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August 22, 2023

Mr. Christer Loftenius
Washington State Department of Ecology
Toxics Cleanup Program
4601 North Monroe Street
Spokane, WA
clof461@ecy.wa.gov

RE: **Semi-Annual Progress Report: January 1 through June 30, 2023**
Chevron Pipe Line Company Pasco Bulk Terminal
Ecology Cleanup Site ID: 4867
Ecology Facility Site ID: 55763995
Agreed Order No. DE 21664

Dear Mr. Loftenius:

This Semi-Annual Progress Report has been prepared on behalf of Tesoro Logistics Operations LLC (Tesoro) to document the cleanup actions being conducted from January 1 through June 30, 2023, at the Chevron Pipe Line Company Pasco Bulk Terminal (herein referred to as the Site). This Semi-Annual Progress Report was prepared in accordance with the requirements of Section VI of Agreed Order Number (No.) DE 21664 (Order) dated April 11, 2023, between the Washington State Department of Ecology (Ecology) and Tesoro.

If you have any questions regarding this progress report, please contact the AECOM Project Manager, Nicky Moody, at (503) 969-6310.

Sincerely,

AECOM Technical Services, Inc

Nicky Moody
Project Manager

cc: Nick Acklam, Washington State Department of Ecology, nack461@ecy.wa.gov
Kyle Waldron, MPC, kawaldron@marathonpetroleum.com
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Chevron Pipe Line Company Pasco Bulk Terminal
Agreed Order No. DE 21664
Semi-Annual Progress Report: January 1 through June 30, 2023

This Semi-Annual Progress Report has been prepared for the Washington Department of Ecology (Ecology) Cleanup Site named "Chevron Pipe Line Company Pasco Bulk Terminal" (Site) in accordance with the requirements of Agreed Order No. DE 21664 dated April 11, 2023 (Order) between Ecology and Tesoro Logistics Operations LLC (Tesoro).[1] The Site is listed in Ecology's Integrated Site Information System with the following information:

- Facility Site Name: Chevron Pipe Line Company Pasco Bulk Fuel Terminal
- Facility Address: 2900 Sacajawea Park Road, Pasco, Washington 99301, Franklin County
- Facility Site Identification Number (FSID): 55763995
- Cleanup Site Identification Number (CSID): 4867

Site documents are available on Ecology's website at: https://apps.ecology.wa.gov/cleanupsearch/site/4867.

The Site, which is defined with the **red line** on Figures 1 and 2, is located within the boundary of the larger Pasco Terminal, which is owned and operated by Tesoro Logistics Operations LLC (Tesoro) (an indirect subsidiary of Marathon Petroleum Corporation); the Pasco Terminal is here in referred to as the Terminal. The Chevron Pipe Line Company (CPL) initially owned and operated the Terminal since its construction in 1950 until Tesoro purchased the Terminal in June 2013.

A brief outline of the Site's location, background, and history are included in Attachment A. As stated in the Order, the *Cleanup Action Plan* (CAP)[2] sets cleanup standards and selects the cleanup action that meets the cleanup standards for the Site. The CAP indicates that the Ecology-selected cleanup action for the Site is institutional controls (ICs), monitored natural attenuation (MNA), and enhanced bioremediation using oxygen-releasing compounds (ORCs). The draft *Compliance Monitoring Plan* (CMP) provides additional information describing groundwater monitoring locations, methods, frequency, analytical parameters, and reporting obligations required to ensure that the cleanup objectives established in CAP are met.[3]

As proposed in the draft CMP, performance monitoring is being initiated in 2023 at each well (Table 1) and then adjusted following ORC deployment beginning in spring 2024 (Table 2). Performance monitoring will continue until COC concentrations are below relevant cleanup levels for two sequential events; and then continue without ORC deployment for one additional year.

Per Section VI of the Order, this Semi-Annual Progress Report includes the following six elements:

1. A list of on-Site activities conducted during the last six months.
2. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.
3. Description of all deviations from the Scope of Work and Schedule (Exhibit C) of the Order during the current six months and any planned deviations in the upcoming six months.
4. For any deviations in the schedule, a plan for recovering lost time and maintaining compliance with the schedule.
5. All raw data (including laboratory analysis) received during the previous period (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.
6. A list of deliverables for the upcoming six months.

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[1] Ecology, 2023b. Agreed Order No. DE 21664. In the Matter of Remedial Action by Tesoro Logistic Operation LLC. April
[2] Ecology, 2023a. *Final Corrective Action Plan*. Chevron Pipe Line Co. Pasco Bulk Terminal. March.
[3] AECOM, 2023. *Draft Compliance Monitoring Plan.* Chevron Pipe Line Company Pasco Bulk Terminal. June 23.

1 On-Site Activities

This section includes a list of on-site activities conducted during this reporting period:

- AECOM conducted the first semi-annual event, as outlined in Table 1, between April 24 and 26, 2023.
    - Depth-to-groundwater (DTW) measurements and groundwater samples were collected at 19 compliance monitoring wells (MW-02 through MW-08, MW-10 through MW-12, and MW-14).
    - Additionally, DTW measurements were collected at two Tidewater monitoring wells (AR-11 and TMW-05).
    - Field quality assurance and quality control samples for this reporting period included one field duplicate and two trip blanks.
- The 20 groundwater samples (19 primary and one field duplicate) and two trip blanks were submitted to Pace Analytical National, LLC located in Mount Juliet, Tennessee.
- The primary and field duplicate samples were submitted for analysis of the COCs (listed below).
    - Five volatile organic compounds (VOCs): benzene, toluene, ethylbenzene, total xylenes (BTEX) and naphthalene by US Environmental Protection Agency (EPA) Method 8260D
    - Total petroleum hydrocarbons (TPHs) by Ecology Methods NWTPH-Gx (gasoline-range TPH) and NWTPH-Dx (diesel-range and heavy oil-range TPH)
- The primary and field duplicate samples were submitted for analysis of the natural attenuation parameter (listed below).
    - Dissolved gases (methane, ethane, and ethene) by EPA Method RSK-175
    - Dissolved manganese by EPA Method 6010B
    - Sulfate by EPA Method 300.0
    - Total alkalinity by Standard Method (SM) 2320B-2011
- The trip blank samples were analyzed for BTEX and naphthalene only by EPA Method 8260D.

2 Deviations from Required Tasks

This section includes a detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.

- Not Applicable: No deviations from required tasks occurred during this reporting period, and none are anticipated for the upcoming reporting period.

3 Deviations from the Agreed Order

This section includes a description of all deviations from the Scope of Work and Schedule (Exhibit C) of the Order during the current six months and any planned deviations in the upcoming six months.

- Not Applicable: No deviations from the Order occurred during this period, and none are anticipated for the upcoming period.

4 Deviations in Schedule

This section lists any deviations in the schedule, a plan for recovering lost time and maintaining compliance with the schedule.

- Not Applicable: No schedule deviations occurred during this period, and none are anticipated for the upcoming reporting period. An annotated schedule from Exhibit C of the Order is provided below:

Tasks/Deliverables	Deadlines		Schedule Status
Tesoro submits draft EDR, O&M Plan, and CMP	90 days following the effective date of the Agreed Order	July 10, 2023	Complete
Tesoro submits final EDR, O&M Plan, and CMP	30 days after receipt of Ecology's written comments on the drafts	--	Pending Ecology review of drafts
Tesoro notifies Ecology that ORC socks are ready to be installed	30 days after Ecology approval of EDR and O&M Plan	--	Pending Ecology approval
Tesoro begins cleanup action	As described in EDR, but no later than **April 28, 2023**	April 28, 2023	In progress
Tesoro notifies Ecology in advance of any sample collection or work activity at the Site	7 days in advance of fieldwork	--	On-going
Draft Environmental Covenant (EC)	60 days after ORC socks are deployed for the first time	--	--
After approval by Ecology, Tesoro records the final EC with the office of the Franklin County Auditor and provides Ecology with the recorded EC	Within 30 days of the recording date of the EC	--	--
Tesoro submits draft Cleanup Action Report	90 days after the ORC treatment is complete	--	--
Tesoro submits Final Cleanup Action Report	30 days after Tesoro receives Ecology's written comments on draft Cleanup Action Report	--	--
Tesoro submits Semi-Annual progress reports	Within 60 days of the last day of the previous six-month period	--	--

Notes:
-- = date pending as set by earlier task/deliverable

5 Raw Data

This section includes all raw data (including laboratory analysis) received during the previous period (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.

Field forms and data generated during the reporting period are listed below.

- Groundwater level form and groundwater sampling logs (Attachment B, Field Forms)
- Tabulated DTW measurements, calculated groundwater elevations, and analytical results for this reporting period (Table 3 and in Table C1 in Attachment C with the 2014 to 2023 data)
- Tabulated field (pH, temperature, conductivity, dissolved oxygen, and oxidation-reduction potential) and natural attenuation parameter results for this reporting period (Table 4 and in Table C2 in Attachment C with the 2014 to 2023 data)
- Laboratory report and chain-of-custody form (Attachment D)

A summary data quality review was performed on the 20 groundwater samples (19 primary and one field duplicate) and two trip blanks collected in April 2023 (Attachment E, Data Validation Report).

6 Planned Deliverables

This section includes a list of deliverables for the upcoming six months.

- The raw data (groundwater level elevations and laboratory analytical results including data qualifiers added during the data quality review) for this reporting period will be submitted online in a format compatible with Ecology's Environmental Information Management (EIM) System, per Ecology Policy 840 following submission of this Semi-Annual Progress Report to Ecology.
- In compliance with the Order, the next Semi-Annual Progress Report for reporting period July to December 2023 will be issued by February 29, 2024. Note: this report will be issued as an expanded Annual Progress Report, which will evaluate data collected during both 2023 semi-annual events.

Tables

Figures

Attachments

TABLES AND FIGURES

ATTACHMENT A

Site Background and History

ATTACHMENT B

Field Forms

ATTACHMENT C

Groundwater Data and Analytical Results – 2014 - 2023

ATTACHMENT D

Laboratory Report and Chain of Custody Form

ATTACHMENT E

Data Validation Report

TABLES AND FIGURES

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SCALE IN FEET

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SITE VICINITY MAP

TESORO LOGISTICS OPERATIONS LLC
CHEVRON PIPE LINE COMPANY PASCO BULK TERMINAL
PASCO, WASHINGTON

60675951

FIGURE 1

K:\Tesoro_PascoMXD\2023_CMP\Fig 1 Site Viciniy Map.mxd

Explanation

- Compliance Monitoring Well
- Compliance Monitoring Well Proposed for ORC Deployment
- Tidewater Monitoring Well
- Vapor Extraction Well

Previous Spill
(Size of circle indicates volume released)

- Diesel
- Gasoline
- Jet Fuel

600 — Number of barrels in spill
12/20/78 — Date of spill

- BNSF Railroad
- BNSF Right of Way
- Excavation Area
- Terminal Boundary
- Site Boundary
- Tidewater Site Boundary

Areas of Concern

- North Area
- Northern Tank Area
- Southern Tank Area

Imagery Source: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

K:\Tesoro_Pasco\MXD\2023_EDR\Fig 2 Site Plan.mxd

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SITE MAP AND COMPLIANCE MONITORING WELL NETWORK

TESORO LOGISTICS OPERATIONS LLC
CHEVRON PIPE LINE COMPANY PASCO BULK TERMINAL
PASCO, WASHINGTON

FIGURE 2

Table 1. Compliance Monitoring Well and Initial Performance Monitoring Frequency – Year 0
Chevron Pipe Line Company Pasco Bulk Terminal

Location / Well Type	Well ID	Monitoring and Sampling Program										
					COC Lab Analysis		Natural Attenuation Field Analysis		Natural Attenuation Lab Analysis			
		Collect GW Level Measurements (During both SA Events)	**Collect Samples** (During 1st SA Event in Spring)	**Collect Samples** (During 2nd SA Event in Fall)	**TPH-g, TPH-d, & TPH-o** (NWTPH-Gx / NWTPH-Dx)	**BTEX+N** (EPA 8260D)	**Field Parameters** (pH, Cond, DO, Temp, & ORP)	**Ferrous Iron & Nitrate** (Field Test Kits)	**Alkalinity** (SM 2320B)	**Sulfate** (anions) EPA 300)	**Methane** (dissolved gases) (RSKSOP-175)	**Dissolved Manganese** (lab-filtered) (EPA 6010B)
Site Compliance Monitoring Wells	MW-02	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-03	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-04	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-06	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-07	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-08	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-10	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-11	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-12*	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-14	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-15	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-16	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-17	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-18	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-19*	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-20	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-21	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-22	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-23	X	X	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
Tidewater Site Monitoring Wells	AR-11	X	--	--	--	--	--	--	--	--	--	--
	TMW-05	X	--	--	--	--	--	--	--	--	--	--

Notes:
* These well locations have been selected as potential sites for one field duplicate and/or extra volume collection for one MS/MSD for sampling events (as < 20 primary samples).

Acronyms:
-- = Not applicable, not available, or not sampled
bgs = below ground surface
BTEX+N = benzene, toluene, ethylbenzene, total xylenes and naphthalene
btoc = below top of casing
COC = Constituent of Concern
Cond = conductivity
DO = dissolved oxygen
EPA = US Environmental Protection Agency
ft = feet
GW = groundwater
MW = monitoring well
ORP = oxidation reduction potential
RSKSOP-175 = EPA Procedure RSKSOP-175 (Robert S. Kerr Standard Operating Procedure)
SA = semi-annual
SM = Standard Method
TPH = total petroleum hydrocarbons
TPH-d = diesel range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
TPH-g = gasoline range hydrocarbons (as analyzed by Northwest Method NWPTH-Gx)
TPH-o = motor oil range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
X = collect or deploy as listed for that well

Table 2. Compliance Monitoring Well and Initial Performance Monitoring Frequency – Year 1+
Chevron Pipe Line Company Pasco Bulk Terminal

		Monitoring and Sampling Program											
						COC Lab Analysis		Natural Attenuation Field Analysis		Natural Attenuation Lab Analysis			
Location / Well Type	**Well ID**	**Collect GW Level Measurements** (During both SA Events)	**Collect Samples** (During 1st SA Event in Spring)	**Deploy ORC Sleeves** (Over 6 months in Summer between two Events)	**Collect Samples** (During 2nd SA Event in Fall)	**TPH-g, TPH-d, & TPH-o** (NWTPH-Gx / NWTPH-Dx)	**BTEX+N** (EPA 8260D)	**Field Parameters** (pH, Cond, DO, Temp, & ORP)	**Ferrous Iron & Nitrate** (Field Test Kits)	**Alkalinity** (SM 2320B)	**Sulfate** (anions) EPA 300)	**Methane** (dissolved gases) (RSKSOP-175)	**Dissolved Manganese** (lab-filtered) (EPA 6010B)
Site Compliance Monitoring Wells	MW-02	X	X	X	--	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only
	MW-03	X	X	X	--	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only
	MW-04	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-06	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-07	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-08	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-10	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-11	X	X	X	--	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only
	MW-12*	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-14	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-15	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-16	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-17	X	X	X	--	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only	1st SA only
	MW-18	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-19*	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-20	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-21	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-22	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
	MW-23	X	X	--	X	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA	1st SA & 2nd SA
Tidewater Site Monitoring Wells	AR-11	X	--	--	--	--	--	--	--	--	--	--	--
	TMW-05	X	--	--	--	--	--	--	--	--	--	--	--

Notes:
* These well locations have been selected as potential sites for one field duplicate and/or extra volume collection for one MS/MSD for sampling events (as < 20 primary samples).

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TPH-g = gasoline range hydrocarbons (as analyzed by Northwest Method NWPTH-Gx)
TPH-o = motor oil range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
X = collect or deploy as listed for that well

Table 3. Current Groundwater Elevations and Analytical Results
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
				Cleanup Levels [1]		*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*	*µg/L*
Site Wells													
MW-02	4/26/23	73.00	417.23	344.23	-0.98	100 U	**1,240**	**969**	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-03	4/25/23	79.16	423.40	344.24	-1.00	100 U	**5,120**	**1,240**	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-04	4/25/23	68.24	412.05	343.81	-0.87	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-06	4/25/23	16.20	358.52	342.32	-0.55	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-07	4/25/23	67.15	411.32	344.17	-0.97	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-08	4/25/23	39.93	383.76	343.83	-1.10	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-10	4/25/23	63.63	407.83	344.20	-0.97	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-11	4/26/23	79.28	423.44	344.16	-0.93	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-12	4/26/23	79.45	423.62	344.17	-0.92	100 U	**234**	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-14	4/26/23	77.97	421.84	343.87	-0.76	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-15	4/25/23	16.08	358.50	342.42	-0.55	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-16	4/25/23	27.14	370.92	343.78	-0.78	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-17	4/26/23	80.12	424.28	344.16	-0.92	100 U	**604**	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-18	4/26/23	79.44	423.69	344.25	-0.88	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-19	4/26/23	79.96	424.20	344.24	-0.96	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-20	4/26/23	82.18	426.52	344.34	-1.08	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-21	4/25/23	82.00	426.16	344.16	-1.07	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-22	4/25/23	76.34	420.45	344.11	-0.95	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-23	4/24/23	77.62	421.74	344.12	-0.91	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
Tidewater Wells													
AR-11	4/24/23	78.28	422.62	344.34	-0.90	--	--	--	--	--	--	--	--
MW-05	4/24/23	80.73	425.02	344.29	-0.90	--	--	--	--	--	--	--	--

Notes:
Values in **bold** were reported as detected
= Yellow shaded detections exceed the cleanup level
-- = not analyzed or sample not collected
(1) The Cleanup Levels are included in Table 1 of the *Compliance Monitoring Plan* (AECOM, 2023).
(2) On February 7, 2019, the wells were resurveyed by Stratton Surveying and Mapping, P.C. MW-20 through MW-23 were surveyed on December 10, 2019. Horizontal datum = Washington State Plane South Zone North American Datum 1983(1991). Vertical datum = North American Vertical Datum 29.

Acronyms:
µg/L = microgram per liter
btoc - below top of casing
ft = feet
GW = groundwater
J = estimated concentration
NAVD29 = North American Vertical Datum of 1929
TOC = top of casing
TPH-d = total petroleum hydrocarbons, diesel range
TPH-g = total petroleum hydrocarbons, gasoline range
TPH-o = total petroleum hydrocarbons, oil range
U = Analyte not detected above limit shown. Starting with data collected since April 2023, the limit shown is the method reporting limit.

Table 4. Current Field Parameters and Natural Attenuation Results
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Well Location (relative to groundwater contaminant plume)	Sample Date	Field Parameters							Laboratory Analytical			
			pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
		Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-02	Inside	4/26/23	7.00	1.379	3.24	16.26	183.9	0	**14.6**	**86.4**	**541 J**	0.0100 U	0.0100 U
MW-03	Inside	4/25/23	7.34	1.367	0.49	16.06	-150.2	**0.66**	0	**71.2**	**455 J**	**0.580**	**0.336**
MW-04	Outside	4/25/23	7.77	1.027	8.27	16.12	27.4	0	**9.6**	**115**	**190 J**	0.0100 U	0.0100 U
MW-06	Outside	4/25/23	7.58	1.137	10.04	15.12	148.4	0	**8.2**	**110**	**154 J**	0.0100 U	0.0100 U
MW-07	Outside	4/25/23	7.66	1.055	8.00	16.67	67.1	0	**8.0**	**116**	**199 J**	0.0100 U	0.0100 U
MW-08	Outside	4/25/23	7.52	1.044	8.54	16.77	110.8	0	**15**	**117**	**195 J**	0.0100 U	0.0100 U
MW-10	Outside	4/25/23	7.53	1.055	7.91	16.43	86.3	0	**9.6**	**117**	**200 J**	0.0100 U	0.0100 U
MW-11	Inside	4/26/23	6.89	1.079	5.08	16.65	196.1	0	**16.5**	**109**	**261 J**	**0.0731**	0.0100 U
MW-12	Inside	4/26/23	7.10	1.193	3.69	15.73	174.9	0	**4.5**	**113**	**321 J**	**0.0559**	0.0100 U
MW-14	Outside	4/26/23	7.29	1.052	7.96	16.24	202.3	0	**18.6**	**119**	**207 J**	0.0100 U	0.0100 U
MW-15	Outside	4/25/23	7.38	1.052	7.52	15.95	166.7	0	**8.6**	**119**	**204 J**	0.0100 U	0.0100 U
MW-16	Outside	4/25/23	7.46	1.051	7.29	16.49	161.1	0	**19.6**	**117**	**205 J**	0.0100 U	0.0100 U
MW-17	Inside	4/26/23	7.29	1.316	6.12	15.97	112.4	0	**12.3**	**146**	**272 J**	0.0100 U	0.0100 U
MW-18	Outside	4/26/23	7.43	1.118	8.40	16.81	122.7	0	**6.2**	**123**	**221 J**	0.0100 U	0.0100 U
MW-19	Inside	4/26/23	7.52	1.084	6.41	16.08	92.7	0	**9.0**	**112**	**228 J**	0.0100 U	0.0100 U
MW-20	Outside	4/26/23	7.57	1.061	8.39	16.90	126.5	0	**11.6**	**120**	**192 J**	0.0100 U	0.0100 U
MW-21	Outside	4/25/23	7.66	1.064	8.40	16.18	85.9	0	**7.4**	**116**	**195 J**	0.0100 U	0.0100 U
MW-22	Outside	4/25/23	7.76	1.006	9.06	16.19	87.1	0	**16.1**	**110**	**196 J**	0.0100 U	0.0100 U
MW-23	Outside	4/24/23	7.62	1.019	8.69	16.51	46.4	0	**19.3**	**110**	**196 J**	0.0100 U	0.0100 U

Notes:
Values in **bold** were detected above the detection limit
-- = not analyzed or sample not collected

Acronyms:
deg C = degrees Celsius
J = estimated concentration
mg/L = milligrams per liter
mS/cm = millisiemens per centimeter
mV = millivolts
ORP = Oxidation Reduction Potential
su = Standard Unit
U = analyte not detected above limit shown

ATTACHMENT A

Site Background and History

Appendix A. Site History and Background

This appendix summarizes the background information and history of the Washington Department of Ecology (Ecology) Cleanup Site known at the "Chevron Pipe Line Company Pasco Bulk Terminal", herein referred to as the Site. The Site is listed in Ecology's Integrated Site Information System with the following information:

- Facility Site Name: Chevron Pipe Line Company Pasco Bulk Fuel Terminal
- Facility Address: 2900 Sacajawea Park Road, Pasco, Washington 99301, Franklin County
- Facility Site Identification Number (FSID): 55763995
- Cleanup Site Identification Number (CSID): 4867

Site documents are available on Ecology's website at: https://apps.ecology.wa.gov/cleanupsearch/site/4867.

Location and Description

The Site, which is defined with the **red line** in Figures 1 and 2, is located within the boundary of the larger Pasco Terminal, which is owned and operated by Tesoro Logistics Operations LLC (Tesoro) (an indirect subsidiary of Marathon Petroleum Corporation); the Pasco Terminal is herein referred to as the Terminal. Chevron Pipe Line Company (CPL) initially owned and operated the Terminal since its construction in 1950 until Tesoro purchased the Terminal in June 2013.

This section describes the Terminal and Tidewater site areas. In Figures 1 and 2, the Terminal is shown with the brownish orange highlighted area. The Terminal is defined as the properties owned by Tesoro. Most of the Terminal operations are located on top of the bluffs overlooking the Lake Wallula segment of the Snake River adjacent to the south. Sacajawea Park Road and a Burlington Northern Santa Fe rail spur bisect the Terminal with northeast-southwest orientations. The Terminal operations predominantly take place to the south of Sacajawea Park Road over approximately 33 acres; however, the entire Terminal property covers approximately 120 acres. The Terminal includes unimproved land to the southwest, north, and northeast.

The Terminal is developed with aboveground storage tanks (ASTs), loading racks, pumping stations, underground and aboveground pipelines, a barge loading dock, a lined evaporation pond, and terminal offices. The ASTs are used to store diesel, gasoline, jet fuel, and ethanol (AECOM, 2021). The Terminal receives fuel products transferred through underground pipelines and by barge. Nineteen ASTs (with storage capacities ranging between 588,000 and 2,520,000 gallons), eight fuel additive ASTs (with storage capacities ranging between 500 and 12,000 gallons), and one 23,000-gallon relief AST are present at the Terminal (AECOM, 2021).

The elevations at the Terminal range from approximately 356 feet National Geodetic Vertical Datum (NGVD) along the Snake River to approximately 425 feet NGVD in the upland portion of the Site (AECOM, 2021).

In Figure 2, the **orange line** labeled as the Tidewater site shows the separate Ecology Cleanup Site boundary with Facility Site Name "Tidewater Fuel Line Leak". The Tidewater Terminal Company, Inc. (Tidewater) is responsible for managing ongoing environmental activities in this area associated with a pipeline fuel release (FSID: 39378684; CSID: 2331). The Tidewater site includes fuel pipelines owned and operated by Tidewater, which transfer products between this Terminal and the separate Tidewater Terminal, located approximately ¾-mile upstream along the Snake River at 671 Tank Farm Road in Pasco, Washington.

Geology and Hydrogeology

The Site is regionally located within the southeast portion of the Pasco Basin. The stratigraphy generally consists of the Pleistocene-age cataclysmic flood deposits known as the Hanford Formation underlain by a thick sequence of Miocene-age basalt known as the Columbia River Basalt Group (AECOM, 2021).

Borings advanced at the Site indicate the Site geology is generally composed of sands and gravels of the Hanford Formation. In some areas, thin layers of overbank silt and silty sand deposits are present with thicker layers observed at the bottom of borings along the Snake River. Lithological descriptions of the sand and gravel facies from the Site are presented below (AECOM, 2021):

- The sand is generally described as brown to gray, fine to medium-grained, loose, and well-sorted. The average thickness across the Site is approximately 80 feet; however, it is locally thicker in some locations (e.g., MW-03 where it is 95 feet thick). As previously discussed, layers of silt and silty sand are locally interbedded within the sand unit as are thin layers of gravel. At the base of the sand unit at many of the locations, 1 to 7 feet of sandy gravel overlay the lower gravel deposit.
- The gravel is described as gray to brown to red, dense, and fine to coarse-grained. The gravel is commonly basalt and is typically ¾ to 1½ inches in diameter, with some pieces ranging up to 2 inches in diameter. At several locations, trace amounts of sand are observed in addition to cobbles and boulders. Groundwater is typically encountered at or slightly above the sand/gravel interface. The gravel surface appears to dip to the north, south, and east with a steeper gradient to the south.

Basalt at the base of the gravel unit was not encountered during the installation of the Site borings. The maximum gravel thickness penetrated on Site was 23 feet. In a water well installed at Hood Park located approximately 3,500 feet southeast of the Site, basalt was encountered at a depth of 57 feet below ground surface (bgs) with approximately 34 feet of gravel and 16 feet of broken basalt overlying competent basalt (AECOM, 2021).

Regional groundwater flow within the Pasco Basin is generally to the southwest, towards the major surface water bodies (the Columbia and Snake Rivers). The unconsolidated aquifer at the Site is unconfined, and groundwater is typically encountered at a depth of approximately 80 feet bgs. Groundwater elevations beneath the Site are generally stable throughout the year, and groundwater flows towards the Snake River to the southeast. The magnitude of the hydraulic gradient varies with distance from the Snake River. In the upland portion of the Site, where the ASTs are located, the hydraulic gradient is relatively flat and ranged from approximately 0.00007 to 0.008 foot per foot between June 2019 and June 2020. Closer to the Snake River, the hydraulic gradient steepens and ranged from approximately 0.006 to 0.01 foot per foot over the same period (AECOM, 2021).

Site History

The Terminal has been an active fuel terminal since September 1950; prior to 1950, this property was largely undeveloped (AECOM, 2023b).

Occasional releases of petroleum products from ASTs, pipelines and other infrastructure have been documented over time at the Terminal. A timeline of documented historical releases, response actions undertaken, and subsequent investigations and remediation actions is included in the 2021 *Supplemental Remedial Investigation/Feasibility Study* (2021 RI/FS) (AECOM, 2021).

Investigations and cleanup actions conducted at the Site from 1986 to 2020 are described in the 2021 RI/FS.

Regulatory Oversight

Ecology conducted an initial investigation of the Terminal in December 2000 and informed CPL by letter that the Site would be listed on Ecology's Hazardous Sites database.

On December 2009, Ecology issued Agreed Order Number DE 7294 to both CPL and Tidewater to conduct a RI/FS for the Terminal. In compliance with the 2009 Agreed Order, the 2011 RI/FS was issued in September 2011.

Following the 2011 RI/FS, Ecology separated the facility into two distinct areas (the Site and the Tidewater site) in July 2015 and issued Agreed Order Number DE 12989 to Tesoro in March 2016 for the completion of a supplemental RI/FS. In compliance with the 2016 Agreed Order, Tesoro completed the RI/FS in 2021.

Based on the 2021 RI/FS, Ecology issued the *Cleanup Action Plan* (CAP) in March 2023 and Agreed Order Number DE 21664 in April 2023 (Ecology, 2023a; 2023b). In compliance with the 2023 Agreed Order, Tesoro completed the *Draft Engineering Design Report* (EDR) and *Draft Compliance Monitoring Plan* (CMP) in June 2023 (AECOM, 2023a; 2023b). The CAP, EDR, and CMP provide the information necessary to implement the selected cleanup action.

Contaminants of Concern and Source Areas

The contaminants of concern (COCs) included in the selected cleanup action for the Site were chosen based on the evaluation in the 2021 RI/FS. The 2021 RI/FS concluded the following eight COCs are present at the Site within three upland source areas:

- Gasoline-range total petroleum hydrocarbons (TPH-g)
- Diesel-range total petroleum hydrocarbons (TPH-d)
- Motor oil-range total petroleum hydrocarbons (TPH-o)
- Five volatile organic compounds (VOCs): benzene, toluene, ethylbenzene, total xylenes (BTEX) and naphthalene

One or more of the COCs are (or have recently been) present in one or more of the following source areas, shown in Figure 2:

1. Southern Tank Area: In the southern end of the tank farm, the COCs are TPH-g, TPH-d, and TPH-o in groundwater and deep subsurface soil (80 to 84 feet bgs which is near or at the depth to the water table).
2. Northern Tank Area: In the northern end of the tank farm, the COCs are TPH-d and TPH-o in groundwater.
3. North Area: West of the lined evaporation pond, the COCs are TPH-g, benzene, toluene, ethylbenzene, total xylenes, and naphthalene in groundwater and deep subsurface soil (83 to 90 feet bgs which is near or at the depth to the water table).

Nature and Extent of COCs and their Impacts to Groundwater

Groundwater impacts at the Site are due to historical releases of refined petroleum products, as described above and in detail in the 2021 RI/FS. Since at least 2000, TPH-d and TPH-o are the only COCs that have been detected in groundwater above the cleanup levels. The nature and extent of the TPH-d and TPH-o above the cleanup levels are summarized below.

- Southern Tank Area: TPH-d concentrations greater than the cleanup level are present in the vicinity of MW-03 and intermittently present in the vicinity of MW-11 and MW-02. TPH-o concentrations greater than the cleanup level are intermittently present in the vicinity of MW-03, MW-11, and MW-02.
- Northern Tank Area: TPH-d and TPH-o concentrations greater than cleanup levels are intermittently present in the vicinity of MW-17.

Summary of Cleanup Action Plan

As stated in the Agreed Order, the CAP sets cleanup standards and selects the cleanup action that meets the cleanup standards for the Site. The CAP indicates that the Ecology-selected cleanup action for the Site is institutional controls (ICs), monitored natural attenuation (MNA), and enhanced bioremediation using oxygen-releasing compounds (ORCs).

Cleanup Standards

The objective of the cleanup action is to remove or degrade the COCs in groundwater in the source areas to below the cleanup standards to prevent direct contact or ingestion of impacted groundwater by humans. Under

Ecology's Model Toxic Controls Act (MTCA) cleanup regulation (Washington Administrative Code [WAC] 173-340) the two components of the cleanup standards are (i) cleanup levels and (ii) points of compliance (POCs).

Groundwater Cleanup Levels

The selected cleanup levels for groundwater are the MTCA Method A Cleanup Levels for Groundwater (Table 720-1 of WAC 173-340-900). The COCs are TPH-g, TPH-d, TPH-o, BTEX, and naphthalene. Cleanup levels for these COCs are listed in the table below.

Analyte	Groundwater Cleanup Level (µg/L)
TPH-g, Benzene Present	800
TPH-g, No Benzene Present	1,000
TPH-d	500
TPH-o	500
Benzene	5
Toluene	1,000
Ethylbenzene	700
Total Xylenes	1,000
Naphthalene	160

Units:
µg/L = microgram per liter

Groundwater Points of Compliance

For groundwater, the point of compliance (POC) is the point where the groundwater cleanup levels must be attained for the Site to comply with the cleanup standards (WAC 173-340-720 [8]). Groundwater cleanup levels are attained in all groundwaters from the POC to the outer boundary of the plume. A standard POC is established throughout the Site from the uppermost level of the saturated groundwater zone extending vertically to the lowest-most depth that could potentially be affected by the Site.

As stated in the CAP, at this Site, the proposed groundwater POC is the standard POC for groundwater; the unconfined groundwater is located in the sand and gravel deposits beneath the upland portion of the Site. Many of the existing monitoring wells are in source areas where COCs are present at concentrations exceeding the groundwater cleanup levels. The Site's current network of monitoring wells provides an adequate assessment of the groundwater and COCs at the standard POC.

Cleanup Action Conceptual Design

A summary of the three remedial technologies that comprise the cleanup action for the Site is presented below.

Institutional Controls

ICs for the Site include restricting access to the compliance monitoring wells and prohibiting groundwater use at the Site. The access restrictions and groundwater prohibition will remain in-place until concentrations of the Site COCs have met cleanup levels. These restrictions will be incorporated into an Environmental Covenant (EC) for the property, which will be recorded with the office of the Franklin County auditor (Ecology, 2023b). The EC must be recorded to provide adjoining property owners, future purchasers, and tenants, as well as the general public, notice of the restrictions on the use of the property. Tesoro is also required to notify Ecology prior to any lease or sale of the restricted property.

Enhanced Bioremediation Using Oxygen-Reducing Compounds

MNA at the Site will be enhanced by additional oxygen delivered via the deployment of ORC sleeves on a pulsed (or periodic) schedule. For design purposes, the schedule is initially assumed to include four monitoring wells (MW-02, MW-03, MW-11, and MW-17 [Figure 2]) as described below.

- Six months of continuous ORC sleeve deployment between the spring and fall during the warm season to take advantage of increased biological activity and contaminant breakdown with higher groundwater temperatures
- Six months of no ORC sleeve deployment during the winter months

The ORC remedy is discussed in detail in the EDR.

Monitored Natural Attenuation

Groundwater monitoring has demonstrated that previous remedial activities and ongoing natural attenuation processes have reduced COCs across the Site. COC concentrations remain above the cleanup levels in a few isolated upland source areas. The primary mechanism of the cleanup action is continued MNA processes that have provided significant remedial progress since the discontinuation of active remediation in December 2002 (AECOM, 2023b).

The effectiveness of the MNA and ORC remedies will be monitored via semi-annual compliance monitoring which is discussed in detail in the CMP.

References

AECOM, 2020. *Biodegradation Assessment.* Pasco Bulk Fuel Terminal. August 11.

AECOM, 2021. *Final Supplemental Remedial Investigation / Feasibility Study.* Tesoro Pasco Bulk Fuel Terminal. September 30.

AECOM, 2023a. *Draft Compliance Monitoring Plan*. Chevron Pipe Line Company Pasco Bulk Terminal. June 23.

AECOM, 2023b. *Draft Engineering Design Report*. Chevron Pipe Line Company Pasco Bulk Terminal. June 23.

Ecology, 2023a. *Final Corrective Action Plan.* Chevron Pipe Line Co. Pasco Bulk Terminal. March.

Ecology, 2023b. Agreed Order No. DE 21664. In the Matter of Remedial Action by Tesoro Logistic Operation LLC. April.

URS, 2011. *Remedial Investigation/Feasibility Study Report* for the CPL Pasco Terminal, Pasco, Washington. December.

List of Acronyms and Definitions

AST	aboveground storage tank
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CAP	Cleanup Action Plan
CMP	Compliance Monitoring Plan
COC	contaminant of concern
CPL	Chevron Pipe Line Company
CSID	Cleanup Site Identification Number
Ecology	Washington State Department of Ecology
EC	Environmental Covenant
EDR	Engineering Design Report
FSID	Facility Site Identification Number

IC	institutional controls
MNA	monitored natural attenuation
MTCA	Model Toxics Control Act
NGVD	National Geodetic Vertical Datum
ORC	oxygen-releasing compound
POC	point of compliance
RI/FS	Remediation Investigation/Feasibility Study
Tesoro	Tesoro Logistics Operations, LLC
Tidewater	Tidewater Terminal Company, Inc.
TPH	total petroleum hydrocarbons
TPH-d	diesel-range total petroleum hydrocarbons
TPH-g	gasoline-range total petroleum hydrocarbons
TPH-o	motor oil-range total petroleum hydrocarbons
VOC	volatile organic compound
WAC	Washington Administrative Code

ATTACHMENT B

Field Forms

AECOM

Groundwater Level Form

Chevron Pipe Line Company Pasco Bulk Terminal
60711842

Well ID	Well location	Task	Date/ Time	Depth to Water (ft btoc)	Comments	Measured By
MW-02	SCMW	2023-Q2-WL	4/24/23 12:52 PM	73.00		Christopher Selders
MW-03	SCMW	2023-Q2-WL	4/24/23 12:28 PM	79.16		Christopher Selders
MW-04	SCMW	2023-Q2-WL	4/24/23 12:12 PM	68.24		Christopher Selders
MW-06	SCMW	2023-Q2-WL	4/24/23 1:35 PM	16.20		Christopher Selders
MW-07	SCMW	2023-Q2-WL	4/24/23 1:12 PM	67.15		Christopher Selders
MW-08	SCMW	2023-Q2-WL	4/24/23 1:25 PM	39.93		Christopher Selders
MW-10	SCMW	2023-Q2-WL	4/24/23 1:17 PM	63.63		Christopher Selders
MW-11	SCMW	2023-Q2-WL	4/24/23 12:39 PM	79.28		Christopher Selders
MW-12	SCMW	2023-Q2-WL	4/24/23 12:34 PM	79.45		Christopher Selders
MW-14	SCMW	2023-Q2-WL	4/24/23 12:45 PM	77.97		Christopher Selders
MW-15	SCMW	2023-Q2-WL	4/24/23 1:40 PM	16.08		Christopher Selders
MW-16	SCMW	2023-Q2-WL	4/24/23 1:45 PM	27.14		Christopher Selders
MW-17	SCMW	2023-Q2-WL	4/24/23 12:58 PM	80.12		Christopher Selders
MW-18	SCMW	2023-Q2-WL	4/24/23 2:19 PM	79.44		Christopher Selders
MW-19	SCMW	2023-Q2-WL	4/24/23 2:07 PM	79.96		Christopher Selders
MW-20	SCMW	2023-Q2-WL	4/24/23 2:27 PM	83.43	see note	Christopher Selders
MW-21	SCMW	2023-Q2-WL	4/24/23 2:37 PM	82.00		Christopher Selders
MW-22	SCMW	2023-Q2-WL	4/24/23 12:20 PM	76.34		Christopher Selders
MW-23	SCMW	2023-Q2-WL	4/24/23 12:02 PM	77.62		Christopher Selders
AR-11	TSMW	2023-Q2-WL	4/24/23 2:52 PM	78.28		Christopher Selders
TMW-05	TSMW	2023-Q2-WL	4/24/23 3:23 PM	80.73		Christopher Selders

ft btoc = below top of casing
Site Compliance Monitoring Well = SCMW
Tidewater Site Monitoring Well = TSMW
Note: the depth to water measurement at MW-20 on Tables 3 and C1 was recorded from the Groundwater Sampling Log dated 4/26/2023 instead of this form due to a ecording error from the intial collection of depth to water measurements on 4/24/2023.

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-02-20230426	Date:	4/26/2023 2:20:00 PM
Well ID:	MW-02	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Purge rate 20/10 @ 45 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	4
Total Depth (ft bgs):	83.3	Screen Interval (ft bgs):	63.3000 - 83.3000
SAP Pump Depth (ft btoc):	77		

Water Level			
Date:	4/26/2023 1:18:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	73.00 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 1:25:00 PM	End Date and Time:	4/26/2023 2:05:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	14.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
1:35 PM	450	4500	4500	73.15	16.29	7.22	1386	3.97	158	0
1:40 PM	450	2250	6750	73.15	16.28	7.15	1386	3.85	165.4	0
1:45 PM	450	2250	9000	73.15	16.37	7.12	1382	3.75	170.8	0
1:50 PM	450	2250	11250	73.15	16.38	7.08	1381	3.56	175.2	0
1:55 PM	450	2250	13500	73.15	16.35	7.05	1381	3.5	178.6	0
2:00 PM	450	2250	15750	73.15	16.29	7.02	1381	3.35	181.6	0
2:05 PM	450	2250	18000	73.15	16.26	7	1379	3.24	183.9	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-03-20230425	Date:	4/25/2023 9:10:00 AM
Well ID:	MW-03	Location Type:	Monitoring Well
Duplicate ID:	MW-103-20230425	Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 697401 WL/int meter: Durham Geo Slope Indicator # MP30 U49485X		
Comments:	20/10 @ 50 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	4
Total Depth (ft bgs):	94.95	Screen Interval (ft bgs):	74.9500 - 94.9500
SAP Pump Depth (ft btoc):	85		

Water Level			
Date:	4/25/2023 8:23:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	79.09 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 8:27:00 AM	End Date and Time:	4/25/2023 9:08:00 AM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0.66	Nitrate (mg/L):	0

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
8:38 AM	250	2750	2750	79.12	14.1	7.69	1500	9.11	182.5	12.04
8:43 AM	250	1250	4000	79.1	15.68	7.37	1382	1.75	-167.5	4.53
8:48 AM	250	1250	5250	79.09	15.78	7.32	1370	0.6	-167	1.67
8:53 AM	250	1250	6500	79.13	15.92	7.33	1372	0.41	-162.2	1.35
8:58 AM	250	1250	7750	79.14	15.97	7.33	1372	0.43	-158	1.53
9:03 AM	250	1250	9000	79.17	16.02	7.33	1371	0.45	-153.4	1.03
9:08 AM	250	1250	10250	79.12	16.06	7.34	1367	0.49	-150.2	1.5

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-04-20230425	Date:	4/25/2023 11:05:00 AM
Well ID:	MW-04	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 697401 WL/int meter: Durham Geo Slope Indicator # MP30 U49485X		
Comments:	20/10 @ 50 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	4
Total Depth (ft bgs):	76.75	Screen Interval (ft bgs):	56.7500 - 76.7500
SAP Pump Depth (ft btoc):	72		

Water Level			
Date:	4/25/2023 10:28:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	68.22 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 10:29:00 AM	End Date and Time:	4/25/2023 11:03:00 AM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	9.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10:33 AM	340	1360	1360	68.23	16.05	8.07	988	9.85	-28.8	3.17
10:38 AM	340	1700	3060	68.21	16.26	7.77	1035	8.28	6.8	0.51
10:43 AM	340	1700	4760	68.22	16.23	7.77	1035	8.28	11.8	0.64
10:48 AM	340	1700	6460	68.23	16.16	7.78	1037	8.23	16	0.72
10:53 AM	340	1700	8160	68.22	16.14	7.78	1034	8.18	19.8	0.55
10:58 AM	340	1700	9860	68.23	16.17	7.78	1038	8.2	23.1	2.03
11:03 AM	340	1700	11560	68.23	16.12	7.77	1027	8.27	27.4	0.01

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-06-20230425	Date:	4/25/2023 2:10:00 PM
Well ID:	MW-06	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # Geotech U91457X		
Comments:	Purge rate 20/10 @ 20 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	25	Screen Interval (ft bgs):	8.5000 - 23.5000
SAP Pump Depth (ft btoc):	21		

Water Level			
Date:	4/25/2023 12:57:00 PM	Measured Well Depth:	26.92 ft
Is Well Dry?	No	Depth to Water:	16.26 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 1:05:00 PM	End Date and Time:	4/25/2023 2:05:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	8.2

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
1:10 PM	275	1375	1375	16.29	15.13	7.84	1128	10.38	112.9	13.05
1:15 PM	275	1375	2750	16.29	14.96	7.78	1144	10.4	119.5	0
1:20 PM	275	1375	4125	16.29	14.93	7.73	1108	10.22	124.9	0
1:25 PM	275	1375	5500	16.29	15.06	7.7	1142	10.06	128.5	0
1:30 PM	275	1375	6875	16.29	15.1	7.67	1141	10.17	132.2	0
1:35 PM	275	1375	8250	16.29	15.05	7.65	1143	10.29	135.1	0
1:40 PM	275	1375	9625	16.29	15.07	7.63	1048	10.29	138.3	0
1:45 PM	275	1375	11000	16.29	14.99	7.62	1139	10.15	140.8	0
1:50 PM	275	1375	12375	16.29	15.05	7.61	1139	10.4	143.3	0
1:55 PM	275	1375	13750	16.29	15.2	7.6	1137	10.22	144.9	0

AECOM

GROUNDWATER SAMPLING LOG

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	
2:00 PM	275	1375	15125	16.29	15.2	7.59	1136	10.12	146.6	0	
2:05 PM	275	1375	16500	16.29	15.12	7.58	1137	10.04	148.4	0	

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-07-20230425	Date:	4/25/2023 2:34:00 PM
Well ID:	MW-07	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 697401 WL/int meter: Durham Geo Slope Indicator # MP30 U49485X		
Comments:	20/10 @ 45 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	79	Screen Interval (ft bgs):	57.0000 - 77.0000
SAP Pump Depth (ft btoc):	72		

Water Level			
Date:	4/25/2023 1:54:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	67.09 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 1:55:00 PM	End Date and Time:	4/25/2023 2:32:00 PM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	8

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
2:02 PM	370	2590	2590	67.1	22.24	13.99	785	8.35	39.4	2.02
2:07 PM	370	1850	4440	67.11	16.88	7.53	1054	8.03	64.1	1.04
2:12 PM	370	1850	6290	67.1	16.7	7.59	1051	8.16	64.6	3.74
2:17 PM	370	1850	8140	67.1	16.57	7.63	1051	8.12	64.4	1.31
2:22 PM	370	1850	9990	67.1	16.61	7.64	1052	8.03	65	0.25
2:27 PM	370	1850	11840	67.1	16.51	7.66	1052	8.16	66.7	0.1
2:32 PM	370	1850	13690	67.12	16.67	7.66	1055	8	67.1	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-08-20230425	Date:	4/25/2023 11:50:00 AM
Well ID:	MW-08	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # Geotech U91457X		
Comments:	Purge rate 20/10 @ 40 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	56	Screen Interval (ft bgs):	29.0000 - 54.0000
SAP Pump Depth (ft btoc):	44		

Water Level			
Date:	4/25/2023 10:58:00 AM	Measured Well Depth:	55.50 ft
Is Well Dry?	No	Depth to Water:	39.76 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 11:01:00 AM	End Date and Time:	4/25/2023 11:45:00 AM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	15

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11:10 AM	275	2475	2475	39.8	17.15	7.9	1058	9.53	86.5	0
11:15 AM	275	1375	3850	39.8	16.68	7.7	1041	8.65	94.7	0
11:20 AM	275	1375	5225	39.8	16.64	7.65	1041	8.74	99.1	0
11:25 AM	275	1375	6600	39.8	16.59	7.62	1042	8.84	102	0
11:30 AM	275	1375	7975	39.8	16.64	7.58	1042	8.71	104.6	0
11:35 AM	275	1375	9350	39.8	16.58	7.56	1043	8.62	106.8	0
11:40 AM	275	1375	10725	39.8	16.71	7.54	1041	8.93	108.8	0
11:45 AM	275	1375	12100	39.8	16.77	7.52	1044	8.54	110.8	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-10-20230425	Date:	4/25/2023 1:05:00 PM
Well ID:	MW-10	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 697401 WL/int meter: Durham Geo Slope Indicator # MP30 U49485X		
Comments:	20/10 @ 45 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	4
Total Depth (ft bgs):	78.25	Screen Interval (ft bgs):	55.0000 - 76.0000
SAP Pump Depth (ft btoc):	68		

Water Level			
Date:	4/25/2023 12:19:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	63.57 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 12:25:00 PM	End Date and Time:	4/25/2023 1:03:00 PM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	9.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
12:33 PM	340	2720	2720	63.58	17.3	7.47	1117	9.18	109	2.34
12:38 PM	340	1700	4420	63.53	16.44	7.45	1059	8.02	98.6	0.11
12:43 PM	340	1700	6120	63.53	16.4	7.47	1055	8	91.9	0
12:48 PM	340	1700	7820	63.52	16.47	7.48	1055	7.9	90	0
12:53 PM	340	1700	9520	63.53	16.38	7.5	1054	7.98	88.6	0
12:58 PM	340	1700	11220	63.52	16.45	7.52	1054	7.93	86.8	0
1:03 PM	340	1700	12920	63.54	16.43	7.53	1055	7.91	86.3	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-11-20230426	Date:	4/26/2023 11:45:00 AM
Well ID:	MW-11	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Purge rate 20/10 @ 50 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	84.5	Screen Interval (ft bgs):	74.5000 - 84.5000
SAP Pump Depth (ft btoc):	83		

Water Level			
Date:	4/26/2023 10:51:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	79.30 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 10:57:00 AM	End Date and Time:	4/26/2023 11:40:00 AM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	16.5

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
11:00 AM	325	975	975	79.32	17.72	7	1118	7.84	165.6	0
11:05 AM	325	1625	2600	79.45	17.43	6.76	1318	1.64	171.5	25.49
11:11 AM	325	1950	4550	79.45	16.64	6.85	1147	3.46	178.9	0.03
11:15 AM	325	1300	5850	79.45	16.66	6.88	1108	4.14	183.8	0
11:20 AM	325	1625	7475	79.45	16.68	6.88	1100	4.5	186.3	0
11:25 AM	325	1625	9100	79.45	16.69	6.87	1092	4.72	190.1	0
11:30 AM	325	1625	10725	79.45	16.72	6.88	1087	4.82	192.4	0
11:35 AM	325	1625	12350	79.45	16.73	6.88	1084	5.03	194.6	0
11:40 AM	325	1625	13975	79.45	16.65	6.89	1079	5.08	196.1	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-12-20230426	Date:	4/26/2023 9:20:00 AM
Well ID:	MW-12	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	MS/MSD	Purge rate 40/20 @ 45 psi	

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	85	Screen Interval (ft bgs):	33.0000 - 60.0000
SAP Pump Depth (ft btoc):	83.5		

Water Level			
Date:	4/26/2023 8:12:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	79.47 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 8:25:00 AM	End Date and Time:	4/26/2023 9:10:00 AM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	4.5

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
8:30 AM	300	1500	1500	79.5	13.94	7.31	1262	9.59	160.2	0
8:35 AM	300	1500	3000	79.6	15.55	7.01	1290	2.42	168.7	7.31
8:40 AM	300	1500	4500	79.6	15.62	7.05	1235	2.52	171.9	0
8:45 AM	300	1500	6000	79.6	15.59	7.08	1215	2.76	172.8	0
8:50 AM	300	1500	7500	79.65	15.61	7.09	1203	3.16	173.5	0
8:55 AM	300	1500	9000	79.65	15.64	7.09	1198	3.22	174.3	0
9:00 AM	300	1500	10500	79.65	15.71	7.1	1195	3.3	174.4	0
9:05 AM	300	1500	12000	79.65	15.72	7.1	1193	3.5	174.8	0
9:10 AM	300	1500	13500	79.65	15.73	7.1	1193	3.69	174.9	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-14-30230426	Date:	4/26/2023 4:05:00 PM
Well ID:	MW-14	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Purge rate 20/10 @ 50 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	82.5	Screen Interval (ft bgs):	27.5000 - 53.0000
SAP Pump Depth (ft btoc):	82		

Water Level			
Date:	4/26/2023 2:58:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	77.77 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 2:59:00 PM	End Date and Time:	4/26/2023 3:55:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	18.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
3:10 PM	500	5500	5500	77.8	16.19	7.46	1061	7.89	149.1	90.38
3:15 PM	500	2500	8000	77.8	16.21	7.48	1056	7.61	161.2	26.44
3:20 PM	500	2500	10500	77.8	16.19	7.4	1054	7.58	172.1	22.6
3:25 PM	500	2500	13000	77.8	16.18	7.35	1054	7.81	180.1	13.08
3:30 PM	500	2500	15500	77.8	16.22	7.34	1053	7.7	185.9	6.19
3:35 PM	500	2500	18000	77.8	16.3	7.33	1053	7.94	189.6	9.13
3:40 PM	500	2500	20500	77.8	16.32	7.31	1052	7.9	194	8.84
3:45 PM	500	2500	23000	77.8	16.34	7.3	1053	7.89	197.3	0.84
3:50 PM	500	2500	25500	77.8	16.24	7.3	1053	7.76	200.1	0.88
3:55 PM	500	2500	28000	77.8	16.24	7.29	1052	7.96	202.3	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-15-20230425	Date:	4/25/2023 4:10:00 PM
Well ID:	MW-15	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # Geotech U91457X		
Comments:	Purge rate 20/10 @ 20 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	23.5	Screen Interval (ft bgs):	8.5000 - 23.5000
SAP Pump Depth (ft btoc):	20.5		

Water Level			
Date:	4/25/2023 3:06:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	16.16 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 3:10:00 PM	End Date and Time:	4/25/2023 4:05:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	8.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
3:15 PM	250	1250	1250	16.21	16.36	7.65	1055	7.31	126.3	172.3
3:20 PM	250	1250	2500	16.21	16.11	7.6	1055	7.23	132.5	69.15
3:25 PM	250	1250	3750	16.21	16.2	7.59	1055	7.42	136	43.46
3:30 PM	250	1250	5000	16.21	16.13	7.56	1054	7.3	141.3	25.73
3:35 PM	250	1250	6250	16.21	16.18	7.52	1046	7.57	145.5	17
3:40 PM	250	1250	7500	16.21	16.05	7.5	1054	7.4	149.5	11.56
3:45 PM	250	1250	8750	16.21	16.04	7.47	1053	7.52	154	9.62
3:50 PM	250	1250	10000	16.21	15.92	7.44	1049	7.49	157.7	8.59
3:55 PM	250	1250	11250	16.21	15.94	7.42	1047	7.53	160.8	7.24

AECOM

GROUNDWATER SAMPLING LOG

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4:00 PM	250	1250	12500	16.21	15.93	7.4	1046	7.73	164	4.98
4:05 PM	250	1250	13750	16.21	15.95	7.38	1052	7.52	166.7	2.94

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-16-20230425	Date:	4/25/2023 6:20:00 PM
Well ID:	MW-16	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Purge rate 20/10 @ 25 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	30	Screen Interval (ft bgs):	20.0000 - 30.0000
SAP Pump Depth (ft btoc):	31		

Water Level			
Date:	4/25/2023 5:11:00 PM	Measured Well Depth:	33.00 ft
Is Well Dry?	No	Depth to Water:	27.17 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 5:20:00 PM	End Date and Time:	4/25/2023 6:15:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	19.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
5:45 PM	250	6250	6250	27.2	16.67	7.61	1054	7.51	131	90.84
5:50 PM	250	1250	7500	27.2	16.65	7.58	1054	7.4	140.3	40.3
5:55 PM	250	1250	8750	27.2	16.61	7.55	1054	7.42	145.8	19.79
6:00 PM	250	1250	10000	27.2	16.52	7.53	1054	7.53	149.9	10.16
6:05 PM	250	1250	11250	27.2	16.5	7.5	1053	7.39	154.4	2.4
6:10 PM	250	1250	12500	27.2	16.44	7.48	1052	7.4	158.1	0.44
6:15 PM	250	1250	13750	27.2	16.49	7.46	1051	7.29	161.1	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-17-20230426	Date:	4/26/2023 11:17:00 AM
Well ID:	MW-17	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Difficulty getting started. 10/5 @ 60 psi.		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	83	Screen Interval (ft bgs):	73.0000 - 83.0000
SAP Pump Depth (ft btoc):	84		

Water Level			
Date:	4/26/2023 10:08:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	80.04 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 10:11:00 AM	End Date and Time:	4/26/2023 11:15:00 AM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	12.3

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
10:40 AM	400	11600	11600	80.21	16.61	7.43	1307	12.09	114.2	58.03
10:45 AM	400	2000	13600	80.18	15.93	7.31	1316	6.33	113.4	22.4
10:50 AM	400	2000	15600	80.19	15.9	7.29	1310	6.12	112.4	9
10:55 AM	400	2000	17600	80.18	15.9	7.3	1318	6.22	111.8	7.83
11:00 AM	400	2000	19600	80.19	15.93	7.29	1253	6.19	111.8	6.57
11:05 AM	400	2000	21600	80.18	15.94	7.29	1325	6.21	111.8	4.51
11:10 AM	400	2000	23600	80.19	15.94	7.29	1317	6.2	112.2	1.96
11:15 AM	400	2000	25600	80.19	15.97	7.29	1316	6.12	112.4	1.33

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-18-20230426	Date:	4/26/2023 4:33:00 PM
Well ID:	MW-18	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Needed pressure at 60 psi to start, then 20/10 @ 50 psi.		

Well Information			
Well Completion:	Flush	Well Diameter:	2
Total Depth (ft bgs):	87	Screen Interval (ft bgs):	72.0000 - 87.0000
SAP Pump Depth (ft btoc):	86.5		

Water Level			
Date:	4/26/2023 3:37:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	79.39 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 3:46:00 PM	End Date and Time:	4/26/2023 4:31:00 PM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	6.2

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
3:56 PM	375	3750	3750	79.47	19.2	7.4	1122	8.34	113.7	8.01
4:01 PM	375	1875	5625	79.4	16.72	7.4	1121	8.35	120.1	232.4
4:06 PM	375	1875	7500	79.4	16.64	7.39	1120	8.53	121.2	32.65
4:11 PM	375	1875	9375	79.4	16.78	7.4	1120	8.52	121.9	9.84
4:16 PM	375	1875	11250	79.41	16.74	7.4	1120	8.34	122.6	4.9
4:21 PM	375	1875	13125	79.41	16.69	7.42	1121	8.4	122.8	3.74
4:26 PM	375	1875	15000	79.41	16.61	7.43	1120	8.47	122.5	3.14
4:31 PM	375	1875	16875	79.41	16.81	7.43	1118	8.4	122.7	2.35

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-19-20230426	Date:	4/26/2023 9:12:00 AM
Well ID:	MW-19	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	20/10 @ 50 psi		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	87	Screen Interval (ft bgs):	72.0000 - 87.0000
SAP Pump Depth (ft btoc):	85		

Water Level			
Date:	4/26/2023 8:28:00 AM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	7.92 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 8:35:00 AM	End Date and Time:	4/26/2023 9:10:00 AM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	9

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
8:40 AM	375	1875	1875	79.92	16.07	6.12	980	7.25	68.3	2.38
8:45 AM	375	1875	3750	79.91	16.17	7.42	1094	4.64	82.9	6.75
8:50 AM	375	1875	5625	79.92	16.05	7.48	1089	5.54	83.6	1.16
8:55 AM	375	1875	7500	79.91	16.07	7.5	1087	5.96	86.9	0.93
9:00 AM	375	1875	9375	79.91	16.06	7.51	1086	6.18	89	0.76
9:05 AM	375	1875	11250	79.92	16.08	7.51	1085	6.33	91.1	0.78
9:10 AM	375	1875	13125	79.91	16.08	7.52	1084	6.41	92.7	0.77

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-20-20230426	Date:	4/26/2023 2:51:00 PM
Well ID:	MW-20	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # U91457X		
Comments:	Difficulty getting flow initially. 20/10 @ 55-60 psi.		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	99	Screen Interval (ft bgs):	79.0000 - 94.0000
SAP Pump Depth (ft btoc):	95		

Water Level			
Date:	4/26/2023 1:48:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	82.20 ft
Notes:			

Purge Information			
Begin Date and Time:	4/26/2023 1:51:00 PM	End Date and Time:	4/26/2023 2:49:00 PM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	11.6

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
2:19 PM	375	10500	10500	82.18	29.14	7.9	1036	9.01	109.4	2.56
2:24 PM	375	1875	12375	82.19	18.36	7.53	1068	8.43	127.1	22.51
2:29 PM	375	1875	14250	82.18	17.08	7.54	1063	8.24	127.6	3.73
2:34 PM	375	1875	16125	82.18	16.95	7.55	1062	8.3	127.1	1.78
2:39 PM	375	1875	18000	82.18	17.07	7.56	1061	8.19	127	1.21
2:44 PM	375	1875	19875	82.18	16.96	7.56	1061	8.28	126.9	1.03
2:49 PM	375	1875	21750	82.18	16.9	7.57	1061	8.39	126.5	1.14

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-21-20230425	Date:	4/25/2023 5:19:00 PM
Well ID:	MW-21	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Edward Lecocq
Equipment:	Field param meter: In-Situ AquaTroll 600 # 697401 WL/int meter: Durham Geo Slope Indicator # MP30 U49485X		
Comments:	20/10 @ 55 psi. Needed 40/20 to get flow.		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	93	Screen Interval (ft bgs):	77.0000 - 92.0000
SAP Pump Depth (ft btoc):	93		

Water Level			
Date:	4/25/2023 4:17:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	81.93 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 4:20:00 PM	End Date and Time:	4/25/2023 5:17:00 PM
Initial Pump Depth:		Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	7.4

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4:42 PM	350	7700	7700	81.95	16.96	7.46	1092	9.05	73.9	1.55
4:47 PM	350	1750	9450	81.94	16.2	7.58	1064	8.31	77.1	13.28
4:52 PM	350	1750	11200	81.94	16.28	7.59	1063	8.39	79.8	7.9
4:57 PM	350	1750	12950	81.94	16.28	7.6	1063	8.47	81.8	4.38
5:02 PM	350	1750	14700	81.94	16.21	7.62	1064	8.3	83.2	3.24
5:07 PM	350	1750	16450	81.94	16.19	7.63	1062	8.46	84	1.77
5:12 PM	350	1750	18200	81.94	16.2	7.65	1063	8.36	84.9	1.71
5:17 PM	350	1750	19950	81.94	16.18	7.66	1064	8.4	85.9	0.8

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-22-20230425	Date:	4/25/2023 9:30:00 AM
Well ID:	MW-22	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # Geotech U91457X		
Comments:	Purge rate 20/10		

Well Information			
Well Completion:	Stick-up	Well Diameter:	2
Total Depth (ft bgs):	95	Screen Interval (ft bgs):	79.0000 - 94.0000
SAP Pump Depth (ft btoc):	94		

Water Level			
Date:	4/25/2023 8:19:00 AM	Measured Well Depth:	97.40 ft
Is Well Dry?	No	Depth to Water:	76.34 ft
Notes:			

Purge Information			
Begin Date and Time:	4/25/2023 8:35:00 AM	End Date and Time:	4/25/2023 9:25:00 AM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	Not Recorded
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	16.1

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
8:50 AM	350	5250	5250	76.35	16.33	7.76	1015	7.54	65.8	0
8:55 AM	350	1750	7000	76.35	16.17	7.8	1006	9.05	73.4	0
9:00 AM	350	1750	8750	76.35	16.18	7.79	1006	9.13	76.9	0
9:06 AM	350	2100	10850	76.35	16.1	7.78	1005	9.23	80.3	0
9:10 AM	350	1400	12250	76.35	16.08	7.78	1006	9.28	82.2	0
9:15 AM	350	1750	14000	76.35	16.05	7.77	1005	9.16	84.1	0
9:20 AM	350	1750	15750	76.35	16.17	7.77	1005	9.22	85.5	0
9:25 AM	350	1750	17500	76.35	16.19	7.76	1006	9.06	87.1	0

GROUNDWATER SAMPLING LOG

Client:	Marathon Petroleum Corporation (MPC)	Project #:	
Site:	Chevron Pipe Line Company Pasco Bulk Fuel Terminal	Event:	2023-Q2-GW

Sample Information			
Sample ID:	MW-23-20230424	Date:	4/24/2023 5:39:00 PM
Well ID:	MW-23	Location Type:	Monitoring Well
Duplicate ID:		Sampler:	Christopher Selders
Equipment:	Field param meter: In-Situ AquaTroll 600 # 466586 WL/int meter: Durham Geo Slope Indicator # Geotech U91457X		
Comments:	Pump rate 20/10		

Well Information			
Well Completion:	Flush	Well Diameter:	2
Total Depth (ft bgs):	96	Screen Interval (ft bgs):	80.0000 - 95.0000
SAP Pump Depth (ft btoc):	92		

Water Level			
Date:	4/24/2023 4:36:00 PM	Measured Well Depth:	NM
Is Well Dry?	No	Depth to Water:	83.10 ft
Notes:			

Purge Information			
Begin Date and Time:	4/24/2023 4:41:00 PM	End Date and Time:	4/24/2023 5:36:00 PM
Initial Pump Depth:	Not Recorded	Final Pump Depth:	
Purge Method:	Low flow	Sample Method:	
Notes:			

Natural Attenuation Field Parameters			
Ferrous Iron (mg/L):	0	Nitrate (mg/L):	19.3

Time	Purge Rate (ml/min)	Purge Volume (ml)	Cumulative Purge Volume (ml)	Purge Depth to Water (ft)	Temperature (deg C)	pH (su)	Conductivity (us/cm)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
4:59 PM			0	83.2	16.88	7.61	1017	8.72	29.3	98.65
5:04 PM	350	1750	1750	83.2	16.58	7.57	1027	8.86	38.4	61.13
5:10 PM	350	2100	3850	83.2	16.78	7.59	1022	8.47	38.4	47.85
5:15 PM	350	1750	5600	83.2	16.52	7.57	1021	8.72	41.7	13.76
5:21 PM	350	2100	7700	83.2	16.56	7.65	1023	8.72	39.5	9.56
5:26 PM	350	1750	9450	83.2	16.39	7.65	1023	8.81	41.6	6.7
5:31 PM	350	1750	11200	83.2	16.42	7.63	1021	8.57	44.8	3.69
5:36 PM	350	1750	12950	83.2	16.51	7.62	1019	8.69	46.4	1.24

ATTACHMENT C

Groundwater Data and Analytical Results – 2014 - 2023

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Site Wells													
MW-02	5/29/14	72.83	417.28	344.45	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	74.03	417.28	343.25	1.20	250 U	250 U	500 U	0.50 U	**0.68**	0.50 U	0.50 U	0.50 U
	6/4/15	73.31	417.28	343.97	-0.72	250 U	**140**	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/28/15	74.42	417.28	342.86	1.11	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	8/29/16	74.52	417.28	342.76	0.10	50 U	**1,400**	**710**	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	74.02	417.28	343.26	-0.50	50 U	**410**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/17/17	72.86	417.28	344.42	-1.16	--	--	--	--	--	--	--	--
	10/24/17	74.12	417.28	343.16	1.26	250 U	**580**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/14/18	72.89	417.28	344.39	-1.23	250 U	**450**	**480**	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/2/18	73.93	417.23	343.30	1.09	100 U	**1,300**	**1,800**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/26/19	73.49	417.23	343.74	-0.44	100 U	**1,500**	**1,200**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	73.75	417.23	343.48	0.26	100 U	**1,600**	**1,100**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	73.38	417.23	343.85	-0.37	100 U	**1,200**	**930**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	73.71	417.23	343.52	0.33	100 U	**460**	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	73.69	417.23	343.54	-0.02	31.6 U	**1,250**	**901**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/26/21	74.38	417.23	342.85	0.69	100 U	**630**	**460**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/3/22	73.98	417.23	343.25	-0.40	100 U	**2,850**	**8,560**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	73.00	417.23	344.23	-0.98	100 U	**1,240**	**969**	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-03	5/28/14	78.85	423.42	344.57	--	250 U	**1,100**	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/30/14	80.18	423.42	343.24	1.33	**620**	**18,000**	500 U	0.50 U	**1.4**	0.50 U	0.50 U	0.50 U
	6/4/15	79.46	423.42	343.96	-0.72	250 U	**3,300**	250 U	0.50 U	0.50 U	0.50 U	1.0 U	**0.51**
	9/29/15	80.58	423.42	342.84	1.12	**733**	**3,300**	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	8/30/16	80.60	423.42	342.82	0.02	**1,400**	**11,000**	**1,100**	2.0 U	2.0 U	3.0 U	3.0 U	**2.5**
	12/6/16	80.17	423.42	343.25	-0.43	**290**	**6,600**	**290**	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/16/17	79.04	423.42	344.38	-1.13	500 U	**2,600**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/25/17	80.23	423.42	343.19	1.19	**380**	**5,700**	**410**	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/14/18	79.20	423.42	344.22	-1.03	250 U	**4,700**	**860**	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/4/18	80.00	423.40	343.40	0.82	**180 J**	**8,800**	**2,000**	0.53 U	0.39 U	0.50 U	**3.0 U**	0.93 U
	6/26/19	79.64	423.40	343.76	-0.36	**300**	**8,600**	**1,900**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	79.93	423.40	343.47	0.29	**230 J**	**2,700 J**	**830 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	79.57	423.40	343.83	-0.36	**200 J**	**4,400**	**920**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/16/20	79.92	423.40	343.48	0.35	**150 J**	**2,200**	**210 J**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/27/21	79.86	423.40	343.54	-0.06	632 U	**12,100 J**	**3,500 J**	0.471 U	1.39 U	0.685 U	0.870 U	5.00 UJ
	10/25/21	80.49	423.40	342.91	0.63	**213**	**6,910**	**1,740**	0.471 U	1.39 U	0.685 U	**1.30 J**	5.00 U
	11/3/22	80.16	423.40	343.24	-0.33	**117 J**	**5,860**	**1,410**	0.094 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	79.16	423.40	344.24	-1.00	100 U	**5,120**	**1,240**	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-04	5/28/14	67.98	412.09	344.11	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/28/14	69.17	412.09	342.92	1.19	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	6/3/15	68.48	412.09	343.61	-0.69	250 U	100 U	250 U	0.50 U	**0.52**	0.5 U	1.0 U	0.50 U
	9/28/15	69.52	412.09	342.57	1.04	--	--	--	--	--	--	--	--
	8/30/16	69.66	412.09	342.43	0.14	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	--	412.09	--	--	--	--	--	--	--	--	--	--
	5/15/17	68.02	412.09	344.07	--	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/13/18	68.15	412.05	343.90	0.17	250 U	110 U	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	6/26/19	68.68	412.05	343.37	0.53	100 U	69 U	100 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/9/19	68.98	412.05	343.07	0.30	--	--	--	--	--	--	--	--
	6/23/20	68.62	412.05	343.43	-0.36	100 U	69 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/14/20	68.90	412.05	343.15	0.28	--	--	--	--	--	--	--	--
	5/25/21	68.84	412.05	343.21	-0.06	31.6 U	66.7 U	83.3 U	0.0941 U	0.28 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	69.47	412.05	342.58	0.63	--	--	--	--	--	--	--	--
	10/31/22	69.11	412.05	342.94	-0.36	--	--	--	--	--	--	--	--
	4/25/23	68.24	412.05	343.81	-0.87	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-06	5/29/14	15.57	358.61	343.04	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	16.82	358.61	341.79	1.25	250 U	250 U	500 U	0.50 U	**4.9**	0.50 U	0.50 U	0.50 U
	6/3/15	16.18	358.61	342.43	-0.64	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/28/15	17.15	358.61	341.46	0.97	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	8/30/16	17.15	358.61	341.46	0.00	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	16.91	358.61	341.70	-0.24	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/16/17	15.88	358.61	342.73	-1.03	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/23/17	17.01	358.61	341.60	1.13	250 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/11/18	15.73	358.61	342.88	-1.28	250 U	**180**	**460**	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/2/18	16.95	358.52	341.57	1.31	100 U	**71 J**	350 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/26/19	16.48	358.52	342.04	-0.47	100 U	71 U	110 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/10/19	16.97	358.52	341.55	0.49	100 U	62 U	92 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/23/20	16.31	358.52	342.21	-0.66	100 U	69 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/16/20	16.61	358.52	341.91	0.30	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/24/21	16.44	358.52	342.08	-0.17	31.6 U	66.7 U	**120 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	16.99	358.52	341.53	0.55	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	16.75	358.52	341.77	-0.24	100 U	**224**	**519**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	16.20	358.52	342.32	-0.55	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-07	5/28/14	67.02	411.40	344.38	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	68.23	411.40	343.17	1.21	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	6/3/15	67.48	411.40	343.92	-0.75	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/28/15	68.61	411.40	342.79	1.13	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	8/30/16	68.74	411.40	342.66	0.13	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	68.18	411.40	343.22	-0.56	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/15/17	67.02	411.40	344.38	-1.16	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/24/17	68.22	411.40	343.18	1.20	250 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/13/18	67.16	411.40	344.24	-1.06	250 U	110 U	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/4/18	68.03	411.32	343.29	0.95	100 U	**86 J**	97 U	0.53 U	0.39 U	**0.60 J**	3.0 U	0.93 U
	6/26/19	67.68	411.32	343.64	-0.35	100 U	**110**	98 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	67.58	411.32	343.74	-0.10	100 U	**67 J**	99 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/23/20	67.57	411.32	343.75	-0.01	100 U	66 U	98 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/14/20	67.87	411.32	343.45	0.30	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	67.82	411.32	343.50	-0.05	31.6 U	66.7 U	**103 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	68.47	411.32	342.85	0.65	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	68.12	411.32	343.20	-0.35	100 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	67.15	411.32	344.17	-0.97	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-08	5/28/14	39.56	383.91	344.35	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	40.78	383.91	343.13	1.22	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	6/3/15	40.04	383.91	343.87	-0.74	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/28/15	41.13	383.91	342.78	1.09	--	--	--	--	--	--	--	--
	8/30/16	40.30	383.91	343.61	-0.83	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	--	383.91	--	--	--	--	--	--	--	--	--	--
	5/17/17	39.56	383.91	344.35	--	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/11/18	39.65	383.76	344.11	0.240	250 U	110 U	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	6/26/19	40.26	383.76	343.50	0.610	100 U	71 U	100 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/9/19	40.48	383.76	343.28	0.22	--	--	--	--	--	--	--	--
	6/23/20	40.14	383.76	343.62	-0.34	100 U	68 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/14/20	40.44	383.76	343.32	0.300	--	--	--	--	--	--	--	--
	5/26/21	40.38	383.76	343.38	-0.06	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	41.03	383.76	342.73	0.65	--	--	--	--	--	--	--	--
	4/25/23	39.93	383.76	343.83	-1.10	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-10	5/28/14	63.46	407.91	344.45	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	64.68	407.91	343.23	1.22	250 U	250 U	500 U	0.50 U	**1.1**	0.50 U	0.50 U	0.50 U
	6/3/15	63.91	407.91	344.00	-0.77	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/28/15	65.02	407.91	342.89	1.11	--	--	--	--	--	--	--	--
	8/30/16	65.22	407.91	342.69	0.20	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	--	407.91	--	--	--	--	--	--	--	--	--	--
	5/15/17	63.50	407.91	344.41	--	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/13/18	63.58	407.83	344.25	0.16	250 U	110 U	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	6/26/19	64.15	407.83	343.68	0.57	100 U	**88 J**	**110 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/9/19	64.37	407.83	343.46	0.22	--	**--**	**--**	--	--	--	--	--
	6/23/20	64.03	407.83	343.80	-0.34	100 U	66 U	98 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/14/20	64.36	407.83	343.47	0.33	--	--	--	--	--	--	--	--
	5/25/21	64.30	407.83	343.53	-0.06	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	64.94	407.83	342.89	0.64	--	--	--	--	--	--	--	--
	10/31/22	64.60	407.83	343.23	-0.34	--	--	--	--	--	--	--	--
	4/25/23	63.63	407.83	344.20	-0.97	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U
MW-11	5/29/14	79.19	423.48	344.29	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/30/14	80.31	423.48	343.17	1.12	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	6/4/15	79.55	423.48	343.93	-0.76	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/29/15	80.67	423.48	342.81	1.12	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	8/29/16	80.42	423.48	343.06	-0.25	50 U	**520**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	80.29	423.48	343.19	-0.13	50 U	**360**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/16/17	79.15	423.48	344.33	-1.14	500 U	**390**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/25/17	80.31	423.48	343.17	1.16	250 U	**360**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/14/18	79.30	423.48	344.18	-1.01	250 U	**160**	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/2/18	80.14	423.44	343.30	0.88	100 U	**500**	**570 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/27/19	79.79	423.44	343.65	-0.35	100 U	**400**	**320 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	80.01	423.44	343.43	0.22	100 U	**130**	91 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	79.66	423.44	343.78	-0.35	100 U	**3,900**	**2,300**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	79.95	423.44	343.49	0.29	100 U	**210 J**	130 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	79.95	423.44	343.49	0.00	31.6 U	**765 J**	**428 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	80.62	423.44	342.82	0.67	31.6 U	**499**	**230 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	80.21	423.44	343.23	-0.41	100 U	**200 J**	**84.6 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	79.28	423.44	344.16	-0.93	100 U	200 U	250 U	1.00 U	1.00 U	1.00 U	3.00 U	5.00 U

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-12	5/29/14	79.26	423.65	344.39	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/30/14	80.45	423.65	343.20	1.19	250 U	250 U	500 U	0.50 U	**0.66**	0.50 U	0.50 U	0.50 U
	6/4/15	79.72	423.65	343.93	-0.73	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	9/29/15	80.83	423.65	342.82	1.11	250 U	100 U	250 U	0.50 U	0.50 U	0.50 U	1.0 U	0.50 U
	12/6/16	80.48	423.65	343.17	-0.35	50 U	110 U	250 U	**6.0**	2.0 U	3.0 U	3.0 U	2.0 U
	5/16/17	79.30	423.65	344.35	-1.18	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/24/17	80.45	423.65	343.20	1.15	250 U	**160**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/14/18	79.30	423.65	344.35	-1.15	250 U	**160**	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/3/18	80.22	423.62	343.40	0.95	100 U	**270**	**240 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/27/19	79.97	423.62	343.65	-0.25	100 U	**270**	**300 J**	**0.63 J**	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	80.20	423.62	343.42	0.23	100 U	**170**	91 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	79.85	423.62	343.77	-0.35	100 U	**450**	**330 J**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/16/20	80.14	423.62	343.48	0.29	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/27/21	80.06	423.62	343.56	-0.08	31.6 U	**601**	**448**	1.00 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	80.79	423.62	342.83	0.73	31.6 U	**273**	**652**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	80.37	423.62	343.25	-0.42	100 U	66.7 U	**736**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	79.45	423.62	344.17	-0.92	100 U	**234**	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-14	5/29/14	77.58	421.97	344.39	--	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	10/29/14	78.80	421.97	343.17	1.22	250 U	250 U	500 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	6/4/15	78.04	421.97	343.93	-0.76	250 U	100 U	250 U	0.50 U	**0.72**	0.50 U	1.0 U	0.50 U
	9/28/15	79.18	421.97	342.79	1.14	250 U	100 U	250 U	0.50 U	**0.72**	0.50 U	1.0 U	0.50 U
	8/29/16	79.32	421.97	342.65	0.14	50 U	**120**	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	12/5/16	78.75	421.97	343.22	-0.57	50 U	110 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	5/17/17	77.55	421.97	344.42	-1.20	500 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	10/24/17	78.78	421.97	343.19	1.23	250 U	100 U	250 U	2.0 U	2.0 U	3.0 U	3.0 U	2.0 U
	6/13/18	77.74	421.97	344.23	-1.04	250 U	**110**	350 U	3.0 U	2.0 U	3.0 U	3.0 U	4.0 U
	12/2/18	78.53	421.84	343.31	0.92	100 U	**170**	350 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/27/19	78.28	421.84	343.56	-0.25	100 U	**80 J**	**120 J**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	78.52	421.84	343.32	0.24	100 U	67 U	99 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	78.16	421.84	343.68	-0.36	100 U	73 U	110 U	0.24 U	0.39 U	0.50 U	0.39 U	**1.0 J**
	12/15/20	78.46	421.84	343.38	0.30	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	78.43	421.84	343.41	-0.03	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	79.20	421.84	342.64	0.77	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/3/22	78.73	421.84	343.11	-0.47	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	77.97	421.84	343.87	-0.76	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U

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Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-15	12/3/18	16.69	358.50	341.81	--	100 U	**70 J**	97 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/26/19	16.41	358.50	342.09	-0.28	100 U	66 U	98 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/10/19	16.78	358.50	341.72	0.37	100 U	64 U	95 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/23/20	16.17	358.50	342.33	-0.61	100 U	68 U	**110 J**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/14/20	16.43	358.50	342.07	0.26	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	16.34	358.50	342.16	-0.09	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	16.90	358.50	341.60	0.56	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	16.63	358.50	341.87	-0.27	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	16.08	358.50	342.42	-0.55	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-16	12/3/18	27.95	370.92	342.97	--	100 U	**82 J**	96 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/26/19	27.60	370.92	343.32	-0.35	100 U	**77 J**	100 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/10/19	27.79	370.92	343.13	0.19	100 U	62 U	91 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/22/20	27.41	370.92	343.51	-0.38	100 U	71 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/16/20	27.69	370.92	343.23	0.28	100 U	120 U	130 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/25/21	27.68	370.92	343.24	-0.01	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	28.32	370.92	342.60	0.64	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	27.92	370.92	343.00	-0.40	100 U	66.7 U	**207 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	27.14	370.92	343.78	-0.78	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-17	12/3/18	81.00	424.28	343.28	--	**180 J**	**880**	**850**	**2.9 J**	**1.9 J**	**8.6 J**	**38 J**	**4.7 J**
	6/27/19	80.62	424.28	343.66	-0.38	100 U	**530**	**640**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/11/19	81.84	424.28	342.44	1.22	100 U	**960**	**800**	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/24/20	80.48	424.28	343.80	-1.36	100 U	**750**	**420**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	80.80	424.28	343.48	0.32	100 U	**350**	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/25/21	80.78	424.28	343.50	-0.02	31.6 U	**486**	**358**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	81.50	424.28	342.78	0.72	31.6 U	**855**	**674**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/3/22	81.04	424.28	343.24	-0.46	100 U	**903**	**503**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	80.12	424.28	344.16	-0.92	100 U	**604**	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-18	12/3/18	--	423.66	--	--	**280**	65 U	96 U	**1.4 J**	**0.83 J**	**3.2**	**15**	**1.7 J**
	6/26/19	80.01	423.69	343.68	--	100 U	**68 J**	100 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	12/12/19	80.12	423.69	343.57	0.11	100 U	62 U	91 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/22/20	79.81	423.69	343.88	-0.31	100 U	68 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	80.11	423.69	343.58	0.30	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/26/21	80.11	423.69	343.58	0.00	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	80.78	423.69	342.91	0.67	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/1/22	80.32	423.69	343.37	-0.46	100 U	66.7 U	**101 J**	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	79.44	423.69	344.25	-0.88	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U

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Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
MW-19	12/3/18	80.80	424.20	343.40	--	**18,000 J**	**3,100**	**110 J**	**300**	**160**	**740**	**630**	**390**
	6/27/19	80.50	424.20	343.70	-0.30	**3,200**	**930**	98 U	**160**	**23**	**180**	**260**	**110 J**
	12/10/19	80.72	424.20	343.48	0.22	**530**	**320**	93 U	**27**	4.1 U	**14**	**56**	**18**
	6/24/20	80.27	424.20	343.93	-0.45	100 U	**110**	**110 J**	**6.0**	0.39 U	**0.57 J**	**2.9 J**	**4.6 J**
	12/16/20	80.65	424.20	343.55	0.38	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/26/21	80.61	424.20	343.59	-0.04	**51.2 J**	**147 J**	83.3 U	1.00 U	0.278 U	0.137 U	3.00 U	**1.56 J**
	10/25/21	81.31	424.20	342.89	0.70	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/1/22	80.92	424.20	343.28	-0.39	100 U	66.7 U	**97.8 J**	0.0941 U	0.278 U	0.137 U	0.17 U	1.00 U
	4/26/23	79.96	424.20	344.24	-0.96	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-20	12/12/19	82.84	426.52	343.68	--	100 U	**77 J**	99 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/22/20	82.68	426.52	343.84	-0.16	100 U	70 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/16/20	82.93	426.52	343.59	0.25	100 U	120 U	130 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	5/26/21	82.94	426.52	343.58	0.01	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	83.60	426.52	342.92	0.66	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/1/22	83.26	426.52	343.26	-0.34	100 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/26/23	82.18	426.52	344.34	-1.08	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-21	12/12/19	82.65	426.16	343.51	--	100 U	67 U	99 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/22/20	82.42	426.16	343.74	-0.23	100 U	72 U	**110 J**	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	82.70	426.16	343.46	0.28	100 U	120 U	130 U	0.24 U	0.39 U	0.50 U	3.0 U	0.93 U
	5/26/21	82.66	426.16	343.50	-0.04	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	83.33	426.16	342.83	0.67	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	83.07	426.16	343.09	-0.26	100 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	82.00	426.16	344.16	-1.07	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-22	12/11/19	77.00	420.45	343.45	--	100 U	64 U	94 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/23/20	76.76	420.45	343.69	-0.24	100 U	66 U	97 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	77.04	420.45	343.41	0.28	100 U	120 U	130 U	0.24 U	0.39 U	0.50 U	3.0 U	0.93 U
	5/26/21	77.00	420.45	343.45	-0.04	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	77.64	420.45	342.81	0.64	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/2/22	77.29	420.45	343.16	-0.35	100 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/25/23	76.34	420.45	344.11	-0.95	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U
MW-23	12/11/19	78.30	421.74	343.44	--	100 U	61 U	90 U	0.53 U	0.39 U	0.50 U	0.75 U	0.93 U
	6/23/20	77.94	421.74	343.80	-0.36	100 U	71 U	100 U	0.24 U	0.39 U	0.50 U	0.39 U	0.93 U
	12/15/20	78.26	421.74	343.48	0.32	100 U	110 U	120 U	0.24 U	0.39 U	0.50 U	3.0 U	4.0 U
	5/26/21	78.30	421.74	343.44	0.04	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 UJ
	10/25/21	78.93	421.74	342.81	0.63	31.6 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	11/3/22	78.53	421.74	343.21	-0.40	100 U	66.7 U	83.3 U	0.0941 U	0.278 U	0.137 U	0.174 U	1.00 U
	4/24/23	77.62	421.74	344.12	-0.91	100 U	200 U	250 U	1.00 U	1.000 U	1.000 U	3.000 U	5.00 U

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Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
	Cleanup Levels [1]					*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [2]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Tidewater Wells													
AR-11	6/25/19	78.84	422.62	343.78	--	--	--	--	--	--	--	--	--
	12/9/19	78.96	422.62	343.66	0.12	--	--	--	--	--	--	--	--
	6/22/20	78.63	422.62	343.99	-0.33	--	--	--	--	--	--	--	--
	12/15/20	79.01	422.62	343.61	0.38	--	--	--	--	--	--	--	--
	5/24/21	78.98	422.62	343.64	-0.03	--	--	--	--	--	--	--	--
	10/25/21	79.62	422.62	343.00	0.64	--	--	--	--	--	--	--	--
	10/31/22	79.18	422.62	343.44	-0.44	--	--	--	--	--	--	--	--
	4/24/23	78.28	422.62	344.34	-0.90	--	--	--	--	--	--	--	--
MW-05	6/25/19	81.29	425.02	343.73	--	--	--	--	--	--	--	--	--
	12/9/19	81.40	425.02	343.62	0.11	--	--	--	--	--	--	--	--
	6/22/20	81.07	425.02	343.95	-0.33	--	--	--	--	--	--	--	--
	12/15/20	81.46	425.02	343.56	0.39	--	--	--	--	--	--	--	--
	5/24/21	81.41	425.02	343.61	-0.05	--	--	--	--	--	--	--	--
	10/25/21	82.06	425.02	342.96	0.65	--	--	--	--	--	--	--	--
	10/31/22	81.63	425.02	343.39	-0.43	--	--	--	--	--	--	--	--
	4/24/23	80.73	425.02	344.29	-0.90	--	--	--	--	--	--	--	--

Notes:
Values in **bold** were reported as detected
= Yellow shaded detections exceed the cleanup level
-- = not analyzed or sample not collected
(1) The Cleanup Levels are included in Table 1 of the *Compliance Monitoring Plan* (AECOM, 2023).
(2) On February 7, 2019, the wells were resurveyed by Stratton Surveying and Mapping, P.C. MW-20 through MW-23 were surveyed on December 10, 2019. Horizontal datum = Washington State Plane South Zone North American Datum 1983(1991). Vertical datum = North American Vertical Datum 29.

Acronyms:
µg/L = microgram per liter
btoc = below top of casing
ft = feet
GW = groundwater
J = estimated concentration
NAVD29 = North American Vertical Datum of 1929
TOC = top of casing
TPH = total petroleum hydrocarbon
TPH-g = gasoline range hydrocarbons (as analyzed by Northwest Method NWPTH-Gx)
TPH-d = diesel range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
TPH-o = motor oil range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
U = analyte not detected above limit shown. With data collected from September 2018 to April 2023, the limit shown is the method detection limit; then starting in April 2023, the limit shown is the method reporting limit in compliance with the *Compliance Monitoring Plan* (AECOM, 2023).
UJ = analyte not detected above laboratory report limit; reporting limit estimated.

Table C1. Groundwater Elevations and Analytical Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Depth to GW	TOC Elevation	GW Elevation	Change in GW Elevation	Chemicals of Concern							
						TPH-g	TPH-d	TPH-o	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
				Cleanup Levels [(1)]		*800/1,000*	*500*	*500*	*5*	*1,000*	*700*	*1,000*	*160*
	Units:	*ft btoc*	*ft NAVD29* [(2)]		*ft*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Tidewater Wells													
AR-11	6/25/19	78.84	422.62	343.78	--	--	--	--	--	--	--	--	--
	12/9/19	78.96	422.62	343.66	0.12	--	--	--	--	--	--	--	--
	6/22/20	78.63	422.62	343.99	-0.33	--	--	--	--	--	--	--	--
	12/15/20	79.01	422.62	343.61	0.38	--	--	--	--	--	--	--	--
	5/24/21	78.98	422.62	343.64	-0.03	--	--	--	--	--	--	--	--
	10/25/21	79.62	422.62	343.00	0.64	--	--	--	--	--	--	--	--
	10/31/22	79.18	422.62	343.44	-0.44	--	--	--	--	--	--	--	--
	4/24/23	78.28	422.62	344.34	-0.90	--	--	--	--	--	--	--	--
MW-05	6/25/19	81.29	425.02	343.73	--	--	--	--	--	--	--	--	--
	12/9/19	81.40	425.02	343.62	0.11	--	--	--	--	--	--	--	--
	6/22/20	81.07	425.02	343.95	-0.33	--	--	--	--	--	--	--	--
	12/15/20	81.46	425.02	343.56	0.39	--	--	--	--	--	--	--	--
	5/24/21	81.41	425.02	343.61	-0.05	--	--	--	--	--	--	--	--
	10/25/21	82.06	425.02	342.96	0.65	--	--	--	--	--	--	--	--
	10/31/22	81.63	425.02	343.39	-0.43	--	--	--	--	--	--	--	--
	4/24/23	80.73	425.02	344.29	-0.90	--	--	--	--	--	--	--	--

Notes:
Values in **bold** were reported as detected
= Yellow shaded detections exceed the cleanup level
-- = not analyzed or sample not collected
(1) The Cleanup Levels are included in Table 1 of the *Compliance Monitoring Plan* (AECOM, 2023).
(2) On February 7, 2019, the wells were resurveyed by Stratton Surveying and Mapping, P.C. MW-20 through MW-23 were surveyed on December 10, 2019. Horizontal datum = Washington State Plane South Zone North American Datum 1983(1991). Vertical datum = North American Vertical Datum 29.

Acronyms:
µg/L = microgram per liter
btoc = below top of casing
ft = feet
GW = groundwater
J = estimated concentration
NAVD29 = North American Vertical Datum of 1929
TOC = top of casing
TPH = total petroleum hydrocarbon
TPH-g = gasoline range hydrocarbons (as analyzed by Northwest Method NWPTH-Gx)
TPH-d = diesel range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
TPH-o = motor oil range hydrocarbons (as analyzed by Northwest Method NWTPH-Dx)
U = analyte not detected above limit shown. With data collected from September 2018 to April 2023, the limit shown is the method detection limit; then starting in April 2023, the limit shown is the method reporting limit in compliance with the *Compliance Monitoring Plan* (AECOM, 2023).
UJ = analyte not detected above laboratory report limit; reporting limit estimated.

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-02	5/29/14	7.16	1.215	2.49	17.58	146.3	**1.16**	**13.8**	**100**	**537**	0.0050 U	0.0010 U
	10/29/14	6.85	1.578	1.07	17.51	91.6	**1.33**	**2.6**	**140**	**730**	**0.011**	0.0010 U
	6/4/15	6.84	1.018	2.21	17.97	-66.6	**0.53**	**0.1**	**107**	**558**	0.0050 U	0.0010 U
	9/28/15	6.91	1.467	1.77	17.60	-7.0	--	**1.7**	**167**	**711**	0.0050 U	**0.0242**
	8/29/16	7.38	1.40	1.74	19.89	94	--	--	**110**	--	0.020 U	0.0050 U
	12/5/16	6.63	1.05	6.16	15.80	282	--	--	**89**	**400**	--	0.0050 U
	10/24/17	7.34	1.27	8.93	17.58	112	0.00	**9.70**	**110**	**350**	0.020 U	**0.0083**
	6/14/18	6.84	1.16	3.40	22.39	178	**0.96**	**11.0**	**110**	**400**	0.020 U	0.0050 U
	12/2/18	7.54	1.68	4.81	13.55	206	**0.15**	**10.8**	**92**	**680**	0.0017 U	**0.022**
	6/26/19	6.93	1.4	IE	17.80	115	**0.12**	**17.9**	**120**	**560**	**0.0066 J**	**0.0017** U
	12/11/19	7.00	1.54	1.55	13.57	120	0.00	**16.8**	**110**	**530**	0.0017 U	0.0050 U
	6/24/20	6.91	1.42	2.27	29.34	97	**0.02**	**12.7**	**110**	**560**	0.0017 U	0.0050 U
	12/15/20	7.72	1.319	2.37	15.25	109.4	**0.82**	**5.4**	**100**	**540**	**0.0022 J**	0.0050 U
	5/25/21	7.45	1.450	3.05	21.30	87	**0.02**	**11.4**	**97.9**	**692**	**0.0018 J**	0.00291 U
	10/26/21	7.31	1.18	0.00	17.79	133	0.00	**3.3**	**98.6**	**430**	0.000855 U	0.00291 U
	11/3/22	8.22	1.38	0.18	15.60	74	0.00	**>MAX**	**97.9**	**509**	**0.00190 J**	0.00291 U
	4/26/23	7.00	1.379	3.24	16.26	183.9	0	**14.6**	**86.4**	**541 J**	0.0100 U	0.0100 U
MW-03	5/28/14	7.15	1.053	--	18.12	-105.6	--	--	--	--	--	--
	10/30/14	6.91	1.136	0.84	17.28	-144.7	--	--	--	--	--	--
	6/4/15	6.82	1.353	0.95	18.61	-154.0	--	--	--	--	--	--
	9/29/15	6.82	1.174	1.01	17.51	-174.4	--	--	--	--	--	--
	8/30/16	7.13	1.190	2.42	18.13	-153.0	--	--	--	--	--	--
	12/2/16	6.86	0.963	3.24	16.06	36	--	--	--	--	--	--
	5/16/17	7.27	0.996	0.82	17.01	-37	--	--	--	--	--	--
	10/25/17	7.41	1.20	4.01	17.58	-105	--	--	--	--	--	--
	6/14/18	6.70	1.03	2.75	19.46	42	--	--	--	--	--	--
	12/4/18	7.56	1.28	8.82	16.31	-65	--	--	**29**	**520**	**0.96**	**1.7**
	6/26/19	6.99	1.03	IE	18.20	-120	**1.71**	**2.7**	**32**	**470**	**0.80**	**2.1**
	12/11/19	7.22	1.31	0.83	14.47	-192	**1.28**	**1.3**	**63**	**450 J**	**0.81**	**0.50**
	6/24/20	7.02	1.22	0.96	22.25	-100	**1.9**	**1.9**	**61**	**450**	**0.66**	**0.063**
	12/16/20	7.60	1.274	1.30	16.10	-94.2	**1.11**	0.0	**49**	**500**	**0.77**	**1.1**
	5/27/21	7.09	1.41	0.00	17.02	-93	**1.27**	**1.5**	**37.7**	**557**	**0.719**	**1.92**
	10/25/21	7.07	1.35	1.05	16.79	-88	**2.72**	**2.9**	**27.5**	**648**	**0.862**	**2.74**
	11/2/22	7.20	1.19	0.00	15.67	-98	**2.79**	**0.7**	**45.2**	**544**	**0.697**	**0.869**
	4/25/23	7.34	1.367	0.49	16.06	-150.2	**0.66**	0	**71.2**	**455 J**	**0.580**	**0.336**

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-04	5/28/14	7.68	0.728	--	17.78	82.2	--	--	--	--	--	--
	10/28/14	7.38	0.741	7.75	16.90	36.0	--	--	--	--	--	--
	6/3/15	7.40	0.751	8.28	17.76	-23.6	--	--	--	--	--	--
	9/28/15	--	--	--	--	--	--	--	--	--	--	--
	8/30/16	8.36	0.813	7.34	18.32	59	--	--	--	--	--	--
	12/5/16	--	--	--	--	--	--	--	--	--	--	--
	5/15/17	7.99	0.861	7.78	17.9	-27	--	--	--	--	--	--
	6/13/18	7.49	0.813	7.56	20.99	161	--	--	--	--	--	--
	6/26/19	7.40	0.962	6.62	19.15	150	--	--	--	--	--	--
	6/23/20	7.57	1.05	9.28	19.38	84	--	--	--	--	--	**0.00099 J**
	5/25/21	7.60	1.12	7.74	17.46	165	--	--	--	--	--	--
	4/25/23	7.77	1.027	8.27	16.12	27.4	0	**9.6**	**115**	**190 J**	0.0100 U	0.0100 U
MW-06	5/29/14	7.93	0.095	8.78	15.40	127.1	0.00	**18.5**	**110**	**252**	0.0050 U	0.0010 U
	10/29/14	7.43	0.817	6.79	19.45	84.7	**0.40**	0.0	**100**	**185**	0.0050 U	0.0010 U
	6/3/15	7.53	0.744	8.59	17.18	-44.8	0.00	0.0	**107**	**169**	0.0050 U	**0.00168**
	9/28/15	7.53	0.812	6.76	19.23	-8.5	--	**15.7**	**108**	**189**	0.0050 U	0.0010 U
	8/30/16	8.30	0.836	7.39	18.88	110	--	--	**100**	--	0.020 U	0.0050 U
	12/5/16	6.83	0.851	6.84	14.54	207	--	--	**93**	**170**	0.020 U	0.0050 U
	5/16/17	8.06	0.824	7.89	14.65	66	--	--	**96**	**150**	0.020 U	**0.0085**
	10/23/17	7.61	0.863	9.32	19.68	186	0.00	**0.04**	**98**	**180**	0.020 U	0.0050 U
	6/11/18	7.38	0.828	8.38	20.69	156	0.00	**8.09**	**96 J**	**150**	0.020 U	0.0050 U
	12/2/18	7.98	0.963	7.86	18.65	241	0.00	**66.5**	**100**	**170**	**0.0021 J**	0.0017 U
	6/26/19	7.54	0.831	IE	17.70	121	0.00	**14.7**	**100**	**140**	0.0050 U	0.0017 U
	12/10/19	7.69	1.07	9.47	14.60	10	**0.01**	**9.2**	**110**	**160**	0.0017 U	0.0010 U
	6/23/20	7.55	1.08	9.05	19.09	103	**0.11**	**8.1**	**110**	**160**	0.0017 U	0.00050 U
	12/16/20	7.88	2.036	8.38	16.20	92	0.00	**17.4**	**110**	**150**	0.0017 U	0.00050 U
	5/24/21	7.60	1.19	5.53	20.50	102	0.00	**18.3**	**107**	**164**	0.000855 U	**0.0133**
	10/26/21	7.60	1.12	0.00	18.59	174	**0.47**	**7.8**	**119**	**179**	0.000855 U	0.00291 U
	11/2/22	8.40	0.984	7.99	17.31	105	**0.11**	**5.5**	**119**	**348**	**0.0487**	**0.0200**
	4/25/23	7.58	1.137	10.04	15.12	148.4	0	**8.2**	110	**154 J**	0.0100 U	0.0100 U

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-07	5/28/14	7.63	0.775	--	18.48	101.7	--	--	--	--	--	--
	10/29/14	7.48	0.773	7.43	16.81	84.1	--	--	--	--	--	--
	6/3/15	7.10	0.843	6.78	18.03	-1.8	--	--	--	--	--	--
	9/28/15	7.10	0.798	7.40	17.31	-6.4	--	**6.0**	**103**	**203**	**0.0086**	0.0010 U
	8/30/16	7.96	0.964	6.92	19.01	94	--	--	--	--	--	--
	12/5/16	7.06	0.839	7.90	15.85	165	--	--	--	--	--	--
	5/15/17	7.62	0.863	6.10	17.30	35	--	--	--	--	--	--
	10/24/17	7.83	0.918	7.73	17.67	145	--	--	--	--	--	--
	6/13/18	7.25	0.837	6.58	22.15	182	--	--	--	--	--	--
	12/4/18	8.02	0.976	8.26	13.19	173	--	--	--	--	--	--
	6/26/19	7.42	1.19	4.35	21.12	166	--	--	--	--	--	--
	12/11/19	7.36	1.05	5.38	14.10	107	--	--	--	--	--	--
	6/23/20	7.31	1.03	8.37	21.48	94	--	--	--	--	--	--
	12/14/20	7.66	0.979	8.02	15.20	132	--	--	--	--	--	--
	5/25/21	7.40	1.2	6.20	16.48	180	--	--	--	--	--	--
	10/27/21	7.61	1.05	0.47	17.21	186	--	--	--	--	--	--
	11/2/22	7.48	0.912	4.98	15.50	179	--	--	--	--	--	--
	4/25/23	7.66	1.055	8.00	16.67	67.1	0	**8.0**	**116**	**199 J**	0.0100 U	0.0100 U
MW-08	5/28/14	7.70	0.755	--	17.50	89.5	**0.59**	**16.8**	**110**	**242**	0.0050 U	0.0010 U
	10/29/14	7.37	0.774	7.05	17.34	75.3	0.00	**18.4**	**100**	**190**	0.0072 U	0.0010 U
	6/3/15	7.39	0.778	7.38	17.90	-42.7	0.00	**16.7**	**108**	**185**	0.0050 U	0.0010 U
	9/28/15	--	--	--	--	--	--	--	--	--	--	--
	8/30/16	7.72	0.843	5.29	19.46	143	--	--	**100**	--	0.020 U	0.0050 U
	12/5/16	--	--	--	--	--	--	--	--	--	--	--
	5/17/17	7.88	0.869	5.68	17.96	28	--	--	**100**	**170**	0.020 U	0.0050 U
	6/11/18	7.28	0.866	7.46	19.77	175	0.00	**42.9**	**120**	**180**	0.020 U	0.0050 U
	6/26/19	7.58	0.848	IE	18.29	116	--	--	--	--	--	--
	6/23/20	7.46	0.925	5.11	25.04	107	0.00	**15.9**	**130**	**180**	0.0017 U	**0.00062 J**
	5/26/21	7.56	1.14	7.16	17.73	153	0.00	**>35.0**	--	--	--	--
	4/25/23	7.52	1.044	8.54	16.77	110.8	0	**15**	**117**	**195 J**	0.0100 U	0.0100 U

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-10	5/28/14	7.65	0.764	--	17.91	137.6	--	--	--	--	--	--
	10/29/14	7.40	0.769	7.45	17.02	80.6	--	--	--	--	--	--
	6/3/15	7.29	0.78	7.32	17.90	-34.4	--	--	--	--	--	--
	9/28/15	--	--	--	--	--	--	--	--	--	--	--
	8/30/16	8.28	0.831	5.40	18.26	100	--	--	--	--	--	--
	12/5/16	--	--	--	--	--	--	--	--	--	--	--
	5/15/17	7.39	0.888	6.24	17.41	29	--	--	--	--	--	--
	6/13/18	7.35	0.730	4.96	28.26	178	--	--	--	--	--	--
	6/26/19	7.60	1.01	6.38	18.25	155	--	--	--	--	--	--
	6/23/20	7.40	1.04	7.45	20.04	91	--	--	--	--	--	--
	5/25/21	7.71	1.04	6.67	16.54	100	--	**--**	**--**	**--**	--	--
	4/25/23	7.53	1.055	7.91	16.43	86.3	0	**9.6**	**117**	**200 J**	0.0100 U	0.0100 U
MW-11	5/29/14	7.20	0.889	1.08	19.27	102.7	--	--	--	--	--	--
	10/30/14	6.96	0.932	1.12	18.47	89.0	--	--	--	--	--	--
	6/4/15	6.89	0.916	0.94	18.97	-49.8	--	--	--	--	--	--
	9/29/15	6.89	0.914	0.89	18.40	-15.4	--	--	--	--	--	--
	8/29/16	7.32	0.952	2.67	19.99	148	--	--	--	--	--	--
	12/5/16	6.70	0.933	1.73	17.14	204	--	--	--	--	--	--
	5/16/17	7.44	0.949	4.79	17.41	46	--	--	--	--	--	--
	10/25/17	7.37	1.040	7.49	18.57	154	--	--	--	--	--	--
	6/14/18	6.71	0.956	3.35	21.77	198	--	--	--	--	--	--
	12/2/18	7.48	1.14	5.47	15.49	231	--	--	--	--	--	--
	6/27/19	6.98	1.29	1.70	17.37	213	--	--	--	--	--	--
	12/11/19	7.21	1.10	2.97	15.90	34	--	--	--	--	--	--
	6/24/20	6.95	1.38	0.00	20.84	83	--	--	--	--	--	--
	12/15/20	7.43	1.154	2.73	15.93	133.1	--	--	--	--	--	--
	5/25/21	7.23	1.12	1.77	18.78	122	--	**--**	**--**	**--**	--	--
	10/27/21	7.13	1.07	0.00	17.33	189	--	--	--	--	--	--
	11/2/22	6.94	0.952	0.43	16.08	167	--	--	--	--	--	--
	4/26/23	6.89	1.079	5.08	16.65	196.1	0	**16.5**	**109**	**261 J**	**0.0731**	0.0100 U

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-12	5/29/14	7.22	0.993	1.81	19.82	-27.5	--	**9.2**	**110**	**309**	**0.270**	**0.0142**
	10/30/14	6.82	1.135	2.55	16.73	-50.6	**4.68**	0.0	**110**	**350**	**0.280**	**0.0870**
	6/4/15	6.82	1.017	2.17	18.40	-74.5	**0.34**	**10.4**	**113**	**312**	**0.201**	0.0010 U
	9/29/15	6.82	1.124	1.15	16.49	-63.7	--	**7.0**	**107**	**367**	**0.252**	**0.0362**
	8/29/16	7.45	1.290	1.10	19.42	-10	--	--	**83**	--	**0.25**	**0.760**
	12/6/16	6.80	0.993	3.22	14.52	121	--	--	--	**270**	**0.19**	**0.063**
	5/16/17	7.96	0.965	3.93	15.97	36	--	--	**100**	**240**	**0.16**	**0.012**
	10/24/17	7.50	1.100	3.39	17.70	49	0.00	**10.5**	**98.0**	**270**	**0.19**	**0.090**
	6/14/18	6.57	1.120	1.95	18.69	212	0.00	**23.8**	**120**	**290**	**0.043**	0.0050 U
	12/3/18	7.57	1.36	5.67	13.71	176	0.00	**16.4**	**130**	**370**	**0.074**	0.0017 U
	6/27/19	6.97	1.11	IE	15.90	164	**0.09**	**4.7**	**120 J**	**340**	**0.10**	**0.026**
	12/11/19	7.29	1.30	3.22	12.59	15	**0.01**	**7.0**	**140**	**290 J**	**0.076**	**0.0015 J**
	6/24/20	6.76	1.41	0.00	22.66	114	**0.11**	**4.3**	**140**	**430**	**0.12**	**0.0064**
	12/16/20	7.59	1.273	3.16	15.10	121.4	0.00	**7.2**	**140**	**360**	**0.14**	**0.0037**
	5/27/21	7.44	1.44	0.19	16.49	141	0.00	**12.4**	**114**	**513**	0.0963	0.0386
	10/27/21	7.26	1.31	0.00	16.54	189	**0.16**	**0.5**	**123**	**365**	0.000855 U	**0.0190**
	11/2/22	7.06	1.08	1.33	14.93	196	**0.02**	**0.8**	**122**	**179**	0.000934 U	0.0029 U
	4/26/23	7.10	1.193	3.69	15.73	174.9	0	**4.5**	**113**	**321 J**	**0.0559**	0.0100 U
MW-14	5/29/14	7.53	0.795	5.70	17.69	101.4	--	--	--	--	--	--
	10/29/14	7.23	0.805	5.65	17.81	105.4	--	--	--	--	--	--
	6/4/15	7.39	0.784	6.22	17.02	-46.6	--	--	--	--	--	--
	8/29/16	7.71	0.877	5.19	18.76	120	--	--	--	--	--	--
	12/5/16	6.97	0.855	6.29	15.43	178	--	--	--	--	--	--
	5/17/17	7.71	0.923	3.02	17.44	46	--	--	--	--	--	--
	10/24/17	7.70	0.932	6.18	17.69	144	--	--	--	--	--	--
	12/2/18	7.87	1.01	7.32	15.75	222	--	--	--	--	--	--
	6/27/19	7.54	1.18	3.44	16.30	160	--	--	--	--	--	--
	12/11/19	7.21	1.02	4.27	14.38	107	--	--	--	--	--	--
	6/24/20	7.24	1.06	4.61	20.61	116	--	--	--	--	--	--
	12/15/20	7.90	1.032	7.28	16.10	111.3	--	--	--	--	--	--
	5/25/21	7.58	1.09	5.21	17.23	83	--	**--**	**--**	**--**	--	--
	10/26/21	7.51	1.06	0.00	17.20	184	--	--	--	--	--	--
	11/3/22	8.43	0.916	4.26	15.50	110	--	--	--	--	--	--
	4/26/23	7.29	1.052	7.96	16.24	202.3	0	**18.6**	**119**	**207 J**	0.0100 U	0.0100 U

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-15	12/3/18	8.02	0.950	6.16	16.03	178	--	--	--	--	--	--
	6/26/19	7.60	0.990	4.44	18.75	168	--	--	--	--	--	--
	12/10/19	7.37	1.07	4.99	12.99	63	--	--	--	--	--	--
	6/23/20	7.38	0.904	4.46	27.69	108	--	--	--	--	--	--
	12/14/20	7.92	1.017	6.74	15.00	92.8	--	--	--	--	--	--
	5/25/21	7.51	1.18	5.92	16.67	170	--	--	--	--	--	--
	10/25/21	7.52	1.04	0.00	19.38	171	--	--	--	--	--	--
	11/2/22	8.36	0.914	5.54	16.82	91	--	--	--	--	--	--
	4/25/23	7.38	1.052	7.52	15.95	166.7	0	**8.6**	**119**	**204 J**	0.0100 U	0.0100 U
MW-16	12/3/18	8.04	0.949	6.37	16.40	186	--	--	--	--	--	--
	6/2/19	7.58	1.02	4.48	18.08	166	--	--	--	--	--	--
	12/10/19	7.62	1.01	6.11	15.28	-73	**0.01**	**8.4**	**120**	**190 J**	0.0017 U	**0.0029**
	6/22/20	7.18	1.04	4.09	22.10	80	**0.03**	**15.7**	**130**	**180**	0.0017 U	0.00050 U
	12/16/20	7.99	1.026	6.62	16.20	69.3	0.00	**17.1**	**130**	**190**	0.0017 U	0.00050 U
	5/25/21	7.46	1.15	4.56	18.87	151	0.00	**26.9**	**124**	**200**	**0.00120 J**	0.00291 U
	10/26/21	7.57	1.04	0.00	16.93	173	**0.60**	**6.8**	**126**	**206**	0.000855 U	0.00291 U
	11/2/22	8.42	0.911	3.62	15.07	94	**0.05**	**>MAX**	**121**	**204**	0.000934 U	0.00291 U
	4/25/23	7.46	1.051	7.29	16.49	161.1	0	**19.6**	**117**	**205 J**	0.0100 U	0.0100 U
MW-17	12/3/18	7.46	1.77	5.47	13.77	139	--	--	--	--	--	--
	6/27/19	7.11	1.63	2.78	15.82	185	--	--	--	--	--	--
	12/11/19	6.91	1.54	2.96	13.84	118	--	--	--	--	--	--
	6/24/20	7.18	1.33	9.1	18.86	100	--	--	--	--	--	--
	12/15/20	7.38	1.259	6.94	14.10	107	--	--	--	--	--	--
	5/25/21	7.25	1.27	8.75	16.72	118	--	--	--	--	--	--
	10/26/21	7.28	1.34	0.00	17.01	195	--	--	--	--	--	--
	11/3/22	7.15	1.17	2.54	14.63	185	--	--	--	--	--	--
	4/26/23	7.29	1.316	6.12	15.97	112.4	0	**12.3**	**146**	**272 J**	0.0100 U	0.0100 U
MW-18	12/4/18	7.95	1.06	7.62	11.93	101	--	--	--	--	--	--
	6/26/19	7.12	1.10	IE	18.79	126	**0.12**	**23.4**	**150 J**	**220**	0.0050 U	0.0017 U
	12/12/19	7.42	1.49	7.25	14.20	46	0.00	**15.2**	**170**	**240**	0.0017 U	**0.0043**
	6/22/20	7.10	1.28	7.1	19.54	119	0.00	**10.7**	**160**	**210**	0.0017 U	0.00050 U
	12/15/20	7.53	1.049	8.10	15.50	109	**0.01**	**16.5**	**150**	**220**	0.0017 U	0.00050 U
	5/26/21	7.33	1.210	6.42	17.10	211	**0.02**	**23.6**	**131**	**214**	0.000855 U	0.00291 U
	10/26/21	7.44	1.06	4.06	16.62	145	**0.28**	**25.1**	**136**	**220**	0.000855 U	0.00291 U
	11/1/202	7.31	0.946	9.21	15.90	224	**0.00**	**5.5**	**130**	**210**	0.000934 U	0.00291 U
	4/26/23	7.43	1.118	8.40	16.81	122.7	0	**6.2**	**123**	**221 J**	0.0100 U	0.0100 U
MW-19	12/3/18	7.44	2.04	4.76	13.11	-75	--	--	--	--	--	--
	6/27/19	7.27	1.05	IE	16.62	-121	**1.37**	**13.8**	**120**	**240**	**0.14**	**1.3**
	12/10/19	7.32	1.20	7.16	16.44	-134	**0.14**	**14.0**	**150**	**220**	**0.079**	**0.27**
	6/24/20	7.26	1.19	7.06	18.80	48	**0.02**	**13.8**	**140**	**200**	**0.028**	**0.12**
	12/16/20	7.64	1.985	6.41	15.80	103	0.00	**16.1**	**140**	**200**	**0.0021 J**	0.00050 U
	5/26/21	7.29	1.20	3.12	17.73	88	**0.01**	**20.0**	**115**	**255**	**0.0248**	**0.0724**
	10/27/21	7.47	1.05	0.00	17.24	183	**--**	**15.7**	**123**	**219**	**0.00121 J**	0.00291 U
	11/1/22	8.22	0.928	4.54	15.53	140	**0.32**	**5.5**	**123**	**215**	**0.00112 J**	0.00291 U
	4/26/23	7.52	1.084	6.41	16.08	92.7	0	**9.0**	**112**	**228 J**	0.0100 U	0.0100 U

Table C2. Field Parameters and Natural Attenuation Results - 2014-2023
Chevron Pipe Line Company Pasco Bulk Fuel Terminal

Well ID	Sample Date	Field Parameters							Laboratory Analytical			
		pH	Conductivity	Dissolved Oxygen	Temperature	ORP	Ferrous Iron	Nitrate	Sulfate	Alkalinity	Manganese (Dissolved)	Methane
	Units:	*su*	*mS/cm*	*mg/L*	*deg C*	*mV*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
MW-20	12/12/19	7.89	0.993	6.36	15.70	7	0.00	**21.5**	**130**	**170 J**	**0.012 J**	0.00050 U
	6/22/20	7.53	1.01	7.95	20.41	93	**0.08**	**9.8**	**130**	**170**	0.0017 U	**0.00075 J**
	12/16/20	7.91	1.905	8.04	15.70	89	**0.02**	**5.7**	**140**	**160**	**0.0019 J**	0.00050 U
	5/26/21	7.29	1.2	3.12	17.54	179	0.00	**33.7**	**124**	**185**	0.000855 U	0.00291 U
	10/26/21	7.69	0.98	4.01	14.95	131	0.00	**33.9**	**129**	**181**	0.000855 U	0.00291 U
	11/1/22	7.56	0.889	6.83	15.88	214	**0.06**	**5.5**	**127**	**185**	0.000934 U	0.00291 U
	4/26/23	7.57	1.061	8.39	16.90	126.5	0	**11.6**	**120**	**192 J**	0.0100 U	0.0100 U
MW-21	12/12/19	7.71	1.02	6.25	14.21	108	0.00	**20.2**	**130**	**170**	0.0017 U	0.00050 U
	6/22/20	7.54	1.07	7.27	18.57	78	**0.10**	**35**	**130**	**160**	0.0017 U	0.00050 U
	12/15/20	7.85	1.974	8.12	14.90	103	**0.01**	**20.6**	**150**	**170**	0.0017 U	0.00050 U
	5/26/21	7.81	1.02	7.97	17.59	146	**0.08**	**12.4**	**124**	**189**	0.000855 U	0.00291 U
	10/27/21	7.63	0.967	3.81	16.37	182	**0.07**	**9.9**	**128**	**183**	0.000855 U	0.00291 U
	11/2/22	8.59	0.910	6.80	15.43	109	**0.01**	**>MAX**	**128**	**188**	0.001480 J	0.00291 U
	4/25/23	7.66	1.064	8.40	16.18	85.9	0	**7.4**	**116**	**195 J**	0.0100 U	0.0100 U
MW-22	12/11/19	7.50	1.05	5.69	14.61	102	**0.04**	**25**	**140**	**170 J**	0.0017 U	**0.00075 J**
	6/23/20	7.62	0.992	6.57	21.61	107	**0.09**	**7.4**	**130**	**170**	0.0017 U	0.00050 U
	12/15/20	7.85	1.978	8.17	15.80	92	0.00	**12.3**	**150**	**170**	0.0017 U	0.00050 U
	5/26/21	7.89	0.999	7.46	18.68	125	**0.25**	**27.7**	**127**	**189**	0.000855 U	0.00291 U
	10/27/21	7.76	1.03	0.78	16.90	179	**0.04**	**13.9**	**129**	**179**	0.000855 U	0.00291 U
	11/2/22	7.58	0.868	6.61	15.61	199	**0.00**	**5.5**	**124**	**187**	0.000934 U	0.00291 U
	4/25/23	7.76	1.006	9.06	16.19	87.1	0	**16.1**	**110**	**196 J**	0.0100 U	0.0100 U
MW-23	12/11/19	7.75	1.02	5.90	15.06	12	0.00	**6.5**	**130**	**170**	**0.042**	0.00050 U
	6/24/20	7.56	1.10	8.01	17.51	84	**0.10**	**30.8**	**130**	**180**	0.0017 U	0.00050 U
	12/15/20	8.11	1.062	8.33	16.60	116.1	**0.03**	**20.5**	**150**	**170**	0.0017 U	0.00050 U
	5/26/21	7.58	1.18	6.25	18.69	158	**0.07**	**28.0**	**129**	**186**	0.000855 U	0.00291 U
	10/27/21	7.70	1.06	0.80	17.14	183	0.00	**25.7**	**133**	**189**	0.000855 U	0.00291 U
	11/3/22	7.53	0.873	5.58	15.46	190	**0.02**	**5.0**	**124**	**190**	0.000934 U	0.00291 U
	4/24/23	7.62	1.019	8.69	16.51	46.4	0	**19.3**	**110**	**196 J**	0.0100 U	0.0100 U

Notes:
-- = not analyzed or sample not collected
Values in **bold** were detected above the detection limit

Acronyms:
deg C = degrees Celsius
IE = Instrument Error
J = estimated concentration
mg/L = milligrams per liter
mS/cm = milliseimens per centimeter
mV = millivolts
ORP = Oxidation Reduction Potential
su = Standard Unit
U = analyte not detected above limit shown

ATTACHMENT D

Laboratory Report and Chain of Custody Form

ANALYTICAL REPORT

May 08, 2023

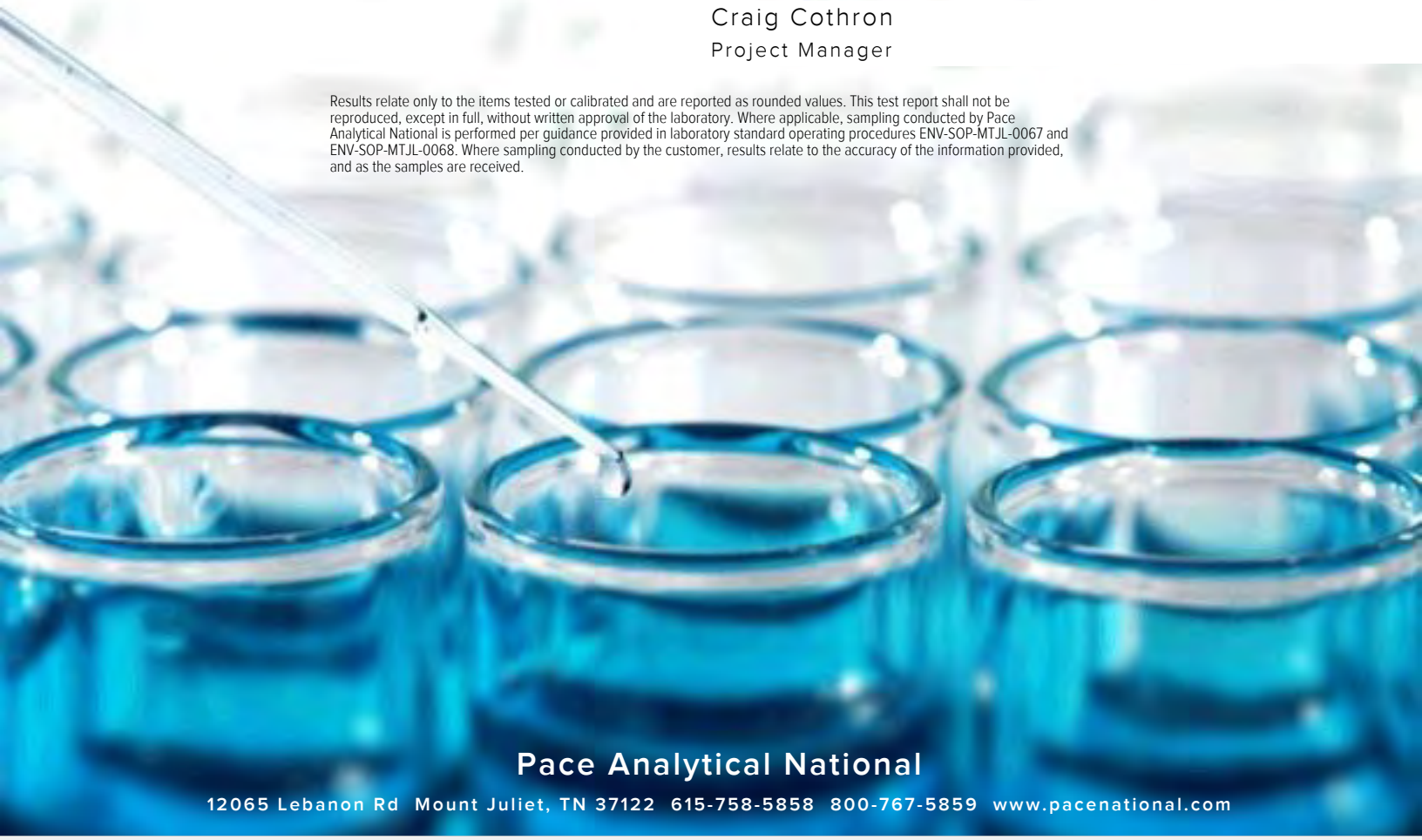
AECOM - Portland, OR

Sample Delivery Group:	L1610295
Samples Received:	04/28/2023
Project Number:	
Description:	CPL Co. Pasco Bulk Fuel Terminal
Site:	55763995
Report To:	Ms. Nicky Moody 888 SW 5th Ave Suite 600 Portland, OR 97204

Entire Report Reviewed By:

Craig Cothron
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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MW-02-20230426 L1610295-01 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 14:20 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 14:20	05/03/23 14:20	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	1	05/05/23 05:10	05/05/23 05:10	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:32	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2053161	1	05/03/23 17:30	05/03/23 17:30	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2052572	1	05/03/23 15:52	05/03/23 15:52	CCM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/29/23 23:07	04/29/23 23:07	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 01:32	MWS	Mt. Juliet, TN

MW-03-20230426 L1610295-02 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 09:10 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 14:26	05/03/23 14:26	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	1	05/05/23 05:58	05/05/23 05:58	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:35	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2053161	1	05/03/23 17:52	05/03/23 17:52	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2053545	1	05/04/23 09:08	05/04/23 09:08	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/29/23 23:28	04/29/23 23:28	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 01:53	MWS	Mt. Juliet, TN

MW-04-20230426 L1610295-03 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 11:05 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 14:31	05/03/23 14:31	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 06:14	05/05/23 06:14	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:37	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 17:16	05/02/23 17:16	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2053545	1	05/04/23 09:10	05/04/23 09:10	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/29/23 23:49	04/29/23 23:49	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 02:13	MWS	Mt. Juliet, TN

MW-06-20230426 L1610295-04 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 14:10 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 14:38	05/03/23 14:38	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 06:30	05/05/23 06:30	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:40	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 17:39	05/02/23 17:39	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:27	05/05/23 11:27	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 00:10	04/30/23 00:10	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 02:33	MWS	Mt. Juliet, TN

MW-07-20230426 L1610295-05 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 14:34 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:01	05/01/23 12:01	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 06:46	05/05/23 06:46	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:49	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 18:02	05/02/23 18:02	ACG	Mt. Juliet, TN

MW-07-20230426 L1610295-05 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 14:34 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:29	05/05/23 11:29	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 00:32	04/30/23 00:32	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 02:53	MWS	Mt. Juliet, TN

MW-08-20230426 L1610295-06 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 11:50 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 14:43	05/03/23 14:43	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 07:01	05/05/23 07:01	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:51	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 18:24	05/02/23 18:24	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:32	05/05/23 11:32	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 00:52	04/30/23 00:52	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 03:13	MWS	Mt. Juliet, TN

MW-10-20230426 L1610295-07 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 13:05 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:08	05/01/23 12:08	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 07:17	05/05/23 07:17	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:54	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 18:55	05/02/23 18:55	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:36	05/05/23 11:36	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 01:13	04/30/23 01:13	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 03:34	MWS	Mt. Juliet, TN

MW-11-20230426 L1610295-08 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 11:45 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:15	05/01/23 12:15	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 07:33	05/05/23 07:33	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:57	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 19:52	05/02/23 19:52	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:49	05/05/23 11:49	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 01:34	04/30/23 01:34	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 03:54	MWS	Mt. Juliet, TN

MW-12-20230426 L1610295-09 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 09:20 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:22	05/01/23 12:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	1	05/05/23 07:49	05/05/23 07:49	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 00:21	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 20:26	05/02/23 20:26	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 11:51	05/05/23 11:51	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 01:55	04/30/23 01:55	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 04:14	MWS	Mt. Juliet, TN

MW-14-20230426 L1610295-10 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 16:05 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 15:14	05/03/23 15:14	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	1	05/05/23 09:09	05/05/23 09:09	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:00	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 20:48	05/02/23 20:48	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:06	05/05/23 13:06	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 02:16	04/30/23 02:16	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 05:15	MWS	Mt. Juliet, TN

MW-15-20230425 L1610295-11 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 16:10 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052212	1	05/03/23 15:19	05/03/23 15:19	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 09:41	05/05/23 09:41	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:03	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 21:37	05/02/23 21:37	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:11	05/05/23 13:11	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 02:37	04/30/23 02:37	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 05:35	MWS	Mt. Juliet, TN

MW-16-20230425 L1610295-12 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 18:20 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:35	05/01/23 12:35	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 09:57	05/05/23 09:57	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:06	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 22:00	05/02/23 22:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:14	05/05/23 13:14	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 02:59	04/30/23 02:59	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 05:55	MWS	Mt. Juliet, TN

MW-17-20230426 L1610295-13 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 11:17 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052452	1	05/02/23 14:49	05/02/23 14:49	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 10:12	05/05/23 10:12	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:09	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 22:22	05/02/23 22:22	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:16	05/05/23 13:16	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 03:20	04/30/23 03:20	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 06:15	MWS	Mt. Juliet, TN

MW-18-20230426 L1610295-14 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 16:33 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052452	1	05/02/23 15:04	05/02/23 15:04	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 10:28	05/05/23 10:28	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:12	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 23:15	05/02/23 23:15	ACG	Mt. Juliet, TN

MW-18-20230426 L1610295-14 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 16:33 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:18	05/05/23 13:18	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 03:41	04/30/23 03:41	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 06:36	MWS	Mt. Juliet, TN

MW-19-20230426 L1610295-15 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 09:12 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:41	05/01/23 12:41	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	1	05/05/23 10:44	05/05/23 10:44	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:14	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/02/23 23:37	05/02/23 23:37	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:21	05/05/23 13:21	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 04:02	04/30/23 04:02	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 06:56	MWS	Mt. Juliet, TN

MW-20-20230426 L1610295-16 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 14:51 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052452	1	05/02/23 15:09	05/02/23 15:09	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 11:00	05/05/23 11:00	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:23	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/03/23 00:03	05/03/23 00:03	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:23	05/05/23 13:23	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 04:24	04/30/23 04:24	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 07:16	MWS	Mt. Juliet, TN

MW-21-20230425 L1610295-17 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 17:19 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052452	1	05/02/23 15:15	05/02/23 15:15	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054567	5	05/05/23 11:16	05/05/23 11:16	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:26	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/03/23 00:25	05/03/23 00:25	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:26	05/05/23 13:26	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 04:45	04/30/23 04:45	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 07:36	MWS	Mt. Juliet, TN

MW-22-20230425 L1610295-18 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 09:30 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 12:57	05/01/23 12:57	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054841	5	05/05/23 16:26	05/05/23 16:26	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:28	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/03/23 00:48	05/03/23 00:48	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:31	05/05/23 13:31	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 05:06	04/30/23 05:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 07:56	MWS	Mt. Juliet, TN

MW-23-20230424 L1610295-19 GW

Collected by: Edward LeCoy | Collected date/time: 04/24/23 17:39 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2051701	1	05/01/23 13:03	05/01/23 13:03	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054841	5	05/05/23 17:07	05/05/23 17:07	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:31	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052395	1	05/03/23 01:34	05/03/23 01:34	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:36	05/05/23 13:36	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 05:27	04/30/23 05:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 08:17	MWS	Mt. Juliet, TN

MW-103-20230425 L1610295-20 GW

Collected by: Edward LeCoy | Collected date/time: 04/25/23 07:42 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG2052452	1	05/02/23 15:20	05/02/23 15:20	ARD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG2054841	5	05/05/23 17:21	05/05/23 17:21	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG2052056	1	05/03/23 08:34	05/04/23 01:34	ABL	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052708	20	05/04/23 09:20	05/04/23 09:20	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2054369	1	05/05/23 13:38	05/05/23 13:38	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051325	1	04/30/23 05:48	04/30/23 05:48	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT	WG2053800	1	05/04/23 20:21	05/06/23 08:37	MWS	Mt. Juliet, TN

TB-1-20230401 L1610295-21 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 00:00 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052708	1	05/04/23 02:38	05/04/23 02:38	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051840	1	05/01/23 13:08	05/01/23 13:08	JAH	Mt. Juliet, TN

TB-2-20230401 L1610295-22 GW

Collected by: Edward LeCoy | Collected date/time: 04/26/23 00:00 | Received date/time: 04/28/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2052708	1	05/04/23 03:00	05/04/23 03:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2051840	1	05/01/23 13:29	05/01/23 13:29	JAH	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Craig Cothron
Project Manager

Sample Delivery Group (SDG) Narrative

Analyzed from headspace vial.

Lab Sample ID	Project Sample ID	Method
L1610295-21	TB-1-20230401	NWTPHGX
L1610295-22	TB-2-20230401	NWTPHGX

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	541000		20000	1	05/03/2023 14:20	WG2052212

Sample Narrative:

L1610295-01 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	86400		5000	1	05/05/2023 05:10	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:32	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 17:30	WG2053161
(S) a,a,a-Trifluorotoluene(FID)	*111*		*78.0-120*		*05/03/2023 17:30*	WG2053161

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/03/2023 15:52	WG2052572
Ethane	ND		13.0	1	05/03/2023 15:52	WG2052572
Ethene	ND		13.0	1	05/03/2023 15:52	WG2052572

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/29/2023 23:07	WG2051325
Toluene	ND		1.00	1	04/29/2023 23:07	WG2051325
Ethylbenzene	ND		1.00	1	04/29/2023 23:07	WG2051325
Xylenes, Total	ND		3.00	1	04/29/2023 23:07	WG2051325
Naphthalene	ND	J3	5.00	1	04/29/2023 23:07	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/29/2023 23:07*	WG2051325
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*04/29/2023 23:07*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.8*		*70.0-130*		*04/29/2023 23:07*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	1240		200	1	05/06/2023 01:32	WG2053800
Residual Range Organics (RRO)	969		250	1	05/06/2023 01:32	WG2053800
(S) o-Terphenyl	*101*		*52.0-156*		*05/06/2023 01:32*	WG2053800

Sample Narrative:

L1610295-01 WG2053800: Sample does not resemble laboratory standards.

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	455000		20000	1	05/03/2023 14:26	WG2052212

Sample Narrative:
L1610295-02 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	71200		5000	1	05/05/2023 05:58	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	580		10.0	1	05/04/2023 00:35	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 17:52	WG2053161
(S) a,a,a-Trifluorotoluene(FID)	*111*		*78.0-120*		*05/03/2023 17:52*	WG2053161

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	336		10.0	1	05/04/2023 09:08	WG2053545
Ethane	ND		13.0	1	05/04/2023 09:08	WG2053545
Ethene	ND		13.0	1	05/04/2023 09:08	WG2053545

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/29/2023 23:28	WG2051325
Toluene	ND		1.00	1	04/29/2023 23:28	WG2051325
Ethylbenzene	ND		1.00	1	04/29/2023 23:28	WG2051325
Xylenes, Total	ND		3.00	1	04/29/2023 23:28	WG2051325
Naphthalene	ND	J3	5.00	1	04/29/2023 23:28	WG2051325
(S) Toluene-d8	*113*		*80.0-120*		*04/29/2023 23:28*	WG2051325
(S) 4-Bromofluorobenzene	*99.9*		*77.0-126*		*04/29/2023 23:28*	WG2051325
(S) 1,2-Dichloroethane-d4	*88.7*		*70.0-130*		*04/29/2023 23:28*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	5120		200	1	05/06/2023 01:53	WG2053800
Residual Range Organics (RRO)	1240		250	1	05/06/2023 01:53	WG2053800
(S) o-Terphenyl	*123*		*52.0-156*		*05/06/2023 01:53*	WG2053800

Sample Narrative:
L1610295-02 WG2053800: Sample does not resemble laboratory standards.

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	190000		20000	1	05/03/2023 14:31	WG2052212

Sample Narrative:
L1610295-03 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	115000		25000	5	05/05/2023 06:14	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:37	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 17:16	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*05/02/2023 17:16*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/04/2023 09:10	WG2053545
Ethane	ND		13.0	1	05/04/2023 09:10	WG2053545
Ethene	ND		13.0	1	05/04/2023 09:10	WG2053545

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/29/2023 23:49	WG2051325
Toluene	ND		1.00	1	04/29/2023 23:49	WG2051325
Ethylbenzene	ND		1.00	1	04/29/2023 23:49	WG2051325
Xylenes, Total	ND		3.00	1	04/29/2023 23:49	WG2051325
Naphthalene	ND	J3	5.00	1	04/29/2023 23:49	WG2051325
(S) Toluene-d8	*113*		*80.0-120*		*04/29/2023 23:49*	WG2051325
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*04/29/2023 23:49*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.2*		*70.0-130*		*04/29/2023 23:49*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 02:13	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 02:13	WG2053800
(S) o-Terphenyl	*101*		*52.0-156*		*05/06/2023 02:13*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	154000		20000	1	05/03/2023 14:38	WG2052212

Sample Narrative:

L1610295-04 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	110000		25000	5	05/05/2023 06:30	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:40	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 17:39	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*05/02/2023 17:39*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 11:27	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:27	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:27	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 00:10	WG2051325
Toluene	ND		1.00	1	04/30/2023 00:10	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 00:10	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 00:10	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 00:10	WG2051325
(S) Toluene-d8	*115*		*80.0-120*		*04/30/2023 00:10*	WG2051325
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*04/30/2023 00:10*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.2*		*70.0-130*		*04/30/2023 00:10*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 02:33	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 02:33	WG2053800
(S) o-Terphenyl	*103*		*52.0-156*		*05/06/2023 02:33*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	199000		20000	1	05/01/2023 12:01	WG2051701

Sample Narrative:
L1610295-05 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	116000		25000	5	05/05/2023 06:46	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:49	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 18:02	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*78.0-120*		*05/02/2023 18:02*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/05/2023 11:29	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:29	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:29	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 00:32	WG2051325
Toluene	ND		1.00	1	04/30/2023 00:32	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 00:32	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 00:32	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 00:32	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/30/2023 00:32*	WG2051325
(S) 4-Bromofluorobenzene	*99.8*		*77.0-126*		*04/30/2023 00:32*	WG2051325
(S) 1,2-Dichloroethane-d4	*89.8*		*70.0-130*		*04/30/2023 00:32*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 02:53	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 02:53	WG2053800
(S) o-Terphenyl	*104*		*52.0-156*		*05/06/2023 02:53*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	195000		20000	1	05/03/2023 14:43	WG2052212

Sample Narrative:
L1610295-06 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	117000		25000	5	05/05/2023 07:01	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:51	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 18:24	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.5*		*78.0-120*		*05/02/2023 18:24*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 11:32	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:32	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:32	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 00:52	WG2051325
Toluene	ND		1.00	1	04/30/2023 00:52	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 00:52	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 00:52	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 00:52	WG2051325
(S) Toluene-d8	*115*		*80.0-120*		*04/30/2023 00:52*	WG2051325
(S) 4-Bromofluorobenzene	*99.9*		*77.0-126*		*04/30/2023 00:52*	WG2051325
(S) 1,2-Dichloroethane-d4	*87.6*		*70.0-130*		*04/30/2023 00:52*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 03:13	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 03:13	WG2053800
(S) o-Terphenyl	*103*		*52.0-156*		*05/06/2023 03:13*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	200000		20000	1	05/01/2023 12:08	WG2051701

Sample Narrative:
L1610295-07 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	117000		25000	5	05/05/2023 07:17	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 00:54	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 18:55	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.9*		*78.0-120*		*05/02/2023 18:55*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 11:36	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:36	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:36	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 01:13	WG2051325
Toluene	ND		1.00	1	04/30/2023 01:13	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 01:13	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 01:13	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 01:13	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/30/2023 01:13*	WG2051325
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*04/30/2023 01:13*	WG2051325
(S) 1,2-Dichloroethane-d4	*87.8*		*70.0-130*		*04/30/2023 01:13*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 03:34	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 03:34	WG2053800
(S) o-Terphenyl	*99.5*		*52.0-156*		*05/06/2023 03:34*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	261000		20000	1	05/01/2023 12:15	WG2051701

Sample Narrative:
L1610295-08 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	109000		25000	5	05/05/2023 07:33	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	73.1		10.0	1	05/04/2023 00:57	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 19:52	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.2*		*78.0-120*		*05/02/2023 19:52*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 11:49	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:49	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:49	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 01:34	WG2051325
Toluene	ND		1.00	1	04/30/2023 01:34	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 01:34	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 01:34	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 01:34	WG2051325
(S) Toluene-d8	*116*		*80.0-120*		*04/30/2023 01:34*	WG2051325
(S) 4-Bromofluorobenzene	*99.4*		*77.0-126*		*04/30/2023 01:34*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.6*		*70.0-130*		*04/30/2023 01:34*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 03:54	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 03:54	WG2053800
(S) o-Terphenyl	*103*		*52.0-156*		*05/06/2023 03:54*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	321000		20000	1	05/01/2023 12:22	WG2051701

Sample Narrative:

L1610295-09 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	113000		5000	1	05/05/2023 07:49	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	55.9		10.0	1	05/04/2023 00:21	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 20:26	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*78.0-120*		*05/02/2023 20:26*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 11:51	WG2054369
Ethane	ND		13.0	1	05/05/2023 11:51	WG2054369
Ethene	ND		13.0	1	05/05/2023 11:51	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 01:55	WG2051325
Toluene	ND		1.00	1	04/30/2023 01:55	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 01:55	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 01:55	WG2051325
Naphthalene	ND		5.00	1	04/30/2023 01:55	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/30/2023 01:55*	WG2051325
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*04/30/2023 01:55*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.7*		*70.0-130*		*04/30/2023 01:55*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	234		200	1	05/06/2023 04:14	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 04:14	WG2053800
(S) o-Terphenyl	*103*		*52.0-156*		*05/06/2023 04:14*	WG2053800

Sample Narrative:

L1610295-09 WG2053800: Sample does not resemble laboratory standards.

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	207000		20000	1	05/03/2023 15:14	WG2052212

Sample Narrative:
L1610295-10 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	119000		5000	1	05/05/2023 09:09	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:00	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 20:48	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*05/02/2023 20:48*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:06	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:06	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:06	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 02:16	WG2051325
Toluene	ND		1.00	1	04/30/2023 02:16	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 02:16	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 02:16	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 02:16	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/30/2023 02:16*	WG2051325
(S) 4-Bromofluorobenzene	*96.8*		*77.0-126*		*04/30/2023 02:16*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.4*		*70.0-130*		*04/30/2023 02:16*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 05:15	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 05:15	WG2053800
(S) o-Terphenyl	*98.4*		*52.0-156*		*05/06/2023 05:15*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	204000		20000	1	05/03/2023 15:19	WG2052212

Sample Narrative:
L1610295-11 WG2052212: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	119000		25000	5	05/05/2023 09:41	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:03	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 21:37	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*05/02/2023 21:37*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:11	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:11	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:11	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 02:37	WG2051325
Toluene	ND		1.00	1	04/30/2023 02:37	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 02:37	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 02:37	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 02:37	WG2051325
(S) Toluene-d8	*112*		*80.0-120*		*04/30/2023 02:37*	WG2051325
(S) 4-Bromofluorobenzene	*96.4*		*77.0-126*		*04/30/2023 02:37*	WG2051325
(S) 1,2-Dichloroethane-d4	*90.2*		*70.0-130*		*04/30/2023 02:37*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 05:35	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 05:35	WG2053800
(S) o-Terphenyl	*99.5*		*52.0-156*		*05/06/2023 05:35*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	205000		20000	1	05/01/2023 12:35	WG2051701

Sample Narrative:
L1610295-12 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	117000		25000	5	05/05/2023 09:57	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:06	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 22:00	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*05/02/2023 22:00*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:14	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:14	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:14	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 02:59	WG2051325
Toluene	ND		1.00	1	04/30/2023 02:59	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 02:59	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 02:59	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 02:59	WG2051325
(S) Toluene-d8	*113*		*80.0-120*		*04/30/2023 02:59*	WG2051325
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*04/30/2023 02:59*	WG2051325
(S) 1,2-Dichloroethane-d4	*89.7*		*70.0-130*		*04/30/2023 02:59*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 05:55	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 05:55	WG2053800
(S) o-Terphenyl	*96.8*		*52.0-156*		*05/06/2023 05:55*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	272000		20000	1	05/02/2023 14:49	WG2052452

Sample Narrative:
L1610295-13 WG2052452: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	146000		25000	5	05/05/2023 10:12	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:09	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 22:22	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.0*		*78.0-120*		*05/02/2023 22:22*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:16	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:16	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:16	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 03:20	WG2051325
Toluene	ND		1.00	1	04/30/2023 03:20	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 03:20	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 03:20	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 03:20	WG2051325
(S) Toluene-d8	*113*		*80.0-120*		*04/30/2023 03:20*	WG2051325
(S) 4-Bromofluorobenzene	*97.1*		*77.0-126*		*04/30/2023 03:20*	WG2051325
(S) 1,2-Dichloroethane-d4	*91.2*		*70.0-130*		*04/30/2023 03:20*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	604		200	1	05/06/2023 06:15	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 06:15	WG2053800
(S) o-Terphenyl	*100*		*52.0-156*		*05/06/2023 06:15*	WG2053800

Sample Narrative:
L1610295-13 WG2053800: Sample does not resemble laboratory standards.

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	221000		20000	1	05/02/2023 15:04	WG2052452

Sample Narrative:
L1610295-14 WG2052452: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	123000		25000	5	05/05/2023 10:28	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:12	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 23:15	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*05/02/2023 23:15*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:18	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:18	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:18	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 03:41	WG2051325
Toluene	ND		1.00	1	04/30/2023 03:41	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 03:41	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 03:41	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 03:41	WG2051325
(S) Toluene-d8	*116*		*80.0-120*		*04/30/2023 03:41*	WG2051325
(S) 4-Bromofluorobenzene	*98.7*		*77.0-126*		*04/30/2023 03:41*	WG2051325
(S) 1,2-Dichloroethane-d4	*92.6*		*70.0-130*		*04/30/2023 03:41*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 06:36	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 06:36	WG2053800
(S) o-Terphenyl	*98.9*		*52.0-156*		*05/06/2023 06:36*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	228000		20000	1	05/01/2023 12:41	WG2051701

Sample Narrative:
L1610295-15 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	112000		5000	1	05/05/2023 10:44	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:14	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/02/2023 23:37	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.9*		*78.0-120*		*05/02/2023 23:37*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/05/2023 13:21	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:21	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:21	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 04:02	WG2051325
Toluene	ND		1.00	1	04/30/2023 04:02	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 04:02	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 04:02	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 04:02	WG2051325
(S) Toluene-d8	*113*		*80.0-120*		*04/30/2023 04:02*	WG2051325
(S) 4-Bromofluorobenzene	*97.2*		*77.0-126*		*04/30/2023 04:02*	WG2051325
(S) 1,2-Dichloroethane-d4	*91.8*		*70.0-130*		*04/30/2023 04:02*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 06:56	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 06:56	WG2053800
(S) o-Terphenyl	*105*		*52.0-156*		*05/06/2023 06:56*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	192000		20000	1	05/02/2023 15:09	WG2052452

Sample Narrative:
L1610295-16 WG2052452: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	120000		25000	5	05/05/2023 11:00	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:23	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 00:03	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*78.0-120*		*05/03/2023 00:03*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/05/2023 13:23	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:23	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:23	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 04:24	WG2051325
Toluene	ND		1.00	1	04/30/2023 04:24	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 04:24	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 04:24	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 04:24	WG2051325
(S) Toluene-d8	*115*		*80.0-120*		*04/30/2023 04:24*	WG2051325
(S) 4-Bromofluorobenzene	*93.1*		*77.0-126*		*04/30/2023 04:24*	WG2051325
(S) 1,2-Dichloroethane-d4	*91.8*		*70.0-130*		*04/30/2023 04:24*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 07:16	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 07:16	WG2053800
(S) o-Terphenyl	*97.9*		*52.0-156*		*05/06/2023 07:16*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Alkalinity	195000		20000	1	05/02/2023 15:15	WG2052452

Sample Narrative:
L1610295-17 WG2052452: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	116000		25000	5	05/05/2023 11:16	WG2054567

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:26	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 00:25	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*05/03/2023 00:25*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	ND		10.0	1	05/05/2023 13:26	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:26	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:26	WG2054369

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	04/30/2023 04:45	WG2051325
Toluene	ND		1.00	1	04/30/2023 04:45	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 04:45	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 04:45	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 04:45	WG2051325
(S) Toluene-d8	*115*		*80.0-120*		*04/30/2023 04:45*	WG2051325
(S) 4-Bromofluorobenzene	*96.3*		*77.0-126*		*04/30/2023 04:45*	WG2051325
(S) 1,2-Dichloroethane-d4	*94.6*		*70.0-130*		*04/30/2023 04:45*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 07:36	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 07:36	WG2053800
(S) o-Terphenyl	*107*		*52.0-156*		*05/06/2023 07:36*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	196000		20000	1	05/01/2023 12:57	WG2051701

Sample Narrative:
L1610295-18 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	110000		25000	5	05/05/2023 16:26	WG2054841

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:28	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 00:48	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*05/03/2023 00:48*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/05/2023 13:31	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:31	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:31	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 05:06	WG2051325
Toluene	ND		1.00	1	04/30/2023 05:06	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 05:06	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 05:06	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 05:06	WG2051325
(S) Toluene-d8	*116*		*80.0-120*		*04/30/2023 05:06*	WG2051325
(S) 4-Bromofluorobenzene	*96.1*		*77.0-126*		*04/30/2023 05:06*	WG2051325
(S) 1,2-Dichloroethane-d4	*91.2*		*70.0-130*		*04/30/2023 05:06*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 07:56	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 07:56	WG2053800
(S) o-Terphenyl	*102*		*52.0-156*		*05/06/2023 07:56*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	196000		20000	1	05/01/2023 13:03	WG2051701

Sample Narrative:
L1610295-19 WG2051701: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	110000		25000	5	05/05/2023 17:07	WG2054841

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	ND		10.0	1	05/04/2023 01:31	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/03/2023 01:34	WG2052395
(S) a,a,a-Trifluorotoluene(FID)	*99.4*		*78.0-120*		*05/03/2023 01:34*	WG2052395

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	ND		10.0	1	05/05/2023 13:36	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:36	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:36	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 05:27	WG2051325
Toluene	ND		1.00	1	04/30/2023 05:27	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 05:27	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 05:27	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 05:27	WG2051325
(S) Toluene-d8	*115*		*80.0-120*		*04/30/2023 05:27*	WG2051325
(S) 4-Bromofluorobenzene	*97.4*		*77.0-126*		*04/30/2023 05:27*	WG2051325
(S) 1,2-Dichloroethane-d4	*92.5*		*70.0-130*		*04/30/2023 05:27*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	05/06/2023 08:17	WG2053800
Residual Range Organics (RRO)	ND		250	1	05/06/2023 08:17	WG2053800
(S) o-Terphenyl	*104*		*52.0-156*		*05/06/2023 08:17*	WG2053800

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity	461000		20000	1	05/02/2023 15:20	WG2052452

Sample Narrative:
L1610295-20 WG2052452: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	61900		25000	5	05/05/2023 17:21	WG2054841

Metals (ICP) by Method 6010B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Manganese,Dissolved	585		10.0	1	05/04/2023 01:34	WG2052056

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		2000	20	05/04/2023 09:20	WG2052708
(S) a,a,a-Trifluorotoluene(FID)	*112*		*78.0-120*		*05/04/2023 09:20*	WG2052708

Sample Narrative:
L1610295-20 WG2052708: Dilution due to foam.

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	321		10.0	1	05/05/2023 13:38	WG2054369
Ethane	ND		13.0	1	05/05/2023 13:38	WG2054369
Ethene	ND		13.0	1	05/05/2023 13:38	WG2054369

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/30/2023 05:48	WG2051325
Toluene	ND		1.00	1	04/30/2023 05:48	WG2051325
Ethylbenzene	ND		1.00	1	04/30/2023 05:48	WG2051325
Xylenes, Total	ND		3.00	1	04/30/2023 05:48	WG2051325
Naphthalene	ND	J3	5.00	1	04/30/2023 05:48	WG2051325
(S) Toluene-d8	*114*		*80.0-120*		*04/30/2023 05:48*	WG2051325
(S) 4-Bromofluorobenzene	*97.9*		*77.0-126*		*04/30/2023 05:48*	WG2051325
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*04/30/2023 05:48*	WG2051325

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-NO SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	5180		200	1	05/06/2023 08:37	WG2053800
Residual Range Organics (RRO)	869		250	1	05/06/2023 08:37	WG2053800
(S) o-Terphenyl	*125*		*52.0-156*		*05/06/2023 08:37*	WG2053800

Sample Narrative:
L1610295-20 WG2053800: Sample does not resemble laboratory standards.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/04/2023 02:38	WG2052708
(S) a,a,a-Trifluorotoluene(FID)	*112*		*78.0-120*		*05/04/2023 02:38*	WG2052708

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	05/01/2023 13:08	WG2051840
Toluene	ND		1.00	1	05/01/2023 13:08	WG2051840
Ethylbenzene	ND		1.00	1	05/01/2023 13:08	WG2051840
Xylenes, Total	ND		3.00	1	05/01/2023 13:08	WG2051840
Naphthalene	ND		5.00	1	05/01/2023 13:08	WG2051840
(S) Toluene-d8	*113*		*80.0-120*		*05/01/2023 13:08*	WG2051840
(S) 4-Bromofluorobenzene	*96.8*		*77.0-126*		*05/01/2023 13:08*	WG2051840
(S) 1,2-Dichloroethane-d4	*91.6*		*70.0-130*		*05/01/2023 13:08*	WG2051840

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	05/04/2023 03:00	WG2052708
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*05/04/2023 03:00*	WG2052708

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	05/01/2023 13:29	WG2051840
Toluene	ND		1.00	1	05/01/2023 13:29	WG2051840
Ethylbenzene	ND		1.00	1	05/01/2023 13:29	WG2051840
Xylenes, Total	ND		3.00	1	05/01/2023 13:29	WG2051840
Naphthalene	ND		5.00	1	05/01/2023 13:29	WG2051840
(S) Toluene-d8	*115*		*80.0-120*		*05/01/2023 13:29*	WG2051840
(S) 4-Bromofluorobenzene	*99.6*		*77.0-126*		*05/01/2023 13:29*	WG2051840
(S) 1,2-Dichloroethane-d4	*90.9*		*70.0-130*		*05/01/2023 13:29*	WG2051840

Method Blank (MB)

(MB) R3919532-2 05/01/23 11:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1610295-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1610295-09 05/01/23 12:22 • (DUP) R3919532-3 05/01/23 12:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	321000	319000	1	0.633		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1610497-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1610497-01 05/01/23 13:39 • (DUP) R3919532-4 05/01/23 13:45

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	195000	198000	1	1.46		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3919532-1 05/01/23 11:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100000	106000	106	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3920683-2 05/03/23 12:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Alkalinity	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1607288-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1607288-19 05/03/23 13:03 • (DUP) R3920683-3 05/03/23 13:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Alkalinity	402000	404000	1	0.303		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3920683-1 05/03/23 12:50

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Alkalinity	100000	104000	104	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3920164-2 05/02/23 13:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1607288-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1607288-24 05/02/23 13:22 • (DUP) R3920164-3 05/02/23 13:28

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	381000	384000	1	0.995		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1610295-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1610295-20 05/02/23 15:20 • (DUP) R3920164-4 05/02/23 15:25

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	461000	462000	1	0.245		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3920164-1 05/02/23 13:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100000	108000	108	90.0-110	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3921514-1 05/04/23 22:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1610177-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1610177-02 05/05/23 04:06 • (DUP) R3921514-3 05/05/23 04:22

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	9920	9910	1	0.0807		20

L1610295-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1610295-10 05/05/23 09:09 • (DUP) R3921514-7 05/05/23 09:25

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	119000	119000	1	0.0721		20

Laboratory Control Sample (LCS)

(LCS) R3921514-2 05/04/23 22:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	40900	102	90.0-110	

L1610177-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1610177-02 05/05/23 04:06 • (MS) R3921514-4 05/05/23 04:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	9920	56100	92.3	1	80.0-120	

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 05/05/23 07:49 • (MS) R3921514-5 05/05/23 08:05 • (MSD) R3921514-6 05/05/23 08:21

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50000	113000	154000	154000	80.7	80.8	1	80.0-120			0.0283	20

Method Blank (MB)

(MB) R3921690-1 05/05/23 11:27

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1610203-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1610203-01 05/05/23 12:24 • (DUP) R3921690-3 05/05/23 12:37

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	2890000	2770000	10	4.09	E	20

L1610300-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1610300-03 05/05/23 18:29 • (DUP) R3921690-6 05/05/23 18:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	2330000	2330000	10	0.0154	E	20

Laboratory Control Sample (LCS)

(LCS) R3921690-2 05/05/23 11:41

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	39000	97.4	90.0-110	

L1610203-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610203-01 05/05/23 12:24 • (MS) R3921690-4 05/05/23 12:51 • (MSD) R3921690-5 05/05/23 13:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50000	2890000	2720000	2680000	0.000	0.000	10	80.0-120	E V	E V	1.54	20

L1610300-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1610300-03 05/05/23 18:29 • (MS) R3921690-7 05/05/23 18:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	2330000	2290000	0.000	10	80.0-120	E V

Method Blank (MB)

(MB) R3920687-1 05/04/23 00:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Manganese,Dissolved	U		0.934	10.0

Laboratory Control Sample (LCS)

(LCS) R3920687-2 05/04/23 00:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Manganese,Dissolved	1000	951	95.1	80.0-120	

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 05/04/23 00:21 • (MS) R3920687-4 05/04/23 00:26 • (MSD) R3920687-5 05/04/23 00:29

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Manganese,Dissolved	1000	55.9	1000	1010	94.5	95.7	1	75.0-125			1.16	20

Method Blank (MB)

(MB) R3920251-3 05/02/23 16:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*100*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3920251-2 05/02/23 15:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5210	94.7	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*113*	*78.0-120*	

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 05/02/23 20:26 • (MS) R3920251-4 05/03/23 02:41 • (MSD) R3920251-5 05/03/23 03:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	ND	4420	4870	80.4	88.5	1	10.0-155			9.69	21
(S) a,a,a-Trifluorotoluene(FID)					*109*	*110*		*78.0-120*				

Method Blank (MB)

(MB) R3920928-2 05/04/23 01:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*109*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3920928-1 05/04/23 01:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4950	90.0	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*106*	*78.0-120*	

Method Blank (MB)

(MB) R3920748-2 05/03/23 15:40

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*111*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3920748-1 05/03/23 14:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5430	98.7	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*108*	*78.0-120*	

Method Blank (MB)

(MB) R3920513-2 05/03/23 14:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	U		2.91	10.0
Ethane	U		4.07	13.0
Ethene	U		4.26	13.0

L1609816-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1609816-03 05/03/23 14:11 • (DUP) R3920513-3 05/03/23 14:52

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	1840	1820	1	1.09		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

L1609829-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1609829-01 05/03/23 14:55 • (DUP) R3920513-4 05/03/23 15:55

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3920513-1 05/03/23 14:04 • (LCSD) R3920513-5 05/03/23 15:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	67.8	64.1	62.1	94.5	91.6	85.0-115			3.17	20
Ethane	129	114	112	88.4	86.8	85.0-115			1.77	20
Ethene	127	115	113	90.6	89.0	85.0-115			1.75	20

Method Blank (MB)

(MB) R3920821-2 05/04/23 08:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	U		2.91	10.0
Ethane	U		4.07	13.0
Ethene	U		4.26	13.0

L1610668-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1610668-18 05/04/23 09:33 • (DUP) R3920821-3 05/04/23 09:35

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

L1610668-27 Original Sample (OS) • Duplicate (DUP)

(OS) L1610668-27 05/04/23 10:36 • (DUP) R3920821-4 05/04/23 10:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3920821-1 05/04/23 08:42 • (LCSD) R3920821-7 05/04/23 10:54

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	67.8	65.6	62.9	96.8	92.8	85.0-115			4.20	20
Ethane	129	117	113	90.7	87.6	85.0-115			3.48	20
Ethene	127	117	114	92.1	89.8	85.0-115			2.60	20

L1609829-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1609829-06 05/04/23 09:00 • (MS) R3920821-5 05/04/23 10:45 • (MSD) R3920821-6 05/04/23 10:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Methane	678	12100	16500	17300	649	767	10	50.0-150	V	V	4.73	20
Ethane	1290	ND	1450	1470	112	114	10	50.0-150			1.37	20
Ethene	1270	ND	1430	1460	113	115	10	50.0-150			2.08	20

Method Blank (MB)

(MB) R3921418-2 05/05/23 11:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	U		2.91	10.0
Ethane	U		4.07	13.0
Ethene	U		4.26	13.0

L1610295-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1610295-10 05/05/23 13:06 • (DUP) R3921418-3 05/05/23 13:08

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

L1610295-19 Original Sample (OS) • Duplicate (DUP)

(OS) L1610295-19 05/05/23 13:36 • (DUP) R3921418-4 05/05/23 13:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20
Ethane	ND	ND	1	0.000		20
Ethene	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3921418-1 05/05/23 10:57 • (LCSD) R3921418-7 05/05/23 13:51

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	67.8	65.0	73.3	95.9	108	85.0-115			12.0	20
Ethane	129	114	113	88.4	87.6	85.0-115			0.881	20
Ethene	127	115	113	90.6	89.0	85.0-115			1.75	20

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 05/05/23 11:51 • (MS) R3921418-5 05/05/23 13:45 • (MSD) R3921418-6 05/05/23 13:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Methane	67.8	ND	73.4	89.7	108	132	1	50.0-150			20.0	20
Ethane	129	ND	124	145	96.1	112	1	50.0-150			15.6	20
Ethene	127	ND	123	145	96.9	114	1	50.0-150			16.4	20

Method Blank (MB)

(MB) R3920902-3 04/29/23 20:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
Naphthalene	U		1.00	5.00
(S) Toluene-d8	*113*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*88.7*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3920902-1 04/29/23 19:22 • (LCSD) R3920902-2 04/29/23 19:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.33	4.18	86.6	83.6	70.0-123			3.53	20
Toluene	5.00	4.54	4.42	90.8	88.4	79.0-120			2.68	20
Ethylbenzene	5.00	4.43	4.35	88.6	87.0	79.0-123			1.82	20
Xylenes, Total	15.0	13.5	13.2	90.0	88.0	79.0-123			2.25	20
Naphthalene	5.00	4.72	3.73	94.4	74.6	54.0-135		J3	23.4	20
(S) Toluene-d8				*111*	*111*	*80.0-120*				
(S) 4-Bromofluorobenzene				*104*	*103*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*90.7*	*87.6*	*70.0-130*				

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 04/30/23 01:55 • (MS) R3920902-4 04/30/23 06:09 • (MSD) R3920902-5 04/30/23 06:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	ND	4.86	4.79	97.2	95.8	1	17.0-158			1.45	27
Toluene	5.00	ND	5.07	5.06	101	101	1	26.0-154			0.197	28
Ethylbenzene	5.00	ND	5.16	5.18	103	104	1	30.0-155			0.387	27
Xylenes, Total	15.0	ND	15.2	15.1	101	101	1	29.0-154			0.660	28
Naphthalene	5.00	ND	ND	ND	83.0	86.6	1	12.0-156			4.25	35
(S) Toluene-d8					*109*	*109*		*80.0-120*				
(S) 4-Bromofluorobenzene					*101*	*103*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*92.2*	*89.4*		*70.0-130*				

Method Blank (MB)

(MB) R3920544-3 05/01/23 10:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
Naphthalene	U		1.00	5.00
(S) Toluene-d8	*112*			*80.0-120*
(S) 4-Bromofluorobenzene	*97.4*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*88.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3920544-1 05/01/23 09:28 • (LCSD) R3920544-2 05/01/23 09:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.98	4.65	99.6	93.0	70.0-123			6.85	20
Toluene	5.00	5.40	4.95	108	99.0	79.0-120			8.70	20
Ethylbenzene	5.00	5.22	4.83	104	96.6	79.0-123			7.76	20
Xylenes, Total	15.0	15.5	14.7	103	98.0	79.0-123			5.30	20
Naphthalene	5.00	5.01	4.53	100	90.6	54.0-135			10.1	20
(S) Toluene-d8				*113*	*111*	*80.0-120*				
(S) 4-Bromofluorobenzene				*102*	*101*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*92.0*	*87.3*	*70.0-130*				

Method Blank (MB)

(MB) R3921680-1 05/06/23 00:52

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*112*			*52.0-156*

Laboratory Control Sample (LCS)

(LCS) R3921680-2 05/06/23 01:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	1500	1420	94.7	50.0-150	
(S) o-Terphenyl			*105*	*52.0-156*	

L1610295-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1610295-09 05/06/23 04:14 • (MS) R3921680-3 05/06/23 04:34 • (MSD) R3921680-4 05/06/23 04:54

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1430	234	1600	1620	95.5	96.9	1	50.0-150			1.24	20
(S) o-Terphenyl					*98.4*	*100*		*52.0-156*				

Sample Narrative:

OS: Sample does not resemble laboratory standards.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
AECOM - Portland, OR

888 SW 5th Ave
Suite 600
Portland. OR 97204

Billing Information:
Accounts Payable
888 SW 5th Ave
Suite 600
Portland, OR 97204

Pres Chk

Report to:
Ms. Nicky Moody

Email To:
nicky.moody@aecom.com;christina.wheeler@a

Project Description:
CPL Co. Pasco Bulk Fuel Terminal

City/State Collected: Pasco Wa.

Please Circle: PT MT CT ET

Phone: **503-969-6310**

Client Project #

Lab Project #
AECOMPORSSA-CPL

Collected by (print):
Edward LeCoq

Site/Facility ID #
55763995

P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 5

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MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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SDG # L1610295
Table # E109

Acctnum: **AECOMPORSSA**
Template:**T223778**
Prelogin: **P993452**
PM: **034 - Craig Cothron**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK,SULFATE 250mlHDPE-NoPres	MNDICP 250mlHDPE-NoPres	NWTPHDXLVINOSGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	NWTPHGX 40mlAmb-HCl-Blk	RSK175 40mlAmb HCl	V8260BTEXN 40mlAmb-HCl	V8260BTEXN 40mlAmb-HCl-Blk			Remarks	Sample # (lab only)
MW-02- 20230426	G	GW	77	4/26	1420	12	X	X	X	X		X	X					-01
MW-03- 20230425	G	GW	85	4/25	0910	12	X	X	X	X		X	X					-02
MW-04- 20230425	G	GW	72	4/25	1105	12	X	X	X	X		X	X					-03
MW-06- 20230425	G	GW	21	4/25	1410	12	X	X	X	X		X	X					-04
MW-07- 20230425	G	GW	72	4/25	1434	12	X	X	X	X		X	X					-05
MW-08- 20230425	G	GW	44	4/25	1150	12	X	X	X	X		X	X					-06
MW-10- 20230425	G	GW	68	4/25	1305	12	X	X	X	X		X	X					-07
MW-11- 20230426	G	GW	83	4/26	1145	12	X	X	X	X		X	X					-08
MW-12- 20230426	G	GW	83	4/26	0920	12	X	X	X	X		X	X					-09
MW-12-~~MS~~ 20230426-MS	G	GW	83	4/26	0920	12	X	X	X	X		X	X					-10 MS/MSD

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:PO 148565

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx X Courier _____

Tracking # 6295 1089 8869 8847 / 6295 1089 8858

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature)	4/27	0901	Received by: (Signature)	Trip Blank Received: Yes / No (HCL / MeoH / TBR) 2
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: .1+0=.1 °C Bottles Received: 264 — If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Hana Mitching	Date: 09-28-23 Time: 0900 — Hold: — Condition: NCF / OK

Company Name/Address:
AECOM - Portland, OR

888 SW 5th Ave
Suite 600
Portland. OR 97204

Billing Information:
Accounts Payable
888 SW 5th Ave
Suite 600
Portland, OR 97204

Pres Chk

Report to:
Ms. Nicky Moody

Email To:
nicky.moody@aecom.com;christina.wheeler@a

Project Description:
CPL Co. Pasco Bulk Fuel Terminal

City/State Collected: Pasco Wa.

Please Circle: (PT) MT CT ET

Phone: **503-969-6310**

Client Project #

Lab Project #
AECOMPORSSA-CPL

Collected by (print):
Edward LeCoq

Site/Facility ID #
55763995

P.O. #

Collected by (signature):

Immediately
Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK,SULFATE 250mlHDPE-NoPres	MNDICP 250mlHDPE-NoPres	NWTPHDXLVINOSGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	NWTPHGX 40mlAmb-HCl-Blk	RSK175 40mlAmb HCl	V8260BTEXN 40mlAmb-HCl	V8260BTEXN 40mlAmb-HCl-Blk			Remarks	Sample # (lab only)
MW-12 ~~MSD~~ 20230426 -MSD	G	GW	83	4/26	0920	12	X	X	X	X		X	X					
MW-14- 20230426	G	GW	84	4/26	1605	12	X	X	X	X		X	X					-10
MW-15- 20230425	G	GW	21	4/25	1610	12	X	X	X	X		X	X					-11
MW-16- 20230425	G	GW	31	4/25	1820	12	X	X	X	X		X	X					-12
MW-17- 20230426	G	GW	84	4/26	1117	12	X	X	X	X		X	X					-13
MW-18- 20230426	G	GW	86.5	4/26	1633	12	X	X	X	X		X	X					-14
MW-19- 20230426	G	GW	85	4/26	0912	12	X	X	X	X		X	X					-15
MW-20- 20230426	G	GW	95	4/26	1451	12	X	X	X	X		X	X					-16
MW-21- 20230425	G	GW	93	4/25	1719	12	X	X	X	X		X	X					-17
MW-22- 20230425	G	GW	94	4/25	0930	12	X	X	X	X		X	X					-18

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:PO 148565

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx X Courier _____

Tracking # 6295 1089 8866 6295 1089 8847 / 6295 1089 8858

Chain of Custody Page 2 of 3

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MT JULIET, TN

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SDG # L1610295

Table #

Acctnum: **AECOMPORSSA**

Template:**T223778**

Prelogin: **P993452**

PM: **034 - Craig Cothron**

PB:

Shipped Via:

Sample Receipt Checklist

COC Seal Present/Intact:	NP	N
COC Signed/Accurate:	Y	N
Bottles arrive intact:	Y	N
Correct bottles used:	Y	N
Sufficient volume sent:	Y	N
If Applicable		
VOA Zero Headspace:	Y	N
Preservation Correct/Checked:	Y	N
RAD Screen <0.5 mR/hr:	Y	N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	If preservation required by Login: Date/Time
	4/27	0901		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: .1+0=.1 °C Bottles Received: 264	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Hana Mirchina	Date: 04.28.23 Time: 0900	Hold: Condition: NCF / OK

Company Name/Address:
AECOM - Portland, OR

888 SW 5th Ave
Suite 600
Portland. OR 97204

Billing Information:
Accounts Payable
888 SW 5th Ave
Suite 600
Portland, OR 97204

Pres Chk

Report to:
Ms. Nicky Moody

Email To:
nicky.moody@aecom.com;christina.wheeler@a

Project Description:
CPL Co. Pasco Bulk Fuel Terminal

City/State Collected: Pasco Wa.

Please Circle: (PT) MT CT ET

Phone: **503-969-6310**

Client Project #

Lab Project #
AECOMPORSSA-CPL

Collected by (print):
Edward LeCoq

Site/Facility ID #
55763995

P.O. #

Collected by (signature):

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
____ Same Day ____ Five Day
____ Next Day ____ 5 Day (Rad Only)
____ Two Day ____ 10 Day (Rad Only)
____ Three Day
Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK,SULFATE 250mlHDPE-NoPres	MNDICP 250mlHDPE-NoPres	NWTPHDXLVINOSGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	NWTPHGX 40mlAmb-HCl-Blk	RSK175 40mlAmb HCl	V8260BTEXN 40mlAmb-HCl	V8260BTEXN 40mlAmb-HCl-Blk			Remarks	Sample # (lab only)
MW-23-20230424	G	GW	92	4/24	1739	12	X	X	X	X		X	X					-19
~~MW-8~~ MW-103-20230425	G	GW	85	4/25	0742	12	X	X	X	X		X	X					-20
		GW				12	X	X	X	X		X	X					
TB-1-20230401		GW				1					X			X				-21
TB2-20230401		GW				1					X			X				-22

Chain of Custody Page 3 of 3

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12065 Lebanon Rd Mount Juliet, TN 37122
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SDG # L1610295

Table #

Acctnum: **AECOMPORSSA**

Template: **T223778**

Prelogin: **P993452**

PM: **034 - Craig Cothron**

PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:PO 148565

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx X Courier _____

Tracking # 6295 1089 8869 6295 1089 8847 / 6295 1089 8858

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	4/27	0901		Y	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: -1.0=1 °C Bottles Received: 24	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Hung Mai	Date: 04-28-23 Time: (900)	Hold: / Condition: NCF / OK

ATTACHMENT E

Data Validation Report

AECOM
1111 3rd Ave
Suite 1600
Seattle, WA 98101
www.aecom.com

206 438 2700 tel
866 495 5288 fax

Memorandum

To	Nicky Moody, Project Manager	Info	FINAL
Subject	Summary Data Quality Review Chevron Pipe Line Company Pasco Bulk Terminal April 2023 Semi-Annual Groundwater Sampling		
From	Amelia McArthur, Chemist Jennifer B. Garner, Chemist		
Date	June 30, 2023		

The summary data quality review of 20 groundwater samples and 2 trip blanks collected between April 24 and April 26, 2023, has been completed. The samples were analyzed at Pace Analytical National, LLC (Pace), located in Mount Juliet, Tennessee, for selected volatile organic compounds (VOCs) by EPA Method 8260D; total petroleum hydrocarbons (TPHs) by Washington State Department of Ecology (Ecology) Methods NWTPH-Gx (gasoline-range TPH) and NWTPH-Dx (diesel-range and heavy oil-range TPH); dissolved gases (methane, ethane, and ethene) by EPA Method RSK-175; dissolved manganese by EPA Method 6010B; sulfate by EPA Method 300.0; and/or total alkalinity by Standard Method (SM) 2320B-2011. The laboratory provided a summary report containing sample results and associated quality assurance (QA) and quality control (QC) data for all samples. For this report, the sample date suffixes (i.e., -20230424, -20230425, and -20230426) will not be used unless needed for clarity. The following samples are associated with Pace laboratory group L1610295:

Sample ID	Laboratory ID	Requested Analyses
MW-02-20230426	L1610295-01	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-03-20230426	L1610295-02	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-04-20230426	L1610295-03	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-06-20230426	L1610295-04	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-07-20230426	L1610295-05	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-08-20230426	L1610295-06	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-10-20230426	L1610295-07	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-11-20230426	L1610295-08	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-12-20230426	L1610295-09	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-14-20230426	L1610295-10	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-15-20230425	L1610295-11	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-16-20230425	L1610295-12	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-17-20230426	L1610295-13	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-18-20230426	L1610295-14	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-19-20230426	L1610295-15	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-20-20230426	L1610295-16	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-21-20230425	L1610295-17	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-22-20230425	L1610295-18	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-23-20230424	L1610295-19	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
MW-103-20230425 (field duplicate of MW-03-20230426)	L1610295-20	VOCs, TPH-Gx, Methane, TPH-Dx, Manganese, Sulfate, Alkalinity
TB-1-20230401	L1610295-21	VOCs, TPH-Gx
TB-2-20230401	L1610295-22	VOCs, TPH-Gx

Data were evaluated based on validation criteria established in the analytical methods, as well as *National Functional Guidelines for Organic Superfund Methods Data Review*, November 2020, and the *National Functional Guidelines for Inorganic Superfund Methods Data Review*, November 2020, as applied to the reported methodology.

The following data components were reviewed during the limited data validation procedure for compliance with method specific or laboratory control charted criteria where appropriate: chain of custody forms, holding times,

field/method/trip/instrument blanks, surrogate recoveries, matrix spike/matrix spike duplicate recoveries, laboratory and field duplicate results, laboratory control sample/laboratory control sample duplicate recoveries, reporting limits, and electronic data deliverables.

A summary of qualifiers that may be assigned to results in these laboratory groups are included in Table 1. Qualifiers that may be assigned to results include:

- U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
- DNR - Do Not Report. Another result is available that is more reliable or appropriate.

Sample Receipt

Upon receipt by the laboratory, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperatures were recorded. No discrepancies related to sample identification were noted by the laboratory and the coolers were received at temperatures within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C.

The laboratory indicated the presence of headspace in the sample vials for TB-1 and TB-2 for the NWTPH-Gx analysis. The results for gasoline range organics were qualified as estimated and flagged 'UJ' based on the presence of headspace in sample vials.

The laboratory indicated the presence of headspace in MW-02, MW-03, MW-04, MW-06, MW-07, MW-08, MW-10, MW-11, MW-12, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, and MW-103 for the alkalinity analysis. The analysis method requires the absence of head space in the sample containers, therefore; the results for alkalinity in the associated samples were qualified as estimated and flagged 'J' based on the presence of headspace in sample containers.

Organic Analyses

Samples were analyzed for VOCs, TPHs, and/or dissolved gases by the methods identified in the introduction of this report.

1. Holding Times – Acceptable

2. Blanks – Acceptable

3. Surrogates – Acceptable

4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable except as noted below:

   VOCs by EPA Method 8260D – The relative percent difference (RPD, 23.4%) for naphthalene in the LCS/LCSD associated with analytical batch WG2051325 exceeded the control limit of 20%. The percent recoveries for naphthalene in the LCS and LCSD were acceptable; therefore, no data were qualified based on the elevated RPD.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

   General – MS/MSDs were performed using MW-12 in association with VOCs, NWTPH-Gx, NWTPH-Dx, and dissolved gases. Results were acceptable. An MS/MSD for dissolved gases was also performed using a sample from a project unrelated to the MPC-Pasco project. No data were qualified based on non-project QC results.

6. Laboratory Duplicate – Acceptable where applicable

   Dissolved Methane by EPA Method RSK-175 – Laboratory duplicates were performed using MW-14, MW-23, and four samples from projects unrelated to the MPC-Pasco project. Results were comparable.

7. Field Duplicate – Acceptable

   General – A field duplicate was submitted for MW-03 and identified as MW-103. Results were comparable for all analytes reported at concentrations greater than five times the reporting limits.

8. Reporting Limits – Acceptable

9. Other Items of Note:

   Diesel Range and Residual Range Organics by NWTPH-Dx –. The laboratory noted that the chromatographic pattern profile present in MW-02, MW-03, MW-17, and MW-103 did not match the laboratory standard chromatograms for diesel and/or motor oil. No data were qualified based on these qualitative observations.

Dissolved Manganese

Samples were analyzed for dissolved manganese by EPA Method 6010B.

1. Holding Times – Acceptable

2. Blanks – Acceptable

3. Laboratory Control Sample (LCS) – Acceptable

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable

   An MS/MSD was performed using MW-12. Results were acceptable.

5. Field Duplicate – Acceptable

   A field duplicate was submitted for MW-03 and identified as MW-103. Results were comparable.

6. Reporting Limits – Acceptable

Conventional Analyses

Samples were analyzed for sulfate and alkalinity by the methods identified in the introduction of this report.

1. Holding Times – Acceptable

2. Blanks – Acceptable

3. Laboratory Control Sample (LCS) – Acceptable

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) – Acceptable where applicable

   Sulfate by EPA Method 300.0 – MS/MSDs were performed using MW-12 and three sample from projects unrelated to MPC-Pasco. Results were acceptable for the MS/MSD performed using MW-12. No data were qualified based on non-project QC results.

5. Laboratory Duplicate – Acceptable

   Sulfate by EPA Method 300.0 – Laboratory duplicates were performed using MW-14 and three samples from projects unrelated to the MPC-Pasco project. Results were comparable.

   Alkalinity by SM 2320B – Laboratory duplicates were performed using MW-12, MW-103, and three samples from projects unrelated to the MPC-Pasco project. Results were comparable.

6. Field Duplicate – Acceptable

   General – A field duplicate was submitted for MW-03 and identified as MW-103. Results were comparable.

7. Reporting Limits – Acceptable

Overall Assessment of Data

The data reported in this laboratory group, as qualified, are usable for meeting project objectives. The completeness for Pace laboratory group L1610295 is 100%.

Summary Data Quality Review
Chevron Pipe Line Company Pasco Bulk Terminal
April 2023 Semi-Annual Groundwater Sampling
Laboratory Group: L1610295

Table 1 – Summary of Qualified Data

Sample ID	Laboratory ID	Method	Analyte	Laboratory Result	Units	Final Result	Reason Code
MW-02	L1610295-01	SM2320 B	Alkalinity, total (as $CaCO_3$)	541000	ug/L	541000 J	hs
MW-03	L1610295-02	SM2320 B	Alkalinity, total (as $CaCO_3$)	455000	ug/L	455000 J	hs
MW-04	L1610295-03	SM2320 B	Alkalinity, total (as $CaCO_3$)	190000	ug/L	190000 J	hs
MW-06	L1610295-04	SM2320 B	Alkalinity, total (as $CaCO_3$)	154000	ug/L	154000 J	hs
MW-07	L1610295-05	SM2320 B	Alkalinity, total (as $CaCO_3$)	199000	ug/L	199000 J	hs
MW-08	L1610295-06	SM2320 B	Alkalinity, total (as $CaCO_3$)	195000	ug/L	195000 J	hs
MW-10	L1610295-07	SM2320 B	Alkalinity, total (as $CaCO_3$)	200000	ug/L	200000 J	hs
MW-11	L1610295-08	SM2320 B	Alkalinity, total (as $CaCO_3$)	261000	ug/L	261000 J	hs
MW-12	L1610295-09	SM2320 B	Alkalinity, total (as $CaCO_3$)	321000	ug/L	321000 J	hs
MW-14	L1610295-10	SM2320 B	Alkalinity, total (as $CaCO_3$)	207000	ug/L	207000 J	hs
MW-15	L1610295-11	SM2320 B	Alkalinity, total (as $CaCO_3$)	204000	ug/L	204000 J	hs
MW-16	L1610295-12	SM2320 B	Alkalinity, total (as $CaCO_3$)	205000	ug/L	205000 J	hs
MW-17	L1610295-13	SM2320 B	Alkalinity, total (as $CaCO_3$)	272000	ug/L	272000 J	hs
MW-18	L1610295-14	SM2320 B	Alkalinity, total (as $CaCO_3$)	221000	ug/L	221000 J	hs
MW-19	L1610295-15	SM2320 B	Alkalinity, total (as $CaCO_3$)	228000	ug/L	228000 J	hs
MW-20	L1610295-16	SM2320 B	Alkalinity, total (as $CaCO_3$)	192000	ug/L	192000 J	hs
MW-21	L1610295-17	SM2320 B	Alkalinity, total (as $CaCO_3$)	195000	ug/L	195000 J	hs
MW-22	L1610295-18	SM2320 B	Alkalinity, total (as $CaCO_3$)	196000	ug/L	196000 J	hs
MW-23	L1610295-19	SM2320 B	Alkalinity, total (as $CaCO_3$)	196000	ug/L	196000 J	hs
MW-103	L1610295-20	SM2320 B	Alkalinity, total (as $CaCO_3$)	461000	ug/L	461000 J	hs
TB-1	L1610295-21	NWTPH-GX	Gasoline Range Organics	100 U	ug/L	100 UJ	hs
TB-2	L1610295-22	NWTPH-GX	Gasoline Range Organics	100 U	ug/L	100 UJ	hs

Notes:
$CaCO_3$ – calcium carbonate
hs – headspace
ID - identification
J – estimated value
U – compound was analyzed for, but not detected above the limit shown
ug/L – microgram per liter