 148	1	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	99		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-387574/1-A**  
**Matrix: Water**  
**Analysis Batch: 387832**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 387574**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/15/22 10:11	04/19/22 11:58	1
Chrysene	ND		0.10	0.016	ug/L		04/15/22 10:11	04/19/22 11:58	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		04/15/22 10:11	04/19/22 11:58	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/15/22 10:11	04/19/22 11:58	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		04/15/22 10:11	04/19/22 11:58	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/15/22 10:11	04/19/22 11:58	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		04/15/22 10:11	04/19/22 11:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	117		29 - 150				04/15/22 10:11	04/19/22 11:58	1

**Lab Sample ID: LCS 580-387574/2-A**  
**Matrix: Water**  
**Analysis Batch: 387832**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 387574**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.68		ug/L		92	55 - 123
Chrysene	4.00	3.54		ug/L		89	47 - 120
Benzo[b]fluoranthene	4.00	3.15		ug/L		79	43 - 120
Benzo[k]fluoranthene	4.00	4.11		ug/L		103	41 - 121
Benzo[a]pyrene	4.00	3.75		ug/L		94	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.97		ug/L		74	45 - 123
Dibenz(a,h)anthracene	4.00	3.38		ug/L		85	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-387574/2-A**  
**Matrix: Water**  
**Analysis Batch: 387832**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 387574**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	107		29 - 150

**Lab Sample ID: LCSD 580-387574/3-A**  
**Matrix: Water**  
**Analysis Batch: 387832**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 387574**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.50		ug/L		88	55 - 123	5	31	
Chrysene	4.00	3.60		ug/L		90	47 - 120	2	30	
Benzo[b]fluoranthene	4.00	3.28		ug/L		82	43 - 120	4	35	
Benzo[k]fluoranthene	4.00	3.77		ug/L		94	41 - 121	8	35	
Benzo[a]pyrene	4.00	3.44		ug/L		86	51 - 120	8	31	
Indeno[1,2,3-cd]pyrene	4.00	3.27		ug/L		82	45 - 123	10	35	
Dibenz(a,h)anthracene	4.00	3.60		ug/L		90	54 - 123	6	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	104		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-387292/1-B**  
**Matrix: Water**  
**Analysis Batch: 387702**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 387292**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					04/13/22 10:31	04/18/22 16:38	04/18/22 16:38		
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		04/13/22 10:31	04/18/22 16:38		1	
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		04/13/22 10:31	04/18/22 16:38		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier		04/13/22 10:31	04/18/22 16:38			
o-Terphenyl	77		50 - 150	04/13/22 10:31	04/18/22 16:38		1	

**Lab Sample ID: LCS 580-387292/2-B**  
**Matrix: Water**  
**Analysis Batch: 387702**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 387292**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.39		mg/L		85	50 - 120	
Motor Oil (>C24-C36)	4.00	3.94		mg/L		99	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	90		50 - 150

**Lab Sample ID: LCSD 580-387292/3-B**  
**Matrix: Water**  
**Analysis Batch: 387702**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 387292**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.26		mg/L		82	50 - 120	4	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-387292/3-B**  
**Matrix: Water**  
**Analysis Batch: 387702**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 387292**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.61		mg/L		90	64 - 120	9	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	83		50 - 150

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Client Sample ID: Outfall #002

Date Collected: 04/11/22 10:15

Date Received: 04/11/22 12:40

## Lab Sample ID: 580-112474-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	387784	BNM	EET SEA	04/18/22 21:19
Total/NA	Analysis	NWTPH-Gx		1	387785	BNM	EET SEA	04/18/22 21:19
Total/NA	Prep	3510C			387574	JJY	EET SEA	04/15/22 10:11
Total/NA	Analysis	8270E SIM		1	387832	E1L	EET SEA	04/19/22 14:51
Total/NA	Prep	3510C			387292	JJY	EET SEA	04/13/22 10:31
Total/NA	Cleanup	3630C			387762	Y1F	EET SEA	04/18/22 12:33
Total/NA	Analysis	NWTPH-Dx		1	387702	JAE	EET SEA	04/18/22 17:37

## Client Sample ID: Trip Blank

Date Collected: 04/11/22 00:00

Date Received: 04/11/22 12:40

## Lab Sample ID: 580-112474-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	387784	BNM	EET SEA	04/18/22 21:43
Total/NA	Analysis	NWTPH-Gx		1	387785	BNM	EET SEA	04/18/22 21:43

### Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112474-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-112474-1	Outfall #002	Water	04/11/22 10:15	04/11/22 12:40
580-112474-2	Trip Blank	Water	04/11/22 00:00	04/11/22 12:40

1

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# Chain of Custody Record

580-112474 Chain of Custody

Client Contact: <b>D Gilbert</b>	Lab PM: <b>Elaine Walker</b>	Carrier Tracking No(s):	COC No:
Phone:	E-Mail:	State of Origin:	Page: <b>Page 1 of 1</b>

Company: <b>Arcadis</b>	PWSID:	Analysis Requested	Job #:
-------------------------	--------	--------------------	--------

Address: <b>1100 Olive Way, Suite 500</b>	Due Date Requested:	<table border="1"> <tr><td>Field Filtered Sample (Yes or No)</td></tr> <tr><td>Perform MSLSD (Yes or No)</td></tr> <tr><td>BENZENE EPA 624</td></tr> <tr><td>NWPH-6X</td></tr> <tr><td>NWPH-DX W/50c</td></tr> <tr><td>CPATHS 82 TO STEM</td></tr> </table>	Field Filtered Sample (Yes or No)	Perform MSLSD (Yes or No)	BENZENE EPA 624	NWPH-6X	NWPH-DX W/50c	CPATHS 82 TO STEM	Preservation Codes:
Field Filtered Sample (Yes or No)									
Perform MSLSD (Yes or No)									
BENZENE EPA 624									
NWPH-6X									
NWPH-DX W/50c									
CPATHS 82 TO STEM									
City: <b>Seattle</b>	TAT Requested (days): <b>Standard</b>	A - HCL	M - Hexane						
State, Zip: <b>WA 98101</b>	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	B - NaOH	N - None						
Phone:	PO #: <b>Purchase Order not required</b>	C - Zn Acetate	O - AsNaO2						
Email:	WO #:	D - Nitric Acid	P - Na2O4S						
Project Name: <b>Edmonds Terminal</b>	Project #:	E - NaHSO4	Q - Na2SO3						
Site:	SSOW#:	F - MeOH	R - Na2S2O3						
		G - Amchlor	S - H2SO4						
		H - Ascorbic Acid	T - TSP Dodecahydrate						
		I - Ice	U - Acetone						
		J - DI Water	V - MCAA						
		K - EDTA	W - pH 4-5						
		L - EDA	Z - other (specify)						

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Ab)	Field Filtered Sample (Yes or No)	Perform MSLSD (Yes or No)	Analysis Requested	Total Number of Containers	Special Instructions/Note:
<b>Outfall #002</b>	<b>4-11-22</b>	<b>1015</b>	<b>G</b>	<b>W</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<b>X X X X</b>		
<b>Trip Blank</b>	<b>4-11-22</b>	<b>-</b>	<b>-</b>	<b>-</b>	<input type="checkbox"/>	<input type="checkbox"/>	<b>X X</b>		<b>* use standard 50c</b>
									<b>* Benzene and CPATH</b>
									<b>✓ quantitative &lt; 1 µg/L</b>

Possible Hazard Identification	Sample	Therm. ID: <b>1RB</b> Cor: <b>B.5</b> Unc: <b>B.7</b> pH: <b>8</b>
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Rt	Cooler Disc: <b>BB</b>
Deliverable Requested: I, II, III, IV, Other (specify)	Special I	Packing: <b>Box</b> FedEx: <b>Shipped longer than 1 month</b>
		Cust. Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> UPS: <b>Shive For Months</b>
		Lab Cour: <input checked="" type="checkbox"/> Other:

Empty Kit Relinquished by:	Date:	Time:	Received by:	Date/Time:	Company:
<b>D G G</b>	<b>4-11-22 1240</b>		<b>Sunny Larkoff</b>	<b>4/11/22 1240pm</b>	<b>ETA</b>
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
--	-------------------	---

@lab 4:00 pm

## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-112474-1

**Login Number: 112474**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

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	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/20/2022

Samuel Miles  
ARCADIS U.S. Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-112741-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/20/2022 2:18:48 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.





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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

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**Job ID: 580-112741-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-112741-1**

**REVISION 1 10/20/2022**

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

**Receipt**

Two samples were received on 4/18/2022 10:47 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 7.4° C.

**GC/MS VOA**

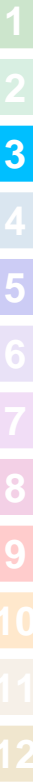
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-112741-1**

**Date Collected: 04/18/22 10:00**

**Matrix: Water**

**Date Received: 04/18/22 10:47**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/27/22 00:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122		04/27/22 00:15	1
4-Bromofluorobenzene (Surr)	93		78 - 120		04/27/22 00:15	1
Dibromofluoromethane (Surr)	102		80 - 120		04/27/22 00:15	1
1,2-Dichloroethane-d4 (Surr)	100		78 - 120		04/27/22 00:15	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/27/22 00:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123		04/27/22 00:15	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		04/21/22 07:52	04/23/22 05:40	1
Chrysene	ND		0.11	0.040	ug/L		04/21/22 07:52	04/23/22 05:40	1
Benzo[b]fluoranthene	ND		0.11	0.023	ug/L		04/21/22 07:52	04/23/22 05:40	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		04/21/22 07:52	04/23/22 05:40	1
Benzo[a]pyrene	ND		0.11	0.023	ug/L		04/21/22 07:52	04/23/22 05:40	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		04/21/22 07:52	04/23/22 05:40	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		04/21/22 07:52	04/23/22 05:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		29 - 150	04/21/22 07:52	04/23/22 05:40	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		04/21/22 08:05	04/22/22 07:37	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.11</b>	<b>J</b>	0.36	0.099	mg/L		04/21/22 08:05	04/22/22 07:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150	04/21/22 08:05	04/22/22 07:37	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-112741-2**

**Date Collected: 04/18/22 00:00**

**Matrix: Water**

**Date Received: 04/18/22 10:47**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/27/22 00:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122		04/27/22 00:39	1
4-Bromofluorobenzene (Surr)	94		78 - 120		04/27/22 00:39	1
Dibromofluoromethane (Surr)	102		80 - 120		04/27/22 00:39	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120		04/27/22 00:39	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/27/22 00:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		77 - 123		04/27/22 00:39	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-388608/5**  
**Matrix: Water**  
**Analysis Batch: 388608**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			04/26/22 17:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122					04/26/22 17:52	1
4-Bromofluorobenzene (Surr)	96		78 - 120					04/26/22 17:52	1
Dibromofluoromethane (Surr)	100		80 - 120					04/26/22 17:52	1
1,2-Dichloroethane-d4 (Surr)	95		78 - 120					04/26/22 17:52	1

**Lab Sample ID: LCS 580-388608/6**  
**Matrix: Water**  
**Analysis Batch: 388608**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.4		ug/L		104	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	99		79 - 122					
4-Bromofluorobenzene (Surr)	100		78 - 120					
Dibromofluoromethane (Surr)	100		80 - 120					
1,2-Dichloroethane-d4 (Surr)	95		78 - 120					

**Lab Sample ID: LCSD 580-388608/7**  
**Matrix: Water**  
**Analysis Batch: 388608**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	80 - 122	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	100		79 - 122						
4-Bromofluorobenzene (Surr)	102		78 - 120						
Dibromofluoromethane (Surr)	99		80 - 120						
1,2-Dichloroethane-d4 (Surr)	99		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-388609/5**  
**Matrix: Water**  
**Analysis Batch: 388609**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			04/26/22 17:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		77 - 123					04/26/22 17:52	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-388609/8**  
**Matrix: Water**  
**Analysis Batch: 388609**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.02		mg/L		102	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	100		77 - 123				

**Lab Sample ID: LCSD 580-388609/9**  
**Matrix: Water**  
**Analysis Batch: 388609**

**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	1.00	1.03		mg/L		103	55 - 148	1	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	97		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-388105/1-A**  
**Matrix: Water**  
**Analysis Batch: 388356**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 388105**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		04/21/22 07:52	04/23/22 02:05	1
Chrysene	ND		0.10	0.037	ug/L		04/21/22 07:52	04/23/22 02:05	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		04/21/22 07:52	04/23/22 02:05	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		04/21/22 07:52	04/23/22 02:05	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		04/21/22 07:52	04/23/22 02:05	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		04/21/22 07:52	04/23/22 02:05	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		04/21/22 07:52	04/23/22 02:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	113		29 - 150				04/21/22 07:52	04/23/22 02:05	1

**Lab Sample ID: LCS 580-388105/2-A**  
**Matrix: Water**  
**Analysis Batch: 388376**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 388105**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	2.69		ug/L		67	55 - 123
Chrysene	4.00	2.84		ug/L		71	47 - 120
Benzo[b]fluoranthene	4.00	2.34		ug/L		59	43 - 120
Benzo[k]fluoranthene	4.00	3.50		ug/L		87	41 - 121
Benzo[a]pyrene	4.00	2.54		ug/L		64	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.96		ug/L		99	45 - 123
Dibenz(a,h)anthracene	4.00	4.31		ug/L		108	54 - 123

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-388105/2-A**  
**Matrix: Water**  
**Analysis Batch: 388376**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 388105**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	84		29 - 150

**Lab Sample ID: LCSD 580-388105/3-A**  
**Matrix: Water**  
**Analysis Batch: 388356**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 388105**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzo[a]anthracene	4.00	2.56		ug/L	-	64	55 - 123	NaN	31
Chrysene	4.00	3.01		ug/L	-	75	47 - 120	NaN	30
Benzo[b]fluoranthene	4.00	2.47		ug/L	-	62	43 - 120	NaN	35
Benzo[k]fluoranthene	4.00	3.32		ug/L	-	83	41 - 121	NaN	35
Benzo[a]pyrene	4.00	2.57		ug/L	-	64	51 - 120	NaN	31
Indeno[1,2,3-cd]pyrene	4.00	2.73		ug/L	-	68	45 - 123	NaN	35
Dibenz(a,h)anthracene	4.00	2.88		ug/L	-	72	54 - 123	NaN	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	55		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-388106/1-B**  
**Matrix: Water**  
**Analysis Batch: 388163**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 388106**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.0968	J	0.11	0.065	mg/L	-	04/21/22 08:05	04/22/22 06:39	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L	-	04/21/22 08:05	04/22/22 06:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	04/21/22 08:05	04/22/22 06:39	1

**Lab Sample ID: LCS 580-388106/2-B**  
**Matrix: Water**  
**Analysis Batch: 388163**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 388106**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	2.84		mg/L	-	71	50 - 120
Motor Oil (>C24-C36)	4.00	3.24		mg/L	-	81	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	79		50 - 150

**Lab Sample ID: LCSD 580-388106/3-B**  
**Matrix: Water**  
**Analysis Batch: 388163**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 388106**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
#2 Diesel (C10-C24)	4.00	3.17		mg/L	-	79	50 - 120	11	26

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-388106/3-B**  
**Matrix: Water**  
**Analysis Batch: 388163**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 388106**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.71		mg/L		93	64 - 120	13	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	81		50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-112741-1

Date Collected: 04/18/22 10:00

Matrix: Water

Date Received: 04/18/22 10:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	388608	BNM	EET SEA	04/27/22 00:15
Total/NA	Analysis	NWTPH-Gx		1	388609	BNM	EET SEA	04/27/22 00:15
Total/NA	Prep	3510C			388105	ASL	EET SEA	04/21/22 07:52
Total/NA	Analysis	8270E SIM		1	388356	T1L	EET SEA	04/23/22 05:40
Total/NA	Prep	3510C			388106	ASL	EET SEA	04/21/22 08:05
Total/NA	Cleanup	3630C			388139	KLW	EET SEA	04/21/22 12:06
Total/NA	Analysis	NWTPH-Dx		1	388163	Y1F	EET SEA	04/22/22 07:37

## Client Sample ID: Trip Blank

Lab Sample ID: 580-112741-2

Date Collected: 04/18/22 00:00

Matrix: Water

Date Received: 04/18/22 10:47

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	388608	BNM	EET SEA	04/27/22 00:39
Total/NA	Analysis	NWTPH-Gx		1	388609	BNM	EET SEA	04/27/22 00:39

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-112741-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-112741-1	Outfall #002	Water	04/18/22 10:00	04/18/22 10:47
580-112741-2	Trip Blank	Water	04/18/22 00:00	04/18/22 10:47

1

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-112741-1

**Login Number: 112741**

**List Number: 1**

**Creator: Greene, Ashton R**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/20/2022

Samuel Miles  
ARCADIS U.S. Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-113027-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2  
Revision: 1

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
10/20/2022 2:23:52 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.





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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

**Job ID: 580-113027-1**

**Laboratory: Eurofins Seattle**

## Narrative

### Job Narrative 580-113027-1

#### REVISION 1 10/20/2022

This report was revised to correct the integration for NWTPH Gx. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH Gx specifies a 'forced baseline to baseline' integration, and this integration technique should have been utilized for these samples.

#### Comments

No additional comments.

#### Receipt

The sample was received on 4/25/2022 11:50 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.9° C.

#### Receipt Exceptions

The client lists a trip blank on the chain of custody but no trip blank was provided.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-389107 and analytical batch 580-389110 recovered outside control limits for the following analytes: Indeno[1,2,3-cd] pyrene. The individual recoveries of both the LCS and LCS met the acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC Semi VOA

Method NWTPH-Dx: The method blank for preparation batch 580-389696 and 580-389742 contained #2 Diesel (C10-C24) and Motor Oil (>C24-C36) above the reporting limit (RL). The samples associated with this method blank did not contain the target compound at or above RL; therefore, re-extraction and/or re-analysis of samples were not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 580-389107.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

### GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113027-1**

**Date Collected: 04/25/22 10:30**

**Matrix: Water**

**Date Received: 04/25/22 11:50**

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/06/22 07:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		79 - 122		05/06/22 07:30	1
4-Bromofluorobenzene (Surr)	97		78 - 120		05/06/22 07:30	1
Dibromofluoromethane (Surr)	102		80 - 120		05/06/22 07:30	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120		05/06/22 07:30	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			05/06/22 07:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		77 - 123		05/06/22 07:30	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		05/02/22 10:27	05/03/22 18:43	1
Chrysene	ND		0.11	0.041	ug/L		05/02/22 10:27	05/03/22 18:43	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		05/02/22 10:27	05/03/22 18:43	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		05/02/22 10:27	05/03/22 18:43	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		05/02/22 10:27	05/03/22 18:43	1
Indeno[1,2,3-cd]pyrene	ND	*1	0.056	0.016	ug/L		05/02/22 10:27	05/03/22 18:43	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		05/02/22 10:27	05/03/22 18:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	103		29 - 150	05/02/22 10:27	05/03/22 18:43	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.078	J B	0.12	0.071	mg/L		05/06/22 09:30	05/07/22 03:02	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		05/06/22 09:30	05/07/22 03:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	75		50 - 150	05/06/22 09:30	05/07/22 03:02	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-389622/5**  
**Matrix: Water**  
**Analysis Batch: 389622**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/05/22 22:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		79 - 122					05/05/22 22:43	1
4-Bromofluorobenzene (Surr)	86		78 - 120					05/05/22 22:43	1
Dibromofluoromethane (Surr)	101		80 - 120					05/05/22 22:43	1
1,2-Dichloroethane-d4 (Surr)	92		78 - 120					05/05/22 22:43	1

**Lab Sample ID: LCS 580-389622/6**  
**Matrix: Water**  
**Analysis Batch: 389622**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.3		ug/L		103	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	99		79 - 122					
4-Bromofluorobenzene (Surr)	105		78 - 120					
Dibromofluoromethane (Surr)	99		80 - 120					
1,2-Dichloroethane-d4 (Surr)	87		78 - 120					

**Lab Sample ID: LCSD 580-389622/7**  
**Matrix: Water**  
**Analysis Batch: 389622**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	80 - 122	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	83		78 - 120						
Dibromofluoromethane (Surr)	99		80 - 120						
1,2-Dichloroethane-d4 (Surr)	92		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-389623/5**  
**Matrix: Water**  
**Analysis Batch: 389623**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			05/05/22 22:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		77 - 123					05/05/22 22:43	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-389623/8**  
**Matrix: Water**  
**Analysis Batch: 389623**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.09		mg/L		109	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	98		77 - 123				

**Lab Sample ID: LCSD 580-389623/9**  
**Matrix: Water**  
**Analysis Batch: 389623**

**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	1.00	1.04		mg/L		104	55 - 148	4	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	100		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-389107/1-A**  
**Matrix: Water**  
**Analysis Batch: 389110**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 389107**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/02/22 10:27	05/03/22 13:49	1
Chrysene	ND		0.10	0.037	ug/L		05/02/22 10:27	05/03/22 13:49	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/02/22 10:27	05/03/22 13:49	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/02/22 10:27	05/03/22 13:49	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/02/22 10:27	05/03/22 13:49	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/02/22 10:27	05/03/22 13:49	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/02/22 10:27	05/03/22 13:49	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	119		29 - 150				05/02/22 10:27	05/03/22 13:49	1

**Lab Sample ID: LCS 580-389107/2-A**  
**Matrix: Water**  
**Analysis Batch: 389110**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 389107**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.76		ug/L		94	55 - 123
Chrysene	4.00	4.62		ug/L		116	47 - 120
Benzo[b]fluoranthene	4.00	3.15		ug/L		79	43 - 120
Benzo[k]fluoranthene	4.00	4.49		ug/L		112	41 - 121
Benzo[a]pyrene	4.00	3.95		ug/L		99	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.56		ug/L		64	45 - 123
Dibenz(a,h)anthracene	4.00	3.32		ug/L		83	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-389107/2-A**  
**Matrix: Water**  
**Analysis Batch: 389110**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 389107**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	122		29 - 150

**Lab Sample ID: LCSD 580-389107/3-A**  
**Matrix: Water**  
**Analysis Batch: 389110**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 389107**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	4.00	4.23		ug/L		106	55 - 123	12		31
Chrysene	4.00	4.65		ug/L		116	47 - 120	1		30
Benzo[b]fluoranthene	4.00	3.96		ug/L		99	43 - 120	23		35
Benzo[k]fluoranthene	4.00	4.45		ug/L		111	41 - 121	1		35
Benzo[a]pyrene	4.00	4.23		ug/L		106	51 - 120	7		31
Indeno[1,2,3-cd]pyrene	4.00	3.76	*1	ug/L		94	45 - 123	38		35
Dibenz(a,h)anthracene	4.00	3.75		ug/L		94	54 - 123	12		35

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	120		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-389696/1-B**  
**Matrix: Water**  
**Analysis Batch: 389813**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 389696**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	0.137		0.11	0.065	mg/L		05/06/22 09:30	05/07/22 02:04	1
Motor Oil (>C24-C36)	0.606		0.35	0.096	mg/L		05/06/22 09:30	05/07/22 02:04	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	99		50 - 150	05/06/22 09:30	05/07/22 02:04	1

**Lab Sample ID: LCS 580-389696/2-B**  
**Matrix: Water**  
**Analysis Batch: 389813**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 389696**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	3.36		mg/L		84	50 - 120	
Motor Oil (>C24-C36)	4.00	3.74		mg/L		94	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	78		50 - 150

**Lab Sample ID: LCSD 580-389696/3-B**  
**Matrix: Water**  
**Analysis Batch: 389813**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 389696**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	4.00	3.16		mg/L		79	50 - 120	6		26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-389696/3-B**  
**Matrix: Water**  
**Analysis Batch: 389813**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 389696**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.51		mg/L		88	64 - 120	7	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	75		50 - 150

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12



# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113027-1**

**Date Collected: 04/25/22 10:30**

**Matrix: Water**

**Date Received: 04/25/22 11:50**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	389622	BNM	EET SEA	05/06/22 07:30
Total/NA	Analysis	NWTPH-Gx		1	389623	BNM	EET SEA	05/06/22 07:30
Total/NA	Prep	3510C			389107	JJY	EET SEA	05/02/22 10:27
Total/NA	Analysis	8270E SIM		1	389110	E1L	EET SEA	05/03/22 18:43
Total/NA	Prep	3510C			389696	JJY	EET SEA	05/06/22 09:30
Total/NA	Cleanup	3630C			389742	ASL	EET SEA	05/06/22 15:46
Total/NA	Analysis	NWTPH-Dx		1	389813	Y1F	EET SEA	05/07/22 03:02

### Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

1

2

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113027-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113027-1	Outfall #002	Water	04/25/22 10:30	04/25/22 11:50

1

2

3

4

5

6

7

8

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10

11

12



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113027-1

**Login Number: 113027**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

10/20/2022

Samuel Miles  
ARCADIS U.S. Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

**RE: Notification of Revised Results**

Dear Samuel Miles:

Eurofins Seattle is dedicated to providing its clients with defensible data of the highest quality and producing accurate and useable environmental analytical test results. Testing and data review by the analyst, secondary reviews by expert reviewers, and internal audits are built into our Quality Program. This robust element of our data integrity process checks and prevents errors. Seldom, but on occasion, we determine that erroneous data have been reported to clients. When this occurs, we aggressively correct these errors, perform internal critical reviews, and forthrightly revise the results.

During a recent external data validation, a discrepancy was identified in the integration parameters used for GRO ranges associated with analysis by method NWTPH\_Gx by GCMS. The integration was set up using valley to valley integration, according to similar Method 8015C for GRO/DRO analysis by FID. Method NWTPH-Gx specifies a 'forced baseline projection', and this integration technique should have been utilized for these samples.

As both the calibration and the sample integrations were done similarly, little to no change in quantitation was detected for samples with minimal hydrocarbon contribution. However, samples with a hydrocarbon 'hump' were originally reported with a low bias. The impact on the reported results is dependent on the specific hydrocarbon pattern present in the sample.

We recognize the need for accurate, consistent laboratory analysis and reporting in regards to meeting project requirements, and we apologize for any difficulty this error may have caused. We look forward to continuing our relationship with you and standing by our promise of providing you with quality data and service. If you have any questions or comments, please feel free to contact me.

Sincerely,



Katie Grant  
Project Manager

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-113303-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
5/18/2022 4:56:16 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

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results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

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**Job ID: 580-113303-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-113303-1**

**Receipt**

Two samples were received on 5/2/2022 11:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 10.5° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113303-1**

**Date Collected: 05/02/22 10:00**

**Matrix: Water**

**Date Received: 05/02/22 11:30**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			05/16/22 19:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	102		60 - 140					05/16/22 19:47	1
<i>4-Bromofluorobenzene (Surr)</i>	101		60 - 140					05/16/22 19:47	1
<i>Dibromofluoromethane (Surr)</i>	107		60 - 140					05/16/22 19:47	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	110		60 - 140					05/16/22 19:47	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.016	ug/L		05/09/22 09:31	05/17/22 17:13	1
Chrysene	ND		0.11	0.041	ug/L		05/09/22 09:31	05/17/22 17:13	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		05/09/22 09:31	05/17/22 17:13	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		05/09/22 09:31	05/17/22 17:13	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		05/09/22 09:31	05/17/22 17:13	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.016	ug/L		05/09/22 09:31	05/17/22 17:13	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		05/09/22 09:31	05/17/22 17:13	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Terphenyl-d14</i>	83		29 - 150				05/09/22 09:31	05/17/22 17:13	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/16/22 15:00	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid)</i>	91		50 - 150					05/16/22 15:00	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		05/10/22 11:27	05/12/22 05:08	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		05/10/22 11:27	05/12/22 05:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	77		50 - 150				05/10/22 11:27	05/12/22 05:08	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-113303-2**

**Date Collected: 05/02/22 00:01**

**Matrix: Water**

**Date Received: 05/02/22 11:30**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			05/16/22 19:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		60 - 140		05/16/22 19:24	1
4-Bromofluorobenzene (Surr)	99		60 - 140		05/16/22 19:24	1
Dibromofluoromethane (Surr)	105		60 - 140		05/16/22 19:24	1
1,2-Dichloroethane-d4 (Surr)	109		60 - 140		05/16/22 19:24	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/16/22 13:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	94		50 - 150		05/16/22 13:34	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-255630/5**  
**Matrix: Water**  
**Analysis Batch: 255630**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			05/16/22 14:17	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		60 - 140					05/16/22 14:17	1
4-Bromofluorobenzene (Surr)	102		60 - 140					05/16/22 14:17	1
Dibromofluoromethane (Surr)	106		60 - 140					05/16/22 14:17	1
1,2-Dichloroethane-d4 (Surr)	107		60 - 140					05/16/22 14:17	1

**Lab Sample ID: LCS 410-255630/1003**  
**Matrix: Water**  
**Analysis Batch: 255630**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.2		ug/L		111	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	107		60 - 140				
4-Bromofluorobenzene (Surr)	102		60 - 140				
Dibromofluoromethane (Surr)	97		60 - 140				
1,2-Dichloroethane-d4 (Surr)	102		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-389898/1-A**  
**Matrix: Water**  
**Analysis Batch: 390872**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 389898**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/09/22 09:31	05/17/22 12:08	1
Chrysene	ND		0.10	0.037	ug/L		05/09/22 09:31	05/17/22 12:08	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/09/22 09:31	05/17/22 12:08	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/09/22 09:31	05/17/22 12:08	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/09/22 09:31	05/17/22 12:08	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/09/22 09:31	05/17/22 12:08	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/09/22 09:31	05/17/22 12:08	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	97		29 - 150				05/09/22 09:31	05/17/22 12:08	1

**Lab Sample ID: LCS 580-389898/2-A**  
**Matrix: Water**  
**Analysis Batch: 390872**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 389898**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	2.71		ug/L		68	55 - 123
Chrysene	4.00	2.68		ug/L		67	47 - 120
Benzo[b]fluoranthene	4.00	2.73		ug/L		68	43 - 120
Benzo[k]fluoranthene	4.00	2.92		ug/L		73	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-389898/2-A**  
**Matrix: Water**  
**Analysis Batch: 390872**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 389898**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	2.53		ug/L		63	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.85		ug/L		71	45 - 123
Dibenz(a,h)anthracene	4.00	3.06		ug/L		77	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	81		29 - 150

**Lab Sample ID: LCSD 580-389898/3-A**  
**Matrix: Water**  
**Analysis Batch: 390872**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 389898**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	2.94		ug/L		74	55 - 123	8	31
Chrysene	4.00	2.90		ug/L		73	47 - 120	8	30
Benzo[b]fluoranthene	4.00	2.89		ug/L		72	43 - 120	6	35
Benzo[k]fluoranthene	4.00	3.14		ug/L		78	41 - 121	7	35
Benzo[a]pyrene	4.00	2.69		ug/L		67	51 - 120	6	31
Indeno[1,2,3-cd]pyrene	4.00	3.03		ug/L		76	45 - 123	6	35
Dibenz(a,h)anthracene	4.00	3.27		ug/L		82	54 - 123	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	89		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-255560/4**  
**Matrix: Water**  
**Analysis Batch: 255560**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/16/22 12:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	95		50 - 150		05/16/22 12:06	1

**Lab Sample ID: LCS 410-255560/5**  
**Matrix: Water**  
**Analysis Batch: 255560**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12	1100	1170		ug/L		106	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	93		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-255560/6**  
**Matrix: Water**  
**Analysis Batch: 255560**

**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
C7-C12	1100	1060		ug/L		97	64 - 131	10	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>a,a,a-Trifluorotoluene (fid)</i>	82		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-390066/1-B**  
**Matrix: Water**  
**Analysis Batch: 390247**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 390066**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/10/22 11:27	05/12/22 02:14	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		05/10/22 11:27	05/12/22 02:14	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	79		50 - 150				05/10/22 11:27	05/12/22 02:14	1

**Lab Sample ID: LCS 580-390066/2-B**  
**Matrix: Water**  
**Analysis Batch: 390247**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 390066**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)	4.00	3.24		mg/L		81	50 - 120		
Motor Oil (>C24-C36)	4.00	2.93		mg/L		73	64 - 120		
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	79		50 - 150						

**Lab Sample ID: LCSD 580-390066/3-B**  
**Matrix: Water**  
**Analysis Batch: 390247**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 390066**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.76		mg/L		94	50 - 120	15	26
Motor Oil (>C24-C36)	4.00	3.42		mg/L		86	64 - 120	15	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	90		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113303-1**

**Date Collected: 05/02/22 10:00**

**Matrix: Water**

**Date Received: 05/02/22 11:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	255630	05/16/22 19:47	UJML	ELLE
Total/NA	Prep	3510C			389898	05/09/22 09:31	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	390872	05/17/22 17:13	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	255560	05/16/22 15:00	JJT8	ELLE
Total/NA	Prep	3510C			390066	05/10/22 11:27	KLW	FGS SEA
Total/NA	Cleanup	3630C			390076	05/10/22 12:16	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	390247	05/12/22 05:08	ADB	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-113303-2**

**Date Collected: 05/02/22 00:01**

**Matrix: Water**

**Date Received: 05/02/22 11:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	255630	05/16/22 19:24	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	255560	05/16/22 13:34	JJT8	ELLE

#### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22 *
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-22 *
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	05-16-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113303-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113303-1	Outfall #002	Water	05/02/22 10:00	05/02/22 11:30
580-113303-2	Trip Blank	Water	05/02/22 00:01	05/02/22 11:30

1

2

3

4

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11





## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113303-1

**Login Number: 113303**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113303-1

**Login Number: 113303**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 05/14/22 12:58 PM**

**Creator: Foreman, Leah M**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-113571-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
5/26/2022 4:56:59 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.





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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

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**Job ID: 580-113571-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-113571-1**

**Receipt**

Two samples were received on 5/9/2022 11:37 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.4° C.

**GC/MS VOA**

Method 624.1: Analysis of the following sample was performed outside of the analytical holding time due to autosampler stopping on initial run: Trip Blank (580-113571-2). No charge will be applied to this sample result.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-113571-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113571-1**

**Date Collected: 05/09/22 10:45**

**Matrix: Water**

**Date Received: 05/09/22 11:37**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/19/22 05:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	95		79 - 122					05/19/22 05:02	1
4-Bromofluorobenzene (Surr)	90		78 - 120					05/19/22 05:02	1
Dibromofluoromethane (Surr)	103		80 - 120					05/19/22 05:02	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120					05/19/22 05:02	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzo[a]anthracene</b>	<b>0.037</b>	<b>J</b>	0.051	0.014	ug/L		05/13/22 12:09	05/16/22 19:47	1
<b>Chrysene</b>	<b>0.060</b>	<b>J</b>	0.10	0.038	ug/L		05/13/22 12:09	05/16/22 19:47	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/13/22 12:09	05/16/22 19:47	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		05/13/22 12:09	05/16/22 19:47	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/13/22 12:09	05/16/22 19:47	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		05/13/22 12:09	05/16/22 19:47	1
<b>Dibenz(a,h)anthracene</b>	<b>0.017</b>	<b>J</b>	0.10	0.015	ug/L		05/13/22 12:09	05/16/22 19:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	144		29 - 150				05/13/22 12:09	05/16/22 19:47	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/20/22 15:58	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid)	103		50 - 150					05/20/22 15:58	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		05/16/22 09:17	05/17/22 04:26	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		05/16/22 09:17	05/17/22 04:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	77		50 - 150				05/16/22 09:17	05/17/22 04:26	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-113571-2**

**Date Collected: 05/09/22 00:00**

**Matrix: Water**

**Date Received: 05/09/22 11:37**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.0	0.24	ug/L			05/24/22 14:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	98		79 - 122					05/24/22 14:35	1
<i>4-Bromofluorobenzene (Surr)</i>	101		78 - 120					05/24/22 14:35	1
<i>Dibromofluoromethane (Surr)</i>	103		80 - 120					05/24/22 14:35	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	100		78 - 120					05/24/22 14:35	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-391110/6**  
**Matrix: Water**  
**Analysis Batch: 391110**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/19/22 00:35	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122					05/19/22 00:35	1
4-Bromofluorobenzene (Surr)	93		78 - 120					05/19/22 00:35	1
Dibromofluoromethane (Surr)	101		80 - 120					05/19/22 00:35	1
1,2-Dichloroethane-d4 (Surr)	95		78 - 120					05/19/22 00:35	1

**Lab Sample ID: LCS 580-391110/3**  
**Matrix: Water**  
**Analysis Batch: 391110**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	5.00	4.53		ug/L		91	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	97		79 - 122					
4-Bromofluorobenzene (Surr)	101		78 - 120					
Dibromofluoromethane (Surr)	107		80 - 120					
1,2-Dichloroethane-d4 (Surr)	102		78 - 120					

**Lab Sample ID: LCSD 580-391110/4**  
**Matrix: Water**  
**Analysis Batch: 391110**

**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	5.00	4.63		ug/L		93	80 - 122	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	96		79 - 122						
4-Bromofluorobenzene (Surr)	99		78 - 120						
Dibromofluoromethane (Surr)	107		80 - 120						
1,2-Dichloroethane-d4 (Surr)	98		78 - 120						

**Lab Sample ID: MB 580-391629/6**  
**Matrix: Water**  
**Analysis Batch: 391629**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/24/22 12:07	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122					05/24/22 12:07	1
4-Bromofluorobenzene (Surr)	100		78 - 120					05/24/22 12:07	1
Dibromofluoromethane (Surr)	105		80 - 120					05/24/22 12:07	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120					05/24/22 12:07	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 580-391629/3**  
**Matrix: Water**  
**Analysis Batch: 391629**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	4.82		ug/L		96	80 - 122
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
Toluene-d8 (Surr)	104		79 - 122				
4-Bromofluorobenzene (Surr)	105		78 - 120				
Dibromofluoromethane (Surr)	101		80 - 120				
1,2-Dichloroethane-d4 (Surr)	94		78 - 120				

**Lab Sample ID: LCSD 580-391629/4**  
**Matrix: Water**  
**Analysis Batch: 391629**

**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	5.00	4.69		ug/L		94	80 - 122	3	20
<b>LCSD LCSD</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
Toluene-d8 (Surr)	102		79 - 122						
4-Bromofluorobenzene (Surr)	108		78 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
1,2-Dichloroethane-d4 (Surr)	92		78 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-390565/1-A**  
**Matrix: Water**  
**Analysis Batch: 390769**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 390565**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/13/22 12:09	05/16/22 12:19	1
Chrysene	ND		0.10	0.037	ug/L		05/13/22 12:09	05/16/22 12:19	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/13/22 12:09	05/16/22 12:19	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/13/22 12:09	05/16/22 12:19	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/13/22 12:09	05/16/22 12:19	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/13/22 12:09	05/16/22 12:19	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/13/22 12:09	05/16/22 12:19	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>			
Terphenyl-d14	132		29 - 150	05/13/22 12:09	05/16/22 12:19	1			

**Lab Sample ID: LCS 580-390565/2-A**  
**Matrix: Water**  
**Analysis Batch: 390769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 390565**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	4.43		ug/L		111	55 - 123
Chrysene	4.00	3.85		ug/L		96	47 - 120
Benzo[b]fluoranthene	4.00	4.04		ug/L		101	43 - 120
Benzo[k]fluoranthene	4.00	3.78		ug/L		95	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-390565/2-A**  
**Matrix: Water**  
**Analysis Batch: 390769**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 390565**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	4.06		ug/L		101	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.02		ug/L		100	45 - 123
Dibenz(a,h)anthracene	4.00	4.18		ug/L		104	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	133		29 - 150

**Lab Sample ID: LCSD 580-390565/3-A**  
**Matrix: Water**  
**Analysis Batch: 390769**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 390565**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzo[a]anthracene	4.00	4.60		ug/L		115	55 - 123	4	31
Chrysene	4.00	3.78		ug/L		94	47 - 120	2	30
Benzo[b]fluoranthene	4.00	4.08		ug/L		102	43 - 120	1	35
Benzo[k]fluoranthene	4.00	3.85		ug/L		96	41 - 121	2	35
Benzo[a]pyrene	4.00	4.13		ug/L		103	51 - 120	2	31
Indeno[1,2,3-cd]pyrene	4.00	4.11		ug/L		103	45 - 123	2	35
Dibenz(a,h)anthracene	4.00	4.33		ug/L		108	54 - 123	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	136		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-257497/4**  
**Matrix: Water**  
**Analysis Batch: 257497**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/20/22 12:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		05/20/22 12:58	1

**Lab Sample ID: LCS 410-257497/5**  
**Matrix: Water**  
**Analysis Batch: 257497**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12	1100	995		ug/L		90	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	93		50 - 150



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-257497/6**  
**Matrix: Water**  
**Analysis Batch: 257497**

**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
C7-C12	1100	982		ug/L		89	64 - 131	1	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>a,a,a-Trifluorotoluene (fid)</i>	93		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-390739/1-B**  
**Matrix: Water**  
**Analysis Batch: 390801**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 390739**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.0741	J	0.11	0.065	mg/L		05/16/22 09:17	05/17/22 03:28	1
Motor Oil (>C24-C36)	0.164	J	0.35	0.096	mg/L		05/16/22 09:17	05/17/22 03:28	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	67		50 - 150				05/16/22 09:17	05/17/22 03:28	1

**Lab Sample ID: LCS 580-390739/2-B**  
**Matrix: Water**  
**Analysis Batch: 390801**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 390739**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
#2 Diesel (C10-C24)	4.00	3.08		mg/L		77	50 - 120		
Motor Oil (>C24-C36)	4.00	3.60		mg/L		90	64 - 120		
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	76		50 - 150						

**Lab Sample ID: LCSD 580-390739/3-B**  
**Matrix: Water**  
**Analysis Batch: 390801**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 390739**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	2.99		mg/L		75	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	3.58		mg/L		90	64 - 120	0	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	72		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Client Sample ID: Outfall #002

Date Collected: 05/09/22 10:45

Date Received: 05/09/22 11:37

## Lab Sample ID: 580-113571-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	391110	05/19/22 05:02	BNM	FGS SEA
Total/NA	Prep	3510C			390565	05/13/22 12:09	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	390769	05/16/22 19:47	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	257497	05/20/22 15:58	JJT8	ELLE
Total/NA	Prep	3510C			390739	05/16/22 09:17	ASL	FGS SEA
Total/NA	Cleanup	3630C			390793	05/16/22 13:52	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	390801	05/17/22 04:26	Y1F	FGS SEA

## Client Sample ID: Trip Blank

Date Collected: 05/09/22 00:00

Date Received: 05/09/22 11:37

## Lab Sample ID: 580-113571-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	391629	05/24/22 14:35	BNM	FGS SEA

### Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113571-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113571-1	Outfall #002	Water	05/09/22 10:45	05/09/22 11:37
580-113571-2	Trip Blank	Water	05/09/22 00:00	05/09/22 11:37

1

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113571-1

**Login Number: 113571**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

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	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113571-1

**Login Number: 113571**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 05/19/22 02:46 PM**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-113840-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
5/31/2022 7:48:01 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

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**Job ID: 580-113840-1**

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**Laboratory: Eurofins Seattle**

## Narrative

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### Job Narrative 580-113840-1

#### Receipt

Two samples were received on 5/16/2022 10:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 11.4° C.

#### GC/MS VOA

Methods 624.1, 8260B: The CCV for analytical batch 580-391193 recovered outside control limits for the following analyte: Dichlorodifluoromethane has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi 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

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113840-1**

**Date Collected: 05/16/22 10:00**

**Matrix: Water**

**Date Received: 05/16/22 10:50**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/26/22 20:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	104		79 - 122					05/26/22 20:21	1
<i>4-Bromofluorobenzene (Surr)</i>	96		78 - 120					05/26/22 20:21	1
<i>Dibromofluoromethane (Surr)</i>	103		80 - 120					05/26/22 20:21	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	108		78 - 120					05/26/22 20:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		05/19/22 09:52	05/28/22 10:02	1
Chrysene	ND		0.11	0.039	ug/L		05/19/22 09:52	05/28/22 10:02	1
Benzo[b]fluoranthene	ND		0.11	0.023	ug/L		05/19/22 09:52	05/28/22 10:02	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		05/19/22 09:52	05/28/22 10:02	1
Benzo[a]pyrene	ND		0.11	0.023	ug/L		05/19/22 09:52	05/28/22 10:02	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		05/19/22 09:52	05/28/22 10:02	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		05/19/22 09:52	05/28/22 10:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Terphenyl-d14</i>	95		29 - 150				05/19/22 09:52	05/28/22 10:02	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/24/22 20:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid)</i>	89		50 - 150					05/24/22 20:47	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		05/20/22 09:15	05/21/22 08:54	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		05/20/22 09:15	05/21/22 08:54	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	81		50 - 150				05/20/22 09:15	05/21/22 08:54	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-113840-2**

**Date Collected: 05/16/22 00:00**

**Matrix: Water**

**Date Received: 05/16/22 10:50**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/26/22 19:57	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	102		79 - 122					05/26/22 19:57	1
<i>4-Bromofluorobenzene (Surr)</i>	97		78 - 120					05/26/22 19:57	1
<i>Dibromofluoromethane (Surr)</i>	101		80 - 120					05/26/22 19:57	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	107		78 - 120					05/26/22 19:57	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/24/22 17:57	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid)</i>	88		50 - 150					05/24/22 17:57	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-391986/6**  
**Matrix: Water**  
**Analysis Batch: 391986**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			05/26/22 17:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		79 - 122					05/26/22 17:04	1
4-Bromofluorobenzene (Surr)	93		78 - 120					05/26/22 17:04	1
Dibromofluoromethane (Surr)	94		80 - 120					05/26/22 17:04	1
1,2-Dichloroethane-d4 (Surr)	100		78 - 120					05/26/22 17:04	1

**Lab Sample ID: LCS 580-391986/3**  
**Matrix: Water**  
**Analysis Batch: 391986**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	4.96		ug/L		99	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	105		79 - 122				
4-Bromofluorobenzene (Surr)	106		78 - 120				
Dibromofluoromethane (Surr)	99		80 - 120				
1,2-Dichloroethane-d4 (Surr)	96		78 - 120				

**Lab Sample ID: LCSD 580-391986/4**  
**Matrix: Water**  
**Analysis Batch: 391986**

**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	5.00	4.76		ug/L		95	80 - 122	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	111		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
1,2-Dichloroethane-d4 (Surr)	96		78 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-391138/1-A**  
**Matrix: Water**  
**Analysis Batch: 392225**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 391138**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/19/22 09:52	05/28/22 01:56	1
Chrysene	ND		0.10	0.037	ug/L		05/19/22 09:52	05/28/22 01:56	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/19/22 09:52	05/28/22 01:56	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/19/22 09:52	05/28/22 01:56	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/19/22 09:52	05/28/22 01:56	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/19/22 09:52	05/28/22 01:56	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/19/22 09:52	05/28/22 01:56	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	132		29 - 150	05/19/22 09:52	05/28/22 01:56	1

Lab Sample ID: LCS 580-391138/2-A  
Matrix: Water  
Analysis Batch: 392225

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 391138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.43		ug/L		86	55 - 123
Chrysene	4.00	3.17		ug/L		79	47 - 120
Benzo[b]fluoranthene	4.00	2.85		ug/L		71	43 - 120
Benzo[k]fluoranthene	4.00	3.16		ug/L		79	41 - 121
Benzo[a]pyrene	4.00	3.05		ug/L		76	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.15		ug/L		79	45 - 123
Dibenz(a,h)anthracene	4.00	3.34		ug/L		84	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	103		29 - 150

Lab Sample ID: LCSD 580-391138/3-A  
Matrix: Water  
Analysis Batch: 392225

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 391138

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.30		ug/L		82	55 - 123	4	31
Chrysene	4.00	3.02		ug/L		75	47 - 120	5	30
Benzo[b]fluoranthene	4.00	2.86		ug/L		72	43 - 120	1	35
Benzo[k]fluoranthene	4.00	3.16		ug/L		79	41 - 121	0	35
Benzo[a]pyrene	4.00	3.08		ug/L		77	51 - 120	1	31
Indeno[1,2,3-cd]pyrene	4.00	3.28		ug/L		82	45 - 123	4	35
Dibenz(a,h)anthracene	4.00	3.32		ug/L		83	54 - 123	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	100		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-258539/4  
Matrix: Water  
Analysis Batch: 258539

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C7-C12	ND		250	19	ug/L			05/24/22 16:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	89		50 - 150		05/24/22 16:04	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCS 410-258539/5**  
**Matrix: Water**  
**Analysis Batch: 258539**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C7-C12	1100	1050		ug/L		96	64 - 131
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
a,a,a-Trifluorotoluene (fid)	91		50 - 150				

**Lab Sample ID: LCSD 410-258539/6**  
**Matrix: Water**  
**Analysis Batch: 258539**

**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
C7-C12	1100	1100		ug/L		100	64 - 131	4	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
a,a,a-Trifluorotoluene (fid)	92		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-391281/1-B**  
**Matrix: Water**  
**Analysis Batch: 391350**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 391281**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/20/22 09:15	05/21/22 06:33	1
Motor Oil (>C24-C36)	0.0981	J	0.35	0.096	mg/L		05/20/22 09:15	05/21/22 06:33	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	90		50 - 150				05/20/22 09:15	05/21/22 06:33	1

**Lab Sample ID: LCS 580-391281/2-B**  
**Matrix: Water**  
**Analysis Batch: 391350**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 391281**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	4.00		mg/L		100	50 - 120
Motor Oil (>C24-C36)	4.00	4.75		mg/L		119	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
o-Terphenyl	102		50 - 150				

**Lab Sample ID: LCSD 580-391281/3-B**  
**Matrix: Water**  
**Analysis Batch: 391350**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 391281**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.47		mg/L		87	50 - 120	14	26
Motor Oil (>C24-C36)	4.00	3.94		mg/L		98	64 - 120	19	24

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-391281/3-B  
Matrix: Water  
Analysis Batch: 391350

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 391281

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	89		50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-113840-1**

**Date Collected: 05/16/22 10:00**

**Matrix: Water**

**Date Received: 05/16/22 10:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	391986	05/26/22 20:21	BNM	FGS SEA
Total/NA	Prep	3510C			391138	05/19/22 09:52	ASL	FGS SEA
Total/NA	Analysis	8270E SIM		1	392225	05/28/22 10:02	T1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	258539	05/24/22 20:47	UMDJ	ELLE
Total/NA	Prep	3510C			391281	05/20/22 09:15	ASL	FGS SEA
Total/NA	Cleanup	3630C			391282	05/20/22 09:23	ASL	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	391350	05/21/22 08:54	Y1F	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-113840-2**

**Date Collected: 05/16/22 00:00**

**Matrix: Water**

**Date Received: 05/16/22 10:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	391986	05/26/22 19:57	BNM	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	258539	05/24/22 17:57	UMDJ	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-113840-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-113840-1	Outfall #002	Water	05/16/22 10:00	05/16/22 10:50
580-113840-2	Trip Blank	Water	05/16/22 00:00	05/16/22 10:50

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580-113840 Chain of Custody

## Chain of Custody Record

eurofins

Environment Testing  
America

Client Contact: <b>Ophélie Encelle</b>		Sampler: <b>Trevor Bryant</b>		Lab PM: <b>Elaine Utker</b>		Carrier Tracking No(s):		COC No:			
Company: <b>Arcadis</b>		PWSID:		Analysis Requested		Job #:		Page: <b>Page 1 of 1</b>			
Address: <b>1100 Olive Way Suite 800</b>		Due Date Requested:		Field Filtered Samples (Yes or No) Parameter: MS/MS/PA (Yes or No) NUTPA-G2 624.1 Benzene NUTPA-DX 8270-JEM CPAHs		Total Number of Containers 10 4		Preservation Codes:			
City: <b>Seattle</b>		TAT Requested (days): <b>STAT</b>						A - HCL		M - Hexane	
State, Zip: <b>WA 98126</b>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						B - NaOH		N - None	
Phone: <b>-</b>		PO #: <b>Purchase Order not required</b>						C - Zn Acetate		O - AsNaO2	
Email: <b>Ophélie.Encelle@Arcadis.com</b>		WO #:						D - Nitric Acid		P - Na2O4S	
Project Name: <b>Edmonds Terminal</b>		Project #: <b>30064301</b>						E - NaHSO4		Q - Na2SO3	
Site:		SSOW#:		F - MeOH		R - Na2S2O3					
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, Sealed, O=waste/foil, BT=Tissue, AA=Air)			
								Other:			
								Special Instructions/Note:			
Outfall #002		5/16/22		1000		G		W			
Trip Blank		-		-		-		W			
								Report quantities values of Benzene & CPAHs < 1 µg/l			
								9.4 gpm 7.92 pH			
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <b>RA</b>		Date/Time: <b>5/16/22 1050</b>		Company: <b>Arcadis</b>		Received by: <b>Sidney Lanhoff</b>		Date/Time: <b>5/16/22 1050</b>			
Relinquished by:		Date/Time:		Company:		Received by:		Company: <b>ETA</b>			
Relinquished by:		Date/Time:		Company:		Received by:		Company:			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Therm. ID: <b>1RB</b> Cor: <b>11.4</b> ° Unc: <b>11.6</b> °		Cooler Desc: <b>SB</b>			
						Packing: <b>Bub</b>		FedEx: _____			
						Cust. Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		UPS: _____			
						Blue Ice, <input checked="" type="checkbox"/> Dry, None		Lab Cour: <input checked="" type="checkbox"/>			
								Other: <b>5/31/2022</b>			





# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113840-1

**Login Number: 113840**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-113840-1

**Login Number: 113840**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 05/19/22 02:46 PM**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-114076-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
6/7/2022 6:09:07 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

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**Job ID: 580-114076-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-114076-1**

**Receipt**

Two samples were received on 5/23/2022 11:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 10.3° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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 method blank for preparation batch 580-391930, 580-392235 and 580-392235 and analytical batch 580-392124 contained Motor Oil (>C24-C36) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114076-1**

**Date Collected: 05/23/22 11:00**

**Matrix: Water**

**Date Received: 05/23/22 11:30**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			06/02/22 05:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122					06/02/22 05:00	1
4-Bromofluorobenzene (Surr)	101		78 - 120					06/02/22 05:00	1
Dibromofluoromethane (Surr)	100		80 - 120					06/02/22 05:00	1
1,2-Dichloroethane-d4 (Surr)	107		78 - 120					06/02/22 05:00	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		05/27/22 09:59	05/28/22 20:35	1
Chrysene	ND		0.10	0.038	ug/L		05/27/22 09:59	05/28/22 20:35	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		05/27/22 09:59	05/28/22 20:35	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		05/27/22 09:59	05/28/22 20:35	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		05/27/22 09:59	05/28/22 20:35	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		05/27/22 09:59	05/28/22 20:35	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/27/22 09:59	05/28/22 20:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	110		29 - 150				05/27/22 09:59	05/28/22 20:35	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			05/26/22 17:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	100		50 - 150					05/26/22 17:14	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		05/26/22 09:16	05/27/22 19:17	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.20</b>	<b>J B</b>	0.37	0.10	mg/L		05/26/22 09:16	05/27/22 19:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	55		50 - 150				05/26/22 09:16	05/27/22 19:17	1



# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114076-2**

**Date Collected: 05/23/22 00:00**

**Matrix: Water**

**Date Received: 05/23/22 11:30**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			06/02/22 05:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		79 - 122		06/02/22 05:25	1
4-Bromofluorobenzene (Surr)	99		78 - 120		06/02/22 05:25	1
Dibromofluoromethane (Surr)	101		80 - 120		06/02/22 05:25	1
1,2-Dichloroethane-d4 (Surr)	104		78 - 120		06/02/22 05:25	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			05/26/22 16:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	98		50 - 150		05/26/22 16:46	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-392528/6**  
**Matrix: Water**  
**Analysis Batch: 392528**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			06/02/22 00:05	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		79 - 122					06/02/22 00:05	1
4-Bromofluorobenzene (Surr)	100		78 - 120					06/02/22 00:05	1
Dibromofluoromethane (Surr)	99		80 - 120					06/02/22 00:05	1
1,2-Dichloroethane-d4 (Surr)	104		78 - 120					06/02/22 00:05	1

**Lab Sample ID: LCS 580-392528/3**  
**Matrix: Water**  
**Analysis Batch: 392528**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	5.00	4.70		ug/L		94	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	107		79 - 122					
4-Bromofluorobenzene (Surr)	105		78 - 120					
Dibromofluoromethane (Surr)	98		80 - 120					
1,2-Dichloroethane-d4 (Surr)	97		78 - 120					

**Lab Sample ID: LCSD 580-392528/4**  
**Matrix: Water**  
**Analysis Batch: 392528**

**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	5.00	4.66		ug/L		93	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	110		79 - 122						
4-Bromofluorobenzene (Surr)	103		78 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
1,2-Dichloroethane-d4 (Surr)	98		78 - 120						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-392094/1-A**  
**Matrix: Water**  
**Analysis Batch: 392236**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 392094**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		05/27/22 09:59	05/28/22 18:08	1
Chrysene	ND		0.10	0.037	ug/L		05/27/22 09:59	05/28/22 18:08	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		05/27/22 09:59	05/28/22 18:08	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		05/27/22 09:59	05/28/22 18:08	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		05/27/22 09:59	05/28/22 18:08	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		05/27/22 09:59	05/28/22 18:08	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		05/27/22 09:59	05/28/22 18:08	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	126		29 - 150	05/27/22 09:59	05/28/22 18:08	1

Lab Sample ID: LCS 580-392094/2-A  
Matrix: Water  
Analysis Batch: 392236

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 392094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.88		ug/L		97	55 - 123
Chrysene	4.00	3.49		ug/L		87	47 - 120
Benzo[b]fluoranthene	4.00	3.37		ug/L		84	43 - 120
Benzo[k]fluoranthene	4.00	3.67		ug/L		92	41 - 121
Benzo[a]pyrene	4.00	3.59		ug/L		90	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.16		ug/L		79	45 - 123
Dibenz(a,h)anthracene	4.00	3.89		ug/L		97	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	117		29 - 150

Lab Sample ID: LCSD 580-392094/3-A  
Matrix: Water  
Analysis Batch: 392236

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 392094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.66		ug/L		91	55 - 123	6	31
Chrysene	4.00	3.22		ug/L		80	47 - 120	8	30
Benzo[b]fluoranthene	4.00	2.97		ug/L		74	43 - 120	13	35
Benzo[k]fluoranthene	4.00	3.44		ug/L		86	41 - 121	6	35
Benzo[a]pyrene	4.00	3.28		ug/L		82	51 - 120	9	31
Indeno[1,2,3-cd]pyrene	4.00	3.29		ug/L		82	45 - 123	4	35
Dibenz(a,h)anthracene	4.00	3.63		ug/L		91	54 - 123	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	110		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-259395/4  
Matrix: Water  
Analysis Batch: 259395

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			05/26/22 13:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		05/26/22 13:27	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCS 410-259395/5**  
**Matrix: Water**  
**Analysis Batch: 259395**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1110		ug/L		101	64 - 131
<b>Surrogate</b>							
	%Recovery	LCS Qualifier	LCS Qualifier			Limits	
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> )	98					50 - 150	

**Lab Sample ID: LCSD 410-259395/6**  
**Matrix: Water**  
**Analysis Batch: 259395**

**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 Range Organics (GRO)-C7-C12	1100	1110		ug/L		101	64 - 131	0	30
<b>Surrogate</b>									
	%Recovery	LCSD Qualifier	LCSD Qualifier			Limits			
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> )	95					50 - 150			

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-391930/1-C**  
**Matrix: Water**  
**Analysis Batch: 392124**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 391930**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		05/26/22 09:16	05/27/22 16:40	1
Motor Oil (>C24-C36)	0.161	J	0.35	0.096	mg/L		05/26/22 09:16	05/27/22 16:40	1
<b>Surrogate</b>									
	%Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
<i>o</i> -Terphenyl	61		50 - 150			05/26/22 09:16	05/27/22 16:40	1	

**Lab Sample ID: LCS 580-391930/2-C**  
**Matrix: Water**  
**Analysis Batch: 392124**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 391930**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	2.65		mg/L		66	50 - 120
Motor Oil (>C24-C36)	4.00	3.75		mg/L		94	64 - 120
<b>Surrogate</b>							
	%Recovery	LCS Qualifier	LCS Qualifier			Limits	
<i>o</i> -Terphenyl	77					50 - 150	

**Lab Sample ID: LCSD 580-391930/3-C**  
**Matrix: Water**  
**Analysis Batch: 392124**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 391930**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	2.48		mg/L		62	50 - 120	7	26
Motor Oil (>C24-C36)	4.00	4.23		mg/L		106	64 - 120	12	24

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-391930/3-C  
Matrix: Water  
Analysis Batch: 392124

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 391930

<i>Surrogate</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	68		50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114076-1**

**Date Collected: 05/23/22 11:00**

**Matrix: Water**

**Date Received: 05/23/22 11:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	392528	06/02/22 05:00	BNM	FGS SEA
Total/NA	Prep	3510C			392094	05/27/22 09:59	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	392236	05/28/22 20:35	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	259395	05/26/22 17:14	JJT8	ELLE
Total/NA	Prep	3510C			391930	05/26/22 09:16	JJY	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392124	05/27/22 19:17	Y1F	FGS SEA
Total/NA	Cleanup	3630C			392235	05/28/22 15:41	JCM	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114076-2**

**Date Collected: 05/23/22 00:00**

**Matrix: Water**

**Date Received: 05/23/22 11:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	392528	06/02/22 05:25	BNM	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	259395	05/26/22 16:46	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300  
 FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22





# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114076-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-114076-1	Outfall #002	Water	05/23/22 11:00	05/23/22 11:30
580-114076-2	Trip Blank	Water	05/23/22 00:00	05/23/22 11:30

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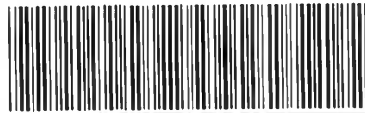
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### Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>				Lab PM Walker, Elaine M				Carrier Tracking No(s):				COC No:											
Client Contact: Shipping/Receiving				Phone:				E-Mail: M.Elaine.Walker@et.eurofinsus.com				State of Origin: Washington											
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Job #: 580-114076-1				Page: Page 1 of 1											
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:				Due Date Requested: 6/7/2022 TAT Requested (days):				<b>Analysis Requested</b>								Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)							
Project Name: Chevron Edmonds Terminal Site:				Project #: 58011413 SSOW#:												Other:							
<b>Sample Identification - Client ID</b>				<b>Sample Date</b>		<b>Sample Time</b>		<b>Sample Type (C=comp, G=grab)</b>		<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>		<b>Field Filtered Sample (Yes or No)</b>		<b>Perform MS/MSD (Yes or No)</b>		<b>NWTPH Gz/50308 NWTPH - Gasoline Range Organics</b>		<b>Total Number of Containers</b>		<b>Special Instructions/Note:</b>			
								<b>Preservation Code:</b>															
Outfall #002				5/23/22		1100				Water		X						3					
Trip Blank				5/23/22		0000				Water		X						2					
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.</p>																							
<b>Possible Hazard Identification</b>										<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>													
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Deliverable Requested: I, II, III, IV, Other (specify)										Primary Deliverable Rank: 4													
Empty Kit Relinquished by:										Special Instructions/QC Requirements:													
Date:										Time:				Method of Shipment:									
Relinquished by: <i>Kim Presley</i>				Date/Time: 5/23/22				Company: EET SEA				Received by:				Date/Time:				Company:			
Relinquished by: _____				Date/Time:				Company:				Received by: _____				Date/Time:				Company:			
Relinquished by: _____				Date/Time:				Company:				Received by: <i>[Signature]</i>				Date/Time: 5/25/22 1229				Company: ELLET			
Custody Seals Intact:				Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: 1.7															
Δ Yes   Δ No																							



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114076-1

**Login Number: 114076**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

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	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114076-1

**Login Number: 114076**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 05/24/22 04:47 PM**

**Creator: McCaskey, Jonathan**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	True	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-114345-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
6/11/2022 5:10:10 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

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**Job ID: 580-114345-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-114345-1**

**Receipt**

Two samples were received on 6/1/2022 3:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.2° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-114345-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.





# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114345-1**

**Date Collected: 05/31/22 10:00**

**Matrix: Water**

**Date Received: 06/01/22 15:30**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/06/22 15:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	93		60 - 140					06/06/22 15:51	1
4-Bromofluorobenzene (Surr)	86		60 - 140					06/06/22 15:51	1
Dibromofluoromethane (Surr)	111		60 - 140					06/06/22 15:51	1
1,2-Dichloroethane-d4 (Surr)	114		60 - 140					06/06/22 15:51	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		06/03/22 10:30	06/04/22 20:06	1
Chrysene	ND		0.10	0.038	ug/L		06/03/22 10:30	06/04/22 20:06	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		06/03/22 10:30	06/04/22 20:06	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		06/03/22 10:30	06/04/22 20:06	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		06/03/22 10:30	06/04/22 20:06	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		06/03/22 10:30	06/04/22 20:06	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/03/22 10:30	06/04/22 20:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	128		29 - 150				06/03/22 10:30	06/04/22 20:06	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			06/06/22 17:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					06/06/22 17:37	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		06/03/22 10:20	06/03/22 21:35	1
Motor Oil (>C24-C36)	ND		0.36	0.098	mg/L		06/03/22 10:20	06/03/22 21:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150				06/03/22 10:20	06/03/22 21:35	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114345-2**

**Date Collected: 05/31/22 00:00**

**Matrix: Water**

**Date Received: 06/01/22 15:30**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/06/22 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		60 - 140		06/06/22 15:28	1
4-Bromofluorobenzene (Surr)	88		60 - 140		06/06/22 15:28	1
Dibromofluoromethane (Surr)	112		60 - 140		06/06/22 15:28	1
1,2-Dichloroethane-d4 (Surr)	113		60 - 140		06/06/22 15:28	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			06/06/22 17:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	100		50 - 150		06/06/22 17:12	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-262494/5**  
**Matrix: Water**  
**Analysis Batch: 262494**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/06/22 15:05	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		60 - 140					06/06/22 15:05	1
4-Bromofluorobenzene (Surr)	88		60 - 140					06/06/22 15:05	1
Dibromofluoromethane (Surr)	109		60 - 140					06/06/22 15:05	1
1,2-Dichloroethane-d4 (Surr)	111		60 - 140					06/06/22 15:05	1

**Lab Sample ID: LCS 410-262494/1003**  
**Matrix: Water**  
**Analysis Batch: 262494**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.1		ug/L		105	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	100		60 - 140				
4-Bromofluorobenzene (Surr)	91		60 - 140				
Dibromofluoromethane (Surr)	101		60 - 140				
1,2-Dichloroethane-d4 (Surr)	105		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-392709/1-A**  
**Matrix: Water**  
**Analysis Batch: 392824**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 392709**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/03/22 10:30	06/04/22 18:00	1
Chrysene	ND		0.10	0.037	ug/L		06/03/22 10:30	06/04/22 18:00	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/03/22 10:30	06/04/22 18:00	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/03/22 10:30	06/04/22 18:00	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/03/22 10:30	06/04/22 18:00	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/03/22 10:30	06/04/22 18:00	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/03/22 10:30	06/04/22 18:00	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	123		29 - 150				06/03/22 10:30	06/04/22 18:00	1

**Lab Sample ID: LCS 580-392709/2-A**  
**Matrix: Water**  
**Analysis Batch: 392824**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 392709**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	4.46		ug/L		112	55 - 123
Chrysene	4.00	4.14		ug/L		104	47 - 120
Benzo[b]fluoranthene	4.00	3.87		ug/L		97	43 - 120
Benzo[k]fluoranthene	4.00	4.26		ug/L		106	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-392709/2-A**  
**Matrix: Water**  
**Analysis Batch: 392824**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 392709**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	4.21		ug/L		105	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.85		ug/L		96	45 - 123
Dibenz(a,h)anthracene	4.00	4.39		ug/L		110	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	118		29 - 150

**Lab Sample ID: LCSD 580-392709/3-A**  
**Matrix: Water**  
**Analysis Batch: 392824**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 392709**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	4.14		ug/L		104	55 - 123	7	31
Chrysene	4.00	3.93		ug/L		98	47 - 120	5	30
Benzo[b]fluoranthene	4.00	3.52		ug/L		88	43 - 120	9	35
Benzo[k]fluoranthene	4.00	4.10		ug/L		103	41 - 121	4	35
Benzo[a]pyrene	4.00	4.08		ug/L		102	51 - 120	3	31
Indeno[1,2,3-cd]pyrene	4.00	3.48		ug/L		87	45 - 123	10	35
Dibenz(a,h)anthracene	4.00	4.12		ug/L		103	54 - 123	6	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	109		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-262508/4**  
**Matrix: Water**  
**Analysis Batch: 262508**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	19	ug/L			06/06/22 15:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150		06/06/22 15:30	1

**Lab Sample ID: LCS 410-262508/5**  
**Matrix: Water**  
**Analysis Batch: 262508**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1040		ug/L		94	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	94		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-262508/6**  
**Matrix: Water**  
**Analysis Batch: 262508**

**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 Range Organics (GRO)-C7-C12	1100	1040		ug/L		94	64 - 131	0	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>a,a,a-Trifluorotoluene (fid)</i>		94							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-392704/1-B**  
**Matrix: Water**  
**Analysis Batch: 392756**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 392704**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/03/22 10:20	06/03/22 20:35	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/03/22 10:20	06/03/22 20:35	1
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>		93					06/03/22 10:20	06/03/22 20:35	1

**Lab Sample ID: LCS 580-392704/2-B**  
**Matrix: Water**  
**Analysis Batch: 392756**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 392704**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.42		mg/L		86	50 - 120
Motor Oil (>C24-C36)	4.00	3.73		mg/L		93	64 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
<i>o-Terphenyl</i>		87					50 - 150

**Lab Sample ID: LCSD 580-392704/3-B**  
**Matrix: Water**  
**Analysis Batch: 392756**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 392704**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	2.98		mg/L		75	50 - 120	14	26
Motor Oil (>C24-C36)	4.00	3.35		mg/L		84	64 - 120	11	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>		<b>Limits</b>
<i>o-Terphenyl</i>		78					50 - 150		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114345-1**

**Date Collected: 05/31/22 10:00**

**Matrix: Water**

**Date Received: 06/01/22 15:30**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	624.1		1	262494	06/06/22 15:51	UJML	ELLE
Total/NA	Prep	3510C			392709	06/03/22 10:30	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	392824	06/04/22 20:06	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	262508	06/06/22 17:37	JJT8	ELLE
Total/NA	Prep	3510C			392704	06/03/22 10:20	KLW	FGS SEA
Total/NA	Cleanup	3630C			392714	06/03/22 10:49	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	392756	06/03/22 21:35	Y1F	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114345-2**

**Date Collected: 05/31/22 00:00**

**Matrix: Water**

**Date Received: 06/01/22 15:30**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	624.1		1	262494	06/06/22 15:28	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	262508	06/06/22 17:12	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-01-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114345-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-114345-1	Outfall #002	Water	05/31/22 10:00	06/01/22 15:30
580-114345-2	Trip Blank	Water	05/31/22 00:00	06/01/22 15:30

1

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114345-1

**Login Number: 114345**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Greene, Ashton R**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114345-1

**Login Number: 114345**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 06/03/22 09:15 PM**

**Creator: Metzger, Katherine A**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	True	

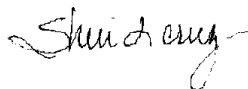
## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-114905-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

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**Job ID: 580-114905-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

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**Job Narrative  
580-114905-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 6/15/2022 2:17 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.7° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-114905-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114905-1**

**Date Collected: 06/15/22 11:30**

**Matrix: Water**

**Date Received: 06/15/22 14:17**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/23/22 23:09	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	95		60 - 140					06/23/22 23:09	1
<i>4-Bromofluorobenzene (Surr)</i>	101		60 - 140					06/23/22 23:09	1
<i>Dibromofluoromethane (Surr)</i>	110		60 - 140					06/23/22 23:09	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	113		60 - 140					06/23/22 23:09	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		06/20/22 09:56	06/21/22 15:42	1
Chrysene	ND		0.10	0.038	ug/L		06/20/22 09:56	06/21/22 15:42	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/20/22 09:56	06/21/22 15:42	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		06/20/22 09:56	06/21/22 15:42	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/20/22 09:56	06/21/22 15:42	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		06/20/22 09:56	06/21/22 15:42	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/20/22 09:56	06/21/22 15:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Terphenyl-d14</i>	69		29 - 150				06/20/22 09:56	06/21/22 15:42	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/23/22 17:24	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>a,a,a-Trifluorotoluene (fid)</i>	102		50 - 150					06/23/22 17:24	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		06/17/22 08:45	06/18/22 06:43	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		06/17/22 08:45	06/18/22 06:43	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	96		50 - 150				06/17/22 08:45	06/18/22 06:43	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114905-2**

Date Collected: 06/15/22 00:01

Matrix: Water

Date Received: 06/15/22 14:17

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/23/22 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	93		60 - 140		06/23/22 22:48	1
4-Bromofluorobenzene (Surr)	99		60 - 140		06/23/22 22:48	1
Dibromofluoromethane (Surr)	110		60 - 140		06/23/22 22:48	1
1,2-Dichloroethane-d4 (Surr)	110		60 - 140		06/23/22 22:48	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/23/22 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		06/23/22 16:07	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-268615/5**  
**Matrix: Water**  
**Analysis Batch: 268615**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/23/22 12:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					06/23/22 12:53	1
4-Bromofluorobenzene (Surr)	97		60 - 140					06/23/22 12:53	1
Dibromofluoromethane (Surr)	111		60 - 140					06/23/22 12:53	1
1,2-Dichloroethane-d4 (Surr)	114		60 - 140					06/23/22 12:53	1

**Lab Sample ID: LCS 410-268615/1003**  
**Matrix: Water**  
**Analysis Batch: 268615**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.1		ug/L		106	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	104		60 - 140				
4-Bromofluorobenzene (Surr)	101		60 - 140				
Dibromofluoromethane (Surr)	103		60 - 140				
1,2-Dichloroethane-d4 (Surr)	107		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-394282/1-A**  
**Matrix: Water**  
**Analysis Batch: 394412**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394282**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/20/22 09:56	06/21/22 12:28	1
Chrysene	ND		0.10	0.037	ug/L		06/20/22 09:56	06/21/22 12:28	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/20/22 09:56	06/21/22 12:28	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/20/22 09:56	06/21/22 12:28	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/20/22 09:56	06/21/22 12:28	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/20/22 09:56	06/21/22 12:28	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/20/22 09:56	06/21/22 12:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	68		29 - 150				06/20/22 09:56	06/21/22 12:28	1

**Lab Sample ID: LCS 580-394282/2-A**  
**Matrix: Water**  
**Analysis Batch: 394412**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	2.90		ug/L		72	55 - 123
Chrysene	4.00	2.96		ug/L		74	47 - 120
Benzo[b]fluoranthene	4.00	2.89		ug/L		72	43 - 120
Benzo[k]fluoranthene	4.00	3.14		ug/L		78	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-394282/2-A**  
**Matrix: Water**  
**Analysis Batch: 394412**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	2.79		ug/L		70	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.03		ug/L		76	45 - 123
Dibenz(a,h)anthracene	4.00	3.01		ug/L		75	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	67		29 - 150

**Lab Sample ID: LCSD 580-394282/3-A**  
**Matrix: Water**  
**Analysis Batch: 394412**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 394282**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.30		ug/L		83	55 - 123	13	31
Chrysene	4.00	3.43		ug/L		86	47 - 120	15	30
Benzo[b]fluoranthene	4.00	3.37		ug/L		84	43 - 120	15	35
Benzo[k]fluoranthene	4.00	3.54		ug/L		88	41 - 121	12	35
Benzo[a]pyrene	4.00	3.19		ug/L		80	51 - 120	13	31
Indeno[1,2,3-cd]pyrene	4.00	3.35		ug/L		84	45 - 123	10	35
Dibenz(a,h)anthracene	4.00	3.44		ug/L		86	54 - 123	13	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	74		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-268649/4**  
**Matrix: Water**  
**Analysis Batch: 268649**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/23/22 14:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		06/23/22 14:25	1

**Lab Sample ID: LCS 410-268649/5**  
**Matrix: Water**  
**Analysis Batch: 268649**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1050		ug/L		96	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	92		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-268649/6**  
**Matrix: Water**  
**Analysis Batch: 268649**

**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 Range Organics (GRO)-C7-C12	1100	1020		ug/L		93	64 - 131	3	30

Surrogate	%Recovery	LCSD Qualifier	LCSD Limits
a,a,a-Trifluorotoluene (fid)	94		50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-394135/1-B**  
**Matrix: Water**  
**Analysis Batch: 394185**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394135**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/17/22 08:45	06/18/22 04:02	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/17/22 08:45	06/18/22 04:02	1

Surrogate	%Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	92		50 - 150	06/17/22 08:45	06/18/22 04:02	1

**Lab Sample ID: LCS 580-394135/2-B**  
**Matrix: Water**  
**Analysis Batch: 394185**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394135**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.63		mg/L		91	50 - 120
Motor Oil (>C24-C36)	4.00	4.07		mg/L		102	64 - 120

Surrogate	%Recovery	LCS Qualifier	LCS Limits
o-Terphenyl	113		50 - 150

**Lab Sample ID: LCSD 580-394135/3-B**  
**Matrix: Water**  
**Analysis Batch: 394185**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 394135**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.57		mg/L		89	50 - 120	2	26
Motor Oil (>C24-C36)	4.00	4.10		mg/L		103	64 - 120	1	24

Surrogate	%Recovery	LCSD Qualifier	LCSD Limits
o-Terphenyl	118		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-114905-1**

**Date Collected: 06/15/22 11:30**

**Matrix: Water**

**Date Received: 06/15/22 14:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	268615	06/23/22 23:09	UJML	ELLE
Total/NA	Prep	3510C			394282	06/20/22 09:56	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	394412	06/21/22 15:42	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	268649	06/23/22 17:24	JJT8	ELLE
Total/NA	Prep	3510C			394135	06/17/22 08:45	JJY	FGS SEA
Total/NA	Cleanup	3630C			394137	06/17/22 09:01	JJY	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	394185	06/18/22 06:43	DH	FGS SEA

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-114905-2**

**Date Collected: 06/15/22 00:01**

**Matrix: Water**

**Date Received: 06/15/22 14:17**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	268615	06/23/22 22:48	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	268649	06/23/22 16:07	JJT8	ELLE

## Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-114905-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-114905-1	Outfall #002	Water	06/15/22 11:30	06/15/22 14:17
580-114905-2	Trip Blank	Water	06/15/22 00:01	06/15/22 14:17

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- 11



# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:		Lab PM: Walker, Elaine M		Carrier Tracking No(s):		COC No: 580-114905-1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: M.Elaine.Walker@et.eurofinsus.com		State of Origin: Washington		Page: Page 1 of 1			
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note): State - Washington				Job #: 580-114905-1			
Address: 2425 New Holland Pike.		Due Date Requested: 6/28/2022		<b>Analysis Requested</b>						<b>Preservation Codes:</b> A - HCL                    M - Hexane B - NaOH                N - None C - Zn Acetate        O - AsNaO2 D - Nitric Acid        P - Na2O4S E - NaHSO4            Q - Na2SO3 F - MeOH                R - Na2S2O3 G - Amchlor            S - H2SO4 H - Ascorbic Acid     T - TSP Dodecahydrate I - Ice                    U - Acetone J - DI Water            V - MCAA K - EDTA                W - pH 4-5 L - EDA                  Y - Trizma Z - other (specify) Other:	
City: Lancaster		TAT Requested (days):									
State, Zip: PA, 17601		PO #:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers			
Phone: 717-656-2300(Tel)		WO #:		624.1_PREC/624_Prep Benzene		NWTPH_Gz/50.30B NWTPH - Gasoline Range Organics					
Email:		SSOW#:		Matrix (W=water, S=solid, O=volatile, BT=Tissue, A=Air)							
Project Name: Chevron Edmonds Terminal		Project #: 58011413		Sample Type (C=comp, G=grab)		Sample Date		Sample Time			
Site: Chevron Edmonds Terminal		SSOW#:		Preservation Code:							
<b>Sample Identification - Client ID (Lab ID)</b>											
Outfall #002 (580-114905-1)		6/15/22		11:30 Pacific		Water		6			
Trip Blank (580-114905-2)		6/15/22		00:01 Pacific		Water		4			
Special Instructions/Note:											
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.</p>											
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:				
Relinquished by: <i>[Signature]</i>			Date/Time: 6/21/22 1500		Company: EETN		Received by: <i>[Signature]</i>				
Relinquished by:			Date/Time:		Company:		Received by: <i>[Signature]</i>				
Relinquished by:			Date/Time:		Company:		Received by: <i>[Signature]</i>				
Custody Seals Intact: Δ Yes    Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.1							

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SM

## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114905-1

**Login Number: 114905**

**List Number: 1**

**Creator: Blankinship, Tom X**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
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 <math><6\text{mm}</math> (1/4").	True	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-114905-1

**Login Number: 114905**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 06/22/22 03:02 PM**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-115051-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
6/30/2022 11:20:57 AM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.





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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

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**Job ID: 580-115051-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-115051-1**

**Receipt**

Two samples were received on 6/20/2022 1:28 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.1° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-115051-1**

Date Collected: 06/20/22 09:20

Matrix: Water

Date Received: 06/20/22 13:28

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/28/22 16:36	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	100		60 - 140					06/28/22 16:36	1
4-Bromofluorobenzene (Surr)	95		60 - 140					06/28/22 16:36	1
Dibromofluoromethane (Surr)	112		60 - 140					06/28/22 16:36	1
1,2-Dichloroethane-d4 (Surr)	111		60 - 140					06/28/22 16:36	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		06/22/22 09:21	06/22/22 17:13	1
Chrysene	ND		0.10	0.039	ug/L		06/22/22 09:21	06/22/22 17:13	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		06/22/22 09:21	06/22/22 17:13	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		06/22/22 09:21	06/22/22 17:13	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		06/22/22 09:21	06/22/22 17:13	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		06/22/22 09:21	06/22/22 17:13	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		06/22/22 09:21	06/22/22 17:13	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	97		29 - 150				06/22/22 09:21	06/22/22 17:13	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/24/22 17:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid)	101		50 - 150					06/24/22 17:06	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		06/22/22 09:13	06/23/22 03:47	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		06/22/22 09:13	06/23/22 03:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	96		50 - 150				06/22/22 09:13	06/23/22 03:47	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-115051-2**

Date Collected: 06/20/22 00:01

Matrix: Water

Date Received: 06/20/22 13:28

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/28/22 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	98		60 - 140					06/28/22 16:59	1
<i>4-Bromofluorobenzene (Surr)</i>	98		60 - 140					06/28/22 16:59	1
<i>Dibromofluoromethane (Surr)</i>	114		60 - 140					06/28/22 16:59	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	116		60 - 140					06/28/22 16:59	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/24/22 16:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (fid)</i>	101		50 - 150					06/24/22 16:40	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-270100/5**  
**Matrix: Water**  
**Analysis Batch: 270100**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			06/28/22 10:39	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140					06/28/22 10:39	1
4-Bromofluorobenzene (Surr)	95		60 - 140					06/28/22 10:39	1
Dibromofluoromethane (Surr)	110		60 - 140					06/28/22 10:39	1
1,2-Dichloroethane-d4 (Surr)	108		60 - 140					06/28/22 10:39	1

**Lab Sample ID: LCS 410-270100/1003**  
**Matrix: Water**  
**Analysis Batch: 270100**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	17.6		ug/L		88	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	108		60 - 140				
4-Bromofluorobenzene (Surr)	101		60 - 140				
Dibromofluoromethane (Surr)	97		60 - 140				
1,2-Dichloroethane-d4 (Surr)	98		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-394547/1-A**  
**Matrix: Water**  
**Analysis Batch: 394571**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394547**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/22/22 09:21	06/22/22 14:21	1
Chrysene	ND		0.10	0.037	ug/L		06/22/22 09:21	06/22/22 14:21	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/22/22 09:21	06/22/22 14:21	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/22/22 09:21	06/22/22 14:21	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/22/22 09:21	06/22/22 14:21	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/22/22 09:21	06/22/22 14:21	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/22/22 09:21	06/22/22 14:21	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		29 - 150				06/22/22 09:21	06/22/22 14:21	1

**Lab Sample ID: LCS 580-394547/2-A**  
**Matrix: Water**  
**Analysis Batch: 394571**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394547**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.18		ug/L		80	55 - 123
Chrysene	4.00	2.86		ug/L		71	47 - 120
Benzo[b]fluoranthene	4.00	3.01		ug/L		75	43 - 120
Benzo[k]fluoranthene	4.00	2.93		ug/L		73	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-394547/2-A**  
**Matrix: Water**  
**Analysis Batch: 394571**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394547**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	2.98		ug/L		75	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.33		ug/L		58	45 - 123
Dibenz(a,h)anthracene	4.00	2.74		ug/L		69	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	84		29 - 150

**Lab Sample ID: LCSD 580-394547/3-A**  
**Matrix: Water**  
**Analysis Batch: 394571**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 394547**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.91		ug/L		98	55 - 123	20	31
Chrysene	4.00	3.48		ug/L		87	47 - 120	20	30
Benzo[b]fluoranthene	4.00	3.64		ug/L		91	43 - 120	19	35
Benzo[k]fluoranthene	4.00	3.47		ug/L		87	41 - 121	17	35
Benzo[a]pyrene	4.00	3.56		ug/L		89	51 - 120	18	31
Indeno[1,2,3-cd]pyrene	4.00	2.55		ug/L		64	45 - 123	9	35
Dibenz(a,h)anthracene	4.00	2.88		ug/L		72	54 - 123	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	94		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-269082/5**  
**Matrix: Water**  
**Analysis Batch: 269082**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			06/24/22 14:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		06/24/22 14:58	1

**Lab Sample ID: LCS 410-269082/6**  
**Matrix: Water**  
**Analysis Batch: 269082**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1030		ug/L		93	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	93		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-269082/7**  
**Matrix: Water**  
**Analysis Batch: 269082**

**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 Range Organics (GRO)-C7-C12	1100	1010		ug/L		92	64 - 131	2	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						
<i>a,a,a-Trifluorotoluene (fid)</i>		93					50 - 150		

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-394545/1-B**  
**Matrix: Water**  
**Analysis Batch: 394734**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394545**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		06/22/22 09:13	06/23/22 23:59	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		06/22/22 09:13	06/23/22 23:59	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	86		50 - 150				06/22/22 09:13	06/23/22 23:59	1

**Lab Sample ID: LCS 580-394545/2-B**  
**Matrix: Water**  
**Analysis Batch: 394637**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394545**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.58		mg/L		89	50 - 120
Motor Oil (>C24-C36)	4.00	4.13		mg/L		103	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	103		50 - 150				

**Lab Sample ID: LCSD 580-394545/3-B**  
**Matrix: Water**  
**Analysis Batch: 394637**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 394545**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.52		mg/L		88	50 - 120	2	26
Motor Oil (>C24-C36)	4.00	3.80		mg/L		95	64 - 120	8	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	99		50 - 150						



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-115051-1

Date Collected: 06/20/22 09:20

Matrix: Water

Date Received: 06/20/22 13:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	270100	06/28/22 16:36	UJML	ELLE
Total/NA	Prep	3510C			394547	06/22/22 09:21	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	394571	06/22/22 17:13	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	269082	06/24/22 17:06	JJT8	ELLE
Total/NA	Prep	3510C			394545	06/22/22 09:13	KLW	FGS SEA
Total/NA	Cleanup	3630C			394546	06/22/22 09:19	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	394637	06/23/22 03:47	Y1F	FGS SEA

## Client Sample ID: Trip Blank

Lab Sample ID: 580-115051-2

Date Collected: 06/20/22 00:01

Matrix: Water

Date Received: 06/20/22 13:28

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	270100	06/28/22 16:59	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	269082	06/24/22 16:40	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115051-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-115051-1	Outfall #002	Water	06/20/22 09:20	06/20/22 13:28
580-115051-2	Trip Blank	Water	06/20/22 00:01	06/20/22 13:28

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115051-1

**Login Number: 115051**

**List Number: 1**

**Creator: Blankinship, Tom X**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115051-1

**Login Number: 115051**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 06/23/22 11:28 AM**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	Not present.
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-115288-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*Kristine D. Allen*

Authorized for release by:  
7/14/2022 2:03:29 PM

Kristine Allen, Client Service Manager  
(253)433-0390  
[Kristine.Allen@et.eurofinsus.com](mailto:Kristine.Allen@et.eurofinsus.com)

Designee for  
Elaine Walker, Project Manager II  
(253)248-4972  
[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

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**Job ID: 580-115288-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

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**Job Narrative  
580-115288-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 6/27/2022 10:41 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 11.7° C.

**Receipt Exceptions**

The following sample(s) was received at the laboratory without a sample collection time documented on the chain of custody or on the container. The default time of 00:01 and date of 06/27/2022 was given to the trip blank.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

**Client Sample ID: OUTFALL #002**

**Lab Sample ID: 580-115288-1**

Date Collected: 06/27/22 09:00

Matrix: Water

Date Received: 06/27/22 10:41

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/22 15:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		60 - 140		07/01/22 15:59	1
4-Bromofluorobenzene (Surr)	98		60 - 140		07/01/22 15:59	1
Dibromofluoromethane (Surr)	101		60 - 140		07/01/22 15:59	1
1,2-Dichloroethane-d4 (Surr)	103		60 - 140		07/01/22 15:59	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		06/30/22 09:15	07/01/22 19:19	1
Chrysene	ND		0.10	0.038	ug/L		06/30/22 09:15	07/01/22 19:19	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/30/22 09:15	07/01/22 19:19	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		06/30/22 09:15	07/01/22 19:19	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/30/22 09:15	07/01/22 19:19	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		06/30/22 09:15	07/01/22 19:19	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/30/22 09:15	07/01/22 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	101		29 - 150	06/30/22 09:15	07/01/22 19:19	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			07/01/22 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		07/01/22 16:24	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		06/30/22 09:06	07/05/22 21:00	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.099</b>	<b>J</b>	0.36	0.098	mg/L		06/30/22 09:06	07/05/22 21:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	61		50 - 150	06/30/22 09:06	07/05/22 21:00	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 580-115288-2**

Date Collected: 06/27/22 00:01

Matrix: Water

Date Received: 06/27/22 10:41

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/22 16:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		60 - 140		07/01/22 16:23	1
4-Bromofluorobenzene (Surr)	98		60 - 140		07/01/22 16:23	1
Dibromofluoromethane (Surr)	101		60 - 140		07/01/22 16:23	1
1,2-Dichloroethane-d4 (Surr)	101		60 - 140		07/01/22 16:23	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	26	J	250	22	ug/L			07/01/22 15:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150		07/01/22 15:06	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-271577/5**  
**Matrix: Water**  
**Analysis Batch: 271577**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/01/22 13:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140					07/01/22 13:15	1
4-Bromofluorobenzene (Surr)	97		60 - 140					07/01/22 13:15	1
Dibromofluoromethane (Surr)	102		60 - 140					07/01/22 13:15	1
1,2-Dichloroethane-d4 (Surr)	103		60 - 140					07/01/22 13:15	1

**Lab Sample ID: LCS 410-271577/1003**  
**Matrix: Water**  
**Analysis Batch: 271577**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	18.5		ug/L		93	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	100		60 - 140				
4-Bromofluorobenzene (Surr)	102		60 - 140				
Dibromofluoromethane (Surr)	101		60 - 140				
1,2-Dichloroethane-d4 (Surr)	102		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-395472/1-A**  
**Matrix: Water**  
**Analysis Batch: 395621**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 395472**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		06/30/22 09:15	07/01/22 17:15	1
Chrysene	ND		0.10	0.037	ug/L		06/30/22 09:15	07/01/22 17:15	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		06/30/22 09:15	07/01/22 17:15	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		06/30/22 09:15	07/01/22 17:15	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		06/30/22 09:15	07/01/22 17:15	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		06/30/22 09:15	07/01/22 17:15	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		06/30/22 09:15	07/01/22 17:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	118		29 - 150				06/30/22 09:15	07/01/22 17:15	1

**Lab Sample ID: LCS 580-395472/2-A**  
**Matrix: Water**  
**Analysis Batch: 395621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 395472**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.73		ug/L		93	55 - 123
Chrysene	4.00	3.40		ug/L		85	47 - 120
Benzo[b]fluoranthene	4.00	3.07		ug/L		77	43 - 120
Benzo[k]fluoranthene	4.00	3.48		ug/L		87	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-395472/2-A**  
**Matrix: Water**  
**Analysis Batch: 395621**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 395472**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	4.00	3.48		ug/L		87	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.56		ug/L		89	45 - 123
Dibenz(a,h)anthracene	4.00	3.66		ug/L		92	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	102		29 - 150

**Lab Sample ID: LCSD 580-395472/3-A**  
**Matrix: Water**  
**Analysis Batch: 395621**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 395472**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	2.97		ug/L		74	55 - 123	23	31
Chrysene	4.00	2.84		ug/L		71	47 - 120	18	30
Benzo[b]fluoranthene	4.00	2.51		ug/L		63	43 - 120	20	35
Benzo[k]fluoranthene	4.00	2.87		ug/L		72	41 - 121	19	35
Benzo[a]pyrene	4.00	2.84		ug/L		71	51 - 120	20	31
Indeno[1,2,3-cd]pyrene	4.00	2.76		ug/L		69	45 - 123	25	35
Dibenz(a,h)anthracene	4.00	3.09		ug/L		77	54 - 123	17	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	85		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-271702/5**  
**Matrix: Water**  
**Analysis Batch: 271702**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	22	ug/L			07/01/22 13:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		07/01/22 13:49	1

**Lab Sample ID: LCS 410-271702/6**  
**Matrix: Water**  
**Analysis Batch: 271702**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1160		ug/L		105	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	96		50 - 150



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-271702/7**  
**Matrix: Water**  
**Analysis Batch: 271702**

**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 Range Organics (GRO)-C7-C12	1100	1200		ug/L		109	64 - 131	4	30
<b>Surrogate</b>		<b>LCSD</b>	<b>LCSD</b>			<b>%Recovery</b>			<b>Limits</b>
<i>a,a,a-Trifluorotoluene (fid)</i>		95							50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

**Client Sample ID: OUTFALL #002**

**Lab Sample ID: 580-115288-1**

**Date Collected: 06/27/22 09:00**

**Matrix: Water**

**Date Received: 06/27/22 10:41**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	271577	07/01/22 15:59	UJML	ELLE
Total/NA	Prep	3510C			395472	06/30/22 09:15	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	395621	07/01/22 19:19	TL1	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	271702	07/01/22 16:24	JJT8	ELLE
Total/NA	Prep	3510C			395462	06/30/22 09:06	JJY	FGS SEA
Total/NA	Cleanup	3630C			395471	06/30/22 09:14	JJY	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	395944	07/05/22 21:00	DH	FGS SEA

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 580-115288-2**

**Date Collected: 06/27/22 00:01**

**Matrix: Water**

**Date Received: 06/27/22 10:41**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	271577	07/01/22 16:23	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	271702	07/01/22 15:06	JJT8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22 *
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22 *
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
USDA	US Federal Programs	P330-19-00197	07-03-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115288-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-115288-1	OUTFALL #002	Water	06/27/22 09:00	06/27/22 10:41
580-115288-2	TRIP BLANK	Water	06/27/22 00:01	06/27/22 10:41

1

2

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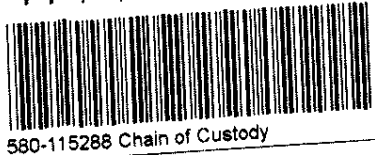
9

10

11

# Chain of Custody Record

<b>Client Information</b>		Sampler: <u>P. Bruno</u>	Lab PM: <u>Elaine Walker</u>	Carrier Tracking No(s):	GOC No:																										
Client Contact: <u>Ophélie Enelle</u>		Phone: <u>206-726-4720</u>	E-Mail:	State of Origin: <u>WA</u>	Page: <u>Page 1 of 1</u>																										
Company: <u>Arcadis</u>		PWSID:	<b>Analysis Requested</b>																												
Address: <u>1100 Olive Way</u>		Due Date Requested:	<table border="1"> <tr> <td rowspan="6" style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Samples (Yes or No) Perform MSMSO (Yes or No)</td> <td>Benzene 624-5ml</td> <td></td> <td></td> <td></td> <td rowspan="6" style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of Containers</td> </tr> <tr> <td>MTPH - Gx</td> <td></td> <td></td> <td></td> </tr> <tr> <td>NMPH - Dk w/ 566</td> <td></td> <td></td> <td></td> </tr> <tr> <td>8270 C - SIM</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>			Field Filtered Samples (Yes or No) Perform MSMSO (Yes or No)	Benzene 624-5ml				Total Number of Containers	MTPH - Gx				NMPH - Dk w/ 566				8270 C - SIM											
Field Filtered Samples (Yes or No) Perform MSMSO (Yes or No)	Benzene 624-5ml								Total Number of Containers																						
	MTPH - Gx																														
	NMPH - Dk w/ 566																														
	8270 C - SIM																														
City: <u>Seattle</u>		TAT Requested (days):	Preservation Codes:																												
State, Zip: <u>WA, 98101</u>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	A - HCL                      M - Hexane B - NaOH                    N - None C - Zn Acetate              O - AsNaO2 D - Nitric Acid              P - Na2O4S E - NaHSO4                  Q - Na2SO3 F - MeOH                     R - Na2S2O3 G - Amchlor                S - H2SO4 H - Ascorbic Acid          T - TSP Dodecahydrate I - Ice                         U - Acetone J - DI Water                 V - MCAA K - EDTA                    W - pH 4-5 L - EDA                      Z - other (specify)																												
Project Name: <u>Edmonds Terminal</u>		PO #: <u>Purchase Order not required</u>	Other:																												
Site: <u>11720 Unoco Rd Edmonds, WA</u>		WO #:																													
Project #:		SSOW#:																													
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastefoil, BT=Tissue, A=Air)	Preservation Code:	Special Instructions/Note:																								
<u>Outfall #002</u>		<u>6/27/22</u>	<u>0900</u>	<u>G</u>	<u>W</u>	<u>A A A Z</u>	<u>pH = 7.85</u>																								
<u>Top Blank</u>					<u>W</u>	<u>3 3</u>	<u>* Benzene and CPAHs with Quantitative level less than 1 ug/L</u>																								
							<u>* Use standard 566</u>																								
							<u>* 93 GPM</u>																								



**Possible Hazard Identification**

Non-Hazard  
  Flammable  
  Skin Irritant  
  Poison B  
  Unknown  
  Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**

Return To Client  
  Disposal By Lab  
  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

Relinquished by: <u>[Signature]</u>	Date/Time: <u>6/27/22 1030</u>	Company: <u>Arcadis</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6/27/22 10:41</u>	Company: <u>ETA</u>
Relinquished by:	Date/Time:	Company:	Received by:	Therm. ID: <u>A3</u> Cor: <u>11.7</u> ° Unc: <u>11.6</u> °	Cooler Dsc: <u>MR</u>
Relinquished by:	Date/Time:	Company:	Received by:	Packing: <u>Bjb</u>	FedEx: _____
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:		Cust. Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	UPS: _____
				Blue Ice, <input checked="" type="checkbox"/> Dry, None	Lab Cour: <input checked="" type="checkbox"/>
				Other: <u>7/14/2022</u>	



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115288-1

**Login Number: 115288**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Vallelunga, Diana L**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample date and/or time on COC, logged in per container labels.
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115288-1

**Login Number: 115288**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 06/30/22 04:08 PM**

**Creator: Foreman, Leah M**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-115614-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*M. Elaine Walker*

Authorized for release by:  
7/20/2022 6:55:31 PM

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

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**Job ID: 580-115614-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-115614-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 7/6/2022 12:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4° C.

**Receipt Exceptions**

The following sample(s) was received at the laboratory without a sample collection time documented on the chain of custody: Trip Blank had no date or time on the containers or on the COC. It was given the default date of 07/05/2022 and time of 00:01

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-115614-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-115614-1**

**Date Collected: 07/05/22 11:00**

**Matrix: Water**

**Date Received: 07/06/22 12:30**

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/19/22 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		79 - 122		07/19/22 20:21	1
4-Bromofluorobenzene (Surr)	94		78 - 120		07/19/22 20:21	1
Dibromofluoromethane (Surr)	96		80 - 120		07/19/22 20:21	1
1,2-Dichloroethane-d4 (Surr)	94		78 - 120		07/19/22 20:21	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/19/22 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		77 - 123		07/19/22 20:21	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		07/11/22 09:07	07/12/22 13:03	1
Chrysene	ND		0.10	0.038	ug/L		07/11/22 09:07	07/12/22 13:03	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/11/22 09:07	07/12/22 13:03	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		07/11/22 09:07	07/12/22 13:03	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/11/22 09:07	07/12/22 13:03	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		07/11/22 09:07	07/12/22 13:03	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/11/22 09:07	07/12/22 13:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	111		29 - 150	07/11/22 09:07	07/12/22 13:03	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		07/07/22 09:41	07/08/22 04:32	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		07/07/22 09:41	07/08/22 04:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	07/07/22 09:41	07/08/22 04:32	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-115614-2**

Date Collected: 07/05/22 00:01

Matrix: Water

Date Received: 07/06/22 12:30

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/19/22 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		79 - 122		07/19/22 20:46	1
4-Bromofluorobenzene (Surr)	93		78 - 120		07/19/22 20:46	1
Dibromofluoromethane (Surr)	95		80 - 120		07/19/22 20:46	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120		07/19/22 20:46	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/19/22 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123		07/19/22 20:46	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-397516/35**  
**Matrix: Water**  
**Analysis Batch: 397516**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/19/22 19:07	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		79 - 122					07/19/22 19:07	1
4-Bromofluorobenzene (Surr)	93		78 - 120					07/19/22 19:07	1
Dibromofluoromethane (Surr)	95		80 - 120					07/19/22 19:07	1
1,2-Dichloroethane-d4 (Surr)	97		78 - 120					07/19/22 19:07	1

**Lab Sample ID: LCS 580-397516/36**  
**Matrix: Water**  
**Analysis Batch: 397516**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.3		ug/L		103	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	102		79 - 122					
4-Bromofluorobenzene (Surr)	98		78 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
1,2-Dichloroethane-d4 (Surr)	97		78 - 120					

**Lab Sample ID: LCSD 580-397516/37**  
**Matrix: Water**  
**Analysis Batch: 397516**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.3		ug/L		103	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	103		79 - 122						
4-Bromofluorobenzene (Surr)	95		78 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
1,2-Dichloroethane-d4 (Surr)	101		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-396765/4-A**  
**Matrix: Water**  
**Analysis Batch: 397517**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0	1.4	mg/L			07/19/22 14:11	100
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		77 - 123					07/19/22 14:11	100

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: MB 580-397517/35**  
**Matrix: Water**  
**Analysis Batch: 397517**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/19/22 19:07	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123					07/19/22 19:07	1

**Lab Sample ID: LCS 580-397517/25**  
**Matrix: Water**  
**Analysis Batch: 397517**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.03		mg/L		103	55 - 148
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	102		77 - 123				

**Lab Sample ID: LCSD 580-397517/26**  
**Matrix: Water**  
**Analysis Batch: 397517**

**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	1.00	1.07		mg/L		107	55 - 148	4	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-396544/1-A**  
**Matrix: Water**  
**Analysis Batch: 396691**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 396544**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/11/22 09:07	07/12/22 11:25	1
Chrysene	ND		0.10	0.037	ug/L		07/11/22 09:07	07/12/22 11:25	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/11/22 09:07	07/12/22 11:25	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/11/22 09:07	07/12/22 11:25	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/11/22 09:07	07/12/22 11:25	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/11/22 09:07	07/12/22 11:25	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/11/22 09:07	07/12/22 11:25	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	119		29 - 150				07/11/22 09:07	07/12/22 11:25	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-396544/2-A**  
**Matrix: Water**  
**Analysis Batch: 396691**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 396544**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	4.00	3.98		ug/L		100	55 - 123
Chrysene	4.00	3.82		ug/L		95	47 - 120
Benzo[b]fluoranthene	4.00	3.70		ug/L		92	43 - 120
Benzo[k]fluoranthene	4.00	4.02		ug/L		100	41 - 121
Benzo[a]pyrene	4.00	4.09		ug/L		102	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	4.20		ug/L		105	45 - 123
Dibenz(a,h)anthracene	4.00	4.48		ug/L		112	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	117		29 - 150

**Lab Sample ID: LCSD 580-396544/3-A**  
**Matrix: Water**  
**Analysis Batch: 396691**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 396544**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	4.00	3.92		ug/L		98	55 - 123	2	31
Chrysene	4.00	3.72		ug/L		93	47 - 120	3	30
Benzo[b]fluoranthene	4.00	3.69		ug/L		92	43 - 120	0	35
Benzo[k]fluoranthene	4.00	3.87		ug/L		97	41 - 121	4	35
Benzo[a]pyrene	4.00	4.00		ug/L		100	51 - 120	2	31
Indeno[1,2,3-cd]pyrene	4.00	4.15		ug/L		104	45 - 123	1	35
Dibenz(a,h)anthracene	4.00	4.40		ug/L		110	54 - 123	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	114		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-396204/1-B**  
**Matrix: Water**  
**Analysis Batch: 396347**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 396204**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		07/07/22 09:41	07/08/22 01:10	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		07/07/22 09:41	07/08/22 01:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150	07/07/22 09:41	07/08/22 01:10	1

**Lab Sample ID: LCS 580-396204/2-B**  
**Matrix: Water**  
**Analysis Batch: 396347**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 396204**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
#2 Diesel (C10-C24)	4.00	3.24		mg/L		81	50 - 120
Motor Oil (>C24-C36)	4.00	3.60		mg/L		90	64 - 120

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCS 580-396204/2-B**  
**Matrix: Water**  
**Analysis Batch: 396347**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 396204**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	87		50 - 150

**Lab Sample ID: LCSD 580-396204/3-B**  
**Matrix: Water**  
**Analysis Batch: 396347**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 396204**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	RPD	Limit
#2 Diesel (C10-C24)	4.00	3.21		mg/L		80	50 - 120	1	26	
Motor Oil (>C24-C36)	4.00	3.50		mg/L		88	64 - 120	3	24	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	84		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Client Sample ID: Outfall #002

Date Collected: 07/05/22 11:00

Date Received: 07/06/22 12:30

## Lab Sample ID: 580-115614-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	397516	07/19/22 20:21	BNM	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	397517	07/19/22 20:21	BNM	FGS SEA
Total/NA	Prep	3510C			396544	07/11/22 09:07	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	396691	07/12/22 13:03	TL1	FGS SEA
Total/NA	Prep	3510C			396204	07/07/22 09:41	KLW	FGS SEA
Total/NA	Cleanup	3630C			396205	07/07/22 09:51	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	396347	07/08/22 04:32	Y1F	FGS SEA

## Client Sample ID: Trip Blank

Date Collected: 07/05/22 00:01

Date Received: 07/06/22 12:30

## Lab Sample ID: 580-115614-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	397516	07/19/22 20:46	BNM	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	397517	07/19/22 20:46	BNM	FGS SEA

### Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22 *

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115614-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-115614-1	Outfall #002	Water	07/05/22 11:00	07/06/22 12:30
580-115614-2	Trip Blank	Water	07/05/22 00:01	07/06/22 12:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115614-1

**Login Number: 115614**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Vallelunga, Diana L**

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No date or time on COC or containers.
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	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-115785-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*Kristine D. Allen*

Authorized for release by:  
7/25/2022 4:42:54 PM  
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Designee for  
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### LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

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**Job ID: 580-115785-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-115785-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 7/11/2022 11:25 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 15.8° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following samples formed emulsions during the extraction procedure: Outfall #002 (580-115785-1) and DUP-1 (580-115785-2). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-115785-1**

Date Collected: 07/11/22 10:45

Matrix: Water

Date Received: 07/11/22 11:25

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/15/22 19:21	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140					07/15/22 19:21	1
4-Bromofluorobenzene (Surr)	108		60 - 140					07/15/22 19:21	1
Dibromofluoromethane (Surr)	100		60 - 140					07/15/22 19:21	1
1,2-Dichloroethane-d4 (Surr)	103		60 - 140					07/15/22 19:21	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		07/12/22 08:51	07/12/22 20:53	1
Chrysene	ND		0.10	0.038	ug/L		07/12/22 08:51	07/12/22 20:53	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/12/22 08:51	07/12/22 20:53	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		07/12/22 08:51	07/12/22 20:53	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/12/22 08:51	07/12/22 20:53	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		07/12/22 08:51	07/12/22 20:53	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/12/22 08:51	07/12/22 20:53	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		29 - 150				07/12/22 08:51	07/12/22 20:53	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			07/14/22 14:04	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					07/14/22 14:04	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		07/13/22 09:19	07/14/22 02:51	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		07/13/22 09:19	07/14/22 02:51	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150				07/13/22 09:19	07/14/22 02:51	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

**Client Sample ID: DUP-1**

**Lab Sample ID: 580-115785-2**

Date Collected: 07/11/22 10:45

Matrix: Water

Date Received: 07/11/22 11:25

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/15/22 19:45	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		60 - 140					07/15/22 19:45	1
4-Bromofluorobenzene (Surr)	107		60 - 140					07/15/22 19:45	1
Dibromofluoromethane (Surr)	99		60 - 140					07/15/22 19:45	1
1,2-Dichloroethane-d4 (Surr)	101		60 - 140					07/15/22 19:45	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		07/12/22 08:51	07/12/22 21:12	1
Chrysene	ND		0.10	0.039	ug/L		07/12/22 08:51	07/12/22 21:12	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		07/12/22 08:51	07/12/22 21:12	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		07/12/22 08:51	07/12/22 21:12	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		07/12/22 08:51	07/12/22 21:12	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		07/12/22 08:51	07/12/22 21:12	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		07/12/22 08:51	07/12/22 21:12	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		29 - 150				07/12/22 08:51	07/12/22 21:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			07/14/22 14:29	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					07/14/22 14:29	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		07/13/22 09:19	07/14/22 03:11	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		07/13/22 09:19	07/14/22 03:11	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	79		50 - 150				07/13/22 09:19	07/14/22 03:11	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-115785-3**

Date Collected: 07/11/22 00:01

Matrix: Water

Date Received: 07/11/22 11:25

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/15/22 18:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140					07/15/22 18:57	1
4-Bromofluorobenzene (Surr)	109		60 - 140					07/15/22 18:57	1
Dibromofluoromethane (Surr)	101		60 - 140					07/15/22 18:57	1
1,2-Dichloroethane-d4 (Surr)	102		60 - 140					07/15/22 18:57	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			07/14/22 13:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					07/14/22 13:38	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-276009/5**  
**Matrix: Water**  
**Analysis Batch: 276009**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			07/15/22 13:53	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140					07/15/22 13:53	1
4-Bromofluorobenzene (Surr)	106		60 - 140					07/15/22 13:53	1
Dibromofluoromethane (Surr)	100		60 - 140					07/15/22 13:53	1
1,2-Dichloroethane-d4 (Surr)	102		60 - 140					07/15/22 13:53	1

**Lab Sample ID: LCS 410-276009/1003**  
**Matrix: Water**  
**Analysis Batch: 276009**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	20.8		ug/L		104	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	101		60 - 140				
4-Bromofluorobenzene (Surr)	110		60 - 140				
Dibromofluoromethane (Surr)	99		60 - 140				
1,2-Dichloroethane-d4 (Surr)	101		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-396676/1-A**  
**Matrix: Water**  
**Analysis Batch: 396790**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 396676**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/12/22 08:51	07/12/22 17:56	1
Chrysene	ND		0.10	0.037	ug/L		07/12/22 08:51	07/12/22 17:56	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/12/22 08:51	07/12/22 17:56	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/12/22 08:51	07/12/22 17:56	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/12/22 08:51	07/12/22 17:56	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/12/22 08:51	07/12/22 17:56	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/12/22 08:51	07/12/22 17:56	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	106		29 - 150				07/12/22 08:51	07/12/22 17:56	1

**Lab Sample ID: LCS 580-396676/2-A**  
**Matrix: Water**  
**Analysis Batch: 396790**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 396676**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.59		ug/L		90	55 - 123
Chrysene	4.00	3.49		ug/L		87	47 - 120
Benzo[b]fluoranthene	4.00	3.29		ug/L		82	43 - 120
Benzo[k]fluoranthene	4.00	3.69		ug/L		92	41 - 121

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-396676/2-A

Matrix: Water

Analysis Batch: 396790

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 396676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.65		ug/L		91	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.62		ug/L		91	45 - 123	
Dibenz(a,h)anthracene	4.00	3.95		ug/L		99	54 - 123	
		LCS LCS						
Surrogate	%Recovery	Qualifier	Limits					
Terphenyl-d14	108		29 - 150					

Lab Sample ID: LCSD 580-396676/3-A

Matrix: Water

Analysis Batch: 396790

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 396676

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	3.79		ug/L		95	55 - 123	5	31	
Chrysene	4.00	3.66		ug/L		91	47 - 120	5	30	
Benzo[b]fluoranthene	4.00	3.42		ug/L		85	43 - 120	4	35	
Benzo[k]fluoranthene	4.00	4.05		ug/L		101	41 - 121	9	35	
Benzo[a]pyrene	4.00	3.89		ug/L		97	51 - 120	6	31	
Indeno[1,2,3-cd]pyrene	4.00	3.76		ug/L		94	45 - 123	4	35	
Dibenz(a,h)anthracene	4.00	4.24		ug/L		106	54 - 123	7	35	
		LCSD LCSD								
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14	111		29 - 150							

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-275529/4

Matrix: Water

Analysis Batch: 275529

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			07/14/22 11:00	1
		MB MB							
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
a,a,a-Trifluorotoluene (fid)	104		50 - 150		07/14/22 11:00	1			

Lab Sample ID: LCS 410-275529/5

Matrix: Water

Analysis Batch: 275529

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1050		ug/L		96	64 - 131	
		LCS LCS						
Surrogate	%Recovery	Qualifier	Limits					
a,a,a-Trifluorotoluene (fid)	93		50 - 150					

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 410-275529/6

Matrix: Water

Analysis Batch: 275529

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 Range Organics (GRO)-C7-C12	1100	1050		ug/L		96	64 - 131	0	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		95							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-396810/1-B

Matrix: Water

Analysis Batch: 396876

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 396810

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		07/13/22 09:19	07/14/22 01:51	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		07/13/22 09:19	07/14/22 01:51	1
<b>Surrogate</b>		<b>%Recovery</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl		71					07/13/22 09:19	07/14/22 01:51	1

Lab Sample ID: LCS 580-396810/2-B

Matrix: Water

Analysis Batch: 396876

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 396810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.36		mg/L		84	50 - 120
Motor Oil (>C24-C36)	4.00	3.87		mg/L		97	64 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
o-Terphenyl		93					50 - 150

Lab Sample ID: LCSD 580-396810/3-B

Matrix: Water

Analysis Batch: 396876

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 396810

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.12		mg/L		78	50 - 120	7	26
Motor Oil (>C24-C36)	4.00	3.53		mg/L		88	64 - 120	9	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>		
o-Terphenyl		79					50 - 150		

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-115785-1

Date Collected: 07/11/22 10:45

Matrix: Water

Date Received: 07/11/22 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	276009	07/15/22 19:21	UJML	ELLE
Total/NA	Prep	3510C			396676	07/12/22 08:51	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	396790	07/12/22 20:53	E1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	275529	07/14/22 14:04	NND8	ELLE
Total/NA	Prep	3510C			396810	07/13/22 09:19	KLW	FGS SEA
Total/NA	Cleanup	3630C			396811	07/13/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	396876	07/14/22 02:51	Y1F	FGS SEA

## Client Sample ID: DUP-1

Lab Sample ID: 580-115785-2

Date Collected: 07/11/22 10:45

Matrix: Water

Date Received: 07/11/22 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	276009	07/15/22 19:45	UJML	ELLE
Total/NA	Prep	3510C			396676	07/12/22 08:51	KLW	FGS SEA
Total/NA	Analysis	8270E SIM		1	396790	07/12/22 21:12	E1L	FGS SEA
Total/NA	Analysis	NWTPH-Gx		1	275529	07/14/22 14:29	NND8	ELLE
Total/NA	Prep	3510C			396810	07/13/22 09:19	KLW	FGS SEA
Total/NA	Cleanup	3630C			396811	07/13/22 09:30	KLW	FGS SEA
Total/NA	Analysis	NWTPH-Dx		1	396876	07/14/22 03:11	Y1F	FGS SEA

## Client Sample ID: Trip Blank

Lab Sample ID: 580-115785-3

Date Collected: 07/11/22 00:01

Matrix: Water

Date Received: 07/11/22 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	276009	07/15/22 18:57	UJML	ELLE
Total/NA	Analysis	NWTPH-Gx		1	275529	07/14/22 13:38	NND8	ELLE

**Laboratory References:**

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22 *

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22 *
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-115785-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-115785-1	Outfall #002	Water	07/11/22 10:45	07/11/22 11:25
580-115785-2	DUP-1	Water	07/11/22 10:45	07/11/22 11:25
580-115785-3	Trip Blank	Water	07/11/22 00:01	07/11/22 11:25

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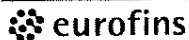
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11

# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories Environmental**

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										SCR #: _____																																																																													
Facility # <u>Edmonds Terminal</u> WBS Site Address <u>11720 UNOCO RD, EDMONDS WA</u> Chevron PM <u>KIM SOLITZ</u> Lead Consultant <u>Arcadis</u> Consultant/Office <u>At 1100 Olive way, suite 800, Seattle WA 98101</u> Consultant Project Mgr. <u>Sam Miles</u> Consultant Phone # _____				<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> NPDES <input checked="" type="checkbox"/> Surface <input type="checkbox"/> Oil <input type="checkbox"/> Air				<input type="checkbox"/> BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input checked="" type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <u>BENZENE EPA 624</u> <u>CPAHs 827052M</u>										<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																																																																													
2 Sample Identification		3 Collected		3 Grab	3 Composite											6 Remarks																																																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Date</th> <th style="width: 20%;">Time</th> <th style="width: 10%;">Grab</th> <th style="width: 10%;">Composite</th> <th style="width: 10%;">Soil</th> <th style="width: 10%;">Water</th> <th style="width: 10%;">Oil</th> <th style="width: 10%;">Total Number of Containers</th> <th style="width: 10%;">BTEX + MTBE</th> <th style="width: 10%;">8260 full scan</th> <th style="width: 10%;">Oxygenates</th> <th style="width: 10%;">NWTPH-Gx</th> <th style="width: 10%;">NWTPH-Dx with Silica Gel Cleanup</th> <th style="width: 10%;">NWTPH-Dx without Silica Gel Cleanup</th> <th style="width: 10%;">WA VPH</th> <th style="width: 10%;">Lead</th> <th style="width: 10%;">Total</th> <th style="width: 10%;">Diss.</th> <th style="width: 10%;">Method</th> </tr> </thead> <tbody> <tr> <td><u>7-11-22</u></td> <td><u>1045</u></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td style="text-align: center;"><u>10</u></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><u>7-11-22</u></td> <td><u>-</u></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td style="text-align: center;"><u>10</u></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><u>-</u></td> <td><u>-</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>4</u></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td></td> <td style="text-align: center;"><u>X</u></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method	<u>7-11-22</u>	<u>1045</u>	<u>X</u>			<u>X</u>		<u>10</u>				<u>X</u>	<u>X</u>			<u>X</u>					<u>7-11-22</u>	<u>-</u>	<u>X</u>			<u>X</u>		<u>10</u>				<u>X</u>	<u>X</u>			<u>X</u>					<u>-</u>	<u>-</u>						<u>4</u>				<u>X</u>				<u>X</u>																			<p><u>* Benzene and CPAHs with quantitative &lt; 1 mg/l</u></p> <p><u>* use standard silica gel cleanup</u></p> <p><u>pH 7.73</u></p> <p><u>93m 91</u></p>
Date	Time	Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup	NWTPH-Dx without Silica Gel Cleanup	WA VPH	Lead	Total	Diss.	Method																																																																													
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7 Turnaround Time Requested (TAT) (please circle)				Relinquished by <u>DSG</u>				Date <u>7-11-22</u>		Time <u>1125</u>		Received by <u>Sidney Lawford</u>				Date <u>7/11/22</u>		Time <u>11:25</u>																																																																													
<input checked="" type="radio"/> Standard 5 day <input type="radio"/> 72 hour 48 hour 24 hour												Therm ID: <u>129</u> Cor: <u>15.8</u> ° Unc: <u>15.4</u> °																																																																																			
8 Data Package (circle if required)				Relinquished by Commercial Carrier:								Packing: <u>20</u>																																																																																			
<input type="radio"/> Type I - Full <input type="radio"/> Type VI (Raw Data)				<input type="radio"/> EDD (circle if required) CVX-RTBU-FI_05 (default)				<input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other _____		Temperature Upon Receipt _____ °C		Cust. Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Blue Ice, <input checked="" type="checkbox"/> Wet, <input type="checkbox"/> Dry, <input type="checkbox"/> None				FedEx: _____ UPS: _____ Lab Cour: <input checked="" type="checkbox"/>		Other: _____		Custody Seals Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																											



**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM: Walker, Elaine M		Carrier Tracking No(s):	CDC No: 580-106095.1			
Client Contact: Shipping/Receiving		Phone:	E-Mail: M.Elaine.Walker@et.eurofinsus.com		State of Origin: Washington	Page: Page 1 of 1			
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Washington				Job #: 580-115785-1			
Address: 2425 New Holland Pike,		Due Date Requested: 7/25/2022		<b>Analysis Requested</b>				<b>Preservation Codes:</b> A - HCL                     M - Hexane B - NaOH                  N - None C - Zn Acetate            O - AsNaO2 D - Nitric Acid            P - Na2O4S E - NaHSO4               Q - Na2SO3 F - MeOH                  R - Na2S2O3 G - Amchlor              S - H2SO4 H - Ascorbic Acid        T - TSP Dodecahydrate I - Ice                      U - Acetone J - DI Water              V - MCAA K - EDTA                  W - pH 4-5 L - EDA                    Y - Trizma Z - other (specify)	
City: Lancaster		TAT Requested (days):							
State, Zip: PA, 17601		PO #:		<b>Total Number of containers</b>		<b>Special Instructions/Note:</b>			
Phone: 717-656-2300(Tel)		WO #:							
Email:		Project #: 58011413		<b>Field Filtered Sample (Yes or No)</b>		<b>Perform M/MSD (Yes or No)</b>			
Project Name: Chevron Edmonds Terminal		SSOW#:							
Site: Chevron Edmonds Terminal				<b>624.1_PREC/624_Prep Benzene</b>		<b>NWTPH_Gx/5030B NWTPH - Gasoline Range Organics</b>			
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>				
				<b>Preservation Code:</b>					
Outfall #002 (580-115785-1)		7/11/22	10:45 Pacific		Water	X	X	6	Do not dilute
DUP-1 (580-115785-2)		7/11/22	10:45 Pacific		Water	X	X	6	Do not dilute
Trip Blank (580-115785-3)		7/11/22	00:01 Pacific		Water	X	X	4	Do not dilute
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.</p>									
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>				
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:		
Relinquished by: [Signature]			Date/Time: 7/12/22 1446		Company: EETN		Received by: [Signature]		Company:
Relinquished by:			Date/Time:		Company:		Received by:		Company:
Relinquished by:			Date/Time:		Company:		Received by: [Signature]		Date/Time: 7/13/22 10:35 Company: EUE
<b>Custody Seals Intact:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: 1781193				Cooler Temperature(s) °C and Other Remarks: 1.8			

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115785-1

**Login Number: 115785**

**List Number: 1**

**Creator: Vallelunga, Diana L**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	15.8/15.4
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	

## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-115785-1

**Login Number: 115785**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 07/13/22 09:06 PM**

**Creator: Metzger, Katherine A**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	Not present.
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

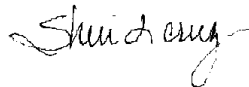
## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-116144-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
8/9/2022 11:23:12 AM  
Sheri Cruz, Project Manager I  
(253)922-2310  
[Sheri.Cruz@et.eurofinsus.com](mailto:Sheri.Cruz@et.eurofinsus.com)

Designee for  
Elaine Walker, Project Manager II  
(253)248-4972  
[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

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results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

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**Job ID: 580-116144-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-116144-1**

**Receipt**

The samples were received on 7/20/2022 11:15 AM. Unless otherwise noted below, the samples arrived in good condition. The temperature of the cooler at receipt was 8.4° C.

**Receipt Exceptions**

The following samples were received at the laboratory outside the required temperature criteria: Outfall #002 (580-116144-1) and Trip Blank (580-116144-2). This does not meet regulatory requirements.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116144-1**

**Date Collected: 07/19/22 11:00**

**Matrix: Water**

**Date Received: 07/20/22 11:15**

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/30/22 21:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		79 - 122		07/30/22 21:11	1
4-Bromofluorobenzene (Surr)	88		78 - 120		07/30/22 21:11	1
Dibromofluoromethane (Surr)	96		80 - 120		07/30/22 21:11	1
1,2-Dichloroethane-d4 (Surr)	98		78 - 120		07/30/22 21:11	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/30/22 21:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		77 - 123		07/30/22 21:11	1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		07/26/22 07:15	07/27/22 15:08	1
Chrysene	ND		0.10	0.038	ug/L		07/26/22 07:15	07/27/22 15:08	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/26/22 07:15	07/27/22 15:08	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		07/26/22 07:15	07/27/22 15:08	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/26/22 07:15	07/27/22 15:08	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		07/26/22 07:15	07/27/22 15:08	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/26/22 07:15	07/27/22 15:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	104		29 - 150	07/26/22 07:15	07/27/22 15:08	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		08/02/22 09:34	08/03/22 20:53	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.12</b>	<b>J</b>	0.35	0.097	mg/L		08/02/22 09:34	08/03/22 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150	08/02/22 09:34	08/03/22 20:53	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-116144-2**

**Date Collected: 07/19/22 00:01**

**Matrix: Water**

**Date Received: 07/20/22 11:15**

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/30/22 21:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		79 - 122		07/30/22 21:35	1
4-Bromofluorobenzene (Surr)	86		78 - 120		07/30/22 21:35	1
Dibromofluoromethane (Surr)	96		80 - 120		07/30/22 21:35	1
1,2-Dichloroethane-d4 (Surr)	103		78 - 120		07/30/22 21:35	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/30/22 21:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		77 - 123		07/30/22 21:35	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-398877/5**  
**Matrix: Water**  
**Analysis Batch: 398877**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			07/30/22 18:42	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		79 - 122					07/30/22 18:42	1
4-Bromofluorobenzene (Surr)	90		78 - 120					07/30/22 18:42	1
Dibromofluoromethane (Surr)	96		80 - 120					07/30/22 18:42	1
1,2-Dichloroethane-d4 (Surr)	100		78 - 120					07/30/22 18:42	1

**Lab Sample ID: LCS 580-398877/6**  
**Matrix: Water**  
**Analysis Batch: 398877**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	11.1		ug/L		111	80 - 122	
Surrogate	%Recovery	LCS Qualifier	LCS Limits					
Toluene-d8 (Surr)	104		79 - 122					
4-Bromofluorobenzene (Surr)	92		78 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
1,2-Dichloroethane-d4 (Surr)	103		78 - 120					

**Lab Sample ID: LCSD 580-398877/7**  
**Matrix: Water**  
**Analysis Batch: 398877**

**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	11.2		ug/L		112	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
Toluene-d8 (Surr)	104		79 - 122						
4-Bromofluorobenzene (Surr)	91		78 - 120						
Dibromofluoromethane (Surr)	97		80 - 120						
1,2-Dichloroethane-d4 (Surr)	103		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-398878/5**  
**Matrix: Water**  
**Analysis Batch: 398878**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			07/30/22 18:42	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123					07/30/22 18:42	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-398878/8**  
**Matrix: Water**  
**Analysis Batch: 398878**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.849		mg/L		85	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	93		77 - 123				

**Lab Sample ID: LCSD 580-398878/9**  
**Matrix: Water**  
**Analysis Batch: 398878**

**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	1.00	0.875		mg/L		88	55 - 148	3	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	96		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-398226/1-A**  
**Matrix: Water**  
**Analysis Batch: 398404**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 398226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/26/22 07:15	07/27/22 11:41	1
Chrysene	ND		0.10	0.037	ug/L		07/26/22 07:15	07/27/22 11:41	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		07/26/22 07:15	07/27/22 11:41	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/26/22 07:15	07/27/22 11:41	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		07/26/22 07:15	07/27/22 11:41	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/26/22 07:15	07/27/22 11:41	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/26/22 07:15	07/27/22 11:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	101		29 - 150				07/26/22 07:15	07/27/22 11:41	1

**Lab Sample ID: LCS 580-398226/2-A**  
**Matrix: Water**  
**Analysis Batch: 398404**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 398226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.06		ug/L		76	55 - 123
Chrysene	4.00	2.96		ug/L		74	47 - 120
Benzo[b]fluoranthene	4.00	2.41		ug/L		60	43 - 120
Benzo[k]fluoranthene	4.00	2.83		ug/L		71	41 - 121
Benzo[a]pyrene	4.00	2.74		ug/L		69	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	2.61		ug/L		65	45 - 123
Dibenz(a,h)anthracene	4.00	2.64		ug/L		66	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID:** LCS 580-398226/2-A  
**Matrix:** Water  
**Analysis Batch:** 398404

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 398226

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	95		29 - 150

**Lab Sample ID:** LCSD 580-398226/3-A  
**Matrix:** Water  
**Analysis Batch:** 398404

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 398226

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.92		ug/L		98	55 - 123	25	31
Chrysene	4.00	3.82		ug/L		96	47 - 120	25	30
Benzo[b]fluoranthene	4.00	2.82		ug/L		70	43 - 120	16	35
Benzo[k]fluoranthene	4.00	3.81		ug/L		95	41 - 121	29	35
Benzo[a]pyrene	4.00	3.50		ug/L		87	51 - 120	24	31
Indeno[1,2,3-cd]pyrene	4.00	3.66		ug/L		91	45 - 123	34	35
Dibenz(a,h)anthracene	4.00	3.28		ug/L		82	54 - 123	22	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	103		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID:** MB 580-399080/1-B  
**Matrix:** Water  
**Analysis Batch:** 399305

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA  
**Prep Batch:** 399080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/02/22 09:34	08/03/22 19:34	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		08/02/22 09:34	08/03/22 19:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	66		50 - 150	08/02/22 09:34	08/03/22 19:34	1

**Lab Sample ID:** LCS 580-399080/2-B  
**Matrix:** Water  
**Analysis Batch:** 399305

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 399080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.67		mg/L		92	50 - 120
Motor Oil (>C24-C36)	4.00	4.39		mg/L		110	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	81		50 - 150

**Lab Sample ID:** LCSD 580-399080/3-B  
**Matrix:** Water  
**Analysis Batch:** 399305

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 399080

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.77		mg/L		94	50 - 120	3	26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-399080/3-B**  
**Matrix: Water**  
**Analysis Batch: 399305**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 399080**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.46		mg/L		111	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	97		50 - 150



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-116144-1

Date Collected: 07/19/22 11:00

Matrix: Water

Date Received: 07/20/22 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	398877	07/30/22 21:11	RJL	EETNW SE.
Total/NA	Analysis	NWTPH-Gx		1	398878	07/30/22 21:11	RJL	EETNW SE.
Total/NA	Prep	3510C			398226	07/26/22 07:15	JJY	EETNW SE.
Total/NA	Analysis	8270E SIM		1	398404	07/27/22 15:08	E1L	EETNW SE.
Total/NA	Prep	3510C			399080	08/02/22 09:34	KLW	EETNW SE.
Total/NA	Cleanup	3630C			399093	08/02/22 09:43	KLW	EETNW SE.
Total/NA	Analysis	NWTPH-Dx		1	399305	08/03/22 20:53	JSM	EETNW SE.

## Client Sample ID: Trip Blank

Lab Sample ID: 580-116144-2

Date Collected: 07/19/22 00:01

Matrix: Water

Date Received: 07/20/22 11:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	398877	07/30/22 21:35	RJL	EETNW SE.
Total/NA	Analysis	NWTPH-Gx		1	398878	07/30/22 21:35	RJL	EETNW SE.

**Laboratory References:**

EETNW SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22 *

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116144-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-116144-1	Outfall #002	Water	07/19/22 11:00	07/20/22 11:15
580-116144-2	Trip Blank	Water	07/19/22 00:01	07/20/22 11:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11





## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-116144-1

**Login Number: 116144**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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.	False	Cooler temperature outside required temperature criteria.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-116478-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles

*Kristine D. Allen*

Authorized for release by:

8/15/2022 6:09:22 PM

Kristine Allen, Client Service Manager  
(253)433-0390

[Kristine.Allen@et.eurofinsus.com](mailto:Kristine.Allen@et.eurofinsus.com)

Designee for

Elaine Walker, Project Manager II  
(253)248-4972

[M.Elaine.Walker@et.eurofinsus.com](mailto:M.Elaine.Walker@et.eurofinsus.com)

### LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

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**Job ID: 580-116478-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-116478-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 8/1/2022 10:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.7° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

Method 8270E SIM: The method blank for preparation batch 580-399554 and analytical batch 580-399807 contained Dibenz(a,h)anthracene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

Method NWTPH-Dx: The laboratory control sample duplicate (LCSD) for preparation batch 580-399872, and 580-399896 and analytical batch 580-400127 recovered outside control limits for the following analytes: Motor Oil (>C24-C36). These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116478-1**

Date Collected: 08/01/22 10:00

Matrix: Water

Date Received: 08/01/22 10:50

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			08/04/22 14:44	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					08/04/22 14:44	1
4-Bromofluorobenzene (Surr)	93		60 - 140					08/04/22 14:44	1
Dibromofluoromethane (Surr)	112		60 - 140					08/04/22 14:44	1
1,2-Dichloroethane-d4 (Surr)	111		60 - 140					08/04/22 14:44	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		08/05/22 09:14	08/08/22 19:12	1
Chrysene	ND		0.10	0.038	ug/L		08/05/22 09:14	08/08/22 19:12	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/05/22 09:14	08/08/22 19:12	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		08/05/22 09:14	08/08/22 19:12	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/05/22 09:14	08/08/22 19:12	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		08/05/22 09:14	08/08/22 19:12	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		08/05/22 09:14	08/08/22 19:12	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	115		29 - 150				08/05/22 09:14	08/08/22 19:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			08/04/22 14:46	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	105		50 - 150					08/04/22 14:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		08/09/22 09:00	08/11/22 07:54	1
Motor Oil (>C24-C36)	ND	*+	0.35	0.097	mg/L		08/09/22 09:00	08/11/22 07:54	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150				08/09/22 09:00	08/11/22 07:54	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-116478-2**

Date Collected: 08/01/22 00:01

Matrix: Water

Date Received: 08/01/22 10:50

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			08/04/22 15:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		60 - 140					08/04/22 15:07	1
4-Bromofluorobenzene (Surr)	94		60 - 140					08/04/22 15:07	1
Dibromofluoromethane (Surr)	115		60 - 140					08/04/22 15:07	1
1,2-Dichloroethane-d4 (Surr)	114		60 - 140					08/04/22 15:07	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			08/04/22 14:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					08/04/22 14:20	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 410-282695/5  
Matrix: Water  
Analysis Batch: 282695

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			08/04/22 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		60 - 140					08/04/22 12:26	1
4-Bromofluorobenzene (Surr)	98		60 - 140					08/04/22 12:26	1
Dibromofluoromethane (Surr)	111		60 - 140					08/04/22 12:26	1
1,2-Dichloroethane-d4 (Surr)	113		60 - 140					08/04/22 12:26	1

Lab Sample ID: LCS 410-282695/1003  
Matrix: Water  
Analysis Batch: 282695

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	18.7		ug/L		94	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	109		60 - 140				
4-Bromofluorobenzene (Surr)	97		60 - 140				
Dibromofluoromethane (Surr)	102		60 - 140				
1,2-Dichloroethane-d4 (Surr)	110		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-399554/1-A  
Matrix: Water  
Analysis Batch: 399807

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 399554

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		08/05/22 09:14	08/08/22 14:57	1
Chrysene	ND		0.10	0.037	ug/L		08/05/22 09:14	08/08/22 14:57	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/05/22 09:14	08/08/22 14:57	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		08/05/22 09:14	08/08/22 14:57	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/05/22 09:14	08/08/22 14:57	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		08/05/22 09:14	08/08/22 14:57	1
Dibenz(a,h)anthracene	0.0164	J	0.10	0.015	ug/L		08/05/22 09:14	08/08/22 14:57	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	110		29 - 150				08/05/22 09:14	08/08/22 14:57	1

Lab Sample ID: LCS 580-399554/2-A  
Matrix: Water  
Analysis Batch: 399807

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 399554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.11		ug/L		78	55 - 123
Chrysene	4.00	2.85		ug/L		71	47 - 120
Benzo[b]fluoranthene	4.00	3.05		ug/L		76	43 - 120
Benzo[k]fluoranthene	4.00	3.20		ug/L		80	41 - 121

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-399554/2-A**  
**Matrix: Water**  
**Analysis Batch: 399807**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 399554**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.26		ug/L		82	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.43		ug/L		86	45 - 123	
Dibenz(a,h)anthracene	4.00	3.38		ug/L		84	54 - 123	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
Terphenyl-d14	93		29 - 150					

**Lab Sample ID: LCSD 580-399554/3-A**  
**Matrix: Water**  
**Analysis Batch: 399807**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 399554**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	3.48		ug/L		87	55 - 123	11	31	
Chrysene	4.00	3.29		ug/L		82	47 - 120	14	30	
Benzo[b]fluoranthene	4.00	2.95		ug/L		74	43 - 120	3	35	
Benzo[k]fluoranthene	4.00	3.03		ug/L		76	41 - 121	5	35	
Benzo[a]pyrene	4.00	3.33		ug/L		83	51 - 120	2	31	
Indeno[1,2,3-cd]pyrene	4.00	3.39		ug/L		85	45 - 123	1	35	
Dibenz(a,h)anthracene	4.00	3.36		ug/L		84	54 - 123	0	35	
<b>LCSD LCSD</b>										
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14	101		29 - 150							

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-282779/5**  
**Matrix: Water**  
**Analysis Batch: 282779**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			08/04/22 12:12	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits		Prepared		Analyzed		Dil Fac
a,a,a-Trifluorotoluene (fid)	104		50 - 150				08/04/22 12:12		1

**Lab Sample ID: LCS 410-282779/6**  
**Matrix: Water**  
**Analysis Batch: 282779**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1170		ug/L		106	64 - 131	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
a,a,a-Trifluorotoluene (fid)	96		50 - 150					

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 410-282779/7

Matrix: Water

Analysis Batch: 282779

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 Range Organics (GRO)-C7-C12	1100	1170		ug/L		106	64 - 131	0	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		97							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-399872/1-B

Matrix: Water

Analysis Batch: 400127

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 399872

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/09/22 08:44	08/11/22 01:11	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		08/09/22 08:44	08/11/22 01:11	1
<b>Surrogate</b>		<b>%Recovery</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl		72					08/09/22 08:44	08/11/22 01:11	1

Lab Sample ID: LCS 580-399872/2-B

Matrix: Water

Analysis Batch: 400127

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 399872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.75		mg/L		94	50 - 120
Motor Oil (>C24-C36)	4.00	4.78		mg/L		120	64 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
o-Terphenyl		91					50 - 150

Lab Sample ID: LCSD 580-399872/3-B

Matrix: Water

Analysis Batch: 400127

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 399872

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	4.25		mg/L		106	50 - 120	12	26
Motor Oil (>C24-C36)	4.00	5.19	*+	mg/L		130	64 - 120	8	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>		
o-Terphenyl		104					50 - 150		

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116478-1**

Date Collected: 08/01/22 10:00

Matrix: Water

Date Received: 08/01/22 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	282695	TQ4J	ELLE	08/04/22 14:44
Total/NA	Prep	3510C			399554	KLW	EET SEA	08/05/22 09:14
Total/NA	Analysis	8270E SIM		1	399807	TL1	EET SEA	08/08/22 19:12
Total/NA	Analysis	NWTPH-Gx		1	282779	NND8	ELLE	08/04/22 14:46
Total/NA	Prep	3510C			399872	KLW	EET SEA	08/09/22 09:00
Total/NA	Cleanup	3630C			399896	KLW	EET SEA	08/09/22 09:15
Total/NA	Analysis	NWTPH-Dx		1	400127	JSM	EET SEA	08/11/22 07:54

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-116478-2**

Date Collected: 08/01/22 00:01

Matrix: Water

Date Received: 08/01/22 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	282695	TQ4J	ELLE	08/04/22 15:07
Total/NA	Analysis	NWTPH-Gx		1	282779	NND8	ELLE	08/04/22 14:20

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	08-10-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-21-40	08-31-22

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116478-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-116478-1	Outfall #002	Water	08/01/22 10:00	08/01/22 10:50
580-116478-2	Trip Blank	Water	08/01/22 00:01	08/01/22 10:50

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11







## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-116478-1

**Login Number: 116478**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-116478-1

**Login Number: 116478**

**List Number: 2**

**Creator: Ballard, Megan**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Creation: 08/03/22 10:45 AM**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-116733-1

Client Project/Site: Chevron Edmonds Terminal

**For:**

ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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*Authorized for release by:*  
8/29/2022 11:50:55 AM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

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results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

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**Job ID: 580-116733-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-116733-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 8/8/2022 11:50 AM. Unless otherwise noted below, the samples arrived in good condition. The temperature of the cooler at receipt was 11.6° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116733-1**

Date Collected: 08/08/22 10:00

Matrix: Water

Date Received: 08/08/22 11:50

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/21/22 00:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		79 - 122					08/21/22 00:28	1
4-Bromofluorobenzene (Surr)	97		78 - 120					08/21/22 00:28	1
Dibromofluoromethane (Surr)	94		80 - 120					08/21/22 00:28	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120					08/21/22 00:28	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.026	J	0.050	0.014	mg/L			08/21/22 00:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		77 - 123					08/21/22 00:28	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		08/10/22 14:05	08/11/22 16:24	1
Chrysene	ND		0.10	0.038	ug/L		08/10/22 14:05	08/11/22 16:24	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/10/22 14:05	08/11/22 16:24	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		08/10/22 14:05	08/11/22 16:24	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/10/22 14:05	08/11/22 16:24	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		08/10/22 14:05	08/11/22 16:24	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		08/10/22 14:05	08/11/22 16:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		29 - 150				08/10/22 14:05	08/11/22 16:24	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		08/19/22 10:18	08/20/22 07:32	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		08/19/22 10:18	08/20/22 07:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	69		50 - 150				08/19/22 10:18	08/20/22 07:32	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

**Client Sample ID: Trip Balnk**

**Lab Sample ID: 580-116733-2**

Date Collected: 08/08/22 00:01

Matrix: Water

Date Received: 08/08/22 11:50

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/21/22 00:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		79 - 122					08/21/22 00:53	1
4-Bromofluorobenzene (Surr)	97		78 - 120					08/21/22 00:53	1
Dibromofluoromethane (Surr)	94		80 - 120					08/21/22 00:53	1
1,2-Dichloroethane-d4 (Surr)	93		78 - 120					08/21/22 00:53	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			08/21/22 00:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		77 - 123					08/21/22 00:53	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-401263/5**  
**Matrix: Water**  
**Analysis Batch: 401263**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/20/22 15:04	1
Surrogate	%Recovery	MB Qualifier	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99			79 - 122				08/20/22 15:04	1
4-Bromofluorobenzene (Surr)	94			78 - 120				08/20/22 15:04	1
Dibromofluoromethane (Surr)	94			80 - 120				08/20/22 15:04	1
1,2-Dichloroethane-d4 (Surr)	91			78 - 120				08/20/22 15:04	1

**Lab Sample ID: LCS 580-401263/6**  
**Matrix: Water**  
**Analysis Batch: 401263**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.77		ug/L		98	80 - 122	
Surrogate	%Recovery	LCS Qualifier	LCS Qualifier	Limits				
Toluene-d8 (Surr)	98			79 - 122				
4-Bromofluorobenzene (Surr)	101			78 - 120				
Dibromofluoromethane (Surr)	96			80 - 120				
1,2-Dichloroethane-d4 (Surr)	93			78 - 120				

**Lab Sample ID: LCSD 580-401263/7**  
**Matrix: Water**  
**Analysis Batch: 401263**

**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	9.87		ug/L		99	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Qualifier	Limits					
Toluene-d8 (Surr)	97			79 - 122					
4-Bromofluorobenzene (Surr)	101			78 - 120					
Dibromofluoromethane (Surr)	99			80 - 120					
1,2-Dichloroethane-d4 (Surr)	95			78 - 120					

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-401264/5**  
**Matrix: Water**  
**Analysis Batch: 401264**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			08/20/22 15:04	1
Surrogate	%Recovery	MB Qualifier	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94			77 - 123				08/20/22 15:04	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: LCS 580-401264/8

Matrix: Water

Analysis Batch: 401264

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.844		mg/L		84	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	101		77 - 123				

Lab Sample ID: LCSD 580-401264/9

Matrix: Water

Analysis Batch: 401264

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	1.00	0.797		mg/L		80	55 - 148	6	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	100		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-400068/1-A

Matrix: Water

Analysis Batch: 400175

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 400068

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		08/10/22 14:05	08/11/22 14:04	1
Chrysene	ND		0.10	0.037	ug/L		08/10/22 14:05	08/11/22 14:04	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/10/22 14:05	08/11/22 14:04	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		08/10/22 14:05	08/11/22 14:04	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/10/22 14:05	08/11/22 14:04	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		08/10/22 14:05	08/11/22 14:04	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		08/10/22 14:05	08/11/22 14:04	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	102		29 - 150				08/10/22 14:05	08/11/22 14:04	1

Lab Sample ID: LCS 580-400068/2-A

Matrix: Water

Analysis Batch: 400175

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 400068

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.38		ug/L		85	55 - 123
Chrysene	4.00	3.42		ug/L		85	47 - 120
Benzo[b]fluoranthene	4.00	2.92		ug/L		73	43 - 120
Benzo[k]fluoranthene	4.00	3.54		ug/L		89	41 - 121
Benzo[a]pyrene	4.00	3.36		ug/L		84	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.11		ug/L		78	45 - 123
Dibenz(a,h)anthracene	4.00	3.43		ug/L		86	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-400068/2-A

Matrix: Water

Analysis Batch: 400175

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 400068

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	102		29 - 150

Lab Sample ID: LCSD 580-400068/3-A

Matrix: Water

Analysis Batch: 400175

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 400068

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.49		ug/L		87	55 - 123	3	31	
Chrysene	4.00	3.54		ug/L		89	47 - 120	4	30	
Benzo[b]fluoranthene	4.00	3.10		ug/L		77	43 - 120	6	35	
Benzo[k]fluoranthene	4.00	3.57		ug/L		89	41 - 121	1	35	
Benzo[a]pyrene	4.00	3.46		ug/L		86	51 - 120	3	31	
Indeno[1,2,3-cd]pyrene	4.00	3.23		ug/L		81	45 - 123	4	35	
Dibenz(a,h)anthracene	4.00	3.59		ug/L		90	54 - 123	5	35	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	102		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-401137/1-B

Matrix: Water

Analysis Batch: 401259

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 401137

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/19/22 10:18	08/20/22 05:11	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		08/19/22 10:18	08/20/22 05:11	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	66		50 - 150	08/19/22 10:18	08/20/22 05:11	1

Lab Sample ID: LCS 580-401137/2-B

Matrix: Water

Analysis Batch: 401259

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 401137

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.42		mg/L		85	50 - 120	
Motor Oil (>C24-C36)	4.00	4.34		mg/L		108	64 - 120	

Surrogate	LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	101		50 - 150

Lab Sample ID: LCSD 580-401137/3-B

Matrix: Water

Analysis Batch: 401259

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 401137

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.21		mg/L		80	50 - 120	6	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-401137/3-B  
 Matrix: Water  
 Analysis Batch: 401259

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 401137

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	3.91		mg/L		98	64 - 120	10	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		91							50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116733-1**

Date Collected: 08/08/22 10:00

Matrix: Water

Date Received: 08/08/22 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	401263	BNM	EET SEA	08/21/22 00:28
Total/NA	Analysis	NWTPH-Gx		1	401264	BNM	EET SEA	08/21/22 00:28
Total/NA	Prep	3510C			400068	KLW	EET SEA	08/10/22 14:05
Total/NA	Analysis	8270E SIM		1	400175	E1L	EET SEA	08/11/22 16:24
Total/NA	Prep	3510C			401137	KLW	EET SEA	08/19/22 10:18
Total/NA	Cleanup	3630C			401141	KLW	EET SEA	08/19/22 10:27
Total/NA	Analysis	NWTPH-Dx		1	401259	DH	EET SEA	08/20/22 07:32

**Client Sample ID: Trip Balnk**

**Lab Sample ID: 580-116733-2**

Date Collected: 08/08/22 00:01

Matrix: Water

Date Received: 08/08/22 11:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	401263	BNM	EET SEA	08/21/22 00:53
Total/NA	Analysis	NWTPH-Gx		1	401264	BNM	EET SEA	08/21/22 00:53

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116733-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-116733-1	Outfall #002	Water	08/08/22 10:00	08/08/22 11:50
580-116733-2	Trip Balnk	Water	08/08/22 00:01	08/08/22 11:50

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# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only  
 Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
 Instructions on reverse side correspond with circled numbers.

### Client Information

Facility # WBS  
 Site Address Edwards Terminal  
1120 Unoco Rd Edmonds WA  
 Chevron PM Lead Consultant  
Kim Jolitz Arcadis  
 Consultant/Office  
1100 Olive Way Seattle, WA  
 Consultant Project Mgr.  
Samantha Miles  
 Consultant Phone # \_\_\_\_\_

### Matrix

Sediment  
 Soil  
 Potable  
 NPDES  
 Surface  
 Water  
 Air  
 Composite

### Analyses Requested

BTEX + MTBE 8021  8260  Naphth  
 8260 full scan  
 Oxygenates  
 NWTPH-Gx  
 NWTPH-Dx with Silica Gel Cleanup  
 NWTPH-Dx without Silica Gel Cleanup  
 WA VPH  WA EPH  
 Lead Total  Diss.  Method

### Remarks

Results in Dry Weight  
 J value reporting needed  
 Must meet lowest detection limits possible for 8260 compounds  
 8021 MTBE Confirmation  
 Confirm MTBE + Naphthalene  
 Confirm highest hit by 8260  
 Confirm all hits by 8260  
 Run \_\_\_\_\_ oxy's on highest hit  
 Run \_\_\_\_\_ oxy's on all hits

### Sample Identification

Sampler	Collected Date	Time	Grab
<u>P. Bruno</u>	<u>8/8/22</u>	<u>1000</u>	<input checked="" type="checkbox"/>
<u>Oil Well #008</u>			
<u>Top Blank</u>			

### Turnaround Time Requested (TAT)

Standard	5 day	48 hour	24 hour
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Data Package

Type I - Full   
 Type VI (Raw Data)   
 EDD (circle if required)  
 CVX-RTBU-FI\_05 (default)  
 Other: \_\_\_\_\_

### Relinquished by

[Signature]  
 Relinquished by \_\_\_\_\_  
 Relinquished by \_\_\_\_\_

### Relinquished by Commercial Carrier

UPS \_\_\_\_\_ FedEX \_\_\_\_\_ Other \_\_\_\_\_  
 Temperature Upon Receipt \_\_\_\_\_

Received by	Date	Time
<u>Sydney Lambert</u>	<u>8/8/22</u>	<u>1150</u>
Received by _____	Date _____	Time _____
Received by _____	Date _____	Time _____

Therm. ID: AB Cor: 11.6 ° Unc: 11.0 °  
 Cooler Disc: BB FedEx: \_\_\_\_\_  
 Packing: BB UPS: \_\_\_\_\_  
 Cust. Seal: Yes  No   
 Blue Ice  Dry, None \_\_\_\_\_  
 Lab Cour: \_\_\_\_\_ Other: \_\_\_\_\_  
 Yes \_\_\_\_\_ No \_\_\_\_\_



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-116733-1

**Login Number: 116733**

**List Number: 1**

**Creator: Swoope, Alexandra C**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-116953-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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Authorized for release by:  
8/31/2022 12:07:40 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

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**Job ID: 580-116953-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-116953-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 8/15/2022 11:27 AM. Unless otherwise noted below, the samples arrived in good condition. The temperature of the cooler at receipt was 7.7° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116953-1**

**Date Collected: 08/15/22 10:00**

**Matrix: Water**

**Date Received: 08/15/22 11:27**

### Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/27/22 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		79 - 122		08/27/22 19:37	1
4-Bromofluorobenzene (Surr)	98		78 - 120		08/27/22 19:37	1
Dibromofluoromethane (Surr)	94		80 - 120		08/27/22 19:37	1
1,2-Dichloroethane-d4 (Surr)	94		78 - 120		08/27/22 19:37	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			08/27/22 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		77 - 123		08/27/22 19:37	1

### Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		08/22/22 11:43	08/24/22 14:02	1
Chrysene	ND		0.10	0.038	ug/L		08/22/22 11:43	08/24/22 14:02	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/22/22 11:43	08/24/22 14:02	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		08/22/22 11:43	08/24/22 14:02	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/22/22 11:43	08/24/22 14:02	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		08/22/22 11:43	08/24/22 14:02	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		08/22/22 11:43	08/24/22 14:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	95		29 - 150	08/22/22 11:43	08/24/22 14:02	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		08/29/22 09:42	08/30/22 03:52	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		08/29/22 09:42	08/30/22 03:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	65		50 - 150	08/29/22 09:42	08/30/22 03:52	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-116953-2**

Date Collected: 08/15/22 00:01

Matrix: Water

Date Received: 08/15/22 11:27

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/27/22 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		79 - 122		08/27/22 19:12	1
4-Bromofluorobenzene (Surr)	98		78 - 120		08/27/22 19:12	1
Dibromofluoromethane (Surr)	94		80 - 120		08/27/22 19:12	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120		08/27/22 19:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			08/27/22 19:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		77 - 123		08/27/22 19:12	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-402102/4**  
**Matrix: Water**  
**Analysis Batch: 402102**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			08/27/22 17:09	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		79 - 122					08/27/22 17:09	1
4-Bromofluorobenzene (Surr)	97		78 - 120					08/27/22 17:09	1
Dibromofluoromethane (Surr)	95		80 - 120					08/27/22 17:09	1
1,2-Dichloroethane-d4 (Surr)	93		78 - 120					08/27/22 17:09	1

**Lab Sample ID: LCS 580-402102/5**  
**Matrix: Water**  
**Analysis Batch: 402102**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.18		ug/L		92	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	95		79 - 122					
4-Bromofluorobenzene (Surr)	107		78 - 120					
Dibromofluoromethane (Surr)	97		80 - 120					
1,2-Dichloroethane-d4 (Surr)	90		78 - 120					

**Lab Sample ID: LCSD 580-402102/6**  
**Matrix: Water**  
**Analysis Batch: 402102**

**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	9.34		ug/L		93	80 - 122	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	93		79 - 122						
4-Bromofluorobenzene (Surr)	105		78 - 120						
Dibromofluoromethane (Surr)	96		80 - 120						
1,2-Dichloroethane-d4 (Surr)	94		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-402103/4**  
**Matrix: Water**  
**Analysis Batch: 402103**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			08/27/22 17:09	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		77 - 123					08/27/22 17:09	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-402103/7**  
**Matrix: Water**  
**Analysis Batch: 402103**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.803		mg/L		80	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	104		77 - 123				

**Lab Sample ID: LCSD 580-402103/8**  
**Matrix: Water**  
**Analysis Batch: 402103**

**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	1.00	0.827		mg/L		83	55 - 148	3	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	102		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-401365/1-A**  
**Matrix: Water**  
**Analysis Batch: 401679**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 401365**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		08/22/22 11:43	08/24/22 12:47	1
Chrysene	ND		0.10	0.037	ug/L		08/22/22 11:43	08/24/22 12:47	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		08/22/22 11:43	08/24/22 12:47	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		08/22/22 11:43	08/24/22 12:47	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		08/22/22 11:43	08/24/22 12:47	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		08/22/22 11:43	08/24/22 12:47	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		08/22/22 11:43	08/24/22 12:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	114		29 - 150				08/22/22 11:43	08/24/22 12:47	1

**Lab Sample ID: LCS 580-401365/2-A**  
**Matrix: Water**  
**Analysis Batch: 401679**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 401365**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.53		ug/L		88	55 - 123
Chrysene	4.00	3.24		ug/L		81	47 - 120
Benzo[b]fluoranthene	4.00	3.09		ug/L		77	43 - 120
Benzo[k]fluoranthene	4.00	3.62		ug/L		90	41 - 121
Benzo[a]pyrene	4.00	3.44		ug/L		86	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.37		ug/L		84	45 - 123
Dibenz(a,h)anthracene	4.00	3.45		ug/L		86	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-401365/2-A**  
**Matrix: Water**  
**Analysis Batch: 401679**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 401365**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	94		29 - 150

**Lab Sample ID: LCSD 580-401365/3-A**  
**Matrix: Water**  
**Analysis Batch: 401679**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 401365**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.73		ug/L		93	55 - 123	6	31	
Chrysene	4.00	3.47		ug/L		87	47 - 120	7	30	
Benzo[b]fluoranthene	4.00	3.65		ug/L		91	43 - 120	17	35	
Benzo[k]fluoranthene	4.00	3.60		ug/L		90	41 - 121	1	35	
Benzo[a]pyrene	4.00	3.68		ug/L		92	51 - 120	7	31	
Indeno[1,2,3-cd]pyrene	4.00	3.22		ug/L		81	45 - 123	4	35	
Dibenz(a,h)anthracene	4.00	3.71		ug/L		93	54 - 123	7	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	94		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-402165/1-B**  
**Matrix: Water**  
**Analysis Batch: 402283**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 402165**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		08/29/22 09:42	08/30/22 02:51	1
Motor Oil (>C24-C36)	0.121	J	0.35	0.096	mg/L		08/29/22 09:42	08/30/22 02:51	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	67		50 - 150	08/29/22 09:42	08/30/22 02:51	1

**Lab Sample ID: LCS 580-402165/2-B**  
**Matrix: Water**  
**Analysis Batch: 402283**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 402165**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.71		mg/L		93	50 - 120	
Motor Oil (>C24-C36)	4.00	4.18		mg/L		105	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	95		50 - 150

**Lab Sample ID: LCSD 580-402165/3-B**  
**Matrix: Water**  
**Analysis Batch: 402283**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 402165**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.14		mg/L		78	50 - 120	17	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-402165/3-B  
 Matrix: Water  
 Analysis Batch: 402283

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 402165

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.01		mg/L		100	64 - 120	4	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		91							50 - 150

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- 10
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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-116953-1**

**Date Collected: 08/15/22 10:00**

**Matrix: Water**

**Date Received: 08/15/22 11:27**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	402102	BNM	EET SEA	08/27/22 19:37
Total/NA	Analysis	NWTPH-Gx		1	402103	BNM	EET SEA	08/27/22 19:37
Total/NA	Prep	3510C			401365	KLW	EET SEA	08/22/22 11:43
Total/NA	Analysis	8270E SIM		1	401679	T1L	EET SEA	08/24/22 14:02
Total/NA	Prep	3510C			402165	JJY	EET SEA	08/29/22 09:42
Total/NA	Cleanup	3630C			402166	JJY	EET SEA	08/29/22 09:48
Total/NA	Analysis	NWTPH-Dx		1	402283	DH	EET SEA	08/30/22 03:52

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-116953-2**

**Date Collected: 08/15/22 00:01**

**Matrix: Water**

**Date Received: 08/15/22 11:27**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	402102	BNM	EET SEA	08/27/22 19:12
Total/NA	Analysis	NWTPH-Gx		1	402103	BNM	EET SEA	08/27/22 19:12

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-116953-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-116953-1	Outfall #002	Water	08/15/22 10:00	08/15/22 11:27
580-116953-2	Trip Blank	Water	08/15/22 00:01	08/15/22 11:27

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-116953-1

**Login Number: 116953**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Swoope, Alexandra C**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-117345-1  
Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
9/13/2022 5:06:36 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

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**Job ID: 580-117345-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-117345-1**

**Comments**

No additional comments.

**Receipt**

The sample was received on 8/26/2022 2:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-117345-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117345-1**

Date Collected: 08/25/22 08:45

Matrix: Water

Date Received: 08/26/22 14:00

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/08/22 17:17	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		79 - 122					09/08/22 17:17	1
4-Bromofluorobenzene (Surr)	96		78 - 120					09/08/22 17:17	1
Dibromofluoromethane (Surr)	91		80 - 120					09/08/22 17:17	1
1,2-Dichloroethane-d4 (Surr)	83		78 - 120					09/08/22 17:17	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/08/22 17:17	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		77 - 123					09/08/22 17:17	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		09/01/22 10:07	09/02/22 02:13	1
Chrysene	ND		0.10	0.037	ug/L		09/01/22 10:07	09/02/22 02:13	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/01/22 10:07	09/02/22 02:13	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		09/01/22 10:07	09/02/22 02:13	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/01/22 10:07	09/02/22 02:13	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		09/01/22 10:07	09/02/22 02:13	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/01/22 10:07	09/02/22 02:13	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	109		29 - 150				09/01/22 10:07	09/02/22 02:13	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.068	mg/L		09/05/22 08:06	09/06/22 08:45	1
Motor Oil (>C24-C36)	ND		0.36	0.10	mg/L		09/05/22 08:06	09/06/22 08:45	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150				09/05/22 08:06	09/06/22 08:45	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-403303/5**  
**Matrix: Water**  
**Analysis Batch: 403303**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/08/22 13:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122					09/08/22 13:11	1
4-Bromofluorobenzene (Surr)	100		78 - 120					09/08/22 13:11	1
Dibromofluoromethane (Surr)	91		80 - 120					09/08/22 13:11	1
1,2-Dichloroethane-d4 (Surr)	84		78 - 120					09/08/22 13:11	1

**Lab Sample ID: LCS 580-403303/6**  
**Matrix: Water**  
**Analysis Batch: 403303**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.19		ug/L		92	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	95		79 - 122					
4-Bromofluorobenzene (Surr)	104		78 - 120					
Dibromofluoromethane (Surr)	96		80 - 120					
1,2-Dichloroethane-d4 (Surr)	87		78 - 120					

**Lab Sample ID: LCSD 580-403303/7**  
**Matrix: Water**  
**Analysis Batch: 403303**

**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	9.52		ug/L		95	80 - 122	3	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	96		79 - 122						
4-Bromofluorobenzene (Surr)	104		78 - 120						
Dibromofluoromethane (Surr)	100		80 - 120						
1,2-Dichloroethane-d4 (Surr)	91		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-403304/5**  
**Matrix: Water**  
**Analysis Batch: 403304**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/08/22 13:11	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		77 - 123					09/08/22 13:11	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: LCS 580-403304/8

Matrix: Water

Analysis Batch: 403304

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.706		mg/L		71	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	90		77 - 123				

Lab Sample ID: LCSD 580-403304/9

Matrix: Water

Analysis Batch: 403304

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	1.00	0.753		mg/L		75	55 - 148	6	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	90		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-402669/1-A

Matrix: Water

Analysis Batch: 402748

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 402669

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/01/22 10:07	09/01/22 20:24	1
Chrysene	ND		0.10	0.037	ug/L		09/01/22 10:07	09/01/22 20:24	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/01/22 10:07	09/01/22 20:24	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/01/22 10:07	09/01/22 20:24	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/01/22 10:07	09/01/22 20:24	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/01/22 10:07	09/01/22 20:24	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/01/22 10:07	09/01/22 20:24	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	104		29 - 150				09/01/22 10:07	09/01/22 20:24	1

Lab Sample ID: LCS 580-402669/2-A

Matrix: Water

Analysis Batch: 402748

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 402669

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.56		ug/L		89	55 - 123
Chrysene	4.00	3.73		ug/L		93	47 - 120
Benzo[b]fluoranthene	4.00	3.02		ug/L		75	43 - 120
Benzo[k]fluoranthene	4.00	4.17		ug/L		104	41 - 121
Benzo[a]pyrene	4.00	3.83		ug/L		96	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.39		ug/L		85	45 - 123
Dibenz(a,h)anthracene	4.00	3.71		ug/L		93	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-402669/2-A**  
**Matrix: Water**  
**Analysis Batch: 402748**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 402669**

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
Terphenyl-d14	80		29 - 150

**Lab Sample ID: LCSD 580-402669/3-A**  
**Matrix: Water**  
**Analysis Batch: 402748**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 402669**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.68		ug/L		92	55 - 123	3	31	
Chrysene	4.00	3.95		ug/L		99	47 - 120	6	30	
Benzo[b]fluoranthene	4.00	3.31		ug/L		83	43 - 120	9	35	
Benzo[k]fluoranthene	4.00	3.99		ug/L		100	41 - 121	4	35	
Benzo[a]pyrene	4.00	3.90		ug/L		98	51 - 120	2	31	
Indeno[1,2,3-cd]pyrene	4.00	3.65		ug/L		91	45 - 123	7	35	
Dibenz(a,h)anthracene	4.00	3.75		ug/L		94	54 - 123	1	35	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Terphenyl-d14	85		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-402950/1-B**  
**Matrix: Water**  
**Analysis Batch: 402957**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 402950**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/05/22 08:06	09/06/22 07:45	1

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
o-Terphenyl	71		50 - 150	09/05/22 08:06	09/06/22 07:45	1

**Lab Sample ID: LCS 580-402950/2-B**  
**Matrix: Water**  
**Analysis Batch: 402957**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 402950**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	3.80		mg/L		95	50 - 120	
Motor Oil (>C24-C36)	4.00	4.58		mg/L		114	64 - 120	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
o-Terphenyl	93		50 - 150

**Lab Sample ID: LCSD 580-402950/3-B**  
**Matrix: Water**  
**Analysis Batch: 402957**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 402950**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.71		mg/L		93	50 - 120	2	26	

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-402950/3-B  
 Matrix: Water  
 Analysis Batch: 402957

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 402950

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.31		mg/L		108	64 - 120	6	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		94							50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117345-1**

**Date Collected: 08/25/22 08:45**

**Matrix: Water**

**Date Received: 08/26/22 14:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	403303	RJL	EET SEA	09/08/22 17:17
Total/NA	Analysis	NWTPH-Gx		1	403304	RJL	EET SEA	09/08/22 17:17
Total/NA	Prep	3510C			402669	JJY	EET SEA	09/01/22 10:07
Total/NA	Analysis	8270E SIM		1	402748	TL1	EET SEA	09/02/22 02:13
Total/NA	Prep	3510C			402950	KLW	EET SEA	09/05/22 08:06
Total/NA	Cleanup	3630C			402951	KLW	EET SEA	09/05/22 08:11
Total/NA	Analysis	NWTPH-Dx		1	402957	DH	EET SEA	09/06/22 08:45

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117345-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-117345-1	Outfall #002	Water	08/25/22 08:45	08/26/22 14:00

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# Chain of Custody Record

<b>Client Information</b>		Sampler: <i>D Gilbert</i>		Lab PM:		Carrier Tracking No(s):		COC No:															
Client Contact:		Phone:		E-Mail:		State of Origin:		Page: Page 1 of 1															
Company: <i>Arcadis</i>		PWSID:		<b>Analysis Requested</b>						Job #:													
Address: <i>1100 Olive way suite 800</i>		Due Date Requested:		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td rowspan="5"> <i>NMTPH-6x</i>  <i>NMTPH-DX w standard SGC</i>  <i>CPAHs 8210.5.1M</i>  <i>BENZENE EPA 624</i> </td> <td rowspan="5">                 Total Number of containers             </td> </tr> <tr> <td>TAT Requested (days): <i>Standard</i></td> <td>Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>PO #:</td> <td>Purchase Order not required</td> </tr> <tr> <td>WO #:</td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	<i>NMTPH-6x</i> <i>NMTPH-DX w standard SGC</i> <i>CPAHs 8210.5.1M</i> <i>BENZENE EPA 624</i>	Total Number of containers	TAT Requested (days): <i>Standard</i>	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	PO #:	Purchase Order not required	WO #:				Preservation Codes:	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	<i>NMTPH-6x</i> <i>NMTPH-DX w standard SGC</i> <i>CPAHs 8210.5.1M</i> <i>BENZENE EPA 624</i>	Total Number of containers																				
TAT Requested (days): <i>Standard</i>	Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No																						
PO #:	Purchase Order not required																						
WO #:																							
City: <i>Seattle</i>		State, Zip: <i>WA 98101</i>		Project Name: <i>Edmonds Terminal</i>		Project #:		Other:															
Phone:		SSOW#:		Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)		BT=Tissue, A=Air		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:	
Email:		Project #:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)		BT=Tissue, A=Air		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:			
Project Name: <i>Edmonds Terminal</i>		Project #:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)		BT=Tissue, A=Air		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:			
Site:		SSOW#:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)		BT=Tissue, A=Air		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:			
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil)		BT=Tissue, A=Air		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers		Special Instructions/Note:					
<i>Outfall #002</i>		<i>8-25-22</i>		<i>0845</i>		<i>G</i>		<i>W</i>				<i>X</i>		<i>X</i>		<i>X</i>		<i>X</i>		<i>* use standard SGC</i>  <i>* Benzene and CPAHs w quantitative &lt; 1 mg/L</i>			
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client		Disposal By Lab		Archive For		Months													
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For																					
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:																					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:																	
Relinquished by: <i>Damille L...</i>		Date/Time: <i>8-26-22 1400</i>		Company: <i>Arcadis</i>		Received by: <i>Rhesler</i>		Date/Time: <i>8/26/22 14.00</i>		Company: <i>ECTS</i>													
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:													
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:													
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <i>A3- 2.2/1.6</i>																			



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-117345-1

**Login Number: 117345**

**List Number: 1**

**Creator: Vallelunga, Diana L**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-117479-1

Client Project/Site: Chevron Edmonds Terminal

**For:**

ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
9/19/2022 10:38:39 AM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

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**Job ID: 580-117479-1**

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**Laboratory: Eurofins Seattle**

## Narrative

**Job Narrative  
580-117479-1**

### Comments

No additional comments.

### Receipt

The samples were received on 8/31/2022 11:17 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.0° C.

### Receipt Exceptions

The COC lists 4 containers for the BTEX and Gx methods, however there are only two containers.

### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### GC Semi VOA

Method NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-403476 recovered above the upper control limit for <AffectedAnalytes>. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Outfall #002 (580-117479-2).

Method NWTPH-Dx: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-403110 and 580-403111 and analytical batch 580-403476 recovered outside control limits for the following analytes: <AffectedAnalytes>. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### Organic Prep

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-117479-2). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117479-1**

Date Collected: 08/30/22 10:20

Matrix: Water

Date Received: 08/31/22 11:17

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/13/22 16:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122					09/13/22 16:53	1
4-Bromofluorobenzene (Surr)	96		78 - 120					09/13/22 16:53	1
Dibromofluoromethane (Surr)	93		80 - 120					09/13/22 16:53	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120					09/13/22 16:53	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/13/22 16:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		77 - 123					09/13/22 16:53	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117479-2**

Date Collected: 08/30/22 10:20

Matrix: Water

Date Received: 08/31/22 11:17

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/13/22 20:10	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		79 - 122					09/13/22 20:10	1
4-Bromofluorobenzene (Surr)	97		78 - 120					09/13/22 20:10	1
Dibromofluoromethane (Surr)	99		80 - 120					09/13/22 20:10	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					09/13/22 20:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/13/22 20:10	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		77 - 123					09/13/22 20:10	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		09/02/22 11:14	09/04/22 04:58	1
Chrysene	ND		0.11	0.040	ug/L		09/02/22 11:14	09/04/22 04:58	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		09/02/22 11:14	09/04/22 04:58	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		09/02/22 11:14	09/04/22 04:58	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		09/02/22 11:14	09/04/22 04:58	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		09/02/22 11:14	09/04/22 04:58	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		09/02/22 11:14	09/04/22 04:58	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	106		29 - 150				09/02/22 11:14	09/04/22 04:58	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		09/07/22 09:21	09/10/22 10:52	1
Motor Oil (>C24-C36)	ND	*+	0.39	0.11	mg/L		09/07/22 09:21	09/10/22 10:52	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150				09/07/22 09:21	09/10/22 10:52	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-403714/6**  
**Matrix: Water**  
**Analysis Batch: 403714**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/13/22 14:00	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122					09/13/22 14:00	1
4-Bromofluorobenzene (Surr)	94		78 - 120					09/13/22 14:00	1
Dibromofluoromethane (Surr)	91		80 - 120					09/13/22 14:00	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120					09/13/22 14:00	1

**Lab Sample ID: LCS 580-403714/7**  
**Matrix: Water**  
**Analysis Batch: 403714**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.82		ug/L		98	80 - 122	
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	100		79 - 122					
4-Bromofluorobenzene (Surr)	97		78 - 120					
Dibromofluoromethane (Surr)	96		80 - 120					
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					

**Lab Sample ID: LCSD 580-403714/8**  
**Matrix: Water**  
**Analysis Batch: 403714**

**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	9.90		ug/L		99	80 - 122	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	99		79 - 122						
4-Bromofluorobenzene (Surr)	96		78 - 120						
Dibromofluoromethane (Surr)	98		80 - 120						
1,2-Dichloroethane-d4 (Surr)	89		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-403715/6**  
**Matrix: Water**  
**Analysis Batch: 403715**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/13/22 14:00	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		77 - 123					09/13/22 14:00	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: LCS 580-403715/9

Matrix: Water

Analysis Batch: 403715

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.01		mg/L		101	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS</b>	<b>Limits</b>			
4-Bromofluorobenzene (Surr)	83			77 - 123			

Lab Sample ID: LCSD 580-403715/10

Matrix: Water

Analysis Batch: 403715

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	1.00	0.956		mg/L		96	55 - 148	5	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD</b>	<b>Limits</b>					
4-Bromofluorobenzene (Surr)	81			77 - 123					

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-402806/1-A

Matrix: Water

Analysis Batch: 402912

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 402806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/02/22 11:14	09/03/22 21:05	1
Chrysene	ND		0.10	0.037	ug/L		09/02/22 11:14	09/03/22 21:05	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/02/22 11:14	09/03/22 21:05	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/02/22 11:14	09/03/22 21:05	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/02/22 11:14	09/03/22 21:05	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/02/22 11:14	09/03/22 21:05	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/02/22 11:14	09/03/22 21:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	122			29 - 150			09/02/22 11:14	09/03/22 21:05	1

Lab Sample ID: LCS 580-402806/2-A

Matrix: Water

Analysis Batch: 402912

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 402806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.86		ug/L		96	55 - 123
Chrysene	4.00	4.23		ug/L		106	47 - 120
Benzo[b]fluoranthene	4.00	3.55		ug/L		89	43 - 120
Benzo[k]fluoranthene	4.00	4.46		ug/L		112	41 - 121
Benzo[a]pyrene	4.00	4.21		ug/L		105	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.54		ug/L		89	45 - 123
Dibenz(a,h)anthracene	4.00	3.79		ug/L		95	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-402806/2-A  
Matrix: Water  
Analysis Batch: 402912

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 402806

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	97		29 - 150

Lab Sample ID: LCSD 580-402806/3-A  
Matrix: Water  
Analysis Batch: 402912

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 402806

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	4.00	3.83		ug/L		96	55 - 123	1	31	
Chrysene	4.00	3.97		ug/L		99	47 - 120	6	30	
Benzo[b]fluoranthene	4.00	3.10		ug/L		78	43 - 120	14	35	
Benzo[k]fluoranthene	4.00	4.42		ug/L		111	41 - 121	1	35	
Benzo[a]pyrene	4.00	4.01		ug/L		100	51 - 120	5	31	
Indeno[1,2,3-cd]pyrene	4.00	3.22		ug/L		80	45 - 123	10	35	
Dibenz(a,h)anthracene	4.00	3.55		ug/L		89	54 - 123	6	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	100		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-403110/1-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 403110

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.055	0.033	mg/L		09/07/22 09:21	09/10/22 09:52	1
Motor Oil (>C24-C36)	ND		0.18	0.048	mg/L		09/07/22 09:21	09/10/22 09:52	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	82		50 - 150	09/07/22 09:21	09/10/22 09:52	1

Lab Sample ID: LCS 580-403110/2-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 403110

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	4.48		mg/L		112	50 - 120	
Motor Oil (>C24-C36)	4.00	5.48	*+	mg/L		137	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	91		50 - 150

Lab Sample ID: LCSD 580-403110/3-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 403110

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	4.32		mg/L		108	50 - 120	4	26	

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-403110/3-B  
 Matrix: Water  
 Analysis Batch: 403476

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 403110

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	5.40	*+	mg/L		135	64 - 120	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
<i>o</i> -Terphenyl	104		50 - 150

- 1
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- 9
- 10
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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117479-1**

Date Collected: 08/30/22 10:20

Matrix: Water

Date Received: 08/31/22 11:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	403714	RJL	EET SEA	09/13/22 16:53
Total/NA	Analysis	NWTPH-Gx		1	403715	RJL	EET SEA	09/13/22 16:53

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117479-2**

Date Collected: 08/30/22 10:20

Matrix: Water

Date Received: 08/31/22 11:17

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	403714	RJL	EET SEA	09/13/22 20:10
Total/NA	Analysis	NWTPH-Gx		1	403715	RJL	EET SEA	09/13/22 20:10
Total/NA	Prep	3510C			402806	KLW	EET SEA	09/02/22 11:14
Total/NA	Analysis	8270E SIM		1	402912	TL1	EET SEA	09/04/22 04:58
Total/NA	Prep	3510C			403110	KLW	EET SEA	09/07/22 09:21
Total/NA	Cleanup	3630C			403111	KLW	EET SEA	09/07/22 09:25
Total/NA	Analysis	NWTPH-Dx		1	403476	DH	EET SEA	09/10/22 10:52

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
- 3
- 4
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- 10
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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117479-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-117479-1	Trip Blank	Water	08/30/22 10:20	08/31/22 11:17
580-117479-2	Outfall #002	Water	08/30/22 10:20	08/31/22 11:17

- 1
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- 3
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- 8
- 9
- 10
- 11



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-117479-1

**Login Number: 117479**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Vallelunga, Diana L**

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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	False	Refer to Job Narrative for details.
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-117638-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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Authorized for release by:  
9/22/2022 5:14:43 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

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**Job ID: 580-117638-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-117638-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 9/7/2022 12:51 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0° C.

**Receipt Exceptions**

The following sample(s) was received at the laboratory without a sample collection time documented on the chain of custody; The default date of 09/06/2022 and time of 00:01 were used for the trip blank.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

Method NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-403476 recovered above the upper control limit for motor oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Outfall #002 (580-117638-1).

Method NWTPH-Dx: The laboratory control sample (LCS) for preparation batch 580-403257 and 580-403258 and analytical batch 580-403476 recovered outside control limits for the following analytes: motor oil. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-117638-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117638-1**

Date Collected: 09/06/22 14:30

Matrix: Water

Date Received: 09/07/22 12:51

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/17/22 20:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	100		79 - 122					09/17/22 20:30	1
4-Bromofluorobenzene (Surr)	94		78 - 120					09/17/22 20:30	1
Dibromofluoromethane (Surr)	92		80 - 120					09/17/22 20:30	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					09/17/22 20:30	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/17/22 20:30	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	80		77 - 123					09/17/22 20:30	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		09/12/22 09:25	09/13/22 13:41	1
Chrysene	ND		0.10	0.038	ug/L		09/12/22 09:25	09/13/22 13:41	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		09/12/22 09:25	09/13/22 13:41	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		09/12/22 09:25	09/13/22 13:41	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		09/12/22 09:25	09/13/22 13:41	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		09/12/22 09:25	09/13/22 13:41	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		09/12/22 09:25	09/13/22 13:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	94		29 - 150				09/12/22 09:25	09/13/22 13:41	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		09/08/22 09:05	09/10/22 09:32	1
Motor Oil (>C24-C36)	ND	*+	0.37	0.10	mg/L		09/08/22 09:05	09/10/22 09:32	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	73		50 - 150				09/08/22 09:05	09/10/22 09:32	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117638-2**

Date Collected: 09/06/22 00:01

Matrix: Water

Date Received: 09/07/22 12:51

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/17/22 20:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		79 - 122					09/17/22 20:54	1
4-Bromofluorobenzene (Surr)	96		78 - 120					09/17/22 20:54	1
Dibromofluoromethane (Surr)	92		80 - 120					09/17/22 20:54	1
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					09/17/22 20:54	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/17/22 20:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		77 - 123					09/17/22 20:54	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-404169/4**  
**Matrix: Water**  
**Analysis Batch: 404169**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			09/17/22 18:03	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122					09/17/22 18:03	1
4-Bromofluorobenzene (Surr)	94		78 - 120					09/17/22 18:03	1
Dibromofluoromethane (Surr)	89		80 - 120					09/17/22 18:03	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120					09/17/22 18:03	1

**Lab Sample ID: LCS 580-404169/5**  
**Matrix: Water**  
**Analysis Batch: 404169**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.78		ug/L		98	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	99		79 - 122					
4-Bromofluorobenzene (Surr)	101		78 - 120					
Dibromofluoromethane (Surr)	98		80 - 120					
1,2-Dichloroethane-d4 (Surr)	89		78 - 120					

**Lab Sample ID: LCSD 580-404169/6**  
**Matrix: Water**  
**Analysis Batch: 404169**

**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	9.76		ug/L		98	80 - 122	0	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	98		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 120						
Dibromofluoromethane (Surr)	98		80 - 120						
1,2-Dichloroethane-d4 (Surr)	89		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-404170/4**  
**Matrix: Water**  
**Analysis Batch: 404170**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			09/17/22 18:03	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		77 - 123					09/17/22 18:03	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-404170/7**  
**Matrix: Water**  
**Analysis Batch: 404170**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	0.886		mg/L		89	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	85		77 - 123				

**Lab Sample ID: LCSD 580-404170/8**  
**Matrix: Water**  
**Analysis Batch: 404170**

**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	1.00	0.875		mg/L		87	55 - 148	1	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	83		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-403528/1-A**  
**Matrix: Water**  
**Analysis Batch: 403692**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403528**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/12/22 09:25	09/13/22 11:36	1
Chrysene	ND		0.10	0.037	ug/L		09/12/22 09:25	09/13/22 11:36	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/12/22 09:25	09/13/22 11:36	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/12/22 09:25	09/13/22 11:36	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/12/22 09:25	09/13/22 11:36	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/12/22 09:25	09/13/22 11:36	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/12/22 09:25	09/13/22 11:36	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	121		29 - 150				09/12/22 09:25	09/13/22 11:36	1

**Lab Sample ID: LCS 580-403528/2-A**  
**Matrix: Water**  
**Analysis Batch: 403692**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403528**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.71		ug/L		93	55 - 123
Chrysene	4.00	3.46		ug/L		86	47 - 120
Benzo[b]fluoranthene	4.00	3.56		ug/L		89	43 - 120
Benzo[k]fluoranthene	4.00	3.41		ug/L		85	41 - 121
Benzo[a]pyrene	4.00	3.60		ug/L		90	51 - 120
Indeno[1,2,3-cd]pyrene	4.00	3.73		ug/L		93	45 - 123
Dibenz(a,h)anthracene	4.00	3.71		ug/L		93	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-403528/2-A  
Matrix: Water  
Analysis Batch: 403692

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 403528

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	99		29 - 150

Lab Sample ID: LCSD 580-403528/3-A  
Matrix: Water  
Analysis Batch: 403692

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 403528

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	4.00	3.97		ug/L		99	55 - 123	7	31
Chrysene	4.00	3.68		ug/L		92	47 - 120	6	30
Benzo[b]fluoranthene	4.00	3.78		ug/L		94	43 - 120	6	35
Benzo[k]fluoranthene	4.00	3.60		ug/L		90	41 - 121	5	35
Benzo[a]pyrene	4.00	3.79		ug/L		95	51 - 120	5	31
Indeno[1,2,3-cd]pyrene	4.00	3.99		ug/L		100	45 - 123	7	35
Dibenz(a,h)anthracene	4.00	3.94		ug/L		99	54 - 123	6	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	103		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-403257/1-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 403257

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/08/22 09:05	09/10/22 08:31	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/08/22 09:05	09/10/22 08:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	89		50 - 150	09/08/22 09:05	09/10/22 08:31	1

Lab Sample ID: LCS 580-403257/2-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 403257

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	4.15		mg/L		104	50 - 120
Motor Oil (>C24-C36)	4.00	5.05	*+	mg/L		126	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	98		50 - 150

Lab Sample ID: LCSD 580-403257/3-B  
Matrix: Water  
Analysis Batch: 403476

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 403257

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.72		mg/L		93	50 - 120	11	26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-403257/3-B  
 Matrix: Water  
 Analysis Batch: 403476

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 403257

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.56		mg/L		114	64 - 120	10	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o-Terphenyl</i>		89							50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117638-1**

Date Collected: 09/06/22 14:30

Matrix: Water

Date Received: 09/07/22 12:51

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	404169	BNM	EET SEA	09/17/22 20:30
Total/NA	Analysis	NWTPH-Gx		1	404170	BNM	EET SEA	09/17/22 20:30
Total/NA	Prep	3510C			403528	KLW	EET SEA	09/12/22 09:25
Total/NA	Analysis	8270E SIM		1	403692	TL1	EET SEA	09/13/22 13:41
Total/NA	Prep	3510C			403257	KLW	EET SEA	09/08/22 09:05
Total/NA	Cleanup	3630C			403258	KLW	EET SEA	09/08/22 09:10
Total/NA	Analysis	NWTPH-Dx		1	403476	DH	EET SEA	09/10/22 09:32

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117638-2**

Date Collected: 09/06/22 00:01

Matrix: Water

Date Received: 09/07/22 12:51

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	404169	BNM	EET SEA	09/17/22 20:54
Total/NA	Analysis	NWTPH-Gx		1	404170	BNM	EET SEA	09/17/22 20:54

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117638-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-117638-1	Outfall #002	Water	09/06/22 14:30	09/07/22 12:51
580-117638-2	Trip Blank	Water	09/06/22 00:01	09/07/22 12:51

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# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories  
Environmental

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_  
Instructions on reverse side correspond with circled numbers.

<b>1 Client Information</b>				<b>4 Matrix</b>				<b>5 Analyses Requested</b>								SCR #: _____							
Facility # <u>Edmonds Terminal</u> WBS				<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Air <input type="checkbox"/> Oil <input type="checkbox"/> Total Number of Containers <input type="checkbox"/> BTEX + MTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> NWTPH-Gx <input type="checkbox"/> NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <u>Benzene 624-SmL</u> <u>CPAHs 8270-SIM</u>				<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits								<b>6 Remarks</b> ☆ Use standard SGC ☆ Report quantitative levels of Benzene + CPAHs < 1 µg/L pH = 8.35 Flow = 91 gpm							
Site Address <u>11720 Unoia Rd Edmonds, WA</u>																							
Chevron PM <u>Kim Jalitz</u> Lead Consultant <u>Arcadis</u>																							
Consultant/Office <u>1100 Olive Way, Seattle, WA</u>																							
Consultant Project Mgr. <u>Samuel Miles</u>																							
Consultant Phone # _____																							
Sampler <u>P. Bruno</u>				<b>3 Composite</b> <input type="checkbox"/> Soil <input type="checkbox"/> Water <input type="checkbox"/> Oil				<input type="checkbox"/> Grab <input checked="" type="checkbox"/> Composite								<b>9</b>							
<b>2 Sample Identification</b>		Collected																Date		Time			
<u>Outfall #002</u>		<u>9/17/22</u>																					
<u>Trip Blank</u>		—																—		—			
<b>7 Turnaround Time Requested (TAT) (please circle)</b>				Relinquished by <u>Trevor Bryant</u>				Date <u>9/17/22</u>				Time <u>1251</u>				Received by <u>Sudney Lawhoff</u>		Date <u>9/17/22</u>		Time <u>1251</u>			
Standard      5 day      4 day				Relinquished by				Date				Time				Received by		Date		Time			
72 hour      48 hour      24 hour																							
<b>8 Data Package (circle if required)</b>				Relinquished by Commercial Carrier:				Therm. ID: <u>AB</u> Cor: <u>2.0</u> Unc: <u>1.9</u>				Cooler Desc: <u>SB</u>				FedEx: _____							
Type I - Full				CVX-RTBU-FI_05 (default)				UPS _____ FedEx _____ Other _____				Packing: <u>Bub</u>				Cust. Seal: Yes _____ No <input checked="" type="checkbox"/>				Lab Cour: <u>✓</u>			
Type VI (Raw Data)				Other: _____				Temperature Upon Receipt _____ °C				Blue Ice, <input checked="" type="checkbox"/> Wet, Dry, None				Other: _____				No			

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-117638-1

**Login Number: 117638**

**List Number: 1**

**Creator: Vallelunga, Diana L**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No sample time on COC, logged in per container labels.
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.	False	No time on COC, logged in per container labels.
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	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-117818-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



Authorized for release by:  
9/22/2022 2:31:55 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

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**Job ID: 580-117818-1**

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**Laboratory: Eurofins Seattle**

## Narrative

**Job Narrative  
580-117818-1**

### Comments

No additional comments.

### Receipt

The samples were received on 9/13/2022 11:13 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.0° C.

### Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received. No sample date/time was provided for the Trip Blank on the COC. The sample date of the sample submitted with the trip blank was used and the time of 0001.

### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### GC/MS Semi 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 continuing calibration verification (CCV) associated with batch 580-404051 recovered above the upper control limit for Motor Oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Outfall #002 (580-117818-1) and (CCV 580-404051/19).

Method NWTPH-Dx: The laboratory control sample duplicate (LCSD) for preparation batch 580-403945 and 580-403985 and analytical batch 580-404051 recovered outside control limits for the following analytes: Motor Oil. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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



# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117818-1**

Date Collected: 09/12/22 09:30

Matrix: Water

Date Received: 09/13/22 11:13

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/19/22 18:07	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/19/22 18:07	1
4-Bromofluorobenzene (Surr)	96		60 - 140					09/19/22 18:07	1
Dibromofluoromethane (Surr)	102		60 - 140					09/19/22 18:07	1
1,2-Dichloroethane-d4 (Surr)	104		60 - 140					09/19/22 18:07	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.053	0.015	ug/L		09/15/22 08:21	09/16/22 12:28	1
Chrysene	ND		0.11	0.039	ug/L		09/15/22 08:21	09/16/22 12:28	1
Benzo[b]fluoranthene	ND		0.11	0.023	ug/L		09/15/22 08:21	09/16/22 12:28	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		09/15/22 08:21	09/16/22 12:28	1
Benzo[a]pyrene	ND		0.11	0.023	ug/L		09/15/22 08:21	09/16/22 12:28	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		09/15/22 08:21	09/16/22 12:28	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		09/15/22 08:21	09/16/22 12:28	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	109		29 - 150				09/15/22 08:21	09/16/22 12:28	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/21/22 20:54	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150					09/21/22 20:54	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		09/15/22 08:08	09/16/22 01:48	1
Motor Oil (>C24-C36)	ND	*+	0.37	0.10	mg/L		09/15/22 08:08	09/16/22 01:48	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150				09/15/22 08:08	09/16/22 01:48	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117818-2**

Date Collected: 09/12/22 00:01

Matrix: Water

Date Received: 09/13/22 11:13

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/19/22 18:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/19/22 18:30	1
4-Bromofluorobenzene (Surr)	101		60 - 140					09/19/22 18:30	1
Dibromofluoromethane (Surr)	109		60 - 140					09/19/22 18:30	1
1,2-Dichloroethane-d4 (Surr)	105		60 - 140					09/19/22 18:30	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/21/22 13:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					09/21/22 13:37	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-297399/5**  
**Matrix: Water**  
**Analysis Batch: 297399**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/19/22 16:43	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/19/22 16:43	1
4-Bromofluorobenzene (Surr)	101		60 - 140					09/19/22 16:43	1
Dibromofluoromethane (Surr)	107		60 - 140					09/19/22 16:43	1
1,2-Dichloroethane-d4 (Surr)	105		60 - 140					09/19/22 16:43	1

**Lab Sample ID: LCS 410-297399/1003**  
**Matrix: Water**  
**Analysis Batch: 297399**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	20.6		ug/L		103	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	102		60 - 140				
4-Bromofluorobenzene (Surr)	103		60 - 140				
Dibromofluoromethane (Surr)	98		60 - 140				
1,2-Dichloroethane-d4 (Surr)	97		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-403947/1-A**  
**Matrix: Water**  
**Analysis Batch: 404076**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403947**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/15/22 08:21	09/16/22 11:13	1
Chrysene	ND		0.10	0.037	ug/L		09/15/22 08:21	09/16/22 11:13	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/15/22 08:21	09/16/22 11:13	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/15/22 08:21	09/16/22 11:13	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/15/22 08:21	09/16/22 11:13	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/15/22 08:21	09/16/22 11:13	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/15/22 08:21	09/16/22 11:13	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	140		29 - 150				09/15/22 08:21	09/16/22 11:13	1

**Lab Sample ID: LCS 580-403947/2-A**  
**Matrix: Water**  
**Analysis Batch: 404076**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403947**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.90		ug/L		98	55 - 123
Chrysene	4.00	3.45		ug/L		86	47 - 120
Benzo[b]fluoranthene	4.00	3.74		ug/L		94	43 - 120
Benzo[k]fluoranthene	4.00	3.41		ug/L		85	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-403947/2-A

Matrix: Water

Analysis Batch: 404076

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 403947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.69		ug/L		92	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.79		ug/L		95	45 - 123	
Dibenz(a,h)anthracene	4.00	3.81		ug/L		95	54 - 123	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
Terphenyl-d14	102		29 - 150					

Lab Sample ID: LCSD 580-403947/3-A

Matrix: Water

Analysis Batch: 404076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 403947

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	4.33		ug/L		108	55 - 123	10	31	
Chrysene	4.00	3.84		ug/L		96	47 - 120	11	30	
Benzo[b]fluoranthene	4.00	4.10		ug/L		102	43 - 120	9	35	
Benzo[k]fluoranthene	4.00	3.79		ug/L		95	41 - 121	11	35	
Benzo[a]pyrene	4.00	4.07		ug/L		102	51 - 120	10	31	
Indeno[1,2,3-cd]pyrene	4.00	4.20		ug/L		105	45 - 123	10	35	
Dibenz(a,h)anthracene	4.00	4.20		ug/L		105	54 - 123	10	35	
<b>LCSD LCSD</b>										
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Terphenyl-d14	108		29 - 150							

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-298186/4

Matrix: Water

Analysis Batch: 298186

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/21/22 11:04	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150					09/21/22 11:04	1

Lab Sample ID: LCS 410-298186/5

Matrix: Water

Analysis Batch: 298186

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1100		ug/L		100	64 - 131	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
a,a,a-Trifluorotoluene (fid)	93		50 - 150					

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-298186/6**  
**Matrix: Water**  
**Analysis Batch: 298186**

**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 Range Organics (GRO)-C7-C12	1100	1070		ug/L		98	64 - 131	3	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>a,a,a-Trifluorotoluene (fid)</i>		94							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-403945/1-B**  
**Matrix: Water**  
**Analysis Batch: 404051**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 403945**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/15/22 08:08	09/16/22 00:47	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/15/22 08:08	09/16/22 00:47	1
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>		72					09/15/22 08:08	09/16/22 00:47	1

**Lab Sample ID: LCS 580-403945/2-B**  
**Matrix: Water**  
**Analysis Batch: 404051**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 403945**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.76		mg/L		94	50 - 120
Motor Oil (>C24-C36)	4.00	4.40		mg/L		110	64 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
<i>o-Terphenyl</i>		94					50 - 150

**Lab Sample ID: LCSD 580-403945/3-B**  
**Matrix: Water**  
**Analysis Batch: 404051**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 403945**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	4.40		mg/L		110	50 - 120	16	26
Motor Oil (>C24-C36)	4.00	4.99	*+	mg/L		125	64 - 120	13	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>		<b>RPD</b>
<i>o-Terphenyl</i>		112					50 - 150		

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-117818-1**

Date Collected: 09/12/22 09:30

Matrix: Water

Date Received: 09/13/22 11:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	297399	TQ4J	ELLE	09/19/22 18:07
Total/NA	Prep	3510C			403947	JJY	EET SEA	09/15/22 08:21
Total/NA	Analysis	8270E SIM		1	404076	E1L	EET SEA	09/16/22 12:28
Total/NA	Analysis	NWTPH-Gx		1	298186	NND8	ELLE	09/21/22 20:54
Total/NA	Prep	3510C			403945	JJY	EET SEA	09/15/22 08:08
Total/NA	Cleanup	3630C			403985	KLW	EET SEA	09/15/22 11:32
Total/NA	Analysis	NWTPH-Dx		1	404051	DH	EET SEA	09/16/22 01:48

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-117818-2**

Date Collected: 09/12/22 00:01

Matrix: Water

Date Received: 09/13/22 11:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	297399	TQ4J	ELLE	09/19/22 18:30
Total/NA	Analysis	NWTPH-Gx		1	298186	NND8	ELLE	09/21/22 13:37

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-117818-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-117818-1	Outfall #002	Water	09/12/22 09:30	09/13/22 11:13
580-117818-2	Trip Blank	Water	09/12/22 00:01	09/13/22 11:13

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# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories Environmental**

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

For Eurofins Lancaster Laboratories Environmental use only

Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested												6		
Facility # _____ WBS _____ <b>Edmonds Terminal</b>		3 <input type="checkbox"/> Grab <input type="checkbox"/> Composite	<input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Oil Total Number of Containers	<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> Air	<input type="checkbox"/> BTEX + MTBE <input type="checkbox"/> 8260 full scan Oxygenates NNWTPH-Gx NNWTPH-Dx with Silica Gel Cleanup NNWTPH-Dx without Silica Gel Cleanup WA VPH <input type="checkbox"/> Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method	<input type="checkbox"/> Naphth <input type="checkbox"/> 8021 <input type="checkbox"/> 8260	<input type="checkbox"/> Benzene <input type="checkbox"/> CPAHs	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits	SCR #: _____		6 <b>Remarks</b> * Use standard SGC * Report quantitative levels of Benzene + CPAHs < 1 ug/L pH = 7.66 flow = 96 gal/min									
Site Address <b>11720 Unolo Rd Edmonds, WA</b>																				
Chevron PM <b>Kim Lolitz</b>																				
Lead Consultant <b>Arcadis</b>																				
Consultant/Office <b>1100 Olive Way Seattle, WA</b>																				
Consultant Project Mgr. <b>Samuel Miles</b>																				
Consultant Phone # _____		Sampler <b>S. Green</b>																		
2 Sample Identification			Collected																	
		Date	Time																	
<b>Outfall #002</b>		<b>9/12/22</b>	<b>9:30</b>	<input checked="" type="checkbox"/>																
<b>Trip Blank</b>		---	---	<input type="checkbox"/>																
7 Turnaround Time Requested (TAT) (please circle)			Relinquished by _____ Date _____ Time _____			Received by _____ Date _____ Time _____						9								
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour			Relinquished by _____ Date _____ Time _____			Received by _____ Date _____ Time _____														
8 Data Package (circle if required)			Relinquish			Therm. ID: <u>A3</u> Cor: <u>6.0</u> ° Unc: <u>5.9</u> °			FedEx: _____			Rec 								
<input type="radio"/> Type I - Full <input type="radio"/> Type VI (Raw Data)			<input type="radio"/> UPS <input type="radio"/> Tc			Cooler Dsc: <u>MR</u>			UPS: _____											
<input type="radio"/> EDD (circle if required) <input type="radio"/> CVX-RTBU-FI_05 (default) Other: _____						Packing: <u>Bags</u>			Lab Cour: <u>Y</u>											
						Cust. Seal: Yes <u>No</u>			Other: _____			<input type="checkbox"/> No								
						Blue Ice <u>Wet, Dry, None</u>														

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:	
Client Contact: Shipping/Receiving		Phone:	Grant, Katie	E-Mail:	580-108922.1	
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Washington			Page: Page 1 of 1	
Address: 2425 New Holland Pike.		Due Date Requested: 9/26/2022	<b>Analysis Requested</b>		<b>Preservation Codes:</b> A - HCL                   M - Hexane B - NaOH               N - None C - Zn Acetate       O - AsNaO2 D - Nitric Acid       P - Na2O4S E - NaHSO4           Q - Na2SO3 F - MeOH              R - Na2S2O3 G - Amchlor         S - H2SO4 H - Ascorbic Acid   T - TSP Dodecahydrate I - Ice                 U - Acetone J - DI Water         V - MCAA K - EDTA             W - pH 4-5 L - EDA               Y - Trizma Z - other (specify)  Other:	
City: Lancaster	TAT Requested (days):	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	624.1_PREC624_Prep Benzene		NWTPH_Gz/5030B NWTPH - Gasoline Range Organics
State, Zip: PA, 17601	PO #:					
Phone: 717-656-2300(Tel)	WO #:					
Email:						
Project Name: Chevron Edmonds Terminal	Project #: 58011413	SSOW#:				
Site: Chevron Edmonds Terminal						
<b>Sample Identification - Client ID (Lab ID)</b>	<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</b>	<b>Total Number of containers</b>	<b>Special Instructions/Note:</b>
						<b>Preservation Code:</b>
Outfall #002 (580-117818-1)	9/12/22	09:30 Pacific		Water		3 Do not dilute
Trip Blank (580-117818-2)	9/12/22	00:01 Pacific		Water		4 Do not dilute
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.						
<b>Possible Hazard Identification</b>				<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>		
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Special Instructions/QC Requirements:		
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by: <i>[Signature]</i>		Date/Time: 9/14/22 1323	Company: <i>ESTN</i>	Received by:		Company:
Relinquished by:		Date/Time:	Company:	Received by:		Company:
Relinquished by:		Date/Time:	Company:	Received by: <i>[Signature]</i>		Company: <i>[Signature]</i>
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.7		

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-117818-1

**Login Number: 117818**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
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	

## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-117818-1

**Login Number: 117818**

**List Number: 2**

**Creator: McBeth, Jessica**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Creation: 09/16/22 02:03 PM**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-118086-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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Authorized for release by:  
10/3/2022 2:22:37 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

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**Job ID: 580-118086-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-118086-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 9/20/2022 10:44 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.4° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-118086-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.





# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118086-1**

Date Collected: 09/19/22 10:15

Matrix: Water

Date Received: 09/20/22 10:44

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/23/22 18:18	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		60 - 140					09/23/22 18:18	1
4-Bromofluorobenzene (Surr)	104		60 - 140					09/23/22 18:18	1
Dibromofluoromethane (Surr)	105		60 - 140					09/23/22 18:18	1
1,2-Dichloroethane-d4 (Surr)	102		60 - 140					09/23/22 18:18	1

**Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		09/26/22 09:39	09/28/22 01:51	1
Chrysene	ND		0.10	0.038	ug/L		09/26/22 09:39	09/28/22 01:51	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/26/22 09:39	09/28/22 01:51	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		09/26/22 09:39	09/28/22 01:51	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/26/22 09:39	09/28/22 01:51	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		09/26/22 09:39	09/28/22 01:51	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/26/22 09:39	09/28/22 01:51	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	103		29 - 150				09/26/22 09:39	09/28/22 01:51	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/30/22 22:56	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	100		50 - 150					09/30/22 22:56	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		09/22/22 09:39	09/23/22 07:42	1
Motor Oil (>C24-C36)	ND		0.36	0.097	mg/L		09/22/22 09:39	09/23/22 07:42	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	59		50 - 150				09/22/22 09:39	09/23/22 07:42	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118086-2**

Date Collected: 09/19/22 00:01

Matrix: Water

Date Received: 09/20/22 10:44

**Method: 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/23/22 17:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/23/22 17:56	1
4-Bromofluorobenzene (Surr)	105		60 - 140					09/23/22 17:56	1
Dibromofluoromethane (Surr)	103		60 - 140					09/23/22 17:56	1
1,2-Dichloroethane-d4 (Surr)	104		60 - 140					09/23/22 17:56	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/26/22 12:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150					09/26/22 12:46	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-299256/5**  
**Matrix: Water**  
**Analysis Batch: 299256**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/23/22 14:07	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		60 - 140					09/23/22 14:07	1
4-Bromofluorobenzene (Surr)	102		60 - 140					09/23/22 14:07	1
Dibromofluoromethane (Surr)	104		60 - 140					09/23/22 14:07	1
1,2-Dichloroethane-d4 (Surr)	102		60 - 140					09/23/22 14:07	1

**Lab Sample ID: LCS 410-299256/1003**  
**Matrix: Water**  
**Analysis Batch: 299256**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.3		ug/L		106	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	100		60 - 140				
4-Bromofluorobenzene (Surr)	106		60 - 140				
Dibromofluoromethane (Surr)	100		60 - 140				
1,2-Dichloroethane-d4 (Surr)	102		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-404972/1-A**  
**Matrix: Water**  
**Analysis Batch: 405195**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 404972**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/26/22 09:39	09/27/22 20:53	1
Chrysene	ND		0.10	0.037	ug/L		09/26/22 09:39	09/27/22 20:53	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/26/22 09:39	09/27/22 20:53	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/26/22 09:39	09/27/22 20:53	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/26/22 09:39	09/27/22 20:53	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/26/22 09:39	09/27/22 20:53	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/26/22 09:39	09/27/22 20:53	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	99		29 - 150				09/26/22 09:39	09/27/22 20:53	1

**Lab Sample ID: LCS 580-404972/2-A**  
**Matrix: Water**  
**Analysis Batch: 405195**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 404972**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.27		ug/L		82	55 - 123
Chrysene	4.00	3.14		ug/L		78	47 - 120
Benzo[b]fluoranthene	4.00	2.92		ug/L		73	43 - 120
Benzo[k]fluoranthene	4.00	3.18		ug/L		80	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-404972/2-A

Matrix: Water

Analysis Batch: 405195

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 404972

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.18		ug/L		79	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.01		ug/L		75	45 - 123	
Dibenz(a,h)anthracene	4.00	3.23		ug/L		81	54 - 123	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
Terphenyl-d14	91		29 - 150					

Lab Sample ID: LCSD 580-404972/3-A

Matrix: Water

Analysis Batch: 405195

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 404972

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	3.67		ug/L		92	55 - 123	12	31	
Chrysene	4.00	3.23		ug/L		81	47 - 120	3	30	
Benzo[b]fluoranthene	4.00	3.20		ug/L		80	43 - 120	9	35	
Benzo[k]fluoranthene	4.00	3.42		ug/L		85	41 - 121	7	35	
Benzo[a]pyrene	4.00	3.44		ug/L		86	51 - 120	8	31	
Indeno[1,2,3-cd]pyrene	4.00	3.44		ug/L		86	45 - 123	13	35	
Dibenz(a,h)anthracene	4.00	3.52		ug/L		88	54 - 123	9	35	
<b>LCSD LCSD</b>										
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14	96		29 - 150							

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-299731/4

Matrix: Water

Analysis Batch: 299731

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/26/22 11:02	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits		Prepared		Analyzed		Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150				09/26/22 11:02		1

Lab Sample ID: LCS 410-299731/5

Matrix: Water

Analysis Batch: 299731

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1090		ug/L		99	64 - 131	
<b>LCS LCS</b>								
Surrogate	%Recovery	Qualifier	Limits					
a,a,a-Trifluorotoluene (fid)	92		50 - 150					

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-299731/6**

**Matrix: Water**

**Analysis Batch: 299731**

**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 Range Organics (GRO)-C7-C12	1100	1110		ug/L		101	64 - 131	2	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		95							50 - 150

**Lab Sample ID: MB 410-301760/4**

**Matrix: Water**

**Analysis Batch: 301760**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			09/30/22 13:56	1
<b>Surrogate</b>		<b>%Recovery</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid)		99						09/30/22 13:56	1

**Lab Sample ID: LCS 410-301760/5**

**Matrix: Water**

**Analysis Batch: 301760**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1180		ug/L		108	64 - 131
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		93					50 - 150

**Lab Sample ID: LCSD 410-301760/6**

**Matrix: Water**

**Analysis Batch: 301760**

**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 Range Organics (GRO)-C7-C12	1100	1180		ug/L		107	64 - 131	0	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		92							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-404633/1-B**

**Matrix: Water**

**Analysis Batch: 404788**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 404633**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/22/22 09:39	09/23/22 06:01	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/22/22 09:39	09/23/22 06:01	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: MB 580-404633/1-B**  
**Matrix: Water**  
**Analysis Batch: 404788**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 404633**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>o</i> -Terphenyl	61		50 - 150	09/22/22 09:39	09/23/22 06:01	1

**Lab Sample ID: LCS 580-404633/2-B**  
**Matrix: Water**  
**Analysis Batch: 404788**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 404633**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Motor Oil (>C24-C36)	4.00	3.98		mg/L		99	64 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	86		50 - 150

**Lab Sample ID: LCSD 580-404633/3-B**  
**Matrix: Water**  
**Analysis Batch: 404788**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 404633**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
#2 Diesel (C10-C24)	4.00	3.25		mg/L		81	50 - 120	1	26
Motor Oil (>C24-C36)	4.00	3.88		mg/L		97	64 - 120	3	24

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
<i>o</i> -Terphenyl	86		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118086-1**

Date Collected: 09/19/22 10:15

Matrix: Water

Date Received: 09/20/22 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	299256	UJML	ELLE	09/23/22 18:18
Total/NA	Prep	3510C			404972	KLW	EET SEA	09/26/22 09:39
Total/NA	Analysis	8270E SIM		1	405195	E1L	EET SEA	09/28/22 01:51
Total/NA	Analysis	NWTPH-Gx		1	301760	NND8	ELLE	09/30/22 22:56
Total/NA	Prep	3510C			404633	KLW	EET SEA	09/22/22 09:39
Total/NA	Cleanup	3630C			404634	KLW	EET SEA	09/22/22 09:45
Total/NA	Analysis	NWTPH-Dx		1	404788	DH	EET SEA	09/23/22 07:42

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118086-2**

Date Collected: 09/19/22 00:01

Matrix: Water

Date Received: 09/20/22 10:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	299256	UJML	ELLE	09/23/22 17:56
Total/NA	Analysis	NWTPH-Gx		1	299731	NND8	ELLE	09/26/22 12:46

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	10-06-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118086-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118086-1	Outfall #002	Water	09/19/22 10:15	09/20/22 10:44
580-118086-2	Trip Blank	Water	09/19/22 00:01	09/20/22 10:44

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# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # \_\_\_\_\_ Group # \_\_\_\_\_ Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix			5 Analyses Requested										SCR #: _____																	
Facility #		WBS		Sediment <input type="checkbox"/>	Ground <input type="checkbox"/>	Surface <input type="checkbox"/>	Potable <input type="checkbox"/>	NPDES <input type="checkbox"/>	Air <input type="checkbox"/>	Total Number of Containers	BTEX + MTBE <input type="checkbox"/>	8021 <input type="checkbox"/>	8260 <input type="checkbox"/>	Naphth <input type="checkbox"/>	8260 full scan	Oxygenates	NWTPH-Gx	NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/>	NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/>	WA VPH <input type="checkbox"/>	WA EPH <input type="checkbox"/>	Lead <input type="checkbox"/>	Total <input type="checkbox"/>	Diss. <input type="checkbox"/>	Method	Benzene 624 - 5ml	CPAHS 8270 - SIM	<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits						
Edmonds Terminal																																		
Site Address		11720 Unoco Rd Edmonds, WA																																
Chevron PM		Lead Consultant																																
Kim Solitz																																		
Consultant/Office		1100 Olive Way Seattle, WA																																
Consultant Project Mgr.		Samuel Miles																																
Consultant Phone #																																		
Sampler		P. Bruno																																
2 Sample Identification				3			6 Remarks																											
		Collected		Grab	Composite	* Use standard SOC * Benzene and CPAHS with quantitative levels < 1mg/L Flow = 92 CFM pH = 7.72																												
		Date	Time																															
Outfall #002		9/19/22	10:15	X																														
Trip Blank																																		
7 Turnaround Time Requested (TAT) (please circle)				Relinquished by			Date		Time		Received by		Date		Time		580-118086 Chain of Custody 																	
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour				Relinquished by <i>Peter Bruno</i> Date 9/19/22 Time 11:30			Date 9/20/22 Time 10:44		Received by <i>Sydney Lawford</i> Date 9/20/22 Time 10:44																									
				Relinquished by			Date		Time		Received by		Date		Time																			
8 Data Package (circle if required)				EDD (circle if required)			Relinquished by Commercial Carrier:										Temperature Upon Receipt		Yes No															
Type I - Full				CVX-RTBU-FI_05 (default)			UPS _____ FedEx _____ Other _____ Cust. Seal: Yes ___ No <input checked="" type="checkbox"/> Blue Ice, <input checked="" type="checkbox"/> Wet, Dry, None										FedEx: _____ Date _____ Lab Cour: <input checked="" type="checkbox"/>																	
Type VI (Raw Data)				Other: _____																														



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118086-1

**Login Number: 118086**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118086-1

**Login Number: 118086**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 09/22/22 12:26 PM**

**Creator: Ballard, Megan**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-118253-1  
Client Project/Site: Chevron Edmonds Terminal

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
10/10/2022 9:17:56 AM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

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**Job ID: 580-118253-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-118253-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 9/26/2022 10:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.4° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118253-1**

Date Collected: 09/26/22 10:00

Matrix: Water

Date Received: 09/26/22 10:35

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/30/22 15:36	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/30/22 15:36	1
4-Bromofluorobenzene (Surr)	93		60 - 140					09/30/22 15:36	1
Dibromofluoromethane (Surr)	107		60 - 140					09/30/22 15:36	1
1,2-Dichloroethane-d4 (Surr)	108		60 - 140					09/30/22 15:36	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		09/30/22 12:01	09/30/22 23:31	1
Chrysene	ND		0.10	0.038	ug/L		09/30/22 12:01	09/30/22 23:31	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		09/30/22 12:01	09/30/22 23:31	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		09/30/22 12:01	09/30/22 23:31	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		09/30/22 12:01	09/30/22 23:31	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		09/30/22 12:01	09/30/22 23:31	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/30/22 12:01	09/30/22 23:31	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	102		29 - 150				09/30/22 12:01	09/30/22 23:31	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/04/22 18:11	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150					10/04/22 18:11	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		09/28/22 08:29	09/29/22 21:02	1
Motor Oil (>C24-C36)	0.11	J	0.36	0.098	mg/L		09/28/22 08:29	09/29/22 21:02	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	63		50 - 150				09/28/22 08:29	09/29/22 21:02	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118253-2**

Date Collected: 09/26/22 00:01

Matrix: Water

Date Received: 09/26/22 10:35

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/30/22 16:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/30/22 16:00	1
4-Bromofluorobenzene (Surr)	94		60 - 140					09/30/22 16:00	1
Dibromofluoromethane (Surr)	107		60 - 140					09/30/22 16:00	1
1,2-Dichloroethane-d4 (Surr)	112		60 - 140					09/30/22 16:00	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/04/22 14:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	100		50 - 150					10/04/22 14:47	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-301638/5**  
**Matrix: Water**  
**Analysis Batch: 301638**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			09/30/22 12:26	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		60 - 140					09/30/22 12:26	1
4-Bromofluorobenzene (Surr)	96		60 - 140					09/30/22 12:26	1
Dibromofluoromethane (Surr)	110		60 - 140					09/30/22 12:26	1
1,2-Dichloroethane-d4 (Surr)	109		60 - 140					09/30/22 12:26	1

**Lab Sample ID: LCS 410-301638/1003**  
**Matrix: Water**  
**Analysis Batch: 301638**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	18.6		ug/L		93	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	102		60 - 140				
4-Bromofluorobenzene (Surr)	99		60 - 140				
Dibromofluoromethane (Surr)	100		60 - 140				
1,2-Dichloroethane-d4 (Surr)	105		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-405616/1-A**  
**Matrix: Water**  
**Analysis Batch: 405674**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 405616**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		09/30/22 12:01	09/30/22 19:00	1
Chrysene	ND		0.10	0.037	ug/L		09/30/22 12:01	09/30/22 19:00	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		09/30/22 12:01	09/30/22 19:00	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		09/30/22 12:01	09/30/22 19:00	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		09/30/22 12:01	09/30/22 19:00	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		09/30/22 12:01	09/30/22 19:00	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		09/30/22 12:01	09/30/22 19:00	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	103		29 - 150				09/30/22 12:01	09/30/22 19:00	1

**Lab Sample ID: LCS 580-405616/2-A**  
**Matrix: Water**  
**Analysis Batch: 405674**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 405616**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.32		ug/L		83	55 - 123
Chrysene	4.00	3.35		ug/L		84	47 - 120
Benzo[b]fluoranthene	4.00	3.08		ug/L		77	43 - 120
Benzo[k]fluoranthene	4.00	3.61		ug/L		90	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-405616/2-A

Matrix: Water

Analysis Batch: 405674

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 405616

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.47		ug/L		87	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.45		ug/L		86	45 - 123	
Dibenz(a,h)anthracene	4.00	3.81		ug/L		95	54 - 123	
<b>Surrogate</b>								
		<b>LCS</b>	<b>LCS</b>				<b>Limits</b>	
<b>Terphenyl-d14</b>		<b>%Recovery</b>	<b>Qualifier</b>					
		94					29 - 150	

Lab Sample ID: LCSD 580-405616/3-A

Matrix: Water

Analysis Batch: 405674

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 405616

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	3.58		ug/L		89	55 - 123	8	31	
Chrysene	4.00	3.63		ug/L		91	47 - 120	8	30	
Benzo[b]fluoranthene	4.00	3.12		ug/L		78	43 - 120	1	35	
Benzo[k]fluoranthene	4.00	3.96		ug/L		99	41 - 121	9	35	
Benzo[a]pyrene	4.00	3.68		ug/L		92	51 - 120	6	31	
Indeno[1,2,3-cd]pyrene	4.00	3.90		ug/L		97	45 - 123	12	35	
Dibenz(a,h)anthracene	4.00	4.05		ug/L		101	54 - 123	6	35	
<b>Surrogate</b>										
		<b>LCSD</b>	<b>LCSD</b>				<b>Limits</b>			
<b>Terphenyl-d14</b>		<b>%Recovery</b>	<b>Qualifier</b>							
		101					29 - 150			

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-302818/4

Matrix: Water

Analysis Batch: 302818

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Surrogate</b>									
	<b>MB</b>	<b>MB</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<b>a,a,a-Trifluorotoluene (fid)</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
	98		50 - 150				10/04/22 10:33	1	

Lab Sample ID: LCS 410-302818/5

Matrix: Water

Analysis Batch: 302818

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1140		ug/L		104	64 - 131	
<b>Surrogate</b>								
		<b>LCS</b>	<b>LCS</b>				<b>Limits</b>	
<b>a,a,a-Trifluorotoluene (fid)</b>		<b>%Recovery</b>	<b>Qualifier</b>					
		93					50 - 150	

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-302818/6**  
**Matrix: Water**  
**Analysis Batch: 302818**

**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 Range Organics (GRO)-C7-C12	1100	1170		ug/L		107	64 - 131	3	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>a,a,a-Trifluorotoluene (fid)</i>		93							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-405253/1-B**  
**Matrix: Water**  
**Analysis Batch: 405688**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 405253**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		09/28/22 08:29	09/29/22 20:05	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		09/28/22 08:29	09/29/22 20:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	65		50 - 150				09/28/22 08:29	09/29/22 20:05	1

**Lab Sample ID: LCS 580-405253/2-B**  
**Matrix: Water**  
**Analysis Batch: 405688**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 405253**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.54		mg/L		89	50 - 120
Motor Oil (>C24-C36)	4.00	3.86		mg/L		97	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	97		50 - 150				

**Lab Sample ID: LCSD 580-405253/3-B**  
**Matrix: Water**  
**Analysis Batch: 405688**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 405253**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.41		mg/L		85	50 - 120	4	26
Motor Oil (>C24-C36)	4.00	3.80		mg/L		95	64 - 120	2	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	93		50 - 150						



# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118253-1**

Date Collected: 09/26/22 10:00

Matrix: Water

Date Received: 09/26/22 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	301638	TQ4J	ELLE	09/30/22 15:36
Total/NA	Prep	3510C			405616	KLW	EET SEA	09/30/22 12:01
Total/NA	Analysis	8270E SIM		1	405674	E1L	EET SEA	09/30/22 23:31
Total/NA	Analysis	NWTPH-Gx		1	302818	MXX6	ELLE	10/04/22 18:11
Total/NA	Prep	3510C			405253	KLW	EET SEA	09/28/22 08:29
Total/NA	Cleanup	3630C			405254	KLW	EET SEA	09/28/22 08:32
Total/NA	Analysis	NWTPH-Dx		1	405688	DH	EET SEA	09/29/22 21:02

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118253-2**

Date Collected: 09/26/22 00:01

Matrix: Water

Date Received: 09/26/22 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	301638	TQ4J	ELLE	09/30/22 16:00
Total/NA	Analysis	NWTPH-Gx		1	302818	MXX6	ELLE	10/04/22 14:47

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	10-06-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118253-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118253-1	Outfall #002	Water	09/26/22 10:00	09/26/22 10:35
580-118253-2	Trip Blank	Water	09/26/22 00:01	09/26/22 10:35

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# Chevron Northwest Region Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

Acct. # \_\_\_\_\_

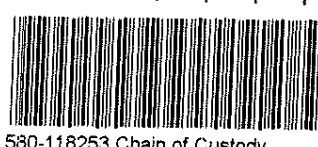
For Eurofins Lancaster Laboratories Environmental use only

Group # \_\_\_\_\_

Sample # \_\_\_\_\_

Instructions on reverse side correspond with circled numbers.

<b>1 Client Information</b>				<b>4 Matrix</b>				<b>5 Analyses Requested</b>				<b>SCR #: _____</b>																															
Facility # <u>Edmonds Terminal</u> WBS				<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input type="checkbox"/> NPDES <input type="checkbox"/> Surface <input type="checkbox"/> Oil <input type="checkbox"/> Air Total Number of Containers _____ <input type="checkbox"/> BTEX + MTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method				<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits				SCR #: _____  <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																															
Site Address <u>11720 Unaco Rd Edmonds WA</u>																																											
Chevron PM <u>Kim Salitz</u> Lead Consultant																																											
Consultant/Office <u>1102 Olive Way Seattle, WA</u>																																											
Consultant Project Mgr. <u>Samuel Miles</u>																																											
Consultant Phone # _____				Total Number of Containers _____ <input type="checkbox"/> BTEX + MTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <u>Benzene 624 Soil</u> <u>CPAHS 8270-SIM</u>				<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits				SCR #: _____  <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																															
Sample <u>P. Bruno</u>																																											
<b>2 Sample Identification</b>																																											
		Collected												Grab		Composite		Total Number of Containers _____ <input type="checkbox"/> BTEX + MTBE <input type="checkbox"/> 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/> 8260 full scan Oxygenates NWTPH-Gx NWTPH-Dx with Silica Gel Cleanup <input type="checkbox"/> NWTPH-Dx without Silica Gel Cleanup <input type="checkbox"/> WA VPH <input type="checkbox"/> WA EPH Lead <input type="checkbox"/> Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <u>Benzene 624 Soil</u> <u>CPAHS 8270-SIM</u>		<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits		SCR #: _____  <input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run _____ oxy's on highest hit <input type="checkbox"/> Run _____ oxy's on all hits																					
		Date	Time																																								
<u>Drift #002</u>		<u>9/26/22</u>	<u>1000</u>	<input checked="" type="checkbox"/>																																							
<u>Trip blank</u>																																											
Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard    5 day    4 day 72 hour    48 hour    24 hour				Relinquished by <u>Peter Bruno</u> Date <u>9/26/22</u> Time <u>1035</u> Relinquished by _____    Date _____    Time _____				Received by <u>Sandra Law</u> Date <u>9/26/22</u> Time <u>1035</u> Received by _____    Date _____    Time _____				Therm. ID: <u>A2</u> Cor: <u>6.4</u> Unc: <u>6.3</u> Cooler Dsc: <u>65</u> Packing: <u>600</u> Cust. Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Blue Ice: <u>Wet</u> , Dry, None FedEx: _____ UPS: _____ Lab Cour: <input checked="" type="checkbox"/> Other: _____																															
														Data Package (circle if required) Type I - Full Type VI (Raw Data)				EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____				Relinquished by Commercial Carrier: UPS _____    FedEx _____    Other _____ Temperature Upon Receipt _____ °C				Remarks * Use standard SGC * Benzene and CPAHS with Quantitative levels < 1mg/L pH = 7.65 6 PM = 92																	
																												Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard    5 day    4 day 72 hour    48 hour    24 hour		Relinquished by <u>Peter Bruno</u> Date <u>9/26/22</u> Time <u>1035</u> Relinquished by _____    Date _____    Time _____		Received by <u>Sandra Law</u> Date <u>9/26/22</u> Time <u>1035</u> Received by _____    Date _____    Time _____		Therm. ID: <u>A2</u> Cor: <u>6.4</u> Unc: <u>6.3</u> Cooler Dsc: <u>65</u> Packing: <u>600</u> Cust. Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Blue Ice: <u>Wet</u> , Dry, None FedEx: _____ UPS: _____ Lab Cour: <input checked="" type="checkbox"/> Other: _____									
																																				Data Package (circle if required) Type I - Full Type VI (Raw Data)		EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____		Relinquished by Commercial Carrier: UPS _____    FedEx _____    Other _____ Temperature Upon Receipt _____ °C		Remarks * Use standard SGC * Benzene and CPAHS with Quantitative levels < 1mg/L pH = 7.65 6 PM = 92	
Data Package (circle if required) Type I - Full Type VI (Raw Data)		EDD (circle if required) CVX-RTBU-FI_05 (default) Other: _____		Relinquished by Commercial Carrier: UPS _____    FedEx _____    Other _____ Temperature Upon Receipt _____ °C		Remarks * Use standard SGC * Benzene and CPAHS with Quantitative levels < 1mg/L pH = 7.65 6 PM = 92																																					



580-118253 Chain of Custody



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118253-1

**Login Number: 118253**

**List Number: 1**

**Creator: Swoope, Alexandra C**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118253-1

**Login Number: 118253**

**List Number: 2**

**Creator: Ballard, Megan**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Creation: 09/28/22 02:56 PM**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	





## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-118768-1

Client Project/Site: Chevron Edmonds Terminal

For:

ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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Authorized for release by:  
10/24/2022 3:40:56 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

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**Job ID: 580-118768-1**

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**Laboratory: Eurofins Seattle**

## Narrative

**Job Narrative  
580-118768-1**

### Comments

No additional comments.

### Receipt

The samples were received on 10/12/2022 10:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4° C.

### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### GC/MS Semi VOA

Method 8270E SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-406810 and analytical batch 580-406720 recovered outside control limits for the following analytes: Chrysene and Indeno[1,2,3-cd]pyrene.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### GC Semi VOA

Method NWTPH-Dx: The continuing calibration verification (CCV) associated with batch 580-406892 recovered above the upper control limit for Motor Oil. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: Outfall #002 (580-118768-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### Organic Prep

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-118768-1). The emulsions were broken up using additional sodium sulfate filtration with methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118768-1**

Date Collected: 10/11/22 13:10

Matrix: Water

Date Received: 10/12/22 10:45

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/17/22 16:53	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		60 - 140					10/17/22 16:53	1
4-Bromofluorobenzene (Surr)	101		60 - 140					10/17/22 16:53	1
Dibromofluoromethane (Surr)	102		60 - 140					10/17/22 16:53	1
1,2-Dichloroethane-d4 (Surr)	107		60 - 140					10/17/22 16:53	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		10/13/22 10:28	10/17/22 16:47	1
Chrysene	ND		0.10	0.038	ug/L		10/13/22 10:28	10/17/22 16:47	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		10/13/22 10:28	10/17/22 16:47	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		10/13/22 10:28	10/17/22 16:47	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		10/13/22 10:28	10/17/22 16:47	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		10/13/22 10:28	10/17/22 16:47	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		10/13/22 10:28	10/17/22 16:47	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		29 - 150				10/13/22 10:28	10/17/22 16:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/20/22 00:07	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150					10/20/22 00:07	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		10/13/22 10:42	10/13/22 23:08	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		10/13/22 10:42	10/13/22 23:08	1
<b>Surrogate</b>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150				10/13/22 10:42	10/13/22 23:08	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118768-2**

Date Collected: 10/11/22 00:01

Matrix: Water

Date Received: 10/12/22 10:45

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/17/22 16:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		60 - 140					10/17/22 16:29	1
4-Bromofluorobenzene (Surr)	100		60 - 140					10/17/22 16:29	1
Dibromofluoromethane (Surr)	103		60 - 140					10/17/22 16:29	1
1,2-Dichloroethane-d4 (Surr)	106		60 - 140					10/17/22 16:29	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/19/22 16:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150					10/19/22 16:26	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-307314/5**  
**Matrix: Water**  
**Analysis Batch: 307314**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/17/22 12:59	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		60 - 140					10/17/22 12:59	1
4-Bromofluorobenzene (Surr)	99		60 - 140					10/17/22 12:59	1
Dibromofluoromethane (Surr)	103		60 - 140					10/17/22 12:59	1
1,2-Dichloroethane-d4 (Surr)	104		60 - 140					10/17/22 12:59	1

**Lab Sample ID: LCS 410-307314/1003**  
**Matrix: Water**  
**Analysis Batch: 307314**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.0		ug/L		110	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	99		60 - 140				
4-Bromofluorobenzene (Surr)	104		60 - 140				
Dibromofluoromethane (Surr)	99		60 - 140				
1,2-Dichloroethane-d4 (Surr)	100		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-406810/1-A**  
**Matrix: Water**  
**Analysis Batch: 407076**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 406810**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/13/22 10:28	10/17/22 14:19	1
Chrysene	ND		0.10	0.037	ug/L		10/13/22 10:28	10/17/22 14:19	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		10/13/22 10:28	10/17/22 14:19	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/13/22 10:28	10/17/22 14:19	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		10/13/22 10:28	10/17/22 14:19	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/13/22 10:28	10/17/22 14:19	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		10/13/22 10:28	10/17/22 14:19	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	99		29 - 150				10/13/22 10:28	10/17/22 14:19	1

**Lab Sample ID: LCS 580-406810/2-A**  
**Matrix: Water**  
**Analysis Batch: 407076**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 406810**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	4.00	3.33		ug/L		83	55 - 123
Chrysene	4.00	3.11		ug/L		78	47 - 120
Benzo[b]fluoranthene	4.00	3.15		ug/L		79	43 - 120
Benzo[k]fluoranthene	4.00	3.30		ug/L		82	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 580-406810/2-A

Matrix: Water

Analysis Batch: 407076

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzo[a]pyrene	4.00	3.25		ug/L		81	51 - 120	
Indeno[1,2,3-cd]pyrene	4.00	3.37		ug/L		84	45 - 123	
Dibenz(a,h)anthracene	4.00	3.42		ug/L		86	54 - 123	
		<b>LCS</b>	<b>LCS</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
Terphenyl-d14	80		29 - 150					

Lab Sample ID: LCSD 580-406810/3-A

Matrix: Water

Analysis Batch: 407076

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 406810

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
Benzo[a]anthracene	4.00	3.23		ug/L		81	55 - 123	3	31	
Chrysene	4.00	3.05		ug/L		76	47 - 120	2	30	
Benzo[b]fluoranthene	4.00	3.05		ug/L		76	43 - 120	3	35	
Benzo[k]fluoranthene	4.00	3.26		ug/L		81	41 - 121	1	35	
Benzo[a]pyrene	4.00	3.25		ug/L		81	51 - 120	0	31	
Indeno[1,2,3-cd]pyrene	4.00	3.20		ug/L		80	45 - 123	5	35	
Dibenz(a,h)anthracene	4.00	3.33		ug/L		83	54 - 123	3	35	
		<b>LCSD</b>	<b>LCSD</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>							
Terphenyl-d14	79		29 - 150							

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 410-308172/4

Matrix: Water

Analysis Batch: 308172

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L		10/19/22 13:28	1	
		<b>MB</b>	<b>MB</b>						
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
a,a,a-Trifluorotoluene (fid)	102		50 - 150			10/19/22 13:28	1		

Lab Sample ID: LCS 410-308172/5

Matrix: Water

Analysis Batch: 308172

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C7-C12	1100	1030		ug/L		93	64 - 131	
		<b>LCS</b>	<b>LCS</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
a,a,a-Trifluorotoluene (fid)	93		50 - 150					



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 410-308172/6

Matrix: Water

Analysis Batch: 308172

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 Range Organics (GRO)-C7-C12	1100	1030		ug/L		94	64 - 131	1	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		94							50 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Lab Sample ID: MB 580-406811/1-B

Matrix: Water

Analysis Batch: 406892

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 406811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.0336	J	0.055	0.033	mg/L		10/13/22 10:42	10/13/22 21:47	1
Motor Oil (>C24-C36)	ND		0.18	0.048	mg/L		10/13/22 10:42	10/13/22 21:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	82		50 - 150				10/13/22 10:42	10/13/22 21:47	1

Lab Sample ID: LCS 580-406811/2-B

Matrix: Water

Analysis Batch: 406892

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	2.83		mg/L		71	50 - 120
Motor Oil (>C24-C36)	4.00	3.42		mg/L		86	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
o-Terphenyl	85		50 - 150				

Lab Sample ID: LCSD 580-406811/3-B

Matrix: Water

Analysis Batch: 406892

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 406811

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.16		mg/L		79	50 - 120	11	26
Motor Oil (>C24-C36)	4.00	3.80		mg/L		95	64 - 120	11	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
o-Terphenyl	88		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118768-1**

Date Collected: 10/11/22 13:10

Matrix: Water

Date Received: 10/12/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	307314	UJML	ELLE	10/17/22 16:53
Total/NA	Prep	3510C			406810	CSS	EET SEA	10/13/22 10:28
Total/NA	Analysis	8270E SIM		1	407076	TL1	EET SEA	10/17/22 16:47
Total/NA	Analysis	NWTPH-Gx		1	308172	MXX6	ELLE	10/20/22 00:07
Total/NA	Prep	3510C			406811	CSS	EET SEA	10/13/22 10:42
Total/NA	Cleanup	3630C			406813	CSS	EET SEA	10/13/22 10:55
Total/NA	Analysis	NWTPH-Dx		1	406892	DH	EET SEA	10/13/22 23:08

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118768-2**

Date Collected: 10/11/22 00:01

Matrix: Water

Date Received: 10/12/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	307314	UJML	ELLE	10/17/22 16:29
Total/NA	Analysis	NWTPH-Gx		1	308172	MXX6	ELLE	10/19/22 16:26

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-27-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118768-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118768-1	Outfall #002	Water	10/11/22 13:10	10/12/22 10:45
580-118768-2	Trip Blank	Water	10/11/22 00:01	10/12/22 10:45

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**Eurofins FGS, Seattle**

5755 8th Street East  
Tacoma, WA 98424

**Chain of Custody Record**



Environment Testing  
America

<b>Client Information</b>		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:			
Client Contact:		Phone:		E-Mail:		State of Origin:		Page: Page 1 of 1			
Company: <b>ARCADIS</b>		PWSID:		<b>Analysis Requested</b>				Job #:			
Address: <b>1100 OLIVE WAY, SUITE 800</b>		Due Date Requested:		Field Filtered Samples (Yes or No) <input checked="" type="checkbox"/> S Perform All Tests (Yes or No) <input checked="" type="checkbox"/> S NWTPH - GX NWTPH - DX w/ STANDARD SGC CPAH BY BZTD SIM BENZENE EPA 624				Preservation Codes:			
City: <b>SEATTLE</b>		TAT Requested (days): <b>STANDARD</b>						A - HCL		M - Hexane	
State, Zip: <b>WA, 98101</b>		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No						B - NaOH		N - None	
Phone:		PO #:						C - Zn Acetate		O - AsNaO2	
Email:		Purchase Order not required						D - Nitric Acid		P - Na2O4S	
Project Name: <b>EDMONDS TERMINAL</b>		Project #:		E - NaHSO4		Q - Na2SO3					
Site:		SSOW#:		F - MeOH		R - Na2S2O3					
				G - Amchlor		S - H2SO4					
				H - Ascorbic Acid		T - TSP Dodecahydrate					
				I - Ice		U - Acetone					
				J - DI Water		V - MCAA					
				K - EDTA		W - pH 4-5					
				L - EDA		Z - other (specify)					
				Other:							
<b>Sample Identification</b>		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=wastefoil, BT=Tissue, A=Air)			
								Total Number of Containers			
								Special Instructions/Note:			
OUTFALL #002		10/11/2022		1310		G		W			
TRIP BLANK		---		---		---		---			
								10 X USE STANDARD SGC			
								4 X BENZENE AND cPAH QUANTITATIVE < 1 MG/L			
								pH = 7.62			
								Flow = 85 GPM			
								Therm. ID: 1R10 Cor: 2.4 ° Unc: 2.10 °			
								Cooler Dsc: 32			
								Packing: B26 FedEx:			
								Cust. Seal: Yes No <input checked="" type="checkbox"/> UPS:			
								Blue Ice: Wet/Dry, None Lab Cour: <input checked="" type="checkbox"/> Other:			
<b>Possible Hazard Identification</b>					<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>						
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months						
Deliverable Requested: I, II, III, IV, Other (specify)					Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <b>Ephelia Encelle</b>		Date/Time: <b>10/12/22 10:45</b>		Company: <b>Arcadis</b>		Received by: <b>Andrew Van Hal</b>		Date/Time: <b>10/12/22 10:45</b>			
Relinquished by:		Date/Time:		Company:		Received by:		Company:			
Relinquished by:		Date/Time:		Company:		Received by:		Company:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Ren							



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118768-1

**Login Number: 118768**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
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	





## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118768-1

**Login Number: 118768**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 10/14/22 01:17 PM**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 ( $\leq 6^{\circ}\text{C}$ , not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ( $\leq 6^{\circ}\text{C}$ , not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-118887-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



---

Authorized for release by:  
10/28/2022 3:23:41 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



Have a Question?



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

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**Job ID: 580-118887-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-118887-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 10/17/2022 12:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.2° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

Method 8270E SIM: The method blank for preparation batch 580-407727 and analytical batch 580-407728 contained 1-Methylnaphthalene, 2-Methylnaphthalene, and Acenaphthene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

Method 3510C: The following sample formed emulsions during the extraction procedure: Outfall #002 (580-118887-1). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses as needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-118887-1**

**Date Collected: 10/17/22 10:30**

**Matrix: Water**

**Date Received: 10/17/22 12:00**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/20/22 17:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		60 - 140		10/20/22 17:55	1
4-Bromofluorobenzene (Surr)	100		60 - 140		10/20/22 17:55	1
Dibromofluoromethane (Surr)	101		60 - 140		10/20/22 17:55	1
1,2-Dichloroethane-d4 (Surr)	105		60 - 140		10/20/22 17:55	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		10/24/22 10:38	10/24/22 17:57	1
Chrysene	ND		0.10	0.038	ug/L		10/24/22 10:38	10/24/22 17:57	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		10/24/22 10:38	10/24/22 17:57	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		10/24/22 10:38	10/24/22 17:57	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		10/24/22 10:38	10/24/22 17:57	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		10/24/22 10:38	10/24/22 17:57	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		10/24/22 10:38	10/24/22 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		29 - 150	10/24/22 10:38	10/24/22 17:57	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/22/22 00:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		10/22/22 00:21	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		10/19/22 10:32	10/19/22 23:08	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		10/19/22 10:32	10/19/22 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	57		50 - 150	10/19/22 10:32	10/19/22 23:08	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-118887-2**

Date Collected: 10/17/22 00:01

Matrix: Water

Date Received: 10/17/22 12:00

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/20/22 17:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		60 - 140		10/20/22 17:32	1
4-Bromofluorobenzene (Surr)	100		60 - 140		10/20/22 17:32	1
Dibromofluoromethane (Surr)	102		60 - 140		10/20/22 17:32	1
1,2-Dichloroethane-d4 (Surr)	106		60 - 140		10/20/22 17:32	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/21/22 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	100		50 - 150		10/21/22 16:39	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-308644/5**  
**Matrix: Water**  
**Analysis Batch: 308644**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			10/20/22 11:20	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		60 - 140					10/20/22 11:20	1
4-Bromofluorobenzene (Surr)	101		60 - 140					10/20/22 11:20	1
Dibromofluoromethane (Surr)	101		60 - 140					10/20/22 11:20	1
1,2-Dichloroethane-d4 (Surr)	103		60 - 140					10/20/22 11:20	1

**Lab Sample ID: LCS 410-308644/1003**  
**Matrix: Water**  
**Analysis Batch: 308644**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.2		ug/L		106	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	104		60 - 140				
4-Bromofluorobenzene (Surr)	104		60 - 140				
Dibromofluoromethane (Surr)	96		60 - 140				
1,2-Dichloroethane-d4 (Surr)	101		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-407727/1-A**  
**Matrix: Water**  
**Analysis Batch: 407728**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/24/22 10:38	10/24/22 17:00	1
Chrysene	ND		0.10	0.037	ug/L		10/24/22 10:38	10/24/22 17:00	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		10/24/22 10:38	10/24/22 17:00	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/24/22 10:38	10/24/22 17:00	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		10/24/22 10:38	10/24/22 17:00	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/24/22 10:38	10/24/22 17:00	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		10/24/22 10:38	10/24/22 17:00	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	115		29 - 150				10/24/22 10:38	10/24/22 17:00	1

**Lab Sample ID: LCS 580-407727/2-A**  
**Matrix: Water**  
**Analysis Batch: 407728**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	5.35		ug/L		67	55 - 123
Chrysene	8.00	5.63		ug/L		70	47 - 120
Benzo[b]fluoranthene	8.00	4.60		ug/L		58	43 - 120
Benzo[k]fluoranthene	8.00	5.79		ug/L		72	41 - 121

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-407727/2-A**  
**Matrix: Water**  
**Analysis Batch: 407728**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	8.00	5.46		ug/L		68	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	4.69		ug/L		59	45 - 123
Dibenz(a,h)anthracene	8.00	5.81		ug/L		73	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	81		29 - 150

**Lab Sample ID: LCSD 580-407727/3-A**  
**Matrix: Water**  
**Analysis Batch: 407728**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	8.00	5.20		ug/L		65	55 - 123	3	31
Chrysene	8.00	5.49		ug/L		69	47 - 120	2	30
Benzo[b]fluoranthene	8.00	4.73		ug/L		59	43 - 120	3	35
Benzo[k]fluoranthene	8.00	5.86		ug/L		73	41 - 121	1	35
Benzo[a]pyrene	8.00	5.53		ug/L		69	51 - 120	1	31
Indeno[1,2,3-cd]pyrene	8.00	5.44		ug/L		68	45 - 123	15	35
Dibenz(a,h)anthracene	8.00	5.89		ug/L		74	54 - 123	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	72		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-309155/4**  
**Matrix: Water**  
**Analysis Batch: 309155**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			10/21/22 14:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		10/21/22 14:07	1

**Lab Sample ID: LCS 410-309155/5**  
**Matrix: Water**  
**Analysis Batch: 309155**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1070		ug/L		97	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	88		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-309155/6**  
**Matrix: Water**  
**Analysis Batch: 309155**

**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 Range Organics (GRO)-C7-C12	1100	1080		ug/L		98	64 - 131	1	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						
<i>a,a,a-Trifluorotoluene (fid)</i>		88					50 - 150		

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-407319/1-B**  
**Matrix: Water**  
**Analysis Batch: 407436**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 407319**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/19/22 10:32	10/19/22 21:35	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/19/22 10:32	10/19/22 21:35	1
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>		74					10/19/22 10:32	10/19/22 21:35	1

**Lab Sample ID: LCS 580-407319/2-B**  
**Matrix: Water**  
**Analysis Batch: 407436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407319**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.33		mg/L		83	50 - 120
Motor Oil (>C24-C36)	4.00	3.66		mg/L		92	64 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				
<i>o-Terphenyl</i>		95					50 - 150

**Lab Sample ID: LCSD 580-407319/3-B**  
**Matrix: Water**  
**Analysis Batch: 407436**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 407319**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.25		mg/L		81	50 - 120	3	26
Motor Oil (>C24-C36)	4.00	3.53		mg/L		88	64 - 120	4	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						
<i>o-Terphenyl</i>		94					50 - 150		

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-118887-1

Date Collected: 10/17/22 10:30

Matrix: Water

Date Received: 10/17/22 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	308644	UJML	ELLE	10/20/22 17:55
Total/NA	Prep	3510C			407727	KLW	EET SEA	10/24/22 10:38
Total/NA	Analysis	8270E SIM		1	407728	TL1	EET SEA	10/24/22 17:57
Total/NA	Analysis	NWTPH-Gx		1	309155	MXX6	ELLE	10/22/22 00:21
Total/NA	Prep	3510C			407319	KLW	EET SEA	10/19/22 10:32
Total/NA	Cleanup	3630C			407321	KLW	EET SEA	10/19/22 10:48
Total/NA	Analysis	NWTPH-Dx		1	407436	DH	EET SEA	10/19/22 23:08

## Client Sample ID: Trip Blank

Lab Sample ID: 580-118887-2

Date Collected: 10/17/22 00:01

Matrix: Water

Date Received: 10/17/22 12:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	308644	UJML	ELLE	10/20/22 17:32
Total/NA	Analysis	NWTPH-Gx		1	309155	MXX6	ELLE	10/21/22 16:39

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	11-10-22
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
Texas	NELAP	T104704194-22-43	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-27-22
Virginia	NELAP	460182	06-15-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	10-31-22
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	1.01	11-30-22

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-118887-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118887-1	Outfall #002	Water	10/17/22 10:30	10/17/22 12:00
580-118887-2	Trip Blank	Water	10/17/22 00:01	10/17/22 12:00

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**Eurofins Seattle**

5755 8th Street East  
Tacoma, WA 98424  
Phone: 253-922-2310

**Chain of Custody Record**



Environment Testing  
America

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:						
Client Contact: Shipping/Receiving		Phone:	Grant, Katie		580-110715.1						
Company: Eurofins Lancaster Laboratories Environm		E-Mail:	Katie.Grant@et.eurofinsus.com	State of Origin:	Page:						
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:		Due Date Requested: 10/31/2022	Accreditations Required (See note): State - Washington		Page 1 of 1						
Project Name: Chevron Edmonds Terminal Site: Chevron Edmonds Terminal		TAT Requested (days):	Analysis Requested		Job #: 580-11887-1						
Project #: 58011413 SSOW#:		PO #:	Preservation Codes:		Other:						
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Organic)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	624.1_PREC1624_Prep Benzene	NWTPH_Gr/5030B NWTPH - Gasoline Range Organics	Total Number of containers	Special Instructions/Note:
Outfall #002 (580-11887-1)		10/17/22	10:30 Pacific	Water	Water	X	X			3	Do not dilute
Trip Blank (580-11887-2)		10/17/22	00:01 Pacific	Water	Water	X	X			4	Do not dilute
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.</p>											
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:				
Relinquished by: <i>[Signature]</i>			Date/Time: 10/18/22 1500		Company: EEW		Received by: <i>[Signature]</i>		Date/Time:		Company:
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:
Relinquished by:			Date/Time:		Company:		Received by: <i>[Signature]</i>		Date/Time: 10/19/22 1018		Company: <i>[Signature]</i>
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) C and Other Remarks: 1.2							

MB

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118887-1

**Login Number: 118887**

**List Number: 1**

**Creator: Swoope, Alexandra C**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-118887-1

**Login Number: 118887**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 10/19/22 03:54 PM**

**Creator: Ballard, Megan**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



## ANALYTICAL REPORT

Eurofins Seattle  
5755 8th Street East  
Tacoma, WA 98424  
Tel: (253)922-2310

Laboratory Job ID: 580-119148-1

Client Project/Site: Chevron Edmonds Terminal  
Sampling Event: Outfall#2

For:  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Attn: Samuel Miles



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Authorized for release by:  
11/7/2022 4:08:28 PM

Katie Grant, Project Manager I  
(253)922-2310  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)

### LINKS

Review your project  
results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

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**Job ID: 580-119148-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-119148-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 10/24/2022 11:23 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.7° C.

**GC/MS VOA**

Method 624.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-408931 recovered outside control limits for the following analytes: Benzene.

Method 624.1: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: The LCS was spiked at half the concentration per 8260D medium level waters. Spike amounts have been adjusted and results are being reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-119148-1**

Date Collected: 10/24/22 10:15

Matrix: Water

Date Received: 10/24/22 11:23

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/06/22 06:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		79 - 122		11/06/22 06:25	1
4-Bromofluorobenzene (Surr)	89		78 - 120		11/06/22 06:25	1
Dibromofluoromethane (Surr)	87		80 - 120		11/06/22 06:25	1
1,2-Dichloroethane-d4 (Surr)	95		78 - 120		11/06/22 06:25	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			11/02/22 23:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		77 - 123		11/02/22 23:53	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.055	0.015	ug/L		10/27/22 10:07	10/28/22 19:51	1
Chrysene	ND		0.11	0.041	ug/L		10/27/22 10:07	10/28/22 19:51	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		10/27/22 10:07	10/28/22 19:51	1
Benzo[k]fluoranthene	ND		0.055	0.013	ug/L		10/27/22 10:07	10/28/22 19:51	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		10/27/22 10:07	10/28/22 19:51	1
Indeno[1,2,3-cd]pyrene	ND		0.055	0.015	ug/L		10/27/22 10:07	10/28/22 19:51	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		10/27/22 10:07	10/28/22 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		29 - 150	10/27/22 10:07	10/28/22 19:51	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		10/28/22 10:06	10/29/22 00:26	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		10/28/22 10:06	10/29/22 00:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		50 - 150	10/28/22 10:06	10/29/22 00:26	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-119148-2**

Date Collected: 10/24/22 00:01

Matrix: Water

Date Received: 10/24/22 11:23

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/06/22 06:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		79 - 122		11/06/22 06:49	1
4-Bromofluorobenzene (Surr)	91		78 - 120		11/06/22 06:49	1
Dibromofluoromethane (Surr)	90		80 - 120		11/06/22 06:49	1
1,2-Dichloroethane-d4 (Surr)	97		78 - 120		11/06/22 06:49	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			11/03/22 00:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		77 - 123		11/03/22 00:41	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-408931/5**  
**Matrix: Water**  
**Analysis Batch: 408931**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/05/22 21:46	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		79 - 122					11/05/22 21:46	1
4-Bromofluorobenzene (Surr)	105		78 - 120					11/05/22 21:46	1
Dibromofluoromethane (Surr)	100		80 - 120					11/05/22 21:46	1
1,2-Dichloroethane-d4 (Surr)	99		78 - 120					11/05/22 21:46	1

**Lab Sample ID: LCS 580-408931/6**  
**Matrix: Water**  
**Analysis Batch: 408931**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	5.00	5.62		ug/L		112	80 - 122
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	105		79 - 122				
4-Bromofluorobenzene (Surr)	93		78 - 120				
Dibromofluoromethane (Surr)	89		80 - 120				
1,2-Dichloroethane-d4 (Surr)	95		78 - 120				

**Lab Sample ID: LCSD 580-408931/7**  
**Matrix: Water**  
**Analysis Batch: 408931**

**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	5.00	5.00		ug/L		100	80 - 122	12	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	95		79 - 122						
4-Bromofluorobenzene (Surr)	105		78 - 120						
Dibromofluoromethane (Surr)	93		80 - 120						
1,2-Dichloroethane-d4 (Surr)	92		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-408695/6**  
**Matrix: Water**  
**Analysis Batch: 408695**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			11/02/22 15:48	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		77 - 123					11/02/22 15:48	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-408695/9**  
**Matrix: Water**  
**Analysis Batch: 408695**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.10		mg/L		110	55 - 148
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	106		77 - 123				

**Lab Sample ID: LCSD 580-408695/10**  
**Matrix: Water**  
**Analysis Batch: 408695**

**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	1.00	1.01		mg/L		101	55 - 148	9	10
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	107		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-408102/1-A**  
**Matrix: Water**  
**Analysis Batch: 408271**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 408102**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		10/27/22 10:07	10/28/22 13:04	1
Chrysene	ND		0.10	0.037	ug/L		10/27/22 10:07	10/28/22 13:04	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		10/27/22 10:07	10/28/22 13:04	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		10/27/22 10:07	10/28/22 13:04	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		10/27/22 10:07	10/28/22 13:04	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		10/27/22 10:07	10/28/22 13:04	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		10/27/22 10:07	10/28/22 13:04	1
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	94		29 - 150				10/27/22 10:07	10/28/22 13:04	1

**Lab Sample ID: LCS 580-408102/2-A**  
**Matrix: Water**  
**Analysis Batch: 408271**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 408102**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	5.96		ug/L		75	55 - 123
Chrysene	8.00	5.94		ug/L		74	47 - 120
Benzo[b]fluoranthene	8.00	5.53		ug/L		69	43 - 120
Benzo[k]fluoranthene	8.00	6.04		ug/L		76	41 - 121
Benzo[a]pyrene	8.00	6.16		ug/L		77	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	6.01		ug/L		75	45 - 123
Dibenz(a,h)anthracene	8.00	6.40		ug/L		80	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-408102/2-A**  
**Matrix: Water**  
**Analysis Batch: 408271**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 408102**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	84		29 - 150

**Lab Sample ID: LCSD 580-408102/3-A**  
**Matrix: Water**  
**Analysis Batch: 408271**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 408102**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	8.00	5.75		ug/L		72	55 - 123	4	31
Chrysene	8.00	5.70		ug/L		71	47 - 120	4	30
Benzo[b]fluoranthene	8.00	5.17		ug/L		65	43 - 120	7	35
Benzo[k]fluoranthene	8.00	6.00		ug/L		75	41 - 121	1	35
Benzo[a]pyrene	8.00	5.94		ug/L		74	51 - 120	4	31
Indeno[1,2,3-cd]pyrene	8.00	5.98		ug/L		75	45 - 123	1	35
Dibenz(a,h)anthracene	8.00	6.17		ug/L		77	54 - 123	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	80		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-408247/1-B**  
**Matrix: Water**  
**Analysis Batch: 408314**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 408247**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		10/28/22 10:06	10/28/22 23:25	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		10/28/22 10:06	10/28/22 23:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	10/28/22 10:06	10/28/22 23:25	1

**Lab Sample ID: LCS 580-408247/2-B**  
**Matrix: Water**  
**Analysis Batch: 408314**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 408247**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.10		mg/L		78	50 - 120
Motor Oil (>C24-C36)	4.00	3.42		mg/L		85	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	83		50 - 150

**Lab Sample ID: LCSD 580-408247/3-B**  
**Matrix: Water**  
**Analysis Batch: 408314**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 408247**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.76		mg/L		94	50 - 120	19	26

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-408247/3-B**  
**Matrix: Water**  
**Analysis Batch: 408314**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 408247**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.13		mg/L		103	64 - 120	19	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	102		50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-119148-1**

**Date Collected: 10/24/22 10:15**

**Matrix: Water**

**Date Received: 10/24/22 11:23**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	408931	BNM	EET SEA	11/06/22 06:25
Total/NA	Analysis	NWTPH-Gx		1	408695	BNM	EET SEA	11/02/22 23:53
Total/NA	Prep	3510C			408102	KLW	EET SEA	10/27/22 10:07
Total/NA	Analysis	8270E SIM		1	408271	TL1	EET SEA	10/28/22 19:51
Total/NA	Prep	3510C			408247	KLW	EET SEA	10/28/22 10:06
Total/NA	Cleanup	3630C			408248	KLW	EET SEA	10/28/22 10:13
Total/NA	Analysis	NWTPH-Dx		1	408314	DH	EET SEA	10/29/22 00:26

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-119148-2**

**Date Collected: 10/24/22 00:01**

**Matrix: Water**

**Date Received: 10/24/22 11:23**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	408931	BNM	EET SEA	11/06/22 06:49
Total/NA	Analysis	NWTPH-Gx		1	408695	BNM	EET SEA	11/03/22 00:41

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119148-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-119148-1	Outfall #002	Water	10/24/22 10:15	10/24/22 11:23
580-119148-2	Trip Blank	Water	10/24/22 00:01	10/24/22 11:23

1

2

3

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5

6

7

8

9

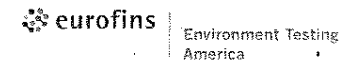
10

11

**Eurofins TestAmerica, Seattle**

5755 8th Street East  
Tacoma, WA 98424  
Phone (253) 922-2310 Fax (253) 922-5047

**Chain of Custody Record**



<b>Client Information</b>		Sampler: <u>Trevor Brant</u>	Lab PM: <u>Katie Grant</u>	Carrier Tracking No(s):	COC No:																											
Client Contact: <u>Kiley Zoubi</u> <u>Ophelie Ervede</u>		Phone:	E-Mail: <u>o.elaine.walker@eurofins.com</u>	Page:																												
Company: <u>ARCADIS U.S., Inc.</u>		<b>Analysis Requested</b>			Job #:																											
Address: <u>1100 Olive Way Suite 800</u>		Due Date Requested:	<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Field Filtered</td> </tr> <tr> <td>Perform MS/MSD (Yes or No)</td> <td></td> </tr> <tr> <td>6040B - Total Lead</td> <td></td> </tr> <tr> <td>6010D - On-Site Lead</td> <td></td> </tr> <tr> <td>246 - Ammonium Carbonate Ammonium</td> <td></td> </tr> <tr> <td>2346B - Total Ammonia</td> <td></td> </tr> <tr> <td>2540C - Total Dissolved Solids (TDS)</td> <td></td> </tr> <tr> <td>2540D - Total Suspended Solids (TSS)</td> <td></td> </tr> <tr> <td>824 - Total Chlorides</td> <td></td> </tr> <tr> <td>825 - Total Sulfates</td> <td></td> </tr> <tr> <td>NWTPH_Dx - Northwest - DRO/RRO</td> <td><u>WIS6C</u></td> </tr> <tr> <td>NWTPH_Gx - Northwest - GRO</td> <td></td> </tr> <tr> <td colspan="2">Total Number of Containers</td> <td>10</td> </tr> </table>			Field Filtered Sample (Yes or No)	Field Filtered	Perform MS/MSD (Yes or No)		6040B - Total Lead		6010D - On-Site Lead		246 - Ammonium Carbonate Ammonium		2346B - Total Ammonia		2540C - Total Dissolved Solids (TDS)		2540D - Total Suspended Solids (TSS)		824 - Total Chlorides		825 - Total Sulfates		NWTPH_Dx - Northwest - DRO/RRO	<u>WIS6C</u>	NWTPH_Gx - Northwest - GRO		Total Number of Containers		10
Field Filtered Sample (Yes or No)	Field Filtered																															
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825 - Total Sulfates																																
NWTPH_Dx - Northwest - DRO/RRO	<u>WIS6C</u>																															
NWTPH_Gx - Northwest - GRO																																
Total Number of Containers		10																														
City: <u>Seattle</u>		TAT Requested (days): <u>STAT</u>																														
State, Zip: <u>WA, 98101</u>		PO #: <u>30046985-0002A-ANA-04 30064301</u>																														
Phone: <u>206-720-4720 (TS)</u>		WO #: <u>30046985-0002A-ANA</u>																														
Email: <u>kiley.zoubi@arcadis.com</u> <u>ophelie.ervede@arcadis.com</u>		Project #: <u>50019785</u>																														
Project Name: <u>Chevron - Edmonds <del>Termined</del></u>		SSOW#:																														
Site:																																
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6040B - Total Lead	6010D - On-Site Lead	246 - Ammonium Carbonate Ammonium	2346B - Total Ammonia	2540C - Total Dissolved Solids (TDS)	2540D - Total Suspended Solids (TSS)	824 - Total Chlorides	825 - Total Sulfates	NWTPH_Dx - Northwest - DRO/RRO	NWTPH_Gx - Northwest - GRO	Total Number of Containers	Special Instructions/Note:													
<u>Outdoor #002</u>		<u>10/24/22</u>	<u>1015</u>	<u>G</u>	<u>Water</u>														<u>10</u>	<u>use standard</u>												
<u>Trip blank</u>		<u>-</u>	<u>-</u>	<u>-</u>	<u>Water</u>														<u>4</u>	<u>S6C</u>												
					<u>Water</u>															<u>Report quantifiable values of chloride for Benzene &amp; CPAAs</u>												
					<u>Water</u>															<u>pH=7.7!</u>												
					<u>Water</u>															<u>88 gpm</u>												
					<u>Water</u>																											
					<u>Water</u>																											
					<u>Water</u>																											
					<u>Water</u>																											
<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																														
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																														
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:																														
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:																												
Relinquished by: <u>Trevor Brant LPA</u>		Date/Time: <u>10/24/22 1123</u>	Company: <u>Arcadis</u>	Received by: <u>Sharon Law</u>		Date/Time: <u>10/24/22 1123</u>	Company: <u>ETA</u>																									
Relinquished by:				Received:																												
Relinquished by:				Receive																												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Therm. ID: <u>189</u> Cor: <u>9.7</u> Unc: <u>3.3</u>		Cooler Desc: <u>BB</u>		FedEx: _____																								
				Packing: <u>BUB</u>				UPS: _____																								
				Cust. Seal: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				Lab Cour: <input checked="" type="checkbox"/>																								
				Blue Ice: Wet/Dry, None				Other: _____																								



580-119148 Chain of Custody



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-119148-1

**Login Number: 119148**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle Washington 98101

Generated 11/18/2022 4:18:09 PM

## JOB DESCRIPTION

Chevron Edmonds Terminal-OUTFALL #002

## JOB NUMBER

580-119578-1



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

**Job ID: 580-119578-1**

**Laboratory: Eurofins Seattle**

## Narrative

**Job Narrative  
580-119578-1**

### Comments

No additional comments.

### Receipt

The samples were received on 11/2/2022 11:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6° C.

### Receipt Exceptions

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: 580-118578. The default date of 10/31/2022 and time of 00:01 was used for the trip blank.

### GC/MS VOA

Method NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-409861 recovered outside control limits for the following analytes: Gasoline.

Method NWTPH-Gx: The method blank for analytical batch 580-409861 contained Gasoline above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### GC/MS Semi VOA

Method 8270E SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-409032 and analytical batch 580-409323 recovered outside control limits for the following analytes: Benzo[a]anthracene, Chrysene and Benzo[a]pyrene. Laboratory control sample / laboratory control sample duplicate (LCS/LCSD) percent recovery is in control for affected analytes.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-119578-1**

Date Collected: 10/31/22 12:35

Matrix: Water

Date Received: 11/02/22 11:50

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/14/22 20:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	111		79 - 122		11/14/22 20:23	1
4-Bromofluorobenzene (Surr)	90		78 - 120		11/14/22 20:23	1
Dibromofluoromethane (Surr)	95		80 - 120		11/14/22 20:23	1
1,2-Dichloroethane-d4 (Surr)	94		78 - 120		11/14/22 20:23	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			11/14/22 20:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123		11/14/22 20:23	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	*1	0.058	0.016	ug/L		11/07/22 10:04	11/09/22 06:33	1
Chrysene	ND	*1	0.12	0.043	ug/L		11/07/22 10:04	11/09/22 06:33	1
Benzo[b]fluoranthene	ND		0.12	0.025	ug/L		11/07/22 10:04	11/09/22 06:33	1
Benzo[k]fluoranthene	ND		0.058	0.014	ug/L		11/07/22 10:04	11/09/22 06:33	1
Benzo[a]pyrene	ND	*1	0.12	0.025	ug/L		11/07/22 10:04	11/09/22 06:33	1
Indeno[1,2,3-cd]pyrene	ND		0.058	0.016	ug/L		11/07/22 10:04	11/09/22 06:33	1
Dibenz(a,h)anthracene	ND		0.12	0.017	ug/L		11/07/22 10:04	11/09/22 06:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		29 - 150	11/07/22 10:04	11/09/22 06:33	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.071	mg/L		11/11/22 09:38	11/12/22 10:39	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.11</b>	<b>J</b>	0.38	0.10	mg/L		11/11/22 09:38	11/12/22 10:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150	11/11/22 09:38	11/12/22 10:39	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-119578-2**

Date Collected: 10/31/22 00:01

Matrix: Water

Date Received: 11/02/22 11:50

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/14/22 20:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122		11/14/22 20:47	1
4-Bromofluorobenzene (Surr)	88		78 - 120		11/14/22 20:47	1
Dibromofluoromethane (Surr)	91		80 - 120		11/14/22 20:47	1
1,2-Dichloroethane-d4 (Surr)	95		78 - 120		11/14/22 20:47	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			11/14/22 20:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		77 - 123		11/14/22 20:47	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-409864/5**  
**Matrix: Water**  
**Analysis Batch: 409864**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/14/22 11:40	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		79 - 122					11/14/22 11:40	1
4-Bromofluorobenzene (Surr)	92		78 - 120					11/14/22 11:40	1
Dibromofluoromethane (Surr)	96		80 - 120					11/14/22 11:40	1
1,2-Dichloroethane-d4 (Surr)	91		78 - 120					11/14/22 11:40	1

**Lab Sample ID: LCS 580-409864/6**  
**Matrix: Water**  
**Analysis Batch: 409864**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.9		ug/L		109	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	109		79 - 122					
4-Bromofluorobenzene (Surr)	89		78 - 120					
Dibromofluoromethane (Surr)	87		80 - 120					
1,2-Dichloroethane-d4 (Surr)	87		78 - 120					

**Lab Sample ID: LCSD 580-409864/7**  
**Matrix: Water**  
**Analysis Batch: 409864**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.5		ug/L		105	80 - 122	4	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	108		79 - 122						
4-Bromofluorobenzene (Surr)	90		78 - 120						
Dibromofluoromethane (Surr)	85		80 - 120						
1,2-Dichloroethane-d4 (Surr)	86		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-409861/5**  
**Matrix: Water**  
**Analysis Batch: 409861**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0221	J	0.050	0.014	mg/L			11/14/22 11:40	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		77 - 123					11/14/22 11:40	1

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-409861/8**  
**Matrix: Water**  
**Analysis Batch: 409861**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.46		mg/L		146	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	98		77 - 123				

**Lab Sample ID: LCSD 580-409861/9**  
**Matrix: Water**  
**Analysis Batch: 409861**

**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	1.00	1.00	*1	mg/L		100	55 - 148	37	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	91		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-409032/1-A**  
**Matrix: Water**  
**Analysis Batch: 409323**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 409032**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/07/22 10:04	11/09/22 00:49	1
Chrysene	0.0444	J	0.10	0.037	ug/L		11/07/22 10:04	11/09/22 00:49	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		11/07/22 10:04	11/09/22 00:49	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/07/22 10:04	11/09/22 00:49	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		11/07/22 10:04	11/09/22 00:49	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/07/22 10:04	11/09/22 00:49	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/07/22 10:04	11/09/22 00:49	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	83		29 - 150				11/07/22 10:04	11/09/22 00:49	1

**Lab Sample ID: LCS 580-409032/2-A**  
**Matrix: Water**  
**Analysis Batch: 409323**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 409032**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	4.84		ug/L		61	55 - 123
Chrysene	8.00	5.12		ug/L		64	47 - 120
Benzo[b]fluoranthene	8.00	4.37		ug/L		55	43 - 120
Benzo[k]fluoranthene	8.00	5.29		ug/L		66	41 - 121
Benzo[a]pyrene	8.00	5.04		ug/L		63	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	5.25		ug/L		66	45 - 123
Dibenz(a,h)anthracene	8.00	5.27		ug/L		66	54 - 123

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-409032/2-A**  
**Matrix: Water**  
**Analysis Batch: 409323**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 409032**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	69		29 - 150

**Lab Sample ID: LCSD 580-409032/3-A**  
**Matrix: Water**  
**Analysis Batch: 409323**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 409032**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
Benzo[a]anthracene	8.00	6.92	*1	ug/L		87	55 - 123	35	31	
Chrysene	8.00	6.98	*1	ug/L		87	47 - 120	31	30	
Benzo[b]fluoranthene	8.00	6.20		ug/L		78	43 - 120	35	35	
Benzo[k]fluoranthene	8.00	7.34		ug/L		92	41 - 121	32	35	
Benzo[a]pyrene	8.00	7.11	*1	ug/L		89	51 - 120	34	31	
Indeno[1,2,3-cd]pyrene	8.00	6.65		ug/L		83	45 - 123	23	35	
Dibenz(a,h)anthracene	8.00	6.81		ug/L		85	54 - 123	26	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	97		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-409647/1-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/11/22 09:38	11/12/22 09:39	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/11/22 09:38	11/12/22 09:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	64		50 - 150	11/11/22 09:38	11/12/22 09:39	1

**Lab Sample ID: LCS 580-409647/2-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.81		mg/L		95	50 - 120	
Motor Oil (>C24-C36)	4.00	4.35		mg/L		109	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	109		50 - 150

**Lab Sample ID: LCSD 580-409647/3-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
#2 Diesel (C10-C24)	4.00	3.65		mg/L		91	50 - 120	4	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-409647/3-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.17		mg/L		104	64 - 120	4	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
<i>o</i> -Terphenyl	103		50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Client Sample ID: Outfall #002

Date Collected: 10/31/22 12:35

Date Received: 11/02/22 11:50

## Lab Sample ID: 580-119578-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	409864	BNM	EET SEA	11/14/22 20:23
Total/NA	Analysis	NWTPH-Gx		1	409861	BNM	EET SEA	11/14/22 20:23
Total/NA	Prep	3510C			409032	KLW	EET SEA	11/07/22 10:04
Total/NA	Analysis	8270E SIM		1	409323	T1L	EET SEA	11/09/22 06:33
Total/NA	Prep	3510C			409647	CSS	EET SEA	11/11/22 09:38
Total/NA	Cleanup	3630C			409649	CSS	EET SEA	11/11/22 09:45
Total/NA	Analysis	NWTPH-Dx		1	409784	JSM	EET SEA	11/12/22 10:39

## Client Sample ID: Trip Blank

Date Collected: 10/31/22 00:01

Date Received: 11/02/22 11:50

## Lab Sample ID: 580-119578-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	409864	BNM	EET SEA	11/14/22 20:47
Total/NA	Analysis	NWTPH-Gx		1	409861	BNM	EET SEA	11/14/22 20:47

### Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
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- 8
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- 10
- 11
- 12

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal-OUTFALL #002

Job ID: 580-119578-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-119578-1	Outfall #002	Water	10/31/22 12:35	11/02/22 11:50
580-119578-2	Trip Blank	Water	10/31/22 00:01	11/02/22 11:50

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-119578-1

**Login Number: 119578**

**List Number: 1**

**Creator: Vallelunga, Diana L**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Eurofins Seattle

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



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Authorized for release by  
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(253)922-2310

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 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 11/28/2022 4:37:07 PM

**JOB DESCRIPTION**

Chevron Edmonds Terminal

**JOB NUMBER**

580-119880-1

# Eurofins Seattle

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



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Authorized for release by  
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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

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**Job ID: 580-119880-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

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**Job Narrative**  
**580-119880-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 11/9/2022 10:57 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0° C.

**GC/MS VOA**

Method NWTPH-Gx: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-410491 recovered outside control limits for the following analytes: Gasoline.

Method NWTPH-Gx: The method blank for analytical batch 580-410491 contained Gasoline above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC/MS Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-119880-1**

Date Collected: 11/09/22 08:35

Matrix: Water

Date Received: 11/09/22 10:57

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/18/22 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		79 - 122					11/18/22 20:26	1
4-Bromofluorobenzene (Surr)	92		78 - 120					11/18/22 20:26	1
Dibromofluoromethane (Surr)	97		80 - 120					11/18/22 20:26	1
1,2-Dichloroethane-d4 (Surr)	90		78 - 120					11/18/22 20:26	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.014	J B *1	0.050	0.014	mg/L			11/18/22 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		77 - 123					11/18/22 20:26	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.056	0.016	ug/L		11/11/22 09:32	11/12/22 00:46	1
Chrysene	ND		0.11	0.042	ug/L		11/11/22 09:32	11/12/22 00:46	1
Benzo[b]fluoranthene	ND		0.11	0.025	ug/L		11/11/22 09:32	11/12/22 00:46	1
Benzo[k]fluoranthene	ND		0.056	0.014	ug/L		11/11/22 09:32	11/12/22 00:46	1
Benzo[a]pyrene	ND		0.11	0.025	ug/L		11/11/22 09:32	11/12/22 00:46	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		11/11/22 09:32	11/12/22 00:46	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		11/11/22 09:32	11/12/22 00:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	100		29 - 150				11/11/22 09:32	11/12/22 00:46	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		11/11/22 09:38	11/12/22 12:20	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		11/11/22 09:38	11/12/22 12:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	94		50 - 150				11/11/22 09:38	11/12/22 12:20	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-119880-2**

Date Collected: 11/09/22 00:01

Matrix: Water

Date Received: 11/09/22 10:57

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/18/22 20:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		79 - 122					11/18/22 20:50	1
4-Bromofluorobenzene (Surr)	91		78 - 120					11/18/22 20:50	1
Dibromofluoromethane (Surr)	95		80 - 120					11/18/22 20:50	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120					11/18/22 20:50	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			11/18/22 20:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		77 - 123					11/18/22 20:50	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-410494/5**  
**Matrix: Water**  
**Analysis Batch: 410494**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/18/22 12:06	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		79 - 122					11/18/22 12:06	1
4-Bromofluorobenzene (Surr)	88		78 - 120					11/18/22 12:06	1
Dibromofluoromethane (Surr)	87		80 - 120					11/18/22 12:06	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120					11/18/22 12:06	1

**Lab Sample ID: LCS 580-410494/6**  
**Matrix: Water**  
**Analysis Batch: 410494**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.6		ug/L		106	80 - 122	
Surrogate	%Recovery	LCS Qualifier	Limits					
Toluene-d8 (Surr)	107		79 - 122					
4-Bromofluorobenzene (Surr)	85		78 - 120					
Dibromofluoromethane (Surr)	82		80 - 120					
1,2-Dichloroethane-d4 (Surr)	84		78 - 120					

**Lab Sample ID: LCSD 580-410494/7**  
**Matrix: Water**  
**Analysis Batch: 410494**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.4		ug/L		104	80 - 122	2	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	93		78 - 120						
Dibromofluoromethane (Surr)	89		80 - 120						
1,2-Dichloroethane-d4 (Surr)	84		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-410491/5**  
**Matrix: Water**  
**Analysis Batch: 410491**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0227	J	0.050	0.014	mg/L			11/18/22 12:06	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		77 - 123					11/18/22 12:06	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

Lab Sample ID: LCS 580-410491/8  
Matrix: Water  
Analysis Batch: 410491

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.01		mg/L		101	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS</b>	<b>LCS</b>	<b>Qualifier</b>			<b>Limits</b>
4-Bromofluorobenzene (Surr)	89						77 - 123

Lab Sample ID: LCSD 580-410491/9  
Matrix: Water  
Analysis Batch: 410491

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	1.00	1.27	*1	mg/L		127	55 - 148	23	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD</b>	<b>LCSD</b>	<b>Qualifier</b>			<b>Limits</b>		
4-Bromofluorobenzene (Surr)	100						77 - 123		

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-409646/1-A  
Matrix: Water  
Analysis Batch: 409892

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 409646

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/11/22 09:32	11/14/22 13:39	1
Chrysene	ND		0.10	0.037	ug/L		11/11/22 09:32	11/14/22 13:39	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		11/11/22 09:32	11/14/22 13:39	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/11/22 09:32	11/14/22 13:39	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		11/11/22 09:32	11/14/22 13:39	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/11/22 09:32	11/14/22 13:39	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/11/22 09:32	11/14/22 13:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB</b>	<b>MB</b>	<b>Qualifier</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	103						11/11/22 09:32	11/14/22 13:39	1

Lab Sample ID: LCS 580-409646/2-A  
Matrix: Water  
Analysis Batch: 409777

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 409646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	6.46		ug/L		81	55 - 123
Chrysene	8.00	6.19		ug/L		77	47 - 120
Benzo[b]fluoranthene	8.00	5.95		ug/L		74	43 - 120
Benzo[k]fluoranthene	8.00	6.96		ug/L		87	41 - 121
Benzo[a]pyrene	8.00	6.99		ug/L		87	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	6.73		ug/L		84	45 - 123
Dibenz(a,h)anthracene	8.00	6.67		ug/L		83	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-409646/2-A**  
**Matrix: Water**  
**Analysis Batch: 409777**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 409646**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	97		29 - 150

**Lab Sample ID: LCSD 580-409646/3-A**  
**Matrix: Water**  
**Analysis Batch: 409777**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 409646**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Benzo[a]anthracene	8.00	6.13		ug/L		77	55 - 123	5	31	
Chrysene	8.00	6.07		ug/L		76	47 - 120	2	30	
Benzo[b]fluoranthene	8.00	5.73		ug/L		72	43 - 120	4	35	
Benzo[k]fluoranthene	8.00	6.37		ug/L		80	41 - 121	9	35	
Benzo[a]pyrene	8.00	6.68		ug/L		83	51 - 120	5	31	
Indeno[1,2,3-cd]pyrene	8.00	6.21		ug/L		78	45 - 123	8	35	
Dibenz(a,h)anthracene	8.00	6.44		ug/L		80	54 - 123	4	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Terphenyl-d14	93		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-409647/1-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/11/22 09:38	11/12/22 09:39	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/11/22 09:38	11/12/22 09:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
o-Terphenyl	64		50 - 150	11/11/22 09:38	11/12/22 09:39	1

**Lab Sample ID: LCS 580-409647/2-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
#2 Diesel (C10-C24)	4.00	3.81		mg/L		95	50 - 120	
Motor Oil (>C24-C36)	4.00	4.35		mg/L		109	64 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
o-Terphenyl	109		50 - 150

**Lab Sample ID: LCSD 580-409647/3-B**  
**Matrix: Water**  
**Analysis Batch: 409784**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 409647**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
#2 Diesel (C10-C24)	4.00	3.65		mg/L		91	50 - 120	4	26	

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-409647/3-B  
 Matrix: Water  
 Analysis Batch: 409784

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 409647

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.17		mg/L		104	64 - 120	4	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
<i>o</i> -Terphenyl	103		50 - 150						

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-119880-1**

Date Collected: 11/09/22 08:35

Matrix: Water

Date Received: 11/09/22 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	410494	BNM	EET SEA	11/18/22 20:26
Total/NA	Analysis	NWTPH-Gx		1	410491	BNM	EET SEA	11/18/22 20:26
Total/NA	Prep	3510C			409646	CSS	EET SEA	11/11/22 09:32
Total/NA	Analysis	8270E SIM		1	409777	TL1	EET SEA	11/12/22 00:46
Total/NA	Prep	3510C			409647	CSS	EET SEA	11/11/22 09:38
Total/NA	Cleanup	3630C			409649	CSS	EET SEA	11/11/22 09:45
Total/NA	Analysis	NWTPH-Dx		1	409784	JSM	EET SEA	11/12/22 12:20

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-119880-2**

Date Collected: 11/09/22 00:01

Matrix: Water

Date Received: 11/09/22 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	410494	BNM	EET SEA	11/18/22 20:50
Total/NA	Analysis	NWTPH-Gx		1	410491	BNM	EET SEA	11/18/22 20:50

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-119880-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-119880-1	Outfall #002	Water	11/09/22 08:35	11/09/22 10:57
580-119880-2	Trip Blank	Water	11/09/22 00:01	11/09/22 10:57

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## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-119880-1

**Login Number: 119880**

**List Number: 1**

**Creator: Holdener, Heather D**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
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	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/6/2022 12:23:15 PM

**JOB DESCRIPTION**

Chevron Edmonds Terminal  
Outfall#2

**JOB NUMBER**

580-120093-1

# Eurofins Seattle

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

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## Job ID: 580-120093-1

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### Laboratory: Eurofins Seattle

#### Narrative

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#### Job Narrative 580-120093-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 11/16/2022 10:44 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.9° C.

#### Receipt Exceptions

The Chain-of-Custody (COC) lists Trip Blank vials received however no trip blanks were provided in the cooler: Trip Blank (580-120093-2).

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E SIM: The following sample was re-prepared outside of preparation holding time. : Outfall #002 (580-120093-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

Method 3510C: The following sample was re-prepared outside of preparation holding time. : Outfall #002 (580-120093-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

### GC/MS Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120093-1**

Date Collected: 11/16/22 08:40

Matrix: Water

Date Received: 11/16/22 10:44

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/30/22 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		79 - 122		11/30/22 16:55	1
4-Bromofluorobenzene (Surr)	94		78 - 120		11/30/22 16:55	1
Dibromofluoromethane (Surr)	101		80 - 120		11/30/22 16:55	1
1,2-Dichloroethane-d4 (Surr)	88		78 - 120		11/30/22 16:55	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND	*1	0.050	0.014	mg/L			11/30/22 16:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		77 - 123		11/30/22 16:55	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	H	0.055	0.015	ug/L		11/26/22 10:43	11/28/22 15:16	1
Chrysene	ND	H	0.11	0.040	ug/L		11/26/22 10:43	11/28/22 15:16	1
Benzo[b]fluoranthene	ND	H	0.11	0.024	ug/L		11/26/22 10:43	11/28/22 15:16	1
Benzo[k]fluoranthene	ND	H	0.055	0.013	ug/L		11/26/22 10:43	11/28/22 15:16	1
Benzo[a]pyrene	ND	H	0.11	0.024	ug/L		11/26/22 10:43	11/28/22 15:16	1
Indeno[1,2,3-cd]pyrene	ND	H	0.055	0.015	ug/L		11/26/22 10:43	11/28/22 15:16	1
Dibenz(a,h)anthracene	ND	H	0.11	0.016	ug/L		11/26/22 10:43	11/28/22 15:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		29 - 150	11/26/22 10:43	11/28/22 15:16	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		11/21/22 09:48	11/22/22 03:44	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		11/21/22 09:48	11/22/22 03:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	11/21/22 09:48	11/22/22 03:44	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-411397/4**  
**Matrix: Water**  
**Analysis Batch: 411397**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			11/30/22 12:28	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		79 - 122					11/30/22 12:28	1
4-Bromofluorobenzene (Surr)	95		78 - 120					11/30/22 12:28	1
Dibromofluoromethane (Surr)	99		80 - 120					11/30/22 12:28	1
1,2-Dichloroethane-d4 (Surr)	82		78 - 120					11/30/22 12:28	1

**Lab Sample ID: LCS 580-411397/5**  
**Matrix: Water**  
**Analysis Batch: 411397**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.30		ug/L		93	80 - 122	
Surrogate	%Recovery	LCS Qualifier	LCS Limits					
Toluene-d8 (Surr)	105		79 - 122					
4-Bromofluorobenzene (Surr)	97		78 - 120					
Dibromofluoromethane (Surr)	103		80 - 120					
1,2-Dichloroethane-d4 (Surr)	85		78 - 120					

**Lab Sample ID: LCSD 580-411397/6**  
**Matrix: Water**  
**Analysis Batch: 411397**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	8.45		ug/L		84	80 - 122	10	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
Toluene-d8 (Surr)	105		79 - 122						
4-Bromofluorobenzene (Surr)	100		78 - 120						
Dibromofluoromethane (Surr)	101		80 - 120						
1,2-Dichloroethane-d4 (Surr)	85		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-411434/4**  
**Matrix: Water**  
**Analysis Batch: 411434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			11/30/22 12:28	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		77 - 123					11/30/22 12:28	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-411434/15**  
**Matrix: Water**  
**Analysis Batch: 411434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	0.100	0.0891		mg/L		89	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	96		77 - 123				

**Lab Sample ID: LCSD 580-411434/16**  
**Matrix: Water**  
**Analysis Batch: 411434**

**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	0.100	0.0735	*1	mg/L		74	55 - 148	19	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	97		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-411072/1-A**  
**Matrix: Water**  
**Analysis Batch: 411213**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 411072**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/26/22 10:43	11/28/22 14:03	1
Chrysene	ND		0.10	0.037	ug/L		11/26/22 10:43	11/28/22 14:03	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		11/26/22 10:43	11/28/22 14:03	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/26/22 10:43	11/28/22 14:03	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		11/26/22 10:43	11/28/22 14:03	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/26/22 10:43	11/28/22 14:03	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/26/22 10:43	11/28/22 14:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	99		29 - 150				11/26/22 10:43	11/28/22 14:03	1

**Lab Sample ID: LCS 580-411072/2-A**  
**Matrix: Water**  
**Analysis Batch: 411213**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411072**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	5.97		ug/L		75	55 - 123
Chrysene	8.00	5.84		ug/L		73	47 - 120
Benzo[b]fluoranthene	8.00	5.56		ug/L		70	43 - 120
Benzo[k]fluoranthene	8.00	5.57		ug/L		70	41 - 121
Benzo[a]pyrene	8.00	5.69		ug/L		71	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	6.14		ug/L		77	45 - 123
Dibenz(a,h)anthracene	8.00	6.08		ug/L		76	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-411072/2-A**  
**Matrix: Water**  
**Analysis Batch: 411213**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411072**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	84		29 - 150

**Lab Sample ID: LCSD 580-411072/3-A**  
**Matrix: Water**  
**Analysis Batch: 411213**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411072**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benzo[a]anthracene	8.00	6.40		ug/L		80	55 - 123	7	31	
Chrysene	8.00	6.29		ug/L		79	47 - 120	7	30	
Benzo[b]fluoranthene	8.00	6.40		ug/L		80	43 - 120	14	35	
Benzo[k]fluoranthene	8.00	6.31		ug/L		79	41 - 121	12	35	
Benzo[a]pyrene	8.00	6.48		ug/L		81	51 - 120	13	31	
Indeno[1,2,3-cd]pyrene	8.00	7.16		ug/L		89	45 - 123	15	35	
Dibenz(a,h)anthracene	8.00	6.84		ug/L		85	54 - 123	12	35	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	92		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-410604/1-B**  
**Matrix: Water**  
**Analysis Batch: 410734**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 410604**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		11/21/22 09:48	11/22/22 02:43	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		11/21/22 09:48	11/22/22 02:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		50 - 150	11/21/22 09:48	11/22/22 02:43	1

**Lab Sample ID: LCS 580-410604/2-B**  
**Matrix: Water**  
**Analysis Batch: 410734**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 410604**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
#2 Diesel (C10-C24)	4.00	3.56		mg/L		89	50 - 120	
Motor Oil (>C24-C36)	4.00	4.34		mg/L		109	64 - 120	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	99		50 - 150

**Lab Sample ID: LCSD 580-410604/3-B**  
**Matrix: Water**  
**Analysis Batch: 410734**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 410604**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
#2 Diesel (C10-C24)	4.00	3.81		mg/L		95	50 - 120	7	26	

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

Lab Sample ID: LCSD 580-410604/3-B  
 Matrix: Water  
 Analysis Batch: 410734

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA  
 Prep Batch: 410604

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Motor Oil (>C24-C36)	4.00	4.66		mg/L		117	64 - 120	7	24
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		114							50 - 150

- 1
- 2
- 3
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- 10
- 11

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120093-1**

**Date Collected: 11/16/22 08:40**

**Matrix: Water**

**Date Received: 11/16/22 10:44**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Analysis	624.1		1	411397	JSM	EET SEA	11/30/22 16:55
Total/NA	Analysis	NWTPH-Gx		1	411434	JSM	EET SEA	11/30/22 16:55
Total/NA	Prep	3510C			411072	CSS	EET SEA	11/26/22 10:43
Total/NA	Analysis	8270E SIM		1	411213	TL1	EET SEA	11/28/22 15:16
Total/NA	Prep	3510C			410604	KLW	EET SEA	11/21/22 09:48
Total/NA	Cleanup	3630C			410606	KLW	EET SEA	11/21/22 09:52
Total/NA	Analysis	NWTPH-Dx		1	410734	DH	EET SEA	11/22/22 03:44

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
- 3
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- 5
- 6
- 7
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- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120093-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-120093-1	Outfall #002	Water	11/16/22 08:40	11/16/22 10:44

1

2

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# Chain of Custody Record



<b>Client Information</b>		Sampler: <u>Trevor Bryant</u>	Lab PM: <u>Katie Grant</u>	Carrier Tracking No(s):	COC No:																								
Client Contact: <u>Trevor Bryant</u>		Phone: <u>-</u>	E-Mail:	State of Origin:	Page: <u>Page 1 of 1</u>																								
Company: <u>Acadia's</u>		PWSID:	<b>Analysis Requested</b>																										
Address: <u>1100 Olive Way Ste 800</u>		Due Date Requested:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Perform MSMSD (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of Containers</td> </tr> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">NWPH-6x</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Benzene 624.1</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">8210D-SJM CPAH</td> </tr> </table>			Field Filtered Sample (Yes or No)	Perform MSMSD (Yes or No)	Total Number of Containers	NWPH-6x	Benzene 624.1	8210D-SJM CPAH																		
Field Filtered Sample (Yes or No)	Perform MSMSD (Yes or No)	Total Number of Containers																											
NWPH-6x	Benzene 624.1	8210D-SJM CPAH																											
City: <u>Seattle, WA 98101</u>		TAT Requested (days): <u>STAT</u>																											
State, Zip: <u>WA, 98161</u>		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																											
Phone: <u>-</u>		PO #:																											
Email: <u>Trevor.Bryant@arcadia.com</u>		Purchase Order not required																											
Project Name: <u>Edmonds Terminal</u>		WO #:	Preservation Codes:																										
Site:		Project #: <u>30064301</u>	<table border="0" style="width:100%;"> <tr> <td>A - HCL</td> <td>M - Hexane</td> </tr> <tr> <td>B - NaOH</td> <td>N - None</td> </tr> <tr> <td>C - Zn Acetate</td> <td>O - AsNaO2</td> </tr> <tr> <td>D - Nitric Acid</td> <td>P - Na2O4S</td> </tr> <tr> <td>E - NaHSO4</td> <td>Q - Na2SO3</td> </tr> <tr> <td>F - MeOH</td> <td>R - Na2S2O3</td> </tr> <tr> <td>G - Amchlor</td> <td>S - H2SO4</td> </tr> <tr> <td>H - Ascorbic Acid</td> <td>T - TSP Dodecahydrate</td> </tr> <tr> <td>I - Ice</td> <td>U - Acetone</td> </tr> <tr> <td>J - DI Water</td> <td>V - MCAA</td> </tr> <tr> <td>K - EDTA</td> <td>W - pH 4-5</td> </tr> <tr> <td>L - EDA</td> <td>Z - other (specify)</td> </tr> </table>			A - HCL	M - Hexane	B - NaOH	N - None	C - Zn Acetate	O - AsNaO2	D - Nitric Acid	P - Na2O4S	E - NaHSO4	Q - Na2SO3	F - MeOH	R - Na2S2O3	G - Amchlor	S - H2SO4	H - Ascorbic Acid	T - TSP Dodecahydrate	I - Ice	U - Acetone	J - DI Water	V - MCAA	K - EDTA	W - pH 4-5	L - EDA	Z - other (specify)
A - HCL	M - Hexane																												
B - NaOH	N - None																												
C - Zn Acetate	O - AsNaO2																												
D - Nitric Acid	P - Na2O4S																												
E - NaHSO4	Q - Na2SO3																												
F - MeOH	R - Na2S2O3																												
G - Amchlor	S - H2SO4																												
H - Ascorbic Acid	T - TSP Dodecahydrate																												
I - Ice	U - Acetone																												
J - DI Water	V - MCAA																												
K - EDTA	W - pH 4-5																												
L - EDA	Z - other (specify)																												
SSOW#:		Other:																											
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MSMSD (Yes or No)	Total Number of Containers	Special Instructions/Note:																				
Outfall #002		11/16/22	0840	G	W	X	X	10	• use standard																				
Trip Blank		-	-	-	W	X	X	4	SBC																				
									• Report quantitative levels for Benzene + CPAHs <1µg/L																				
									pH ~7.82																				
									Flow: 90 gpm																				
<b>Possible Hazard Identification</b>		<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																								
Deliverable Requested: I, II, III, IV, Other (specify)					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																								
Special Instructions/QC Requirements:																													
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:																									
Relinquished by: <u>[Signature]</u>		Date/Time: <u>11/16/22</u>	Company: <u>Acadia's</u>	Received by: <u>[Signature]</u>		Date/Time: <u>11/16/22 1044</u>	Company: <u>EPA</u>																						
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:																						
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:																						
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Therm. ID: <u>1210</u> Cor: <u>3.9</u> ° Unc: <u>4.1</u> °		Cooler Dsc: <u>MB</u>		FedEx:		Company:																			
				Packing: <u>BUB</u>		Cooler Tempera:		UPS:		Company:																			
				Cust. Seal: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Lab Cour: <input checked="" type="checkbox"/>		Other:		Company:																			
				Blue Ice, <input checked="" type="checkbox"/> Dry, None						Company:																			



## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120093-1

**Login Number: 120093**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/8/2022 2:32:10 PM

**JOB DESCRIPTION**

Chevron Edmonds Terminal

**JOB NUMBER**

580-120415-1

## Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



Generated  
12/8/2022 2:32:10 PM

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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

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## Job ID: 580-120415-1

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### Laboratory: Eurofins Seattle

#### Narrative

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#### Job Narrative 580-120415-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 11/23/2022 2:44 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.0° C.

#### Receipt Exceptions

The containers provided for the following sample and the analysis requested do not match. Per the COC, this is a trip blank and only HCL vials were provided however 8070\_SIM was requested for this sample along with the 624 VOC method. Since 8270\_SIM is not a method run on trip blanks this method was not logged and NWTPH-Gx was logged as this is a typical method run on trip blanks.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method NWTPH-Dx: Continuing calibration verification (CCV) standard associated with batch 580-411625 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate BY 1%. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported.  
(CCVRT 580-411625/3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-101**

**Lab Sample ID: 580-120415-1**

Date Collected: 11/21/22 11:30

Matrix: Water

Date Received: 11/23/22 14:44

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 18:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	111		79 - 122		12/05/22 18:41	1
4-Bromofluorobenzene (Surr)	90		78 - 120		12/05/22 18:41	1
Dibromofluoromethane (Surr)	102		80 - 120		12/05/22 18:41	1
1,2-Dichloroethane-d4 (Surr)	87		78 - 120		12/05/22 18:41	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.098		0.050	0.014	mg/L			12/05/22 18:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123		12/05/22 18:41	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.051	0.014	ug/L		11/28/22 10:17	11/29/22 01:06	1
Chrysene	ND		0.10	0.038	ug/L		11/28/22 10:17	11/29/22 01:06	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 01:06	1
Benzo[k]fluoranthene	ND		0.051	0.012	ug/L		11/28/22 10:17	11/29/22 01:06	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 01:06	1
Indeno[1,2,3-cd]pyrene	ND		0.051	0.014	ug/L		11/28/22 10:17	11/29/22 01:06	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/28/22 10:17	11/29/22 01:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		29 - 150	11/28/22 10:17	11/29/22 01:06	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.099	J	0.11	0.067	mg/L		12/01/22 08:48	12/02/22 04:42	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		12/01/22 08:48	12/02/22 04:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	12/01/22 08:48	12/02/22 04:42	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-102A**

**Lab Sample ID: 580-120415-2**

Date Collected: 11/21/22 13:15

Matrix: Water

Date Received: 11/23/22 14:44

## Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 19:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		79 - 122		12/05/22 19:05	1
4-Bromofluorobenzene (Surr)	90		78 - 120		12/05/22 19:05	1
Dibromofluoromethane (Surr)	102		80 - 120		12/05/22 19:05	1
1,2-Dichloroethane-d4 (Surr)	84		78 - 120		12/05/22 19:05	1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.090		0.050	0.014	mg/L			12/05/22 19:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		77 - 123		12/05/22 19:05	1

## Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 01:30	1
Chrysene	ND		0.11	0.040	ug/L		11/28/22 10:17	11/29/22 01:30	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 01:30	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		11/28/22 10:17	11/29/22 01:30	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 01:30	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 01:30	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		11/28/22 10:17	11/29/22 01:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	84		29 - 150	11/28/22 10:17	11/29/22 01:30	1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.088	J	0.12	0.068	mg/L		12/01/22 08:48	12/02/22 05:02	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		12/01/22 08:48	12/02/22 05:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	12/01/22 08:48	12/02/22 05:02	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-102B**

**Lab Sample ID: 580-120415-3**

Date Collected: 11/21/22 12:35

Matrix: Water

Date Received: 11/23/22 14:44

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		79 - 122		12/05/22 19:30	1
4-Bromofluorobenzene (Surr)	93		78 - 120		12/05/22 19:30	1
Dibromofluoromethane (Surr)	102		80 - 120		12/05/22 19:30	1
1,2-Dichloroethane-d4 (Surr)	85		78 - 120		12/05/22 19:30	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.11		0.050	0.014	mg/L			12/05/22 19:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123		12/05/22 19:30	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 01:54	1
Chrysene	ND		0.11	0.040	ug/L		11/28/22 10:17	11/29/22 01:54	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 01:54	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		11/28/22 10:17	11/29/22 01:54	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 01:54	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 01:54	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		11/28/22 10:17	11/29/22 01:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	79		29 - 150	11/28/22 10:17	11/29/22 01:54	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.074	J	0.12	0.070	mg/L		12/01/22 08:48	12/02/22 05:22	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		12/01/22 08:48	12/02/22 05:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	84		50 - 150	12/01/22 08:48	12/02/22 05:22	1



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-103A**

**Lab Sample ID: 580-120415-4**

Date Collected: 11/21/22 13:50

Matrix: Water

Date Received: 11/23/22 14:44

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		79 - 122		12/05/22 19:54	1
4-Bromofluorobenzene (Surr)	89		78 - 120		12/05/22 19:54	1
Dibromofluoromethane (Surr)	101		80 - 120		12/05/22 19:54	1
1,2-Dichloroethane-d4 (Surr)	86		78 - 120		12/05/22 19:54	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		77 - 123		12/05/22 19:54	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 02:18	1
Chrysene	ND		0.10	0.038	ug/L		11/28/22 10:17	11/29/22 02:18	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 02:18	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		11/28/22 10:17	11/29/22 02:18	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 02:18	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 02:18	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		11/28/22 10:17	11/29/22 02:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	88		29 - 150	11/28/22 10:17	11/29/22 02:18	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.069	mg/L		12/01/22 08:48	12/02/22 05:42	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		12/01/22 08:48	12/02/22 05:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150	12/01/22 08:48	12/02/22 05:42	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-103B**

**Lab Sample ID: 580-120415-5**

Date Collected: 11/21/22 15:00

Matrix: Water

Date Received: 11/23/22 14:44

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		79 - 122		12/05/22 20:18	1
4-Bromofluorobenzene (Surr)	93		78 - 120		12/05/22 20:18	1
Dibromofluoromethane (Surr)	101		80 - 120		12/05/22 20:18	1
1,2-Dichloroethane-d4 (Surr)	82		78 - 120		12/05/22 20:18	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123		12/05/22 20:18	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 02:42	1
Chrysene	ND		0.10	0.039	ug/L		11/28/22 10:17	11/29/22 02:42	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 02:42	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		11/28/22 10:17	11/29/22 02:42	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 02:42	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 02:42	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		11/28/22 10:17	11/29/22 02:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		29 - 150	11/28/22 10:17	11/29/22 02:42	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.071	mg/L		12/01/22 08:48	12/02/22 06:03	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		12/01/22 08:48	12/02/22 06:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	12/01/22 08:48	12/02/22 06:03	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: GWSP-104**

**Lab Sample ID: 580-120415-6**

**Date Collected: 11/21/22 12:00**

**Matrix: Water**

**Date Received: 11/23/22 14:44**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 20:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Toluene-d8 (Surr)</i>	112		79 - 122					12/05/22 20:42	1
<i>4-Bromofluorobenzene (Surr)</i>	90		78 - 120					12/05/22 20:42	1
<i>Dibromofluoromethane (Surr)</i>	108		80 - 120					12/05/22 20:42	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	88		78 - 120					12/05/22 20:42	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 20:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>4-Bromofluorobenzene (Surr)</i>	90		77 - 123					12/05/22 20:42	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 03:06	1
Chrysene	ND		0.11	0.040	ug/L		11/28/22 10:17	11/29/22 03:06	1
Benzo[b]fluoranthene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 03:06	1
Benzo[k]fluoranthene	ND		0.054	0.013	ug/L		11/28/22 10:17	11/29/22 03:06	1
Benzo[a]pyrene	ND		0.11	0.024	ug/L		11/28/22 10:17	11/29/22 03:06	1
Indeno[1,2,3-cd]pyrene	ND		0.054	0.015	ug/L		11/28/22 10:17	11/29/22 03:06	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		11/28/22 10:17	11/29/22 03:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>Terphenyl-d14</i>	96		29 - 150				11/28/22 10:17	11/29/22 03:06	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.072	mg/L		12/01/22 08:48	12/02/22 06:23	1
Motor Oil (>C24-C36)	ND		0.39	0.11	mg/L		12/01/22 08:48	12/02/22 06:23	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	78		50 - 150				12/01/22 08:48	12/02/22 06:23	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-120415-7**

Date Collected: 11/21/22 00:01

Matrix: Water

Date Received: 11/23/22 14:44

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 21:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		79 - 122		12/05/22 21:07	1
4-Bromofluorobenzene (Surr)	92		78 - 120		12/05/22 21:07	1
Dibromofluoromethane (Surr)	102		80 - 120		12/05/22 21:07	1
1,2-Dichloroethane-d4 (Surr)	80		78 - 120		12/05/22 21:07	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 21:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		77 - 123		12/05/22 21:07	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120415-8**

**Date Collected: 11/21/22 10:40**

**Matrix: Water**

**Date Received: 11/23/22 14:44**

### Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 21:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		79 - 122		12/05/22 21:55	1
4-Bromofluorobenzene (Surr)	93		78 - 120		12/05/22 21:55	1
Dibromofluoromethane (Surr)	100		80 - 120		12/05/22 21:55	1
1,2-Dichloroethane-d4 (Surr)	82		78 - 120		12/05/22 21:55	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 21:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		77 - 123		12/05/22 21:55	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 03:30	1
Chrysene	ND		0.10	0.039	ug/L		11/28/22 10:17	11/29/22 03:30	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 03:30	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		11/28/22 10:17	11/29/22 03:30	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		11/28/22 10:17	11/29/22 03:30	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		11/28/22 10:17	11/29/22 03:30	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		11/28/22 10:17	11/29/22 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	93		29 - 150	11/28/22 10:17	11/29/22 03:30	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.066	mg/L		12/01/22 08:48	12/02/22 06:43	1
Motor Oil (>C24-C36)	ND		0.35	0.097	mg/L		12/01/22 08:48	12/02/22 06:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	86		50 - 150	12/01/22 08:48	12/02/22 06:43	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-411900/6**  
**Matrix: Water**  
**Analysis Batch: 411900**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/05/22 13:03	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		79 - 122					12/05/22 13:03	1
4-Bromofluorobenzene (Surr)	92		78 - 120					12/05/22 13:03	1
Dibromofluoromethane (Surr)	104		80 - 120					12/05/22 13:03	1
1,2-Dichloroethane-d4 (Surr)	87		78 - 120					12/05/22 13:03	1

**Lab Sample ID: LCS 580-411900/7**  
**Matrix: Water**  
**Analysis Batch: 411900**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	10.0		ug/L		100	80 - 122	
Surrogate	%Recovery	LCS Qualifier	LCS Limits					
Toluene-d8 (Surr)	107		79 - 122					
4-Bromofluorobenzene (Surr)	98		78 - 120					
Dibromofluoromethane (Surr)	104		80 - 120					
1,2-Dichloroethane-d4 (Surr)	86		78 - 120					

**Lab Sample ID: LCSD 580-411900/8**  
**Matrix: Water**  
**Analysis Batch: 411900**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.1		ug/L		101	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
Toluene-d8 (Surr)	106		79 - 122						
4-Bromofluorobenzene (Surr)	94		78 - 120						
Dibromofluoromethane (Surr)	106		80 - 120						
1,2-Dichloroethane-d4 (Surr)	88		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-411905/6**  
**Matrix: Water**  
**Analysis Batch: 411905**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/05/22 13:03	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		77 - 123					12/05/22 13:03	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-411905/9**  
**Matrix: Water**  
**Analysis Batch: 411905**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.03		mg/L		103	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	99		77 - 123				

**Lab Sample ID: LCSD 580-411905/10**  
**Matrix: Water**  
**Analysis Batch: 411905**

**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	1.00	1.02		mg/L		102	55 - 148	1	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	99		77 - 123						

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-411106/1-A**  
**Matrix: Water**  
**Analysis Batch: 411224**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 411106**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/28/22 10:17	11/28/22 22:42	1
Chrysene	ND		0.10	0.037	ug/L		11/28/22 10:17	11/28/22 22:42	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		11/28/22 10:17	11/28/22 22:42	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/28/22 10:17	11/28/22 22:42	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		11/28/22 10:17	11/28/22 22:42	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/28/22 10:17	11/28/22 22:42	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/28/22 10:17	11/28/22 22:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	97		29 - 150				11/28/22 10:17	11/28/22 22:42	1

**Lab Sample ID: LCS 580-411106/2-A**  
**Matrix: Water**  
**Analysis Batch: 411224**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411106**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	6.35		ug/L		79	55 - 123
Chrysene	8.00	6.39		ug/L		80	47 - 120
Benzo[b]fluoranthene	8.00	6.14		ug/L		77	43 - 120
Benzo[k]fluoranthene	8.00	5.92		ug/L		74	41 - 121
Benzo[a]pyrene	8.00	6.19		ug/L		77	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	6.73		ug/L		84	45 - 123
Dibenz(a,h)anthracene	8.00	6.50		ug/L		81	54 - 123

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-411106/2-A**  
**Matrix: Water**  
**Analysis Batch: 411224**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411106**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	83		29 - 150

**Lab Sample ID: LCSD 580-411106/3-A**  
**Matrix: Water**  
**Analysis Batch: 411224**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411106**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Chrysene	8.00	6.77		ug/L		85	47 - 120	6	30
Benzo[b]fluoranthene	8.00	7.06		ug/L		88	43 - 120	14	35
Benzo[k]fluoranthene	8.00	6.70		ug/L		84	41 - 121	12	35
Benzo[a]pyrene	8.00	7.03		ug/L		88	51 - 120	13	31
Indeno[1,2,3-cd]pyrene	8.00	7.36		ug/L		92	45 - 123	9	35
Dibenz(a,h)anthracene	8.00	7.47		ug/L		93	54 - 123	14	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	96		29 - 150

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-411541/1-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/01/22 08:48	12/02/22 03:41	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/01/22 08:48	12/02/22 03:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	12/01/22 08:48	12/02/22 03:41	1

**Lab Sample ID: LCS 580-411541/2-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Motor Oil (>C24-C36)	4.00	4.37		mg/L		109	64 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	110		50 - 150

**Lab Sample ID: LCSD 580-411541/3-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit

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# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCSD 580-411541/3-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD
							Limits	RPD	
Motor Oil (>C24-C36)	4.00	3.86		mg/L		96	64 - 120	12	24
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>						<b>Limits</b>
<i>o</i> -Terphenyl		102							50 - 150

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# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Client Sample ID: GWSP-101

Lab Sample ID: 580-120415-1

Date Collected: 11/21/22 11:30

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 18:41
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 18:41
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 01:06
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 04:42

## Client Sample ID: GWSP-102A

Lab Sample ID: 580-120415-2

Date Collected: 11/21/22 13:15

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 19:05
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 19:05
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 01:30
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 05:02

## Client Sample ID: GWSP-102B

Lab Sample ID: 580-120415-3

Date Collected: 11/21/22 12:35

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 19:30
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 19:30
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 01:54
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 05:22

## Client Sample ID: GWSP-103A

Lab Sample ID: 580-120415-4

Date Collected: 11/21/22 13:50

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 19:54
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 19:54
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 02:18

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Client Sample ID: GWSP-103A

Lab Sample ID: 580-120415-4

Date Collected: 11/21/22 13:50

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 05:42

## Client Sample ID: GWSP-103B

Lab Sample ID: 580-120415-5

Date Collected: 11/21/22 15:00

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 20:18
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 20:18
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 02:42
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 06:03

## Client Sample ID: GWSP-104

Lab Sample ID: 580-120415-6

Date Collected: 11/21/22 12:00

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 20:42
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 20:42
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 03:06
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 06:23

## Client Sample ID: Trip Blank

Lab Sample ID: 580-120415-7

Date Collected: 11/21/22 00:01

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 21:07
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 21:07

## Client Sample ID: Outfall #002

Lab Sample ID: 580-120415-8

Date Collected: 11/21/22 10:40

Matrix: Water

Date Received: 11/23/22 14:44

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	411900	JSM	EET SEA	12/05/22 21:55
Total/NA	Analysis	NWTPH-Gx		1	411905	CS	EET SEA	12/05/22 21:55

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120415-8**

**Date Collected: 11/21/22 10:40**

**Matrix: Water**

**Date Received: 11/23/22 14:44**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	3510C			411106	CSS	EET SEA	11/28/22 10:17
Total/NA	Analysis	8270E SIM		1	411224	JSM	EET SEA	11/29/22 03:30
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 06:43

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

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# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120415-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-120415-1	GWSP-101	Water	11/21/22 11:30	11/23/22 14:44
580-120415-2	GWSP-102A	Water	11/21/22 13:15	11/23/22 14:44
580-120415-3	GWSP-102B	Water	11/21/22 12:35	11/23/22 14:44
580-120415-4	GWSP-103A	Water	11/21/22 13:50	11/23/22 14:44
580-120415-5	GWSP-103B	Water	11/21/22 15:00	11/23/22 14:44
580-120415-6	GWSP-104	Water	11/21/22 12:00	11/23/22 14:44
580-120415-7	Trip Blank	Water	11/21/22 00:01	11/23/22 14:44
580-120415-8	Outfall #002	Water	11/21/22 10:40	11/23/22 14:44





## Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120415-1

**Login Number: 120415**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/9/2022 12:50:36 PM

**JOB DESCRIPTION**

Chevron Edmonds Terminal

**JOB NUMBER**

580-120465-1

# Eurofins Seattle

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

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**Job ID: 580-120465-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-120465-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 11/28/2022 11:42 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1° C.

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi 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: Continuing calibration verification (CCV) standard associated with batch 580-411625 recovered outside %Drift acceptance criteria for o-Terphenyl surrogate BY 1%. The %Recovery is within acceptance criteria for the surrogate in the CCV and associated samples; therefore, the data are qualified and reported. (CCVRT 580-411625/3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120465-1**

**Date Collected: 11/28/22 09:45**

**Matrix: Water**

**Date Received: 11/28/22 11:42**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/01/22 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		60 - 140		12/01/22 18:28	1
4-Bromofluorobenzene (Surr)	107		60 - 140		12/01/22 18:28	1
Dibromofluoromethane (Surr)	108		60 - 140		12/01/22 18:28	1
1,2-Dichloroethane-d4 (Surr)	108		60 - 140		12/01/22 18:28	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		11/30/22 09:06	12/01/22 15:10	1
Chrysene	ND		0.10	0.039	ug/L		11/30/22 09:06	12/01/22 15:10	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		11/30/22 09:06	12/01/22 15:10	1
Benzo[k]fluoranthene	ND		0.052	0.013	ug/L		11/30/22 09:06	12/01/22 15:10	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		11/30/22 09:06	12/01/22 15:10	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		11/30/22 09:06	12/01/22 15:10	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		11/30/22 09:06	12/01/22 15:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	91		29 - 150	11/30/22 09:06	12/01/22 15:10	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/01/22 17:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		12/01/22 17:35	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		12/01/22 08:48	12/02/22 07:23	1
Motor Oil (>C24-C36)	ND		0.36	0.099	mg/L		12/01/22 08:48	12/02/22 07:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		50 - 150	12/01/22 08:48	12/02/22 07:23	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-120465-2**

Date Collected: 11/28/22 00:01

Matrix: Water

Date Received: 11/28/22 11:42

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/01/22 18:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		60 - 140		12/01/22 18:51	1
4-Bromofluorobenzene (Surr)	112		60 - 140		12/01/22 18:51	1
Dibromofluoromethane (Surr)	105		60 - 140		12/01/22 18:51	1
1,2-Dichloroethane-d4 (Surr)	106		60 - 140		12/01/22 18:51	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/01/22 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	99		50 - 150		12/01/22 18:01	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-322601/5**  
**Matrix: Water**  
**Analysis Batch: 322601**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/01/22 13:12	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		60 - 140					12/01/22 13:12	1
4-Bromofluorobenzene (Surr)	106		60 - 140					12/01/22 13:12	1
Dibromofluoromethane (Surr)	106		60 - 140					12/01/22 13:12	1
1,2-Dichloroethane-d4 (Surr)	106		60 - 140					12/01/22 13:12	1

**Lab Sample ID: LCS 410-322601/1003**  
**Matrix: Water**  
**Analysis Batch: 322601**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.2		ug/L		111	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	107		60 - 140				
4-Bromofluorobenzene (Surr)	104		60 - 140				
Dibromofluoromethane (Surr)	94		60 - 140				
1,2-Dichloroethane-d4 (Surr)	96		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-411386/1-A**  
**Matrix: Water**  
**Analysis Batch: 411527**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 411386**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		11/30/22 09:06	12/01/22 11:31	1
Chrysene	ND		0.10	0.037	ug/L		11/30/22 09:06	12/01/22 11:31	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		11/30/22 09:06	12/01/22 11:31	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		11/30/22 09:06	12/01/22 11:31	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		11/30/22 09:06	12/01/22 11:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		11/30/22 09:06	12/01/22 11:31	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		11/30/22 09:06	12/01/22 11:31	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	85		29 - 150				11/30/22 09:06	12/01/22 11:31	1

**Lab Sample ID: LCS 580-411386/2-A**  
**Matrix: Water**  
**Analysis Batch: 411527**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411386**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	5.95		ug/L		74	55 - 123
Chrysene	8.00	5.62		ug/L		70	47 - 120
Benzo[b]fluoranthene	8.00	6.19		ug/L		77	43 - 120
Benzo[k]fluoranthene	8.00	5.52		ug/L		69	41 - 121

Eurofins Seattle



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-411386/2-A**  
**Matrix: Water**  
**Analysis Batch: 411527**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411386**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	8.00	5.96		ug/L		75	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	6.24		ug/L		78	45 - 123
Dibenz(a,h)anthracene	8.00	6.08		ug/L		76	54 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	87		29 - 150

**Lab Sample ID: LCSD 580-411386/3-A**  
**Matrix: Water**  
**Analysis Batch: 411527**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411386**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	8.00	6.23		ug/L		78	55 - 123	4	31
Chrysene	8.00	5.97		ug/L		75	47 - 120	6	30
Benzo[b]fluoranthene	8.00	6.10		ug/L		76	43 - 120	1	35
Benzo[k]fluoranthene	8.00	5.39		ug/L		67	41 - 121	2	35
Benzo[a]pyrene	8.00	5.77		ug/L		72	51 - 120	3	31
Indeno[1,2,3-cd]pyrene	8.00	6.01		ug/L		75	45 - 123	4	35
Dibenz(a,h)anthracene	8.00	5.67		ug/L		71	54 - 123	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14	87		29 - 150

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-322678/8**  
**Matrix: Water**  
**Analysis Batch: 322678**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/01/22 17:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		12/01/22 17:09	1

**Lab Sample ID: LCS 410-322678/4**  
**Matrix: Water**  
**Analysis Batch: 322678**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	1100		ug/L		100	64 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	88		50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-322678/5**  
**Matrix: Water**  
**Analysis Batch: 322678**

**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 Range Organics (GRO)-C7-C12	1100	1100		ug/L		100	64 - 131	0	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>a,a,a-Trifluorotoluene (fid)</i>		89		50 - 150					

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-411541/1-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/01/22 08:48	12/02/22 03:41	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/01/22 08:48	12/02/22 03:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o-Terphenyl</i>	80		50 - 150				12/01/22 08:48	12/02/22 03:41	1

**Lab Sample ID: LCS 580-411541/2-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.69		mg/L		92	50 - 120
Motor Oil (>C24-C36)	4.00	4.37		mg/L		109	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	110		50 - 150				

**Lab Sample ID: LCSD 580-411541/3-B**  
**Matrix: Water**  
**Analysis Batch: 411625**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 411541**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.29		mg/L		82	50 - 120	11	26
Motor Oil (>C24-C36)	4.00	3.86		mg/L		96	64 - 120	12	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o-Terphenyl</i>	102		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Client Sample ID: Outfall #002

Date Collected: 11/28/22 09:45

Date Received: 11/28/22 11:42

## Lab Sample ID: 580-120465-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	322601	UJML	ELLE	12/01/22 18:28
Total/NA	Prep	3510C			411386	CSS	EET SEA	11/30/22 09:06
Total/NA	Analysis	8270E SIM		1	411527	TL1	EET SEA	12/01/22 15:10
Total/NA	Analysis	NWTPH-Gx		1	322678	MXX6	ELLE	12/01/22 17:35
Total/NA	Prep	3510C			411541	CSS	EET SEA	12/01/22 08:48
Total/NA	Cleanup	3630C			411542	CSS	EET SEA	12/01/22 08:59
Total/NA	Analysis	NWTPH-Dx		1	411625	DH	EET SEA	12/02/22 07:23

## Client Sample ID: Trip Blank

Date Collected: 11/28/22 00:01

Date Received: 11/28/22 11:42

## Lab Sample ID: 580-120465-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	322601	UJML	ELLE	12/01/22 18:51
Total/NA	Analysis	NWTPH-Gx		1	322678	MXX6	ELLE	12/01/22 18:01

### Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
Alaska	State	PA00009	07-01-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22 *
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-22
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23
Texas	NELAP	T104704194-22-43	08-31-23

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	0001.01	11-30-24

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120465-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-120465-1	Outfall #002	Water	11/28/22 09:45	11/28/22 11:42
580-120465-2	Trip Blank	Water	11/28/22 00:01	11/28/22 11:42

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**Chain of Custody Record**

<b>Client Information</b>		Sampler: S. Green P. Brown	Lab PM:	Carrier Tracking No(s):	COC No:																																																						
Client Contact: Samuel Miles		Phone:	E-Mail: Samuel.miles@arcadis.com	State of Origin:	Page: Page 1 of 1																																																						
Company: Arcadis		PWSID:	<b>Analysis Requested</b>																																																								
Address: 11720 Unico Rd 1100 Olive Way		Due Date Requested:	<table border="1"> <tr> <th>Field Filtered Samples (Yes or No)</th> <th>Perform WASH/SC (Yes or No)</th> <th>Total Number of Containers</th> </tr> <tr> <td>NWTPH-GX</td> <td></td> <td></td> </tr> <tr> <td>NWTPH-DX w/SGC</td> <td></td> <td></td> </tr> <tr> <td>Benzene 624.1</td> <td></td> <td></td> </tr> <tr> <td>CPATHs 2370-SIM</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>			Field Filtered Samples (Yes or No)	Perform WASH/SC (Yes or No)	Total Number of Containers	NWTPH-GX			NWTPH-DX w/SGC			Benzene 624.1			CPATHs 2370-SIM																																									
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City: Seattle		TAT Requested (days):	<table border="1"> <tr> <th colspan="2">Preservation Codes:</th> </tr> <tr> <td>A - HCL</td> <td>M - Hexane</td> </tr> <tr> <td>B - NaOH</td> <td>N - None</td> </tr> <tr> <td>C - Zn Acetate</td> <td>O - AsNaO2</td> </tr> <tr> <td>D - Nitric Acid</td> <td>P - Na2O4S</td> </tr> <tr> <td>E - NaHSO4</td> <td>Q - Na2SO3</td> </tr> <tr> <td>F - MeOH</td> <td>R - Na2S2O3</td> </tr> <tr> <td>G - Amchlor</td> <td>S - H2SO4</td> </tr> <tr> <td>H - Ascorbic Acid</td> <td>T - TSP Dodecahydrate</td> </tr> <tr> <td>I - Ice</td> <td>U - Acetone</td> </tr> <tr> <td>J - DI Water</td> <td>V - MCAA</td> </tr> <tr> <td>K - EDTA</td> <td>W - pH 4-5</td> </tr> <tr> <td>L - EDA</td> <td>Z - other (specify)</td> </tr> <tr> <td colspan="2">Other:</td> </tr> </table>			Preservation Codes:		A - HCL	M - Hexane	B - NaOH	N - None	C - Zn Acetate	O - AsNaO2	D - Nitric Acid	P - Na2O4S	E - NaHSO4	Q - Na2SO3	F - MeOH	R - Na2S2O3	G - Amchlor	S - H2SO4	H - Ascorbic Acid	T - TSP Dodecahydrate	I - Ice	U - Acetone	J - DI Water	V - MCAA	K - EDTA	W - pH 4-5	L - EDA	Z - other (specify)	Other:																											
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State, Zip: WA, 98101		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No	<table border="1"> <tr> <th>Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=comp, G=grab)</th> <th>Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)</th> <th>Field Filtered Samples (Yes or No)</th> <th>Perform WASH/SC (Yes or No)</th> <th>Total Number of Containers</th> <th>Special Instructions/Note:</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Outfall #002</td> <td>11/28/22</td> <td>9:45</td> <td>G</td> <td>W</td> <td>X</td> <td>X</td> <td>10</td> <td>* use standard</td> </tr> <tr> <td>Trip Blank</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>4</td> <td>SGC</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>* Report quantitative levels of Benzene + CPATHs &lt; 1ug/L</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>pH - 7.85 flow - 88 gpm</td> </tr> </table>			Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Samples (Yes or No)	Perform WASH/SC (Yes or No)	Total Number of Containers	Special Instructions/Note:										Outfall #002	11/28/22	9:45	G	W	X	X	10	* use standard	Trip Blank					X	X	4	SGC									* Report quantitative levels of Benzene + CPATHs < 1ug/L									pH - 7.85 flow - 88 gpm
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Phone:		PO #: Purchase Order not required	<p>Therm ID: A2 cor: 3.1 ° Unc: 3.0 °</p> <p>Cooler Dsc: BB</p> <p>Packing: Sub FedEx:</p> <p>Cust. Seal: Yes No <input checked="" type="checkbox"/> Lab Cour: <input checked="" type="checkbox"/></p> <p>Blue Ice, Wet, Dry, None Other:</p>																																																								
Email: molly.green@arcadis.com		WO #:																																																									
Project Name: Edmonds Terminal		Project #:																																																									
Site: 11720 Unico Rd Edmonds WA		SSOW#:																																																									
Barcode: 		580-120465 Chain of Custody																																																									
<b>Possible Hazard Identification</b>			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>																																																								
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																								
Deliverable Requested: I, II, III, IV, Other (specify)			Special Instructions/QC Requirements:																																																								
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:																																																							
Relinquished by: Savannah Green		Date/Time: 11/28/22	Company:	Received by: Savannah Green																																																							
Relinquished by:		Date/Time:	Company:	Received by:																																																							
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Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:																																																							

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120465-1

**Login Number: 120465**

**List Number: 1**

**Creator: Groves, Elizabeth**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120465-1

**Login Number: 120465**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 11/30/22 11:20 AM**

**Creator: McCaskey, Jonathan**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	True	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/18/2022 9:38:17 AM

**JOB DESCRIPTION**

Chevron Edmonds Terminal  
Outfall#2

**JOB NUMBER**

580-120759-1

## Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



Generated  
12/18/2022 9:38:17 AM

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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

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**Job ID: 580-120759-1**

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**Laboratory: Eurofins Seattle**

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**Narrative**

**Job Narrative  
580-120759-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 12/5/2022 11:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.4° C.

**Receipt Exceptions**

A Chain-of-Custody (COC) was not received with these samples: Samples received 12/07/22 @ 10:05. COC was received 12/08/22 @ 10:00. Outfall #002 (580-120759-1) and Trip Blank (580-120759-2).

**GC/MS VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC/MS Semi VOA**

Method 8270E SIM: The following sample was diluted due to the nature of the sample matrix: Outfall #002 (580-120759-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-120759-1**

Date Collected: 12/05/22 10:00

Matrix: Water

Date Received: 12/05/22 11:30

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/08/22 18:21	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	101		60 - 140					12/08/22 18:21	1
4-Bromofluorobenzene (Surr)	119		60 - 140					12/08/22 18:21	1
Dibromofluoromethane (Surr)	103		60 - 140					12/08/22 18:21	1
1,2-Dichloroethane-d4 (Surr)	108		60 - 140					12/08/22 18:21	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.052	0.015	ug/L		12/07/22 09:24	12/14/22 07:37	1
Chrysene	ND		0.10	0.039	ug/L		12/07/22 09:24	12/14/22 07:37	1
Benzo[b]fluoranthene	ND		0.10	0.023	ug/L		12/07/22 09:24	12/14/22 07:37	1
Benzo[k]fluoranthene	ND		0.052	0.012	ug/L		12/07/22 09:24	12/14/22 07:37	1
Benzo[a]pyrene	ND		0.10	0.023	ug/L		12/07/22 09:24	12/14/22 07:37	1
Indeno[1,2,3-cd]pyrene	ND		0.052	0.015	ug/L		12/07/22 09:24	12/14/22 07:37	1
Dibenz(a,h)anthracene	ND		0.10	0.016	ug/L		12/07/22 09:24	12/14/22 07:37	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Terphenyl-d14	91		29 - 150				12/07/22 09:24	12/14/22 07:37	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Gasoline Range Organics (GRO)-C7-C12</b>	<b>61</b>	<b>J</b>	250	43	ug/L			12/09/22 02:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid)	101		50 - 150					12/09/22 02:47	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.067	mg/L		12/07/22 09:28	12/08/22 04:57	1
<b>Motor Oil (&gt;C24-C36)</b>	<b>0.12</b>	<b>J</b>	0.36	0.099	mg/L		12/07/22 09:28	12/08/22 04:57	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
o-Terphenyl	64		50 - 150				12/07/22 09:28	12/08/22 04:57	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-120759-2**

Date Collected: 12/05/22 00:01

Matrix: Water

Date Received: 12/05/22 11:30

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/08/22 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		60 - 140		12/08/22 17:59	1
4-Bromofluorobenzene (Surr)	117		60 - 140		12/08/22 17:59	1
Dibromofluoromethane (Surr)	104		60 - 140		12/08/22 17:59	1
1,2-Dichloroethane-d4 (Surr)	103		60 - 140		12/08/22 17:59	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/08/22 19:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		12/08/22 19:01	1



# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-324959/5**  
**Matrix: Water**  
**Analysis Batch: 324959**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/08/22 11:10	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		60 - 140					12/08/22 11:10	1
4-Bromofluorobenzene (Surr)	110		60 - 140					12/08/22 11:10	1
Dibromofluoromethane (Surr)	106		60 - 140					12/08/22 11:10	1
1,2-Dichloroethane-d4 (Surr)	112		60 - 140					12/08/22 11:10	1

**Lab Sample ID: LCS 410-324959/1003**  
**Matrix: Water**  
**Analysis Batch: 324959**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.0		ug/L		110	65 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	112		60 - 140				
4-Bromofluorobenzene (Surr)	109		60 - 140				
Dibromofluoromethane (Surr)	95		60 - 140				
1,2-Dichloroethane-d4 (Surr)	104		60 - 140				

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-412198/1-A**  
**Matrix: Water**  
**Analysis Batch: 412422**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 412198**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/07/22 09:24	12/09/22 02:43	1
Chrysene	ND		0.10	0.037	ug/L		12/07/22 09:24	12/09/22 02:43	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		12/07/22 09:24	12/09/22 02:43	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/07/22 09:24	12/09/22 02:43	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		12/07/22 09:24	12/09/22 02:43	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/07/22 09:24	12/09/22 02:43	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		12/07/22 09:24	12/09/22 02:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14	105		29 - 150				12/07/22 09:24	12/09/22 02:43	1

**Lab Sample ID: LCS 580-412198/2-A**  
**Matrix: Water**  
**Analysis Batch: 412422**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412198**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	8.00	5.58		ug/L		70	55 - 123
Chrysene	8.00	5.82		ug/L		73	47 - 120
Benzo[b]fluoranthene	8.00	5.84		ug/L		73	43 - 120
Benzo[k]fluoranthene	8.00	5.98		ug/L		75	41 - 121

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 580-412198/2-A**  
**Matrix: Water**  
**Analysis Batch: 412422**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412198**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	8.00	5.97		ug/L		75	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	5.04		ug/L		63	45 - 123
Dibenz(a,h)anthracene	8.00	6.14		ug/L		77	54 - 123
<b>Surrogate</b>		<b>LCS %Recovery</b>	<b>LCS Qualifier</b>				<b>Limits</b>
Terphenyl-d14		86					29 - 150

**Lab Sample ID: LCSD 580-412198/3-A**  
**Matrix: Water**  
**Analysis Batch: 412422**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 412198**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	8.00	5.62		ug/L		70	55 - 123	1	31
Chrysene	8.00	5.92		ug/L		74	47 - 120	2	30
Benzo[b]fluoranthene	8.00	5.26		ug/L		66	43 - 120	11	35
Benzo[k]fluoranthene	8.00	6.55		ug/L		82	41 - 121	9	35
Benzo[a]pyrene	8.00	5.96		ug/L		75	51 - 120	0	31
Indeno[1,2,3-cd]pyrene	8.00	5.44		ug/L		68	45 - 123	8	35
Dibenz(a,h)anthracene	8.00	6.17		ug/L		77	54 - 123	0	35
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>				<b>Limits</b>		
Terphenyl-d14		85					29 - 150		

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-325109/4**  
**Matrix: Water**  
**Analysis Batch: 325109**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/08/22 15:10	1
<b>Surrogate</b>	<b>MB %Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
a,a,a-Trifluorotoluene (fid)	101		50 - 150					12/08/22 15:10	1

**Lab Sample ID: LCS 410-325109/7**  
**Matrix: Water**  
**Analysis Batch: 325109**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	930		ug/L		85	64 - 131
<b>Surrogate</b>		<b>LCS %Recovery</b>	<b>LCS Qualifier</b>				<b>Limits</b>
a,a,a-Trifluorotoluene (fid)		94					50 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 410-325109/8**  
**Matrix: Water**  
**Analysis Batch: 325109**

**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 Range Organics (GRO)-C7-C12	1100	921		ug/L		84	64 - 131	1	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>a,a,a</i> -Trifluorotoluene ( <i>fid</i> )		93		50 - 150					

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-412200/1-B**  
**Matrix: Water**  
**Analysis Batch: 412271**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 412200**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/07/22 09:28	12/08/22 03:42	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/07/22 09:28	12/08/22 03:42	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
<i>o</i> -Terphenyl	69		50 - 150				12/07/22 09:28	12/08/22 03:42	1

**Lab Sample ID: LCS 580-412200/2-B**  
**Matrix: Water**  
**Analysis Batch: 412271**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412200**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.72		mg/L		93	50 - 120
Motor Oil (>C24-C36)	4.00	4.39		mg/L		110	64 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o</i> -Terphenyl	102		50 - 150				

**Lab Sample ID: LCSD 580-412200/3-B**  
**Matrix: Water**  
**Analysis Batch: 412271**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 412200**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	3.45		mg/L		86	50 - 120	8	26
Motor Oil (>C24-C36)	4.00	4.03		mg/L		101	64 - 120	9	24
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
<i>o</i> -Terphenyl	91		50 - 150						

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-120759-1

Date Collected: 12/05/22 10:00

Matrix: Water

Date Received: 12/05/22 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	324959	UJML	ELLE	12/08/22 18:21
Total/NA	Prep	3510C			412198	CSS	EET SEA	12/07/22 09:24
Total/NA	Analysis	8270E SIM		1	412844	TL1	EET SEA	12/14/22 07:37
Total/NA	Analysis	NWTPH-Gx		1	325109	B9BF	ELLE	12/09/22 02:47
Total/NA	Prep	3510C			412200	CSS	EET SEA	12/07/22 09:28
Total/NA	Cleanup	3630C			412203	KLW	EET SEA	12/07/22 09:37
Total/NA	Analysis	NWTPH-Dx		1	412271	DH	EET SEA	12/08/22 04:57

## Client Sample ID: Trip Blank

Lab Sample ID: 580-120759-2

Date Collected: 12/05/22 00:01

Matrix: Water

Date Received: 12/05/22 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	324959	UJML	ELLE	12/08/22 17:59
Total/NA	Analysis	NWTPH-Gx		1	325109	B9BF	ELLE	12/08/22 19:01

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-22 *
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-22
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-22
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	0001.01	11-30-24



# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-120759-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-120759-1	Outfall #002	Water	12/05/22 10:00	12/05/22 11:30
580-120759-2	Trip Blank	Water	12/05/22 00:01	12/05/22 11:30

1

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10

11





# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120759-1

**Login Number: 120759**

**List Number: 1**

**Creator: Presley, Kim A**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-120759-1

**Login Number: 120759**  
**List Number: 2**  
**Creator: Ballard, Megan**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**  
**List Creation: 12/07/22 01:49 PM**

Question	Answer	Comment
The cooler's custody seal is 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 (<=/6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<=/6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	False	Refer to Job Narrative for details.
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Samuel Miles  
ARCADIS U.S. Inc  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

Generated 12/27/2022 10:49:04 AM

**JOB DESCRIPTION**

Edmonds Terminal

**JOB NUMBER**

580-121137-1

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



Generated  
12/27/2022 10:49:04 AM

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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

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## Job ID: 580-121137-1

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### Laboratory: Eurofins Seattle

#### Narrative

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#### Job Narrative 580-121137-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/12/2022 11:14 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.1° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi 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 method blank for preparation batch 580-412885 and 580-412889 and analytical batch 580-413029 contained Motor Oil above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## 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

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-121137-1**

**Date Collected: 12/12/22 09:10**

**Matrix: Water**

**Date Received: 12/12/22 11:14**

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/15/22 10:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		60 - 140		12/15/22 10:12	1
4-Bromofluorobenzene (Surr)	86		60 - 140		12/15/22 10:12	1
Dibromofluoromethane (Surr)	112		60 - 140		12/15/22 10:12	1
1,2-Dichloroethane-d4 (Surr)	111		60 - 140		12/15/22 10:12	1

**Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzo[a]anthracene</b>	<b>0.021</b>	<b>J</b>	0.053	0.015	ug/L		12/14/22 10:10	12/15/22 03:42	1
Chrysene	ND		0.11	0.039	ug/L		12/14/22 10:10	12/15/22 03:42	1
Benzo[b]fluoranthene	ND		0.11	0.023	ug/L		12/14/22 10:10	12/15/22 03:42	1
Benzo[k]fluoranthene	ND		0.053	0.013	ug/L		12/14/22 10:10	12/15/22 03:42	1
Benzo[a]pyrene	ND		0.11	0.023	ug/L		12/14/22 10:10	12/15/22 03:42	1
Indeno[1,2,3-cd]pyrene	ND		0.053	0.015	ug/L		12/14/22 10:10	12/15/22 03:42	1
Dibenz(a,h)anthracene	ND		0.11	0.016	ug/L		12/14/22 10:10	12/15/22 03:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	98		29 - 150	12/14/22 10:10	12/15/22 03:42	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/17/22 01:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	101		50 - 150		12/17/22 01:30	1

**Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.068	mg/L		12/14/22 10:41	12/15/22 22:55	1
Motor Oil (>C24-C36)	ND		0.37	0.10	mg/L		12/14/22 10:41	12/15/22 22:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	73		50 - 150	12/14/22 10:41	12/15/22 22:55	1



# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Edmonds Terminal

Job ID: 580-121137-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-121137-2**

Date Collected: 12/12/22 00:01

Matrix: Water

Date Received: 12/12/22 11:14

**Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/15/22 10:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		60 - 140		12/15/22 10:36	1
4-Bromofluorobenzene (Surr)	85		60 - 140		12/15/22 10:36	1
Dibromofluoromethane (Surr)	114		60 - 140		12/15/22 10:36	1
1,2-Dichloroethane-d4 (Surr)	114		60 - 140		12/15/22 10:36	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/16/22 18:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	102		50 - 150		12/16/22 18:38	1

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 410-327375/5**  
**Matrix: Water**  
**Analysis Batch: 327375**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			12/15/22 09:49	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		60 - 140					12/15/22 09:49	1
4-Bromofluorobenzene (Surr)	87		60 - 140					12/15/22 09:49	1
Dibromofluoromethane (Surr)	112		60 - 140					12/15/22 09:49	1
1,2-Dichloroethane-d4 (Surr)	112		60 - 140					12/15/22 09:49	1

**Lab Sample ID: LCS 410-327375/1003**  
**Matrix: Water**  
**Analysis Batch: 327375**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	20.6		ug/L		103	65 - 135
Surrogate	%Recovery	LCS Qualifier	Limits				
Toluene-d8 (Surr)	99		60 - 140				
4-Bromofluorobenzene (Surr)	92		60 - 140				
Dibromofluoromethane (Surr)	102		60 - 140				
1,2-Dichloroethane-d4 (Surr)	103		60 - 140				

**Lab Sample ID: 580-121137-1 MS**  
**Matrix: Water**  
**Analysis Batch: 327375**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		20.0	24.3		ug/L		122	65 - 135
Surrogate	%Recovery	MS Qualifier	Limits						
Toluene-d8 (Surr)	98		60 - 140						
4-Bromofluorobenzene (Surr)	93		60 - 140						
Dibromofluoromethane (Surr)	100		60 - 140						
1,2-Dichloroethane-d4 (Surr)	103		60 - 140						

**Lab Sample ID: 580-121137-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 327375**

**Client Sample ID: Outfall #002**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		20.0	23.0		ug/L		115	65 - 135	5	30
Surrogate	%Recovery	MSD Qualifier	Limits								
Toluene-d8 (Surr)	99		60 - 140								
4-Bromofluorobenzene (Surr)	92		60 - 140								
Dibromofluoromethane (Surr)	100		60 - 140								
1,2-Dichloroethane-d4 (Surr)	103		60 - 140								

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-412864/1-A**  
**Matrix: Water**  
**Analysis Batch: 412954**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 412864**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/14/22 10:10	12/14/22 22:56	1
Chrysene	ND		0.10	0.037	ug/L		12/14/22 10:10	12/14/22 22:56	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		12/14/22 10:10	12/14/22 22:56	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/14/22 10:10	12/14/22 22:56	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		12/14/22 10:10	12/14/22 22:56	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/14/22 10:10	12/14/22 22:56	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		12/14/22 10:10	12/14/22 22:56	1
<b>MB MB</b>									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Terphenyl-d14	112		29 - 150			12/14/22 10:10	12/14/22 22:56	1	

**Lab Sample ID: LCS 580-412864/2-A**  
**Matrix: Water**  
**Analysis Batch: 412954**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412864**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
								Limits	
Benzo[a]anthracene	8.00	5.65		ug/L		71	55 - 123		
Chrysene	8.00	5.87		ug/L		73	47 - 120		
Benzo[b]fluoranthene	8.00	5.87		ug/L		73	43 - 120		
Benzo[k]fluoranthene	8.00	5.56		ug/L		69	41 - 121		
Benzo[a]pyrene	8.00	5.67		ug/L		71	51 - 120		
Indeno[1,2,3-cd]pyrene	8.00	5.53		ug/L		69	45 - 123		
Dibenz(a,h)anthracene	8.00	6.10		ug/L		76	54 - 123		
<b>LCS LCS</b>									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	87		29 - 150						

**Lab Sample ID: LCSD 580-412864/3-A**  
**Matrix: Water**  
**Analysis Batch: 412954**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 412864**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[a]anthracene	8.00	5.74		ug/L		72	55 - 123	2	31
Chrysene	8.00	6.12		ug/L		77	47 - 120	4	30
Benzo[b]fluoranthene	8.00	6.19		ug/L		77	43 - 120	5	35
Benzo[k]fluoranthene	8.00	6.01		ug/L		75	41 - 121	8	35
Benzo[a]pyrene	8.00	6.09		ug/L		76	51 - 120	7	31
Indeno[1,2,3-cd]pyrene	8.00	5.81		ug/L		73	45 - 123	5	35
Dibenz(a,h)anthracene	8.00	6.49		ug/L		81	54 - 123	6	35
<b>LCSD LCSD</b>									
Surrogate	%Recovery	Qualifier	Limits						
Terphenyl-d14	87		29 - 150						

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

**Lab Sample ID: MB 410-327954/7**  
**Matrix: Water**  
**Analysis Batch: 327954**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C7-C12	ND		250	43	ug/L			12/16/22 17:47	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	103		50 - 150					12/16/22 17:47	1

**Lab Sample ID: LCS 410-327954/4**  
**Matrix: Water**  
**Analysis Batch: 327954**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C7-C12	1100	979		ug/L		89	64 - 131
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene (fid)	95		50 - 150				

**Lab Sample ID: LCSD 410-327954/5**  
**Matrix: Water**  
**Analysis Batch: 327954**

**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 Range Organics (GRO)-C7-C12	1100	940		ug/L		85	64 - 131	4	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
a,a,a-Trifluorotoluene (fid)	95		50 - 150						

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-412885/1-B**  
**Matrix: Water**  
**Analysis Batch: 413029**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 412885**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/14/22 10:41	12/15/22 20:27	1
Motor Oil (>C24-C36)	0.0965	J	0.35	0.096	mg/L		12/14/22 10:41	12/15/22 20:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150				12/14/22 10:41	12/15/22 20:27	1

**Lab Sample ID: LCS 580-412885/2-B**  
**Matrix: Water**  
**Analysis Batch: 413029**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412885**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
#2 Diesel (C10-C24)	4.00	3.44		mg/L		86	50 - 120
Motor Oil (>C24-C36)	4.00	4.08		mg/L		102	64 - 120

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup (Continued)

**Lab Sample ID: LCS 580-412885/2-B**  
**Matrix: Water**  
**Analysis Batch: 413029**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 412885**

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCS LCS Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	105		50 - 150

**Lab Sample ID: LCSD 580-412885/3-B**  
**Matrix: Water**  
**Analysis Batch: 413029**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 412885**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
#2 Diesel (C10-C24)	4.00	3.81		mg/L		95	50 - 120	10	26
Motor Oil (>C24-C36)	4.00	4.39		mg/L		110	64 - 120	7	24

<i>Surrogate</i>	<i>%Recovery</i>	<i>LCSD LCSD Qualifier</i>	<i>Limits</i>
<i>o-Terphenyl</i>	109		50 - 150

# Lab Chronicle

Client: ARCADIS U.S. Inc  
 Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-121137-1

Date Collected: 12/12/22 09:10

Matrix: Water

Date Received: 12/12/22 11:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	327375	UJML	ELLE	12/15/22 10:12
Total/NA	Prep	3510C			412864	CSS	EET SEA	12/14/22 10:10
Total/NA	Analysis	8270E SIM		1	412954	TL1	EET SEA	12/15/22 03:42
Total/NA	Analysis	NWTPH-Gx		1	327954	MXX6	ELLE	12/17/22 01:30
Total/NA	Prep	3510C			412885	CSS	EET SEA	12/14/22 10:41
Total/NA	Cleanup	3630C			412889	CSS	EET SEA	12/14/22 10:57
Total/NA	Analysis	NWTPH-Dx		1	413029	DH	EET SEA	12/15/22 22:55

## Client Sample ID: Trip Blank

Lab Sample ID: 580-121137-2

Date Collected: 12/12/22 00:01

Matrix: Water

Date Received: 12/12/22 11:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	327375	UJML	ELLE	12/15/22 10:36
Total/NA	Analysis	NWTPH-Gx		1	327954	MXX6	ELLE	12/16/22 18:38

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-23
Georgia (DW)	State	C048	01-31-23
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-22
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-23
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	022	01-31-23
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert No.>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-23

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

## Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

<u>Authority</u>	<u>Program</u>	<u>Identification Number</u>	<u>Expiration Date</u>
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	P330-19-00197	08-09-23
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-23
Wyoming (UST)	A2LA	0001.01	11-30-24





# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: Edmonds Terminal

Job ID: 580-121137-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-121137-1	Outfall #002	Water	12/12/22 09:10	12/12/22 11:14
580-121137-2	Trip Blank	Water	12/12/22 00:01	12/12/22 11:14

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# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-121137-1

**Login Number: 121137**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Presley, Kim A**

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	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 580-121137-1

**Login Number: 121137**

**List Source: Eurofins Lancaster Laboratories Environment Testing, LLC**

**List Number: 2**

**List Creation: 12/14/22 02:14 PM**

**Creator: McBeth, Jessica**

Question	Answer	Comment
The cooler's custody seal is 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 (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<math>\leq 6^{\circ}\text{C}</math>, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Kiley Zaubi  
ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle, Washington 98101

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**JOB DESCRIPTION**

Chevron Edmonds Terminal

**JOB NUMBER**

580-121407-1

## Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

## Authorization



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Authorized for release by  
Katie Grant, Project Manager I  
[Katie.Grant@et.eurofinsus.com](mailto:Katie.Grant@et.eurofinsus.com)  
(253)922-2310



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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

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**Job ID: 580-121407-1**

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**Laboratory: Eurofins Seattle**

## Narrative

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### Job Narrative 580-121407-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/20/2022 9:11 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

#### GC/MS VOA

Method NWTPH-Gx: The continuing calibration verification (CCV) associated with batch 580-414205 recovered above the upper control limit for Gasoline. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Trip Blank (580-121407-2), (CCV 580-414205/13) and (CCV 580-414205/24).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-413528 and analytical batch 580-414081 recovered outside control limits for the following analytes: Benzo[a]anthracene, Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene and Dibenz(a,h)anthracene.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

**Client Sample ID: Outfall #002**

**Lab Sample ID: 580-121407-1**

Date Collected: 12/19/22 10:49

Matrix: Water

Date Received: 12/20/22 09:11

### Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/28/22 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		79 - 122		12/28/22 14:48	1
4-Bromofluorobenzene (Surr)	88		78 - 120		12/28/22 14:48	1
Dibromofluoromethane (Surr)	101		80 - 120		12/28/22 14:48	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120		12/28/22 14:48	1

### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/28/22 05:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		77 - 123		12/28/22 05:17	1

### Method: SW846 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND	*1	0.053	0.015	ug/L		12/21/22 11:17	12/29/22 20:21	1
Chrysene	ND	*1	0.11	0.039	ug/L		12/21/22 11:17	12/29/22 20:21	1
Benzo[b]fluoranthene	ND	*1	0.11	0.023	ug/L		12/21/22 11:17	12/29/22 20:21	1
Benzo[k]fluoranthene	ND	*1	0.053	0.013	ug/L		12/21/22 11:17	12/29/22 20:21	1
Benzo[a]pyrene	ND	*1	0.11	0.023	ug/L		12/21/22 11:17	12/29/22 20:21	1
Indeno[1,2,3-cd]pyrene	ND	*1	0.053	0.015	ug/L		12/21/22 11:17	12/29/22 20:21	1
Dibenz(a,h)anthracene	ND	*1	0.11	0.016	ug/L		12/21/22 11:17	12/29/22 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	96		29 - 150	12/21/22 11:17	12/29/22 20:21	1

### Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.12	0.070	mg/L		12/30/22 11:10	01/11/23 18:04	1
Motor Oil (>C24-C36)	ND		0.38	0.10	mg/L		12/30/22 11:10	01/11/23 18:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	68		50 - 150	12/30/22 11:10	01/11/23 18:04	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 580-121407-2**

Date Collected: 12/19/22 00:01

Matrix: Water

Date Received: 12/20/22 09:11

**Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/28/22 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122		12/28/22 15:12	1
4-Bromofluorobenzene (Surr)	86		78 - 120		12/28/22 15:12	1
Dibromofluoromethane (Surr)	101		80 - 120		12/28/22 15:12	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120		12/28/22 15:12	1

**Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/30/22 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		77 - 123		12/30/22 16:41	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Method: 624.1 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 580-413935/6**  
**Matrix: Water**  
**Analysis Batch: 413935**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.24	ug/L			12/28/22 11:32	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		79 - 122					12/28/22 11:32	1
4-Bromofluorobenzene (Surr)	90		78 - 120					12/28/22 11:32	1
Dibromofluoromethane (Surr)	99		80 - 120					12/28/22 11:32	1
1,2-Dichloroethane-d4 (Surr)	102		78 - 120					12/28/22 11:32	1

**Lab Sample ID: LCS 580-413935/4**  
**Matrix: Water**  
**Analysis Batch: 413935**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Benzene	10.0	9.90		ug/L		99	80 - 122	
Surrogate	%Recovery	LCS Qualifier	LCS Limits					
Toluene-d8 (Surr)	99		79 - 122					
4-Bromofluorobenzene (Surr)	92		78 - 120					
Dibromofluoromethane (Surr)	103		80 - 120					
1,2-Dichloroethane-d4 (Surr)	104		78 - 120					

**Lab Sample ID: LCSD 580-413935/5**  
**Matrix: Water**  
**Analysis Batch: 413935**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	10.0	10.0		ug/L		100	80 - 122	1	20
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
Toluene-d8 (Surr)	99		79 - 122						
4-Bromofluorobenzene (Surr)	94		78 - 120						
Dibromofluoromethane (Surr)	105		80 - 120						
1,2-Dichloroethane-d4 (Surr)	103		78 - 120						

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS)

**Lab Sample ID: MB 580-413837/6**  
**Matrix: Water**  
**Analysis Batch: 413837**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/28/22 00:21	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		77 - 123					12/28/22 00:21	1

Eurofins Seattle

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC/MS) (Continued)

**Lab Sample ID: LCS 580-413837/9**  
**Matrix: Water**  
**Analysis Batch: 413837**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.06		mg/L		106	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	101		77 - 123				

**Lab Sample ID: LCSD 580-413837/10**  
**Matrix: Water**  
**Analysis Batch: 413837**

**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	1.00	1.03		mg/L		103	55 - 148	3	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	101		77 - 123						

**Lab Sample ID: MB 580-414205/28**  
**Matrix: Water**  
**Analysis Batch: 414205**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.014	mg/L			12/30/22 12:00	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	104		77 - 123					12/30/22 12:00	1

**Lab Sample ID: LCS 580-414205/26**  
**Matrix: Water**  
**Analysis Batch: 414205**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline	1.00	1.26		mg/L		126	55 - 148
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	102		77 - 123				

**Lab Sample ID: LCSD 580-414205/27**  
**Matrix: Water**  
**Analysis Batch: 414205**

**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	1.00	1.30		mg/L		130	55 - 148	3	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	104		77 - 123						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 580-413528/1-A**  
**Matrix: Water**  
**Analysis Batch: 414081**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 413528**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[a]anthracene	ND		0.050	0.014	ug/L		12/21/22 11:17	12/29/22 13:29	1
Chrysene	ND		0.10	0.037	ug/L		12/21/22 11:17	12/29/22 13:29	1
Benzo[b]fluoranthene	ND		0.10	0.022	ug/L		12/21/22 11:17	12/29/22 13:29	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		12/21/22 11:17	12/29/22 13:29	1
Benzo[a]pyrene	ND		0.10	0.022	ug/L		12/21/22 11:17	12/29/22 13:29	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		12/21/22 11:17	12/29/22 13:29	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		12/21/22 11:17	12/29/22 13:29	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14	92		29 - 150	12/21/22 11:17	12/29/22 13:29	1

**Lab Sample ID: LCS 580-413528/2-A**  
**Matrix: Water**  
**Analysis Batch: 415508**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 413528**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzo[a]anthracene	8.00	5.03	*1	ug/L		63	55 - 123
Chrysene	8.00	4.00	*1	ug/L		50	47 - 120
Benzo[b]fluoranthene	8.00	4.23	*1	ug/L		53	43 - 120
Benzo[k]fluoranthene	8.00	3.98	*1	ug/L		50	41 - 121
Benzo[a]pyrene	8.00	4.41	*1	ug/L		55	51 - 120
Indeno[1,2,3-cd]pyrene	8.00	4.25	*1	ug/L		53	45 - 123
Dibenz(a,h)anthracene	8.00	4.48	*1	ug/L		56	54 - 123

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14	62		29 - 150

**Lab Sample ID: LCSD 580-413528/3-A**  
**Matrix: Water**  
**Analysis Batch: 414081**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 413528**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzo[a]anthracene	8.00	6.52	*1	ug/L		82	55 - 123	43	31
Chrysene	8.00	5.93	*1	ug/L		74	47 - 120	43	30
Benzo[b]fluoranthene	8.00	6.87	*1	ug/L		86	43 - 120	42	35
Benzo[k]fluoranthene	8.00	5.69	*1	ug/L		71	41 - 121	43	35
Benzo[a]pyrene	8.00	6.53	*1	ug/L		82	51 - 120	42	31
Indeno[1,2,3-cd]pyrene	8.00	7.49	*1	ug/L		94	45 - 123	42	35
Dibenz(a,h)anthracene	8.00	6.14	*1	ug/L		77	54 - 123	36	35

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14	91		29 - 150

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Method: NWTPH-Dx - Semi-Volatile Petroleum Products by NWTPH with Silica Gel Cleanup

**Lab Sample ID: MB 580-414209/1-B**  
**Matrix: Water**  
**Analysis Batch: 415086**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 414209**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
#2 Diesel (C10-C24)	ND		0.11	0.065	mg/L		12/30/22 11:10	01/11/23 16:49	1
Motor Oil (>C24-C36)	ND		0.35	0.096	mg/L		12/30/22 11:10	01/11/23 16:49	1
		MB MB	Limits			D	Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier		Prepared	Analyzed		Dil Fac		
o-Terphenyl	60		50 - 150	12/30/22 11:10	01/11/23 16:49			1	

**Lab Sample ID: LCS 580-414209/2-B**  
**Matrix: Water**  
**Analysis Batch: 415086**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 414209**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
								LCS	LCS
#2 Diesel (C10-C24)	4.00	3.12		mg/L		78	50 - 120		
Motor Oil (>C24-C36)	4.00	3.56		mg/L		89	64 - 120		
		LCS LCS	Limits			D	%Rec	Limits	RPD
Surrogate	%Recovery	Qualifier		Prepared	Analyzed				
o-Terphenyl	83		50 - 150	12/30/22 11:10	01/11/23 16:49			1	

**Lab Sample ID: LCSD 580-414209/3-B**  
**Matrix: Water**  
**Analysis Batch: 415086**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 414209**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	4.00	2.47		mg/L		62	50 - 120	23	26
Motor Oil (>C24-C36)	4.00	3.33		mg/L		83	64 - 120	7	24
		LCSD LCSD	Limits			D	%Rec	Limits	RPD
Surrogate	%Recovery	Qualifier		Prepared	Analyzed				
o-Terphenyl	78		50 - 150	12/30/22 11:10	01/11/23 16:49			1	

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Client Sample ID: Outfall #002

Lab Sample ID: 580-121407-1

Date Collected: 12/19/22 10:49

Matrix: Water

Date Received: 12/20/22 09:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	413935	BNM	EET SEA	12/28/22 14:48
Total/NA	Analysis	NWTPH-Gx		1	413837	BNM	EET SEA	12/28/22 05:17
Total/NA	Prep	3510C			413528	CSS	EET SEA	12/21/22 11:17
Total/NA	Analysis	8270E SIM		1	414081	TL1	EET SEA	12/29/22 20:21
Total/NA	Prep	3510C			414209	CSS	EET SEA	12/30/22 11:10
Total/NA	Cleanup	3630C			414213	CSS	EET SEA	01/11/23 08:43
Total/NA	Analysis	NWTPH-Dx		1	415086	CLC	EET SEA	01/11/23 18:04

## Client Sample ID: Trip Blank

Lab Sample ID: 580-121407-2

Date Collected: 12/19/22 00:01

Matrix: Water

Date Received: 12/20/22 09:11

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	413935	BNM	EET SEA	12/28/22 15:12
Total/NA	Analysis	NWTPH-Gx		1	414205	BNM	EET SEA	12/30/22 16:41

**Laboratory References:**

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310



# Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

## Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron Edmonds Terminal

Job ID: 580-121407-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-121407-1	Outfall #002	Water	12/19/22 10:49	12/20/22 09:11
580-121407-2	Trip Blank	Water	12/19/22 00:01	12/20/22 09:11

1

2

3

4

5

6

7

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9

10

11



# Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 580-121407-1

**Login Number: 121407**

**List Number: 1**

**Creator: Groves, Elizabeth**

**List Source: Eurofins Seattle**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Arcadis U.S., Inc.  
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