Fourth Quarter 2024 Monitoring Report
Former Johnson Oil
280 E Columbia River Highway
Clatskanie, Oregon

Prepared for:
Oregon Department of Environmental Quality
Task Order No. 066-23-20

March 11, 2025
32-24008422/Task 3

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Table of Contents

1.0 INTRODUCTION 1
1.1 Scope of Work 1
1.2 Deviations from Scope of Work 1
2.0 BACKGROUND 1
2.1 Site Location and Description 1
2.2 Geology and Hydrogeology 2
2.3 Summary of Prior Work 2
3.0 FIELD ACTIVITIES 3
3.1 Pre-Investigation Activities 3
3.2 Groundwater Monitoring 3
3.3 Handling of Investigation-Derived Waste 3
4.0 RESULTS 4
4.1 Groundwater Levels 4
4.2 Field Parameters 4
4.3 Chemical Analysis 4
5.0 CONCLUSIONS 7
6.0 REFERENCES 8

Tables

1 Groundwater Elevations and Field Parameters
2 Groundwater Analytical Results

Figures

1 Site Location Map
2 Site Plan
3 Groundwater Elevations (October 2024)
4 BTEX Results in Groundwater (October 2024)

Appendices

A Sampling Documentation
B Historical Data and Trend Plots
C Laboratory Analytical Reports and Data Quality Review
D Statistical Evaluation

1.0 Introduction

This *Fourth Quarter 2024 Monitoring Report* describes the field activities and presents the results of a groundwater monitoring event completed in October 2024 at the Former Johnson Oil property and the adjacent property currently occupied by Turning Point Community Service Center (the Site; Figures 1 and 2) located at 280 East Columbia River Highway in Clatskanie, Oregon. The Site is located adjacent to the Clatskanie River in Columbia County. The monitoring event was conducted for the Oregon Department of Environmental Quality (DEQ) under Task 2 of Task Order No. 066-23-20, and this report was prepared under Task 3. The Site is listed in DEQ's Leaking Underground Storage Tank (LUST) database as LUST ID 05-87-0033.

1.1 Scope of Work

The scope of work was completed in accordance with the *Supplemental Site Investigation Work Plan* (Work Plan; Apex Companies, LLC [Apex], 2022). The scope of work for this monitoring event includes collection and analysis of groundwater samples from 10 existing monitoring wells.

1.2 Deviations from Scope of Work

Monitoring well MW-8 was not accessible during this monitoring event and was not sampled. The asphalt concrete parking lot where the well is located had been refinished and the well was paved over. Concentrations of petroleum hydrocarbons in MW-8 since May 2023 have been reported below DEQ's applicable risk-based concentrations (RBCs) and/or the laboratory detection limit; therefore, a lack of continued sampling data from this monitoring well is not considered to present a data gap. If future monitoring of nearby wells, indoor soil vapor, and/or ambient air data indicate continued sampling of this well is warranted, the well will be uncovered and monitoring resumed. The location of MW-8 will be recorded using a high-accuracy handheld global positioning system (GPS) unit during the next monitoring event. This will allow the well and monument to be uncovered for continued monitoring or decommissioning in the future.

2.0 Background

This section presents a description of the Site, its geology and hydrogeology, and previous work that has been done at the Site.

2.1 Site Location and Description

The Site is located on an approximately 0.26-acre parcel (Figures 1 and 2) near the center of the City of Clatskanie on the south bank of the Clatskanie River and is bounded to the south by the Columbia River Highway (Hwy 30). The Site includes the former service station property and the adjacent property occupied

by Turning Point Community Service Center (Turning Point). The former Johnson Oil property is improved with a vacant former service station with a canopy. Turning Point adjoins the former Johnson Oil property to the north and west, and the property to the east is currently vacant (formerly a produce market that burned down). The Site and surrounding properties are zoned commercial, but the zoning rules allow for residential use in conjunction with commercial use. To prevent residential use of the Turning Point or former Johnson Oil properties, restrictions were placed on the property deeds through Easement and Equitable Servitudes (E&ES) in October and December 2024, respectively. The E&ES also restricts use of groundwater for consumption or other beneficial uses and requires use of engineering controls to mitigate potential vapor intrusion risk for new construction, implementation of a contaminated media management plan (finalized February 2023), and maintenance of the above controls for Site occupancy.

2.2 Geology and Hydrogeology

The Site is located approximately 18 feet above mean sea level, and topography is generally level but slopes steeply down to the Clatskanie River along the north side of the Site. The Site is located within the Oregon Coast Range and is underlain by unconsolidated Quaternary alluvial deposits of silt and interbedded sand lenses to a depth of approximately 50 feet below ground surface (bgs). Sandstone and siltstone of the Astoria Formation underlie the alluvial deposits (Orr, 1999). Based on boring logs associated with Site investigations, near surface geology generally consists of gravelly fill material to a depth of 1 to 5 feet bgs overlying sand.

Shallow groundwater is present beneath the Site at depths ranging from approximately 1 foot bgs on the northwestern portion of the Site to 10 feet bgs adjacent to the river and on the southwestern side of the Site. Groundwater generally flows toward the Clatskanie River with a less pronounced southwesterly component and may be tidally influenced. Some of the groundwater monitoring wells at the Site exhibit slow recovery based on data collected in 2019 through 2024.

2.3 Summary of Prior Work

Petroleum product in the form of light non-aqueous phase liquid (LNAPL) was encountered during underground storage tank (UST) decommissioning activities at the Site in July 1987. The release of an unknown quantity of petroleum was reported to DEQ, and the Site was assigned LUST number 05-87-0033. Prior removal/remedial actions have included decommissioning of the former Johnson Oil dispensers, piping, and USTs (by removal, except for one tank decommissioned in place) and an Interim Removal Action Measure (IRAM) conducted in 2022 to excavate contaminated soil near the riverbank (see Figure 2). Access to areas of contaminated soil during the 2022 IRAM was limited due to underground utilities and existing building foundations. Therefore, contaminated soil and groundwater remain onsite. However, petroleum contaminants are monitored quarterly to ensure conditions are protective for current occupants and uses.

3.0 Field Activities

3.1 Pre-Investigation Activities

Site Health and Safety Plan. A Site-specific health and safety plan (HASP) was prepared for the field activities and included in Appendix B of the Work Plan. The HASP was prepared in general accordance with the Occupational Safety and Health Administration (OSHA) and the Oregon Administrative Rules (OAR). A copy of the HASP was maintained onsite during the field activities.

Property Access. DEQ obtained access agreements with Columbia County (the Former Johnson Oil property owner) and Turning Point for access to the Site for monitoring activities. Prior to each monitoring event, DEQ notifies Columbia County and Turning Point of the upcoming sampling.

3.2 Groundwater Monitoring

Groundwater Levels. On October 21, 2024, groundwater levels were measured using an electronic water level indicator for monitoring wells MW-4 through MW-7, MW-9, and MW-12 through MW-15 (as noted above, MW-8 was not accessible). Wells were opened and the water level was allowed to equilibrate before the measurements were taken. The depth to groundwater was measured in each well to the nearest 0.01 foot. The depth to groundwater and groundwater elevations (to an arbitrary assumed Site datum) are presented in Table 1. Water level documentation is included in Appendix A, and historical elevations are presented in Appendix B.

Groundwater Sampling. Samples were collected using a peristaltic pump and low-flow protocols. New tubing was used on each monitoring well. Field parameters collected during sampling included temperature, pH, conductivity, dissolved oxygen concentration (DO), and oxidation-reduction potential (ORP). Field parameters are summarized in Table 1. Groundwater monitoring documentation is included in Appendix A.

Groundwater samples were submitted to Pace Analytical National located in Mount Juliet, Tennessee for analysis. Sample analysis was conducted on a standard turnaround time. Groundwater samples were analyzed for gasoline-range total petroleum hydrocarbons (TPH-G) by Northwest Method NWTPH-Gx and for volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260D.

3.3 Handling of Investigation-Derived Waste

Investigation-derived waste (IDW) consisted of purge water and decontamination water. IDW water was placed in a 55-gallon drum and temporarily stored inside the former service station building, where it is pending characterization, disposal profiling, and removal from the Site. The container was labeled with the project name, general contents, and date. Disposable items, such as sample tubing, gloves, paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

4.0 Results

4.1 Groundwater Levels

The groundwater elevations and elevation contours are presented in Figure 3. In general, the October 2024 groundwater elevation data suggest a significantly variable groundwater flow across the Site with relatively higher groundwater levels in the central portion of the Site and radially outward flow (to the north, east, and south). Hydraulic gradients range from 0.06 feet per foot (ft/ft) toward the south to 0.18 ft/ft toward the north (toward the Clatskanie River). Groundwater nearer the Clatskanie River may be tidally influenced, though the river stage information is not available for comparison. The groundwater flow direction and gradients observed during the October 2024 monitoring event are consistent with previous events.

4.2 Field Parameters

Consistent with prior monitoring events, Site monitoring wells (except for MW-9) typically have low DO and negative ORP measurements, suggesting an anaerobic and reducing environment. These values are consistent with groundwater in the vicinity of a hydrocarbon plume influenced by microbial degradation (as the available oxygen is being consumed by the microorganisms during the degradation process). The low concentrations of DO in eight of the nine wells limits the rate of continued degradation that can be occurring.

In MW-9, the DO and ORP values are higher than observed in the other Site wells, consistent with previous monitoring events. The measurements are indicative of an aerobic and oxidizing environment. This suggests that groundwater in the vicinity of MW-9 is less influenced by the microbial degradation process. Furthermore, the combination of the higher DO and ORP, the low concentrations of detected analytes (discussed below), and the relatively lower groundwater elevation observed in MW-9 suggests that the well may be influenced by groundwater-surface water interaction with the adjacent Clatskanie River. However, there isn't enough data available to complete a hydrogeologic assessment and distinguish any specific relationship between the aquifer and the river, nor is there enough to compare results to the regional aquifer outside of the influence of the petroleum plume. In addition, the field parameters measured in monitoring wells MW-14 and MW-15, which are approximately equidistant from the river as monitoring well MW-9, do not exhibit the same variation as the field parameters observed in MW-9, although the groundwater elevation is higher in these monitoring wells (further highlighting the unique nature of MW-9).

4.3 Chemical Analysis

The analytical results and risk screening of the groundwater samples collected in October 2024 are summarized below. The concentrations were screened against the risk-based concentrations (RBCs) that correspond to the potentially complete exposure pathways published in *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (DEQ, updated June 2023) including:

- Groundwater to indoor air occupational receptor (RBC_{wi}); and

- Groundwater in excavations for the construction and excavation worker receptor (RBC_{we});

Copies of the analytical laboratory reports are included in Appendix C along with a quality assurance/quality control (QA/QC) review of the data. The results of the data quality review indicate that the data are of acceptable quality and are suitable for their intended purpose.

4.3.1 Analytical Results

Groundwater analytical results are presented in Table 2 and summarized in Figure 4 for the October 2024 groundwater monitoring event. Historical groundwater analytical results are presented in Appendix B.

Total Petroleum Hydrocarbons. TPH-G was detected in eight of nine groundwater samples collected during the October 2024 monitoring event. Detected TPH-G concentrations during this monitoring event ranged from 299 micrograms per liter (µg/L; MW-13) to 24,500 µg/L (MW-12). TPH-G detections exceeded the acute groundwater to indoor air volatilization RBC of 520 µg/L in seven of the nine samples. The TPH-G concentration in the sample collected from MW-12 also exceeded the direct contact RBC of 14,000 µg/L for groundwater in excavations for construction and excavation workers.

The TPH-G concentrations were variable compared to the previous monitoring event, with increases in MW-4, , MW-14, and MW-15, decreases in MW-5 and MW-6, and results similar to the previous monitoring event in wells MW-7, MW-9, and MW-13. The TPH-G concentration in MW-12 decreased by 70 percent as compared to the July 2024 monitoring event and is the lowest concentration observed in this well, while the TPH-G concentration in MW-14 increased by 71 percent over the same period and is the relatively highest concentration observed in this well. The sample collected from monitoring well MW-12 exceeds the concentrations observed in other monitoring wells by at least one order of magnitude, consistent with previous monitoring events. Trend plots of historical TPH-G concentrations over the previous two years (March 2023 to November 2024) are provided in Appendix B.

A preliminary statistical evaluation was also completed on the TPH-G data for wells that had at least seven detected concentrations over the prior two-year period, including the October 2024 sampling event. This evaluation includes simple statistics (minimum, maximum, and mean concentrations; standard deviation; and coefficient of variation), a Mann-Kendall statistical trend test, linear regressions of concentration versus time (over the last two years), the concentration differential (as a percentage) between the long-term average concentration and those observed in October 2024, and the numerical ranking that the October 2024 data falls within based on the range of historically observed data. These statistical metrics are shown on Table D-1 in Appendix D, with the intent of assessing whether there are any trends or tendencies in the data set for each individual monitoring well. As shown on the table, none of the monitoring wells have a statistically significant trend in the data; however, four of the wells (MW-4, MW-12, MW-13, and MW-15) show an overall tendency for decreasing concentrations based on the linear regression (though the regression does not account for the significant variability observed in the data sets).

Inspection of the trend plots for each well in relative position across the Site also shows significant variability without any observed pattern or definitive relationship between data sets. Overall, there does not appear to be any spatial or temporal trend in the groundwater data.

Volatile Organic Compounds. One or more petroleum VOCs (benzene, ethylbenzene, xylenes, and naphthalene) were detected at concentrations that exceed the RBCs in eight of the nine groundwater samples collected in October 2024. The exceedances are as follows:

- The benzene RBC for the acute groundwater to indoor air pathway (12 µg/L) was exceeded in eight groundwater samples, and the RBC for the chronic pathway (650 µg/L) was exceeded in two samples;
- The benzene RBC for groundwater in excavations (1,800 µg/L) was exceeded in one sample (MW-12);
- The ethylbenzene RBC for the acute groundwater to indoor air pathway (31 µg/L) was exceeded in six groundwater samples;
- The total xylenes RBC for the acute groundwater to indoor air pathway (3,300 µg/L) was exceeded in one groundwater sample (MW-12); and
- The naphthalene RBC for the acute groundwater to indoor air pathway (50 µg/L) was exceeded in three groundwater samples.

Similar to TPH-G, concentrations in MW-12 were significantly lower as compared to the July 2024 event but were higher than other Site wells. Concentrations decreased as compared to the previous monitoring event in MW-5, MW-6, MW-12, and MW-14. The lowest recorded concentration since monitoring began was seen in MW-5 (ethylbenzene, naphthalene, and 1,3,5-trimethylbenzene), MW-6 (naphthalene), MW-12 (ethylbenzene, naphthalene, and 1,2,4-trimethylbenzene), and MW-14 (naphthalene). Despite these low concentrations, variability was seen across the Site with concentrations increasing as compared to the previous event in MW-4, MW-7, MW-13, and MW-15. The concentrations in the sample collected from monitoring well MW-9 are relatively consistent with previous monitoring events (negligible concentrations of VOCs were detected).

BTEX. As concentrations across the Site and within each well can be variable, the sum of benzene, toluene, ethylbenzene, and xylenes (BTEX) was calculated for each monitoring well (see Table 2). Summed concentrations can be used to track overall concentration changes over time. Trend plots in Appendix B show that BTEX concentrations have been relatively stable over the previous two-year monitoring period.

4.3.2 Site Data Screening Summary

The observed exceedances of Site-related contaminants for each exposure pathway via groundwater are summarized below. The observed vapor intrusion RBC exceedances in groundwater indicate the potential

for an unacceptable exposure to commercial site users. These exceedances were not reflected in the soil vapor or ambient air concentrations during the previous monitoring event (July 2024).

Contaminant	Observed RBC Exceedances		
	Commercial Vapor Intrusion		Groundwater in Excavations
	Acute	Chronic	
TPH-G	**6**	--	**1**
Benzene	**8**	**2**	**1**
Ethylbenzene	**6**	--	--
Xylenes	**1**	--	--
Naphthalene	**3**	--	--

Notes: -- = No exceedances of RBCs or RBC not established

5.0 Conclusions

Based on the fourth quarter 2024 groundwater monitoring event and previous events, gasoline-range hydrocarbons and petroleum-related VOCs continue to be present at the Site and extend beneath the former Johnson Oil and Turning Point buildings.

Elevated concentrations of TPH-G and VOCs (benzene, ethylbenzene, xylenes, and naphthalene) above the commercial vapor intrusion RBCs in groundwater suggest that the presence of contaminants of concern (COCs) in indoor air detected during previous monitoring events is likely associated with groundwater contamination in the vicinity of MW-12 (east of the Turning Point building).

Petroleum and VOC concentrations have shown some variability between quarterly events; however, no pattern has been established. The overall groundwater concentrations appear to be relatively stable over the previous year of monitoring, likely due to the low DO and reducing conditions limiting the attenuation rate of petroleum concentrations in groundwater. A statistical evaluation of the data sets from the Site monitoring wells shows that there are no statistically significant trends in the data, though a simple linear regression of the prior two years of data does show a tendency for decreasing concentrations in four of the wells. (However, the data is variable enough for this tendency to be highly influenced by a few data points).

The mobility of petroleum in the subsurface may be influenced by changes to the local hydrogeology from the UST removals and/or subsequent soil excavation projects, which may be associated with higher-conductivity backfill materials. A comparison of groundwater elevations observed in 2018 with current conditions suggests that a groundwater mound is present in the vicinity of the historical IRAM which has in turn resulted in increased groundwater flow to the south, away from the river. Additional data is necessary to fully assess potential mobility across the Site and the subsequent influence on groundwater and vapor concentrations across the Site.

Concentrations of COCs in groundwater indicate the potential for unacceptable risks associated with vapor intrusion from groundwater. Based on these elevated groundwater concentrations, monitoring will continue to ensure human health risks remain acceptable.

Cleanup activities through at least spring of 2025 will include groundwater, soil gas, and ambient air monitoring. The continued evaluation of potential remedial actions at the Site will help determine future activities.

6.0 References

Apex Companies, LLC, 2022. *Supplemental Site Investigation Work Plan, Former Johnson Oil.* December 8, 2022.

Oregon Department of Environmental Quality, 2003. *Risk-Based Decision Making for the Remediation of Contaminated Sites*. September 22, 2003. Updated June 2023.

Orr, Elizabeth L. and Willian N. Orr, 1999. *Geology of Oregon*. January 1, 1999.

Table 1
Groundwater Elevations and Field Parameters
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well	Date	TOC Elevation (ft[1])	Depth to Groundwater (ft BTOC)	Depth to Product (ft BTOC)	Product Thickness (ft)	Groundwater Elevation (ft[1])	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-4	2/26/2024	94.43	1.04	--	--	93.39	6.27	11.77	532	0.36	-39.9
	4/8/2024		1.30	--	--	93.13	6.75	12.64	566	1.40	-120.3
	7/22/2024		2.74	--	--	91.69	6.87	17.00	635	0.00	-215.5
	10/21/2024		3.93	--	--	90.50	6.56	16.30	569	0.26	-110.2
MW-5	2/26/2024	94.30	2.97	--	--	91.33	5.94	11.60	469	0.32	48.8
	4/8/2024		3.44	--	--	90.86	6.53	12.19	461	1.11	-125.3
	7/22/2024		4.50	--	--	89.80	8.95	15.40	542	0.00	-230.1
	10/21/2024		6.33	--	--	87.97	6.43	15.40	342	0.23	-199.0
MW-6	2/26/2024	95.57	4.88	--	--	90.69	5.99	12.50	469	0.58	-33.8
	4/8/2024		4.55	--	--	91.02	6.52	13.24	484	1.08	-108.4
	7/22/2024		5.69	--	--	89.88	6.59	16.10	580	0.00	-208.8
	10/21/2024		7.38	--	--	88.19	6.41	16.90	493	0.19	-118.1
MW-7	2/26/2024	95.04	8.07	--	--	86.97	5.93	13.81	578	0.77	-31.2
	4/8/2024		9.23	--	--	85.81	6.23	14.03	446	1.37	-52.5
	7/22/2024		6.26	--	--	88.78	6.50	16.90	623	0.00	-174.2
	10/21/2024		8.25	--	--	86.79	6.29	17.40	529	0.17	-99.1
MW-8	2/26/2024	96.22	5.09	--	--	91.13	6.07	12.18	953	0.75	-56.8
	4/8/2024		5.33	--	--	90.89	6.36	12.62	896	0.00	-106.3
	7/22/2024		5.92	--	--	90.30	6.49	17.80	940	0.00	-198.3
	10/21/2024	Well Inaccessible; Covered by Asphalt Concrete									
MW-9	2/26/2024	94.54	4.90	--	--	89.64	4.43	9.82	51	4.33	256.5
	4/8/2024		6.33	--	--	88.21	4.94	10.95	62	3.96	238.4
	7/22/2024		9.47	--	--	85.07	4.91	14.11	78	4.19	55.2
	10/21/2024		6.59	--	--	87.95	5.03	15.10	81	4.10	226.9
MW-12	2/26/2024	99.06	4.61	--	--	94.45	5.90	11.68	355	0.27	-23.3
	4/8/2024		5.10	--	--	93.96	6.33	12.64	331	1.13	-86.8
	7/22/2024		6.10	--	--	92.96	6.29	18.00	343	0.00	-158.5
	10/21/2024		7.39	--	--	91.67	6.25	17.50	458	0.14	-85.6
MW-13	2/26/2024	98.28	2.67	--	--	95.61	6.85	9.59	352	0.56	-9.4
	4/8/2024		3.09	--	--	95.19	7.40	10.96	375	0.00	-125.2
	7/22/2024		4.43	--	--	93.85	7.33	16.30	609	0.00	-208.4
	10/21/2024		5.74	--	--	92.54	6.93	16.90	705	0.22	-124
MW-14	2/26/2024	99.28	8.05	--	--	91.23	5.9	11.78	335	0.65	-30.6
	4/8/2024		8.77	--	--	90.51	6.45	11.92	338	0.00	-106.8
	7/22/2024		9.43	--	--	89.85	6.71	14.50	505	0.37	-192.4
	10/21/2024		9.79	--	--	89.49	6.56	14.00	504	0.12	-140.4
MW-15	2/26/2024	100.32	8.31	--	--	92.01	5.77	9.08	320	0.54	-16.0
	4/8/2024		9.07	--	--	91.25	6.45	11.31	407	0.00	-134.6
	7/22/2024		9.66	--	--	90.66	6.56	13.43	567	0.00	-285.3
	10/21/2024		9.05	--	--	91.27	6.32	12.90	474	0.24	-135.3

Notes:

1. Elevations are relative to an assumed reference datum of 100 feet (point located at the northwest corner of a concrete pad for a metal sign along Highway 30).
2. ft = feet
3. BTOC = Below Top of Casing.
4. NS = Not surveyed.
5. °C = Degrees Celsius.
6. µS/cm = MicroSiemens per centimeter
7. mg/L = Milligrams per liter.
8. ORP (mV) = Oxidation-reduction potential (millivolts).

Table 2
Groundwater Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well Number	Sample Date	Concentrations in µg/L									
		TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl Tert-Butyl Ether	Naphthalene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	BTEX
MW-4	2/27/2024	3,120	94.2	<20.0	104	7.88	<20.0	130	4.57	<20.0	216
	04/09/2024	3,450	117	<20.0	108	<60.0	<20.0	96.2	2.19	<20.0	265
	7/23/2024	3,370	102	2.94	95.0	3.71	<1.00	173	<1.00	<1.00	204
	10/21/2024	6,130	140	4.28	221	8.50	<0.101	324	2.87 J	0.156 J	374
MW-5	2/27/2024	5,070	147	13.6	1,080	61.4	<10.0	331	24.2	3.07	1,302
	04/09/2024	7,910	155	11.1	970	51.0	<10.0	318	35.3	1.94	1,187
	7/23/2024	8,250	112	9.17	536	29.1	0.141 J	246	5.16	2.10	686
	10/21/2024	3,220	34.4	2.67	145	9.70	<0.101	60.0	3.96 J	0.527 J	192
MW-6	2/27/2024	4,060	668	13.1	215	55.7	<10.0	19.6	3.09	7.72	952
	04/09/2024	6,860	576	10.4	152	31.5	<10.0	28.5	2.52	3.66	770
	7/23/2024	7,040	838	13.4	288	84.3	0.217 J	24.6	19.3	9.49	1,224
	10/21/2024	3,790	619	14.5	184	43.8	<0.101	9.13	2.80	4.87	861
MW-7	2/27/2024	1,310	131	2.19	123	236	17.4	10.3	19.4	11.8	492
	04/09/2024	2,350	112	2.42	87.8	294	14.9	4.15	11.8	14.5	496
	7/23/2024	1,610	53.4	2.06	29.3	51.6	26.7	5.37	10.0	3.27	136
	10/21/2024	1,520	108	2.15	92.5	132	19.8	9.54	18.4	9.58	335
MW-8	2/26/2024	52.0 B	<1.00	<1.00	<1.00	4.26	0.296	<5.00	0.400	<1.00	5.76
	04/08/2024	84.8	<1.00	<1.00	0.206	8.77	0.336	<5.00	0.83	0.77	10.0
	7/22/2024	234	<1.00	<1.00	<1.00	1.12 J	0.232 J	<5.00	<1.00	<1.00	2.62
	10/21/2024	--	--	--	--	--	--	--	--	--	--
MW-9	2/26/2024	<100	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	04/08/2024	<100	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	7/23/2024	31.7 JB	0.186 J	0.303 J	0.182 J	0.893 J	<1.00	<5.00	<1.00	<1.00	1.56
	10/21/2024	<31.6	0.247 J	<0.278	0.221 J	0.271	<0.101	<1.00	0.106 J	<0.104	0.88
MW-12	2/27/2024	125,000	1,650	19,300	4,990	23,400	<100	511	724	797	49,340
	04/09/2024	120,000	1,810	15,900	3,410	17,500	<100	340	533	603	38,620
	7/23/2024	82,600	5,130	4,590	4,000	13,800	<25.0	660	2,750	704	27,520
	10/21/2024	24,500	3,150	181	1,450	3,530	16.6	193	387	354	8,311
MW-13	2/26/2024	98.3 B	1.45	<1.00	7.86	0.329	<1.00	<5.00	<1.00	<1.00	10.1
	04/08/2024	238	35.3	0.501	6.11	<3.00	<1.00	<5.00	<1.00	0.381	43.4
	7/22/2024	256	12.0	<1.00	2.68	<3.00	<1.00	<5.00	<1.00	<1.00	16.7
	10/21/2024	299 J-	21.6 J-	<0.278 UJ	20.6 J-	4.90 J-	<0.101 UJ	2.79 J-	1.45 J-	0.288 J-	47.2

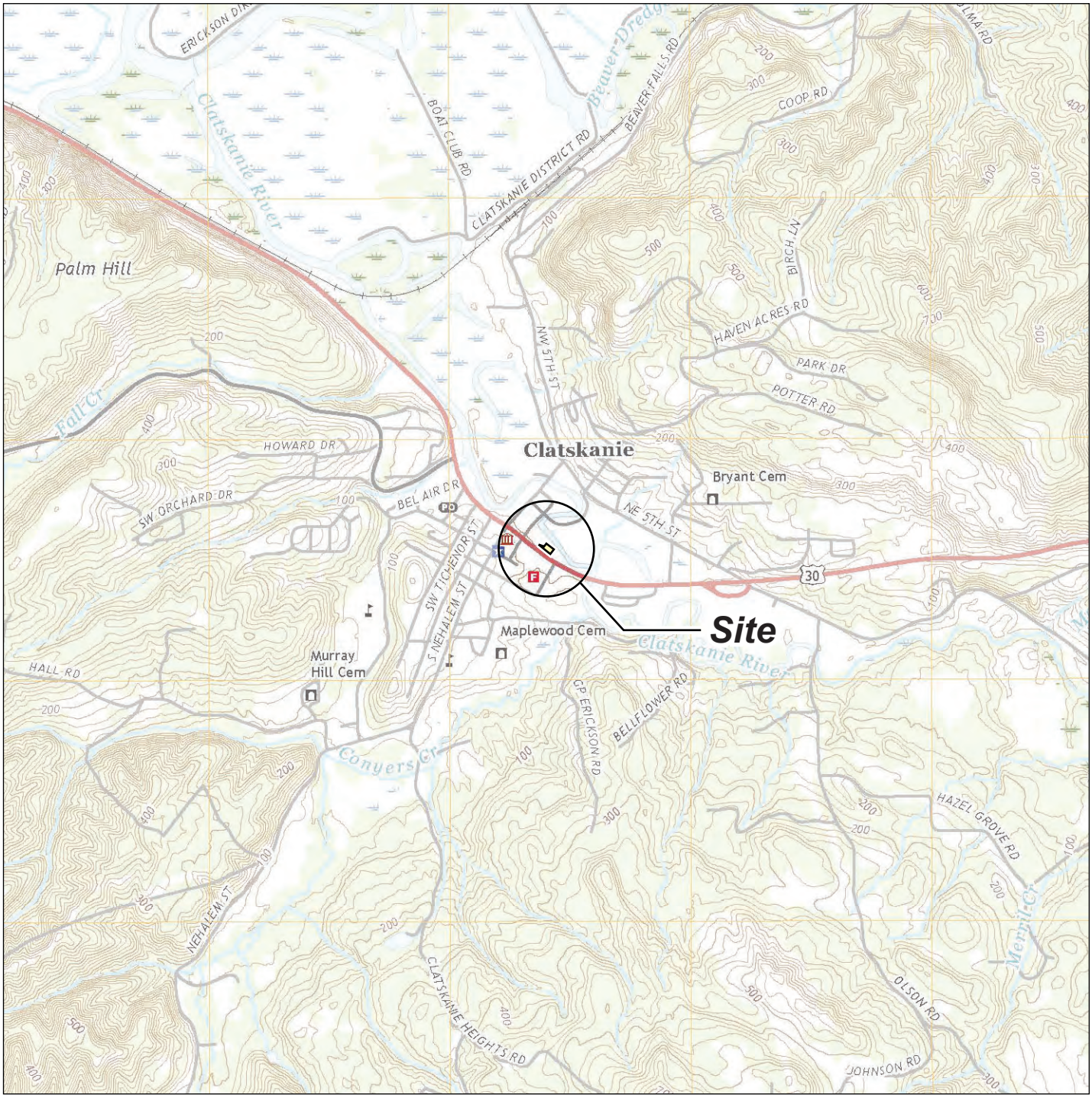
Please see notes at end of table.

Table 2
Groundwater Analytical Results
Former Johnson Oil
Clatskanie, Oregon

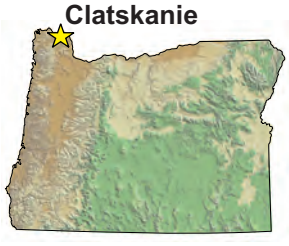
Monitoring Well Number	Sample Date	Concentrations in µg/L									
		TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl Tert-Butyl Ether	Naphthalene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	BTEX
MW-14	2/27/2024	**3,440**	**554**	**4.94**	**34.9**	**15.8**	<5.00	<25.0	**9.57**	**4.87**	**610**
	04/08/2024	**3,790**	**334**	**4.30**	**19.4**	**13.8**	<5.00	<25.0	**8.35**	**3.48**	**372**
	7/22/2024	**3,660**	**387**	**8.59 J**	**29.8**	**43.6**	<10.0	**22.0 J**	**12.6**	**4.85 J**	**469**
	10/21/2024	**6,260**	**850**	**5.69**	**56.3**	**17.1**	<0.101	**5.71**	**23.5**	**5.32**	**929**
MW-15	2/26/2024	**940**	**27.6**	**0.518**	**33.2**	**6.20**	<1.00	**6.10**	**10.4**	<1.00	**67.5**
	04/08/2024	**1,010**	**35.1**	**0.895**	**28.5**	**3.26**	<1.00	**5.31**	**11.0**	<1.00	**67.8**
	7/22/2024	**344**	**8.93**	**0.706 J**	<1.00	**0.228 J**	<1.00	**1.98 J**	<1.00	<1.00	**10.4**
	10/21/2024	**1,550 J**	**24.2**	**3.19**	**0.692 J**	**3.92**	**7.72**	**2.06 J**	**3.98 J**	**0.269 J**	**32.0**
Groundwater to Indoor Air - Commercial (RBCwi)	Chronic	--	650	160,000	420,000	200,000	1,600,000	83,000	--	--	--
	Acute	520	12	150,000	31	3,300	3,200	50	2,400	1,700	--
Groundwater in Excavation (RBC_{we})		14,000	1,800	220,000	4,500	23,000	63,000	500	6,300	7,500	--

Notes:

1. Volatile organic compounds by EPA Method 8260D.
2. GRO = Gasoline range organics by NWTPH-Gx Method.
3. µg/L = Micrograms per liter.
4. Only compounds of potential interest are present in table.
5. **Bold** values indicate concentration detected above the method detection limit.
6. < = Concentration was not detected above the shown minimum reporting limit.
7. B = Analyte concentration is less than 10 times greater than a detection in the method blank and the result may be biased.
8. J = Result is an estimated value.
9. J- = Result is an estimated value and may be biased low.
10. UJ = The analyte was not detected but the reporting limit may be inaccurate or imprecise.
11. DEQ Human Health RBC = Risk-Based Concentrations from the DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (updated June 2023).
12. Shaded values represent exceedances of applicable RBCs.



Note: Base map prepared from USGS 7.5-minute quadrangle of Clatskanie, OR, dated 2020 as provided by USGS.gov.



0 2,000 4,000

Approximate Scale in Feet

Site Location Map

Fourth Quarter Groundwater Monitoring - Former Johnson Oil Site
280 East Columbia River Highway
Clatskanie, Oregon

APEX Apex Companies, LLC 15618 SW 72nd Avenue Tigard, Oregon 97224	Project Number: 32-24008422	Drawn: JP	Approved: TC/CO	Figure 1
	March 2025			

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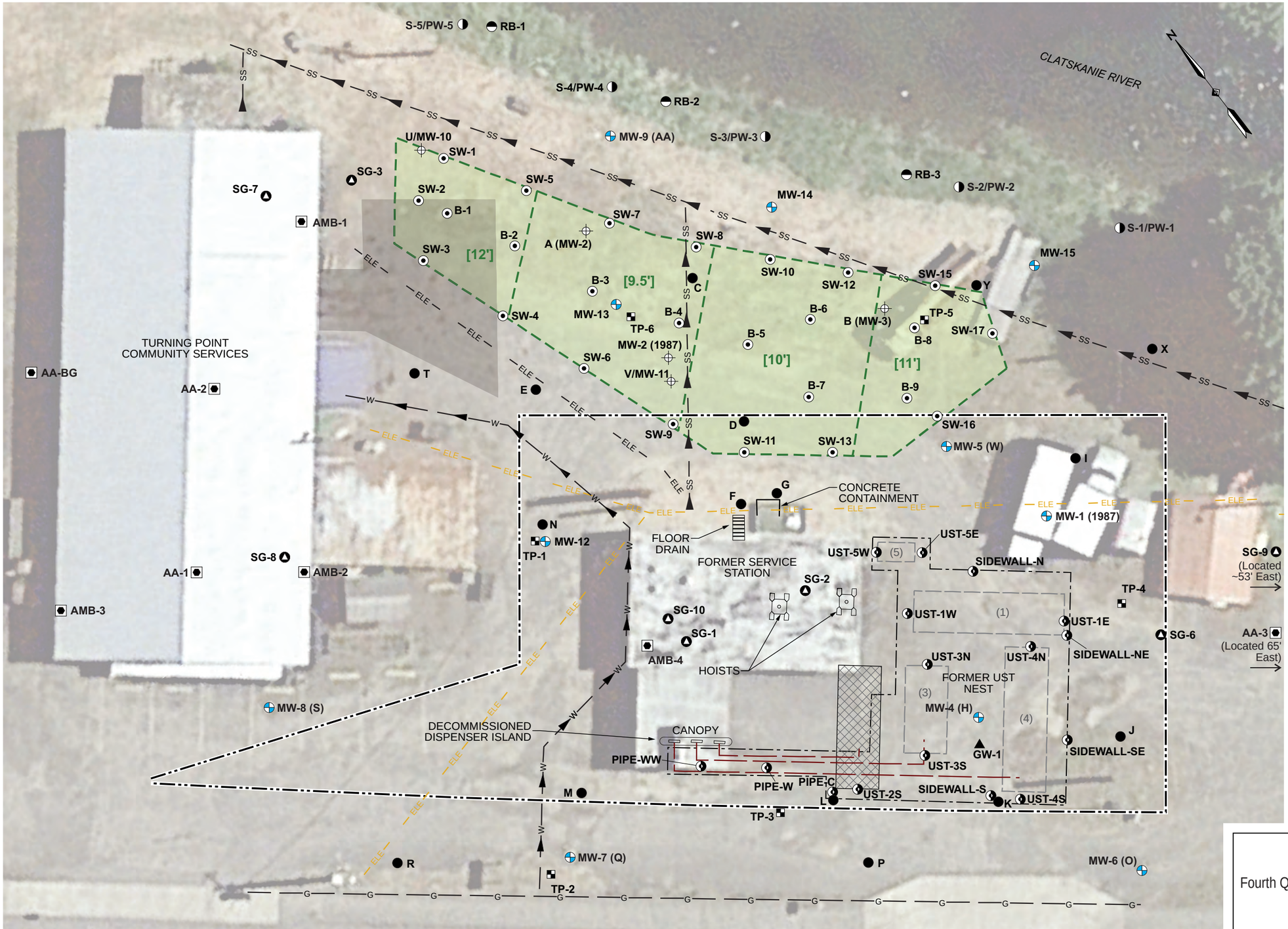

NOTE: Base map prepared from Haley Aldrich *Extent of Groundwater Contamination Exceeding Groundwater in Excavation RBCs* (August 2022) and Google Earth Pro Imagery. Aerial dated June 18, 2021.

Legend:

- Monitoring Well (Push-Probe Designation; If Applicable)
- Ambient Air Location
- Sediment/Porewater Sample
- Excavation Confirmation Sample
- Soil Gas Sample
- Push-Probe Exploration
- Decommissioned Monitoring Well
- Grab Groundwater Sample
- Porewater Sample
- Soil Sample
- Test Pit
- Gas Line
- Overhead Electrical Line
- Underground Electrical Line
- Sanitary Sewer Line
- Water Line
- Decommissioned Product Piping
- Asphalt Concrete Pad Installed June 22, 2022
- [10'] Extent Of Excavation and [Depth in Feet]
- Excavation Limits (2008)
- Underground Storage Tank (UST) Decommissioned in Place
- (4) Removed UST and Designation
- Property Boundary

0 20 40

Approximate Scale in Feet

Site Plan

Fourth Quarter Groundwater Monitoring - Former Johnson Oil Site
280 East Columbia River Highway
Clatskanie, Oregon

Apex Companies, LLC
15618 SW 72nd Avenue
Tigard, Oregon 97224

Project Number:	Drawn:	Approved:	Figure
32-24008422	--	TC/CO	2

March 2025

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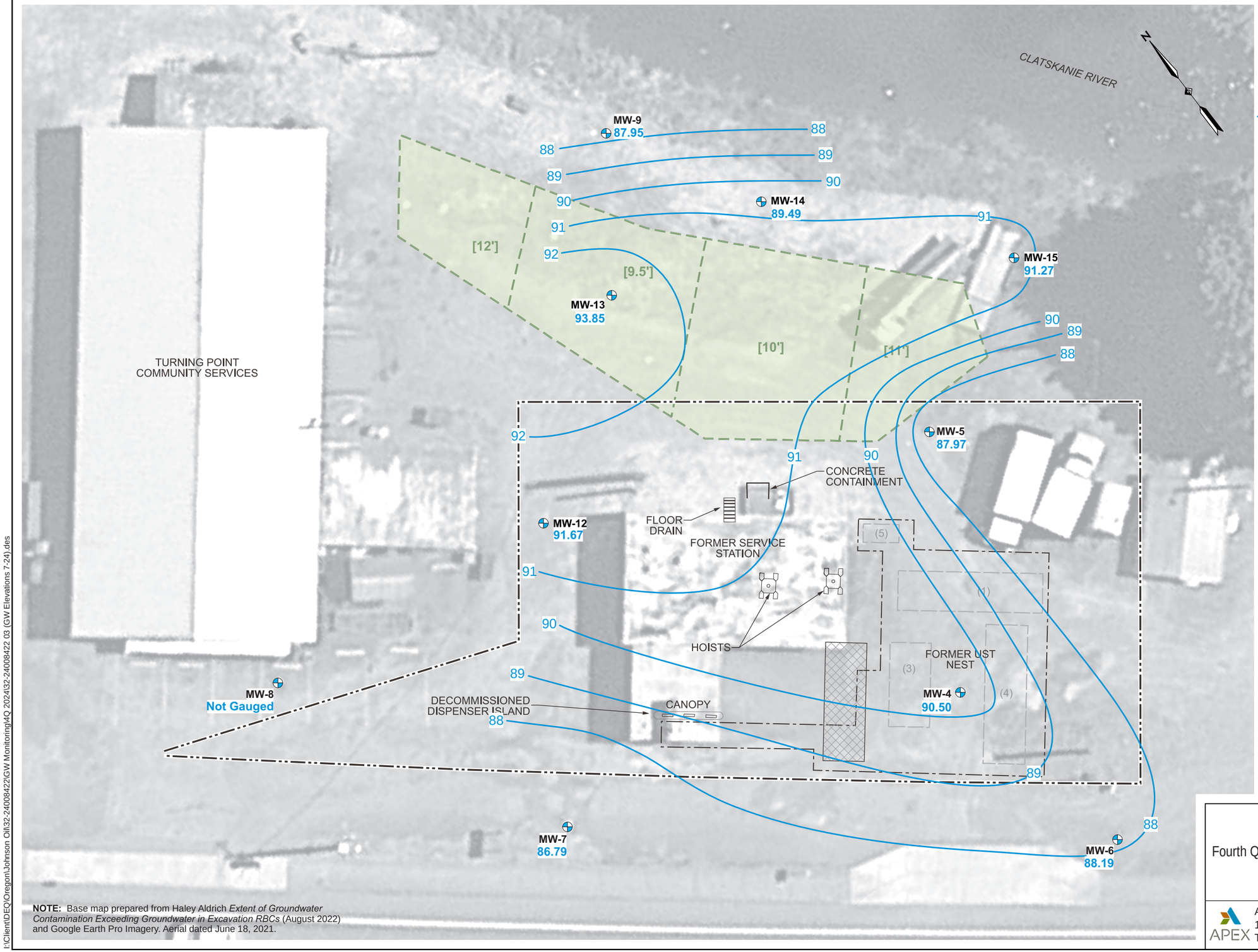

NOTE: Base map prepared from Haley Aldrich *Extent of Groundwater Contamination Exceeding Groundwater in Excavation RBCs* (August 2022) and Google Earth Pro Imagery. Aerial dated June 18, 2021.

Legend:

- Monitoring Well
- 91.25 — Groundwater Elevation in Feet Relative to Mean Sea Level
- 89 — Groundwater Elevation Contour in Feet Relative to Mean Sea Level (Dashed Where Inferred)
- [10'] — Extent of Excavation and [Depth in Feet]
- Excavation Limits (2008)
- Underground Storage Tank (UST) Decommissioned in Place
- (4) — Removed UST and Designation
- Property Boundary

0 20 40
Approximate Scale in Feet

Groundwater Elevations (October 2024)

Fourth Quarter Groundwater Monitoring - Former Johnson Oil Site
280 East Columbia River Highway
Clatskanie, Oregon

Apex Companies, LLC
15618 SW 72nd Avenue
Tigard, Oregon 97224

Project Number:	Drawn:	Approved:	Figure
32-24008422	--	TC/CO	3

March 2025

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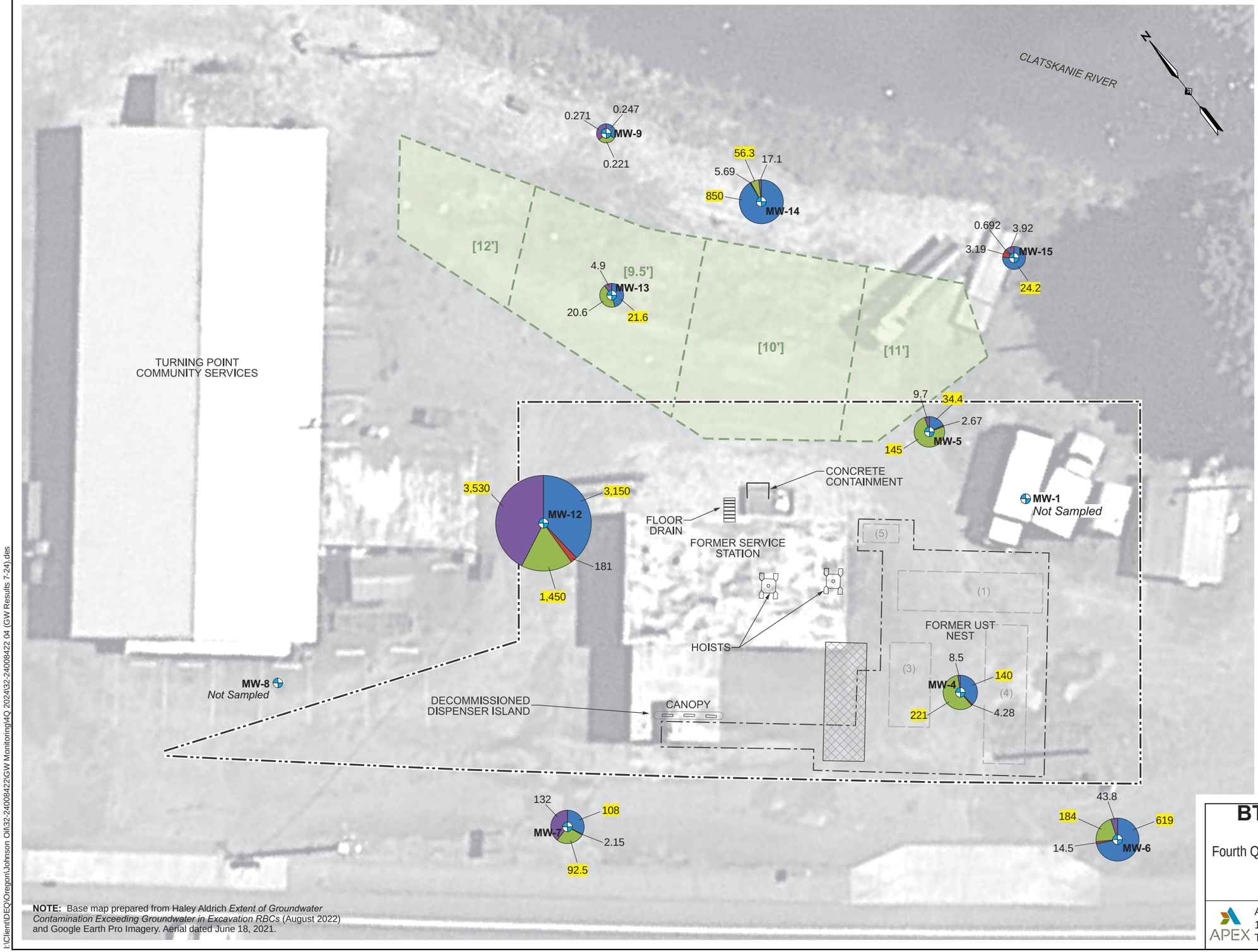

NOTE: Base map prepared from Haley Aldrich *Extent of Groundwater Contamination Exceeding Groundwater in Excavation RBCs* (August 2022) and Google Earth Pro Imagery. Aerial dated June 18, 2021.

Legend:

- Monitoring Well
- [10'] Extent of Excavation and [Depth in Feet]
- Excavation Limits (2008)
- Underground Storage Tank (UST) Decommissioned in Place
- (4) Removed UST and Designation
- Property Boundary

Detected BTEX:

MW-4 Concentration in µg/L (ppb)

Highlight = Concentration Exceeds One or More of the DEQ Risk-Based Concentrations (See Table 2)

Note: Size of Chart Proportional to BTEX Concentration

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES

0 20 40

Approximate Scale in Feet

BTEX Results in Groundwater (October 2024)

Fourth Quarter Groundwater Monitoring - Former Johnson Oil Site
280 East Columbia River Highway
Clatskanie, Oregon

APEX
Apex Companies, LLC
15618 SW 72nd Avenue
Tigard, Oregon 97224

Project Number:	Drawn:	Approved:	Figure
32-24008422	--	TC/CO	4

March 2025

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Appendix A

Sampling Documentation

Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224			Job Number:	24008422
	Client:	DEQ	Date:	10/21/24
	Project:	Johnson Oil	Sampler:	Chris Weer
	Weather:	51° Cloudy	Time In/Out:	9:10/10:00

WATER LEVEL DATA

Well I.D.	Time	Depth to Free Product (feet)	Depth to Water (feet)	Depth to Well Bottom (feet)	Product Thickness (feet)	Water Column Height (feet)	Notes/Other Remarks
MW-4	9:51	-	3.93	20	-	16.07	
MW-5	9:48	-	6.33	20	-	13.67	
MW-6	9:50	-	7.38	20	-	12.62	
MW-7	9:54	-	8.25	20	-	11.75	
MW-8	—	-	—	15	-	—	Paved over
MW-9	9:43	-	6.59	15	-	8.41	
MW-12	9:57	-	7.39	15	-	7.61	Strong odor
MW-13	9:56	-	5.74	17	-	11.26	
MW-14	9:45	-	9.79	20	-	10.21	
MW-15	9:47	-	9.05	20	-	10.95	

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW-~~6~~4	Job Number:	24008422
		Client:	DEQ	Date:	10/21/24
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	57° Partly Cloudy	Time In/Out:	1400/1440

WELL DATA

Well Depth:	20'		Well Diameter:	2 inches		Water Height	
Depth to Water:	3.97		Screened Interval:			x Multiplier	
Water Column Length:	16.03		Depth to Free Product:	-		x Casing Volumes	
Purge Volume:			Free Product Thickness:	-		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162		4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	low flow, p pump			Pump Intake Depth:	~17'					Comments	
Sampling Method:	low flow, p. pump			Tubing Type:	PTFE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1418			3.97		6.53	16.3°	569	0.46 ~~102.4~~	-102.4		C
1421			3.99		6.54	16.3	569	0.38	-106.1		C
1424			3.99		6.56	16.3°	569	0.26	-110.2		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-~~6~~4	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace		
Sample Time:	14:33	Final Depth to Water:	3.97	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes (no)				
3 VOA	HCl	VOCs	yes (no)				
			yes	no			
			yes	no			
			yes	no			
			yes	no			

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 5	Job Number:	24008422
		Client:	DEQ	Date:	10/21/24
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	57° Cloudy	Time In/Out:	1320/1350

WELL DATA

Well Depth:	20'		Well Diameter:	2 inches		Water Height	
Depth to Water:	6.32		Screened Interval:			x Multiplier	
Water Column Length:	~~8~~ 13.68'		Depth to Free Product:	-		x Casing Volumes	
Purge Volume:			Free Product Thickness:	-		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041		2-inch = 0.162	4-inch = 0.653		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	Low flow/P. pump			Pump Intake Depth:	~17'					Comments	
Sampling Method:	Low flow/P. Pump			Tubing Type:	PTFE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1330			8.34	0.35	6.43	14.9°	342.1	0.37	-111.4		C
1333			8.91	0.35	6.43	15.2°	342.3	0.30	-115.1		C
1336			9.63	0.35	6.43	15.4	342.6	0.23	-119.0		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-5	Sampling Flow Rate	0.35	Analytical Laboratory:	Pace		
Sample Time:	1342	Final Depth to Water:	9.97	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes	(no)			
3 VOA	HCl	VOCs	yes	(no)			
			yes	no			
			yes	no			
			yes	no			
			yes	no			

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- ~~X~~ 6	Job Number:	24008422
		Client:	DEQ	Date:	10/21/2024
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	56° Cloudy	Time In/Out:	1450 / 15:25

WELL DATA

Well Depth:	20'	Well Diameter:	2 inches	Water Height	
Depth to Water:	7.09	Screened Interval:		x Multiplier	
Water Column Length:	12.91	Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	P. pump, low flow	Pump Intake Depth:	17'	Comments	
Sampling Method:	P. pump, low flow	Tubing Type:	PTFE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1505			9.00	0.35	6.41	16.4°	493.2	0.35	-113.1		C
1508			10.05	0.35	6.41	16.5°	493.7	0.23	-115.8		C
1511			10.90	0.35	6.41	16.9	493.6	0.19	-118.1		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-~~X~~ 6	Sampling Flow Rate	0.33	Analytical Laboratory:	Pace		
Sample Time:	15:16	Final Depth to Water:	11.29'	Did Well Dewater?			
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes (no)				
3 VOA	HCl	VOCs	yes (no)				
			yes no				
			yes no				
			yes no				
			yes no				

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 7	Job Number:	24008422
		Client:	DEQ	Date:	10/21/2024
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	56° mostly cloudy	Time In/Out:	15:25 / 15:55

WELL DATA

Well Depth:	20'	Well Diameter:	2 inches	Water Height	
Depth to Water:	5.40'	Screened Interval:		x Multiplier	
Water Column Length:	14.60	Depth to Free Product:	—	x Casing Volumes	
Purge Volume:		Free Product Thickness:	—	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	low flow, p. pump	Pump Intake Depth:	~17	Comments	
Sampling Method:	low flow, p. pump	Tubing Type:	PTFE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
15:37			7.42	0.35	6.28	17.2°	531	0.35	-91.9		AC
15:40			8.36	0.35	6.29	17.0°	531	0.25	-95.7		AC
15:43			8.93	0.35	6.29	17.4°	529	0.17	-99.1		AC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-7	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace
Sample Time:	15:48	Final Depth to Water:	8.38	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
VOA	HCl	NWTPH-Gx	yes **no**			
VOA	HCl	VOCs	yes **no**			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW-89	Job Number:	24008422
		Client:	DEQ	Date:	10/21/2024
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	51° Cloudy	Time In/Out:	1020 / 1100

WELL DATA

Well Depth:	15'		Well Diameter:	2 inches		Water Height	
Depth to Water:	6.69'		Screened Interval:			x Multiplier	
Water Column Length:	8.31'		Depth to Free Product:	—		x Casing Volumes	
Purge Volume:			Free Product Thickness:	—		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162		4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	Low flow, peri pump			Pump Intake Depth:	~13'					Comments	
Sampling Method:	Low flow/peri pump			Tubing Type:	PTFE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
10:35			9.10	0.35	5.06	14.8°	81.0	4.37	213.7		C
10:38			9.37	0.35	5.04	15.0°	80.9	4.17	222.6		C
10:41			10.33	0.35	5.03	15.1	80.9	4.10	226.9		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-89	Sampling Flow Rate	0.35		Analytical Laboratory:	Pace	
Sample Time:	10:52	Final Depth to Water:	10.81		Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes	(no)			
3 VOA	HCl	VOCs	yes	(no)			
			yes	no			
			yes	no			
			yes	no			
			yes	no			

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 12	Job Number:	24008422
		Client:	DEQ	Date:	10/21/2024
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	55° mostly cloudy	Time In/Out:	1600/1645

WELL DATA

Well Depth:	15'		Well Diameter:	2 inches		Water Height	
Depth to Water:	7.35		Screened Interval:			x Multiplier	
Water Column Length:	7.65		Depth to Free Product:	—		x Casing Volumes	
Purge Volume:			Free Product Thickness:	—		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041		2-inch = 0.162	4-inch = 0.653		1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	Low flow, P. pump			Pump Intake Depth:	~17'					Comments	
Sampling Method:	Low flow, P pump			Tubing Type:	PTFE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1620			7.98	0.35	6.26	17.4°	458.2	0.20	-82.4		AC
1623			8.12	0.35	6.26	17.4°	458.0	0.17	-84.3		AC
1626			8.25	0.35	6.25	17.5°	457.8	0.14	-85.6		AC

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-12	Sampling Flow Rate	0.30	Analytical Laboratory:	Pace	
Sample Time:	1636	Final Depth to Water:	7.93	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes (no)			
3 VOA	HCl	VOCs	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

Strong hydrocarbon odor

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 13	Job Number:	24008422
		Client:	DEQ	Date:	10/21/24
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	54° Cloudy	Time In/Out:	11:55/1221

WELL DATA

Well Depth:	17'	Well Diameter:	2 inches	Water Height	
Depth to Water:	5.72	Screened Interval:		x Multiplier	
Water Column Length:	9.28	Depth to Free Product:	-	x Casing Volumes	
Purge Volume:		Free Product Thickness:	-	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	P. Pump / Low flow	Pump Intake Depth:	~17'	Comments	
Sampling Method:	P. Pump / Low flow	Tubing Type:	PTFE		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
12:05			5.76	0.35	6.91	16.4°	703	0.42	-114.6		C
12:08			5.77	0.35	6.92	16.7°	705	0.27	-120.1		C
12:11			5.77	0.35	6.93	16.9	705	0.22	-124.0		C

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-13	Sampling Flow Rate	0.35	Analytical Laboratory:	Pace
Sample Time:	12:16	Final Depth to Water:	5.73	Did Well Dewater?	NO

# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes (no)			
3 VOA	HCl	VOCs	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 14	Job Number:	24008422
		Client:	DEQ	Date:	10/21/24
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	56° rain	Time In/Out:	12:30 / 13:15

WELL DATA

Well Depth:	20		Well Diameter:	2 inches		Water Height	
Depth to Water:	9.83		Screened Interval:			x Multiplier	
Water Column Length:	10.17'		Depth to Free Product:	-		x Casing Volumes	
Purge Volume:			Free Product Thickness:	-		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162		4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	Low flow, p. pump			Pump Intake Depth:	~17'					Comments	
Sampling Method:	Low flow, p. pump			Tubing Type:	PTFE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
1245			10.84	0.35	6.57	13.9°	503	0.19	-138.8		C
1248			10.95	0.35	6.56	14.0	504	0.16	-139.5		C
1251			11.10	0.35	6.56	14.0	504	0.12	-140.4		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW14, Dup	Sampling Flow Rate	0.35	Analytical Laboratory:	Pace		
Sample Time:	1302, 1310	Final Depth to Water:	11.05'	Did Well Dewater?	NO		
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID
6 VOA	HCl	NWTPH-Gx	yes (no)				DUP
6 VOA	HCl	VOCs	yes (no)				DUP
			yes no				
			yes no				
			yes no				
			yes no				

COMMENTS

Duplicate

WELL MONITORING DATA SHEET

APEX	Apex Companies, LLC 15618 SW 72nd Ave. Portland, OR 97224	Well I.D.	MW- 15	Job Number:	24008422
		Client:	DEQ	Date:	10/21/2024
		Project:	Johnson Oil	Sampler:	Chris Weer
		Weather:	53° rain	Time In/Out:	11:10 / 11:48

WELL DATA

Well Depth:	20'		Well Diameter:	2 inches		Water Height	
Depth to Water:	9.37		Screened Interval:			x Multiplier	
Water Column Length:	10.63		Depth to Free Product:	—		x Casing Volumes	
Purge Volume:			Free Product Thickness:	—		= Purge Volume	
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162		4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Purge Method:	P. Pump		Pump Intake Depth:	~17'						Comments	
Sampling Method:	P. Pump		Tubing Type:								
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5° C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
10:20			9.56	0.35	6.26	12.8°	453.9	0.93	-118.7		C
10:23			10.30	0.35	6.28	12.8°	455.9	0.50	-126.7		C
10:26			10.41	0.35	6.30	12.9°	462.6	0.33	-131.4		C
10:29			10.48	0.35	6.32	12.9	474.2	0.24	-135.3		C

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:	MW-15	Sampling Flow Rate	0.35	Analytical Laboratory:	Pace	
Sample Time:	11:37	Final Depth to Water:	9.65	Did Well Dewater?	NO	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3 VOA	HCl	NWTPH-Gx	yes (no)			
3 VOA	HCl	VOCs	yes (no)			
			yes no			
			yes no			
			yes no			
			yes no			

COMMENTS

Appendix B

Historical Data and Trend Plots

Table B-1
Groundwater Elevations and Field Parameters
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well	Date	TOC Elevation (ft[1])	Depth to Groundwater (ft BTOC)	Depth to Product (ft BTOC)	Product Thickness (ft)	Groundwater Elevation (ft[1])	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-1 (1987)	6/2/2008	NS	3.5	--	--	--	--	--	--	--	--
MW-2	5/10/2018	94.36	7.30	--	--	87.06	6.76	12.73	754	0.87	-52.9
	6/13/2018		8.00	--	--	86.36	--	--	--	--	--
	5/24/2019		8.15	7.61	0.54	86.62	5.48	13.93	1		98.3
	7/10/2019		9.65	--	--	84.71	--	--	--	--	--
	9/16/2019		9.88	9.83	0.05	84.52	--	--	--	--	--
	1/17/2019		9.78	--	--	84.58	--	--	--	--	--
	4/1/2022		8.80	8.35	0.45	85.90	--	--	--	--	--
Decommissioned on 4/1/2022											
MW-3	5/10/2018	93.98	7.18	--	--	86.80	6.78	12.89	342	0.56	-53.5
	6/13/2018		8.31	--	--	85.67	--	--	--	--	--
	5/24/2019		5.43	--	--	88.55	6.33	13.12	0		43.5
	7/10/2019		9.47	--	--	84.51	--	--	--	--	--
	9/16/2019		10.07	--	--	83.91	--	--	--	--	--
	1-/17/2019		9.33	--	--	84.65	--	--	--	--	--
	5/12/2022		9.04	--	--	84.94	--	--	--	--	--
Decommissioned on 5/12/2022											
MW-4	5/10/2018	94.43	1.12	--	--	93.31	6.71	13.57	290	0.27	-67.4
	6/13/2018		1.30	--	--	93.13	--	--	--	--	--
	5/23/2019		0.97	--	--	93.46	6.44	13.34	283	--	-84.7
	7/10/2023		2.43	--	--	92.00	--	--	--	--	--
	9/16/2019		2.61	--	--	91.82	--	--	--	--	--
	10/17/2019		1.38	--	--	93.05	--	--	--	--	--
	5/12/2022		0.95	--	--	93.48	--	--	--	--	--
	3/29/2023		1.00	--	--	93.43	7.14	11.90	466	0.17	-136.1
	5/22/2023		1.77	--	--	92.66	6.92	13.50	460	0.28	-106.6
	9/21/2023		4.27	--	--	90.16	5.73	17.74	464	0.68	-115.4
	11/7/2023		0.9	--	--	93.53	6.43	15.82	585	0.23	-98.1
	2/26/2024		1.04	--	--	93.39	6.27	11.77	532	0.36	-39.9
	4/8/2024		1.30	--	--	93.13	6.75	12.64	566	1.40	-120.3
	7/22/2024		2.74	--	--	91.69	6.87	17.00	635	0.00	-215.5
	10/21/2024		3.93	--	--	90.50	6.56	16.30	569	0.26	-110.2
MW-5	5/23/2019	94.30	4.65	--	--	89.65	6.06	13.70	189	--	30.6
	7/10/2019		4.86	--	--	89.44	--	--	--	--	--
	9/16/2019		5.79	--	--	88.51	--	--	--	--	--
	10/17/2019		4.59	--	--	89.71	--	--	--	--	--
	5/12/2022		6.60	--	--	87.70	--	--	--	--	--
	3/29/2023		3.76	--	--	90.54	6.92	11.50	448	0.50	-137.5
	5/22/2023		3.94	--	--	90.36	6.64	13.00	339	0.80	-120.7
	9/21/2023		6.79	--	--	87.51	5.37	16.51	324	0.66	-98.5
	11/7/2023		2.56	--	--	91.74	6.24	15.35	417	0.18	-104
	2/26/2024		2.97	--	--	91.33	5.94	11.60	469	0.32	48.8
	4/8/2024		3.44	--	--	90.86	6.53	12.19	461	1.11	-125.3
	7/22/2024		4.50	--	--	89.80	8.95	15.40	542	0.00	-230.1
	10/21/2024		6.33	--	--	87.97	6.43	15.40	342	0.23	-199
MW-6	5/23/2019	95.57	4.57	--	--	91.00	5.95	13.76	181.000	--	3.00
	7/10/2019		6.55	--	--	89.02	--	--	--	--	--
	9/16/2019		7.31	--	--	88.26	--	--	--	--	--
	10/17/2019		7.48	--	--	88.09	--	--	--	--	--
	5/12/2022		7.75	--	--	87.82	--	--	--	--	--
	3/29/2023		4.61	--	--	90.96	6.94	12.30	576	0.30	-118.6
	5/22/2023		6.66	--	--	88.91	6.62	13.50	479	0.28	-84.8
	9/21/2023		7.68	--	--	87.89	5.64	17.73	452	0.62	-117.5
	11/7/2023		4.93	--	--	90.64	6.13	17.28	432	0.21	-78.8
	2/26/2024		4.88	--	--	90.69	5.99	12.50	469	0.58	-33.8
	4/8/2024		4.55	--	--	91.02	6.52	13.24	484	1.08	-108.4

Please see notes at end of table.

Table B-1
Groundwater Elevations and Field Parameters
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well	Date	TOC Elevation (ft[1])	Depth to Groundwater (ft BTOC)	Depth to Product (ft BTOC)	Product Thickness (ft)	Groundwater Elevation (ft[1])	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-6	7/22/2024		5.69	--	--	89.88	6.59	16.10	580	0.00	-208.8
	10/21/2024		7.38	--	--	88.19	6.41	16.90	493	0.19	-118.1
MW-7	3/23/2019	95.04	8.02	--	--	87.02	5.64	15.12	644	2.65	45.8
	7/10/2019		6.23	--	--	88.81	--	--	--	--	--
	9/16/2019		7.33	--	--	87.71	--	--	--	--	--
	10/17/2019		10.39	--	--	84.65	--	--	--	--	--
	5/12/2022		9.21	--	--	85.83	--	--	--	--	--
	3/29/2023		5.37	--	--	89.67	6.79	13.60	673	0.07	-111.0
	5/22/2023		10.62	--	--	84.42	6.53	14.80	708	1.28	-73.2
	9/20/2023		6.20	--	--	88.84	5.35	19.00	491	0.61	-92.6
	11/7/2023		7.71	--	--	87.33	5.96	17.00	383	0.23	-32.0
	2/26/2024		8.07	--	--	86.97	5.93	13.81	578	0.77	-31.2
	4/8/2024		9.23	--	--	85.81	6.23	14.03	446	1.37	-52.5
	7/22/2024		6.26	--	--	88.78	6.5	16.90	623	0.00	-174.2
	10/21/2024		8.25	--	--	86.79	6.29	17.40	529	0.17	-99.1
MW-8	5/24/2019	96.22	5.43	--	--	90.79	6.25	14.55	886	--	-72.4
	7/10/2019		6.01	--	--	90.21	--	--	--	--	--
	9/16/2019		6.32	--	--	89.90	--	--	--	--	--
	10/17/2019		6.43	--	--	89.79	--	--	--	--	--
	3/29/2023		5.17	--	--	91.05	6.65	12.30	946	0.68	-99.6
	5/22/2023		5.74	--	--	90.48	6.41	14.20	827	0.23	-76.0
	9/20/2023		6.80	--	--	89.42	5.44	19.53	868	0.07	-130.4
	11/7/2023		6.11	--	--	90.11	6.11	18.30	902	0.34	-127.1
	2/26/2024		5.09	--	--	91.13	6.07	12.18	953	0.75	-56.8
	4/8/2024		5.33	--	--	90.89	6.36	12.62	896	0.00	-106.3
	7/22/2024		5.92	--	--	90.30	6.49	17.80	940	0.00	-198.3
Well Inaccessible; Covered by Asphalt Concrete											
MW-9	5/23/2019	94.54	10.41	--	--	84.13	4.62	12.90	610	2.88	34.1
	7/10/2019		10.28	--	--	84.26	--	--	--	--	--
	9/16/2019		8.21	--	--	86.33	--	--	--	--	--
	10/17/2019		4.68	--	--	89.86	--	--	--	--	--
	9/20/2023		9.09	--	--	85.45	3.71	15.44	146	3.77	256.0
	11/7/2023		5.07	--	--	89.47	4.99	14.47	52	2.19	223.0
	5/23/2029		10.41	--	--	84.13	--	--	--	--	--
	7/10/2019		10.28	--	--	84.26	--	--	--	--	--
	9/16/2019		8.21	--	--	86.33	--	--	--	--	--
	10/17/2019		4.68	--	--	89.86	--	--	--	--	--
	2/26/2024		4.90	--	--	89.64	4.43	9.82	51	4.33	256.5
	4/8/2024		6.33	--	--	88.21	4.94	10.95	62	3.96	238.4
	7/22/2024		9.47	--	--	85.07	4.91	14.11	78	4.19	55.2
	10/21/2024		6.59	--	--	87.95	5.03	15.10	81	4.10	226.9
MW-10	5/23/2019	94.50	12.91	--	--	81.59	--	--	--	--	--
	7/10/2019		7.35	--	--	87.15	--	--	--	--	--
	9/16/2019		8.22	--	--	86.28	--	--	--	--	--
	10/17/2019		8.39	--	--	86.11	--	--	--	--	--
	4/1/2022		6.13	--	--	88.37	--	--	--	--	--
Decommissioned on 4/1/2022											
MW-11	5/24/2019	94.62	5.93	--	--	88.69	--	--	--	--	--
	7/10/2019		6.84	--	--	87.78	--	--	--	--	--
	9/16/2019		7.68	--	--	86.94	--	--	--	--	--
	10/17/2019		7.44	--	--	87.18	--	--	--	--	--
	4/1/2022		6.15	--	--	88.47	--	--	--	--	--

Please see notes at end of table.

Table B-1
Groundwater Elevations and Field Parameters
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well	Date	TOC Elevation (ft[1])	Depth to Groundwater (ft BTOC)	Depth to Product (ft BTOC)	Product Thickness (ft)	Groundwater Elevation (ft[1])	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)
Decommissioned on 4/1/2022											
MW-12	3/29/2023	99.06	4.41	--	--	94.65	6.51	11.80	389	1.36	71.5
	5/22/2023		4.78	--	--	94.28	6.47	13.20	371	0.32	-59.1
	9/21/2023		7.50	--	--	91.56	5.33	18.73	544	0.58	-103.8
	11/7/2023		5.26	--	--	93.80	6.11	16.18	325	0.38	-67.8
	2/26/2024		4.61	--	--	94.45	5.90	11.68	355	0.27	-23.3
	4/8/2024		5.10	--	--	93.96	6.33	12.64	331	1.13	-86.8
	7/22/2024		6.10	--	--	92.96	6.29	18.00	343	0.00	-158.5
	10/21/2024		7.39	--	--	91.67	6.25	17.50	458	0.14	-85.6
MW-13	3/29/2023	98.28	2.75	--	--	95.53	7.95	10.60	670	0.00	-103.2
	5/22/2023		3.40	--	--	94.88	7.27	12.70	541	0.42	-87.9
	9/20/2023		5.67	--	--	92.61	6.03	18.42	912	0.60	-116.3
	11/7/2023		2.54	--	--	95.74	6.79	16.15	901	0.25	-65.3
	2/26/2024		2.67	--	--	95.61	6.85	9.59	352	0.56	-9.4
	4/8/2024		3.09	--	--	95.19	7.40	10.96	375	0.00	-125.2
	7/22/2024		4.43	--	--	93.85	7.33	16.30	609	0.00	-208.4
	10/21/2024		5.74	--	--	92.54	6.93	16.90	705	0.22	-124
MW-14	3/29/2023	99.28	7.95	--	--	91.33	6.51	11.40	507	0.08	-31.6
	5/22/2023		6.83	--	--	92.45	6.58	12.00	594	0.46	-38.6
	9/20/2023		10.00	--	--	89.28	5.69	15.44	705	0.58	-131.6
	11/7/2023		7.97	--	--	91.31	5.98	14.87	425	0.18	-90.5
	2/26/2024		8.05	--	--	91.23	5.9	11.78	335	0.65	-30.6
	4/8/2024		8.77	--	--	90.51	6.45	11.92	338	0.00	-106.8
	7/22/2024		9.43	--	--	89.85	6.71	14.50	505	0.37	-192.4
	10/21/2024		9.79	--	--	89.49	6.56	14.00	504	0.12	-140.4
MW-15	3/29/2023	100.32	8.30	--	--	92.02	6.46	11.90	699	4.83	51.6
	5/22/2023		6.78	--	--	93.54	6.63	12.00	445	0.30	-86.7
	9/20/2023		9.67	--	--	90.65	5.2	14.18	577	0.73	-72.9
	11/7/2023		7.87	--	--	92.45	5.95	13.72	348	0.21	-59.4
	2/26/2024		8.31	--	--	92.01	5.77	9.08	320	0.54	-16.0
	4/8/2024		9.07	--	--	91.25	6.45	11.31	407	0.00	-134.6
	7/22/2024		9.66	--	--	90.66	6.71	14.50	505	0.37	-192.4
	10/21/2024		9.05	--	--	91.27	6.32	12.90	474	0.24	-135.3

Notes:

1. Elevations are relative to an assumed reference datum of 100 feet (point located at the northwest corner of a concrete pad for a metal sign along Highway 30).
2. ft = feet
3. BTOC = Below Top of Casing.
4. NS = Not surveyed.
5. °C = Degrees Celsius.
6. µS/cm = MicroSiemens per centimeter
7. mg/L = Milligrams per liter.
8. ORP (mV) = Oxidation-reduction potential (millivolts).

Table B-2
Groundwater Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well Number	Sample Date	Concentrations in µg/L									
		TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl tert-butyl ether	Naphthalene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	BTEX
MW-4	5/10/2018	14,400	18.5	10.9 J	619	1,720	<0.367	283 J	1,190	404	2,368
	5/23/2019	7,340	117	2.07	436	43.2	<0.0367	284	58.3	22.9	598
	3/29/2023	5,720	84.5	1.83	196	3.43	<0.101	213	1.05	0.934 J	286
	5/22/2023	4,660	87.6	<10.0	188	<30.0	<10.0	117 J-	<10.0	<10.0	296
	9/21/2023	4,950	60.8	1.29	287	2.69 J	<1.00	363	0.412 J	0.292 J	352
	11/8/2023	4,870	199	<20.0	354	9.63 J	<20.0	137	<20.0	<20.0	573
	2/27/2024	3,120	94.2	<20.0	104	7.88	<20.0	130	4.57	<20.0	216
	4/9/2024	3,450	117	<20.0	108	<60.0	<20.0	96.2	2.19	<20.0	265
	7/23/2024	3,370	102	2.94	95.0	3.71	<1.00	173	<1.00	<1.00	204
	10/21/2024	6,130	140	4.28	221	8.50	<0.101	324	2.87 J	0.156 J	374
MW-5	5/23/2019	3,590	46.2	5.82	428	45.8	<0.367	151	48.6	22.7	526
	3/30/2023	6,270	68.4	4.24	380	14.3	<0.101	178	0.561 J	1.99	467
	5/23/2023	4,790	56.3	3.20 J	208	7.81 J	<10.0	54.9 J-	<10.0	<10.0	275
	9/21/2023	3,430	32.0	2.13	200	9.57	<1.00	120	0.341 J	0.975 J	244
	11/8/2023	6,100	141	13.1	244	29.4 J	<10.0	220	<10.0	2.58 J	428
	2/27/2024	5,070	147	13.6	1,080	61.4	<10.0	331	24.2	3.07	1,302
	4/9/2024	7,910	155	11.1	970	51.0	<10.0	318	35.3	1.94	1,187
	7/23/2024	8,250	112	9.17	536	29.1	0.141 J	246	5.16	2.10	686
	10/21/2024	3,220	34.4	2.67	145	9.70	<0.101	60.0	3.96 J	0.527 J	192
MW-6	5/23/2019	28,100	1,690	1,500	2,250	4,180	<18.4	241 J	809	206	9,620
	3/29/2023	1,490	609	8.50	240	194	<0.101	45.1	42.9	10.3	1,052
	5/22/2023	4,720	665	14.2 J	297	88.9 J	<50.0	<250 UJ	<50.0	11.1 J	1,065
	9/21/2023	2,450	379	6.25	92.7	41.1	<1.00	9.88	<1.00	2.57	519
	11/8/2023	6,250	772	11.2	230	74.3	<10.0	28.0 J	6.60 J	5.36 J	1,088
	2/27/2024	4,060	668	13.1	215	55.7	<10.0	19.6	3.09	7.72	952
	4/9/2024	6,860	576	10.4	152	31.5	<10.0	28.5	2.52	3.66	770
	7/23/2024	7,040	838	13.4	288	84.3	0.217 J	24.6	19.3	9.49	1,224
	10/21/2024	3,790	619	14.5	184	43.8	<0.101	9.13	2.80	4.87	861
MW-7	5/23/2019	5,610	524	<8.24	396	1,020	45.7	37.4 J	269	49.3	1,944
	3/29/2023	42.7 J	96.6	1.93	70.5	138	24.3	12.8	28.2	7.53	307
	5/22/2023	4,910	518	4.15	410	411	36.9	71.5 J-	148	39.0	1,343
	9/21/2023	876	49.6	1.44	35.6	99.3	14.6	2.66 J	18.0	5.3	186
	11/8/2023	1,640	166	0.981 J	163	92.2	12.4	17.1	22.6	4.7	422
	2/27/2024	1,310	131	2.19	123	236	17.4	10.3	19.4	11.8	492
	4/9/2024	2,350	112	2.42	87.8	294	14.9	4.15	11.8	14.5	496
	7/23/2024	1,610	53.4	2.06	29.3	51.6	26.7	5.37	10.0	3.27	136
	10/21/2024	1,520	108	2.15	92.5	132	19.8	9.54	18.4	9.58	335
MW-8	5/24/2019	88.0	2.16	<0.412	<0.384	26.0	<0.367	<1.00	4.53	1.43	28.6
	3/29/2023	4,550	<0.0941	<0.278	<0.137	3.21	0.331 J	<1.00	0.486 J	0.258 J	3.46
	5/22/2023	189 J	<1.00	<1.00	<1.00	11.5	0.273 J	<5.00 UJ	3.64	1.15	13.0
	9/20/2023	54.5 J	<1.00	<1.00	0.231 J	1.47 J	0.297 J	<5.00	<1.00	0.137 J	2.70

Please see notes at end of table.

Table B-2
Groundwater Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well Number	Sample Date	Concentrations in µg/L									
		TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl tert-butyl ether	Naphthalene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	BTEX
MW-8	11/7/2023	35.5	0.125 J	<1.00	0.587 J	0.923 J	<1.00	1.33 J	<1.00	<1.00	2.14
	2/26/2024	52.0 B	<1.00	<1.00	<1.00	4.26	0.296	<5.00	0.400	<1.00	5.76
	4/8/2024	84.8	<1.00	<1.00	0.206	8.77	0.336	<5.00	0.83	0.77	10.0
	7/22/2024	234	<1.00	<1.00	<1.00	1.12 J	0.232 J	<5.00	<1.00	<1.00	2.62
	10/21/2024	Well Inaccessible; Covered by Asphalt Concrete									
MW-9	5/23/2019	3,760	1,320	15.0	40.7	563.0	<0.376	3.31 J	141	44.3	1,939
	9/20/2023	<100	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	11/7/2023	55.7 J	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	2/26/2024	<100	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	4/8/2024	<100	<1.00	<1.00	<1.00	<3.00	<1.00	<5.00	<1.00	<1.00	<1.00
	7/23/2024	31.7 JB	0.186 J	0.303 J	0.182 J	0.893 J	<1.00	<5.00	<1.00	<1.00	1.56
	10/21/2024	<31.6	0.247 J	<0.278	0.221 J	0.271	<0.101	<1.00	0.106 J	<0.104	0.88
MW-12	3/30/2023	49,600	1,510	12,600	2,720	11,800	<2.02	508	1,980	519	28,630
	5/23/2023	82,400	2,930	13,600	3,090	14,300	<500	<2,500 UJ	1,910	621	33,920
	9/21/2023	31,000	4,540	145	1,490	3,870	15.3	193 J	1,120	297	10,045
	11/8/2023	104,000	4,150	13,200	4,650	22,500	<50.0	288	2,380	649	44,500
	2/27/2024	125,000	1,650	19,300	4,990	23,400	<100	511	724	797	49,340
	4/8/2024	120,000	1,810	15,900	3,410	17,500	<100	340	533	603	38,620
	7/23/2024	82,600	5,130	4,590	4,000	13,800	<25.0	660	2,750	704	27,520
	10/21/2024	24,500	3,150	181	1,450	3,530	16.6	193	387	354	8,311
MW-13	3/30/2023	2,300	59.7	5.48	217	264	<0.101	53.5	205	117	546
	5/23/2023	2,550	123	<10.0	226	50.2	<10.0	18.8 J-	46.3	57.1	404
	9/20/2023	3,170	166	<20.0	279	16.1 J	<1.00	14.3	114	36.5	471
	11/7/2023	271	2.79	<1.00	10.4	1.47 J	<1.00	<5.00	1.96	0.177 J	15.2
	2/26/2024	98.3 B	1.45	<1.00	7.86	0.329	<1.00	<5.00	<1.00	<1.00	10.1
	4/8/2024	238	35.3	0.501	6.11	<3.00	<1.00	<5.00	<1.00	0.381	43.4
	7/22/2024	256	12.0	<1.00	2.68	<3.00	<1.00	<5.00	<1.00	<1.00	16.7
	10/21/2024	299 J-	21.6 J-	<0.278 UJ	20.6 J-	4.90 J-	<0.101 UJ	2.79 J-	1.45 J-	0.288 J-	47.2
MW-14	3/30/2023	4,190	107	1.64	58.7	18.1	<0.101	15.3	9.54	1.68	185
	5/23/2023	6,080	1,230	8.69	34.6	15.6	<1.00	6.45 J-	38.0	23.8	1,289
	9/20/2023	4,570	703	4.08	46.7	7.73 J	<1.01	7.83	<25.0	22.4	762
	11/8/2023	3,300	370	6.99 J	<25.0	21.5 J	<25.0	<125	<25.0	<25.0	411
	2/27/2024	3,440	554	4.94	34.9	15.8	<5.00	<25.0	9.57	4.87	610
	4/8/2024	3,790	334	4.30	19.4	13.8	<5.00	<25.0	8.35	3.48	372
	7/22/2024	3,660	387	8.59 J	29.8	43.6	<10.0	22.0 J	12.6	4.85 J	469
	10/21/2024	6,260	850	5.69	56.3	17.1	<0.101	5.71	23.5	5.32	929
MW-15	3/30/2023	2,160	990	16.6	35.6	19.8	10.6	3.80 J	8.70	10.2	1,062
	5/23/2023	2,340	92.8	<10.0	45.1	11.2 J	<10.0	<50 UJ	<10.0	<10.0	154
	9/20/2023	2,590	250	2.96	20.9	2.98 J	6.43	1.84 J	<10.0	<10.0	277
	11/7/2023	709	28.7	0.377 J	14.5	2.69 J	<1.00	3.84 J	0.73 J	0.16 J	46.3
	2/26/2024	940	27.6	0.518	33.2	6.20	<1.00	6.10	10.4	<1.00	67.5

Please see notes at end of table.

Table B-2
Groundwater Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Monitoring Well Number	Sample Date	Concentrations in µg/L									
		TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl tert-butyl ether	Naphthalene	1,2,4-Trimethyl-benzene	1,3,5-Trimethyl-benzene	BTEX
MW-15	4/8/2024	**1,010**	**35.1**	**0.895**	**28.5**	**3.26**	<1.00	**5.31**	**11.0**	<1.00	**67.8**
	7/22/2024	**344**	**8.93**	**0.706 J**	<1.00	**0.228 J**	<1.00	**1.98 J**	<1.00	<1.00	**10.4**
	10/21/2024	**1,550 J**	**24.2**	**3.19**	**0.692 J**	**3.92**	**7.72**	**2.06 J**	**3.98 J**	**0.269 J**	**32.0**
Groundwater to Indoor	Chronic	--	650	160,000	420,000	200,000	1,600,000	83,000	--	--	--
Air - Commercial	Acute	520	12	150,000	31	3,300	3,200	50	2,400	1,700	--
Groundwater in Excavation (RBC_{we})		14,000	1,800	220,000	4,500	23,000	63,000	500	6,300	7,500	--

Notes:

1. Volatile organic compounds by EPA Method 8260D.
2. GRO = Gasoline range organics by NWTPH-Gx Method.
3. µg/L = Micrograms per liter.
4. Only compounds of potential interest are present in table.
5. **Bold** values indicate concentration detected above the method detection limit.
6. < = Concentration was not detected above the shown minimum reporting limit.
7. B = Analyte concentration is less than 10 times greater than a detection in the method blank and the result may be biased.
8. J = Result is an estimated value.
9. J- = Result is an estimated value and may be biased low.
10. UJ = The analyte was not detected but the reporting limit may be inaccurate or imprecise.
11. DEQ Human Health RBC = Risk-Based Concentrations from the DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (updated June 2023).
12. Shaded values represent exceedances of applicable RBCs.

Table B-3
Soil Vapor Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Sample Location	Former Produce Market	Former Service Station Building							Turning Point Building										Outdoor Samples		RBC_{sv} - Commercial	
Sample ID	SG-9	SG 1	SG 2	SG-10					SG-7					SG-8					SG 3	SG 6		
Date	5/23/2019	5/9/2018	5/10/2018	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/10/2018	5/10/2018	Chronic	Acute
Volatile Organic Compounds (VOCs) by EPA Method TO-15 in µg/m³																						
Acetone	**38.3**	**27.6**	**9.98 J**	**212**	<2.97	**20.5**	**9.08**	**20.0**	**1,360**	<2.97	**8.72**	**32.1**	**28.5**	**73.7**	**14.1**	**11.9**	**3.26**	**7.91**	**1,180**	**5,680**	--	6,300,000
Allyl Chloride	--	--	--	--	<0.626	<0.626	<0.626	<0.626	--	<0.626	<0.626	<0.626	<0.626	--	<0.626	<0.626	<0.626	<0.626	--	--	68	--
Benzene	**3.26**	<1.28	<1.28 J	**2.24**	<0.639	**0.684**	*<63.9*	<0.639	<12.5	<0.639	<0.639	<0.639	**0.818**	<1.28	**0.684**	<0.639	<0.639	<0.639	**11,400**	**33.8**	52	2,900
Benzyl Chloride	--	--	--	--	<1.04	<1.04	<1.04	<1.04	--	<1.04	<1.04	<1.04	<1.04	--	<1.04	<1.04	<1.04	<1.04	--	--	8.3	24,000
Bromodichloromethane	--	--	--	--	<1.34	<1.34	<134	<1.34	--	<1.34	<1.34	<1.34	<1.34	--	<1.34	<1.34	<1.34	<1.34	--	--	11	--
Bromoform	--	--	--	--	<6.21	<6.21	<6.21	<6.21	--	<6.21	<6.21	<6.21	<6.21	--	<6.21	<6.21	<6.21	<6.21	--	--	370	--
Bromomethane	--	--	--	--	<0.776	<0.776	<0.776	<0.776	--	<0.776	<0.776	<0.776	<0.776	--	<0.776	<0.776	<0.776	<0.776	--	--	730	400,000
1,3-Butadiene	--	--	--	--	<4.43	<4.43	<4.43	<4.43	--	<4.43	<4.43	<4.43	<4.43	--	<4.43	<4.43	<4.43	<4.43	--	--	14	67,000
Carbon Disulfide	<1.24	**3.1**	**2.8**	**3.46**	<0.622	**0.890**	<0.622	<1.24	<12.4	<0.622	<0.622	**3.70**	<1.24	<1.24	**4.17**	<0.622	<0.622	**8.40**	**25.7**	**7.77**	100,000	630,000
Carbon Tetrachloride	--	--	--	--	<1.26	<1.26	<1.26	**1.26**	--	<1.26	<1.26	<1.26	<1.26	--	<1.26	<1.26	<1.26	<1.26	--	--	68	190,000
Chlorobenzene	--	--	--	--	<0.924	<0.924	<92.4	<0.924	--	<0.924	<0.924	<0.924	<0.924	--	<0.924	<0.924	<0.924	<0.924	--	--	7,300	--
Chloroethane	--	--	--	--	**2.85**	<0.528	<0.528	<0.528	--	<0.528	<0.528	**1.01**	<0.528	--	<0.528	<0.528	<0.528	<0.528	--	--	580,000	4,000,000
Chloroform	--	--	--	--	<0.973	<0.973	<0.973	<0.973	--	<0.973	<0.973	<0.973	<0.973	--	<0.973	<0.973	<0.973	<0.973	--	--	18	50,000
Chloromethane	--	--	--	--	**3.53**	**0.554**	<0.413	**0.845**	--	<0.413	**0.591**	**3.74**	<0.413	--	<0.413	**1.06**	<0.413	<0.413	--	--	13,000	100,000
2-Chlorotoluene	--	--	--	--	<1.03	<1.03	<1.03	<1.03	--	<1.03	<1.03	<1.03	<1.03	--	<1.03	<1.03	<1.03	<1.03	--	--	--	--
Cyclohexane	<1.38	<1.38	<1.38	<1.38	**1.69**	**8.16**	**1,540**	<0.689	<13.8	<0.689	<0.689	<0.689	<0.689	<1.38	<0.689	<0.689	<0.689	<0.689	<1.38	5,390	880,000	--
Chlorodibromomethane	--	--	--	--	<1.70	<1.70	<170	<1.70	--	<1.70	<1.70	<1.70	<1.70	--	<1.70	<1.70	<1.70	<1.70	--	--	--	--
1,2-Dibromoethane	<3.08	*<3.08*	*<3.08*	*<3.08*	*<1.54*	*<1.54*	*<154*	<1.54	*<30.8*	*<1.54*	*<1.54*	*<1.54*	<1.54	*<3.08*	*<1.54*	*<1.54*	*<1.54*	<1.54	*<3.08*	*<3.08*	0.68	--
1,2-Dichlorobenzene	--	--	--	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	--	29,000	--
1,3-Dichlorobenzene	--	--	--	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	--	--	--
1,4-Dichlorobenzene	--	--	--	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	<1.20	<1.20	<1.20	<1.20	--	--	37	1,200,000
1,2-Dichloroethane	<1.62	<1.62	<1.62	<1.62	<0.810	<0.810	*<81.0*	<0.810	<16.2	<0.810	<0.810	<0.810	<0.810	<1.62	<0.810	<0.810	<0.810	<0.810	<1.62	<1.62	16	--
1,1-Dichloroethane	--	--	--	--	<0.802	<0.802	<0.802	<0.802	--	<0.802	<0.802	<0.802	<0.802	--	<0.802	<0.802	<0.802	<0.802	--	--	260	--
1,1-Dichloroethene	--	--	--	--	<0.793	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	--	29,000	20,000
cis-1,2-Dichloroethene	--	--	--	--	**2.14**	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	--	5,800	--
trans-1,2-Dichloroethene	--	--	--	--	<0.793	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	<0.793	<0.793	<0.793	<0.793	--	--	5,800	80,000
1,2-Dichloropropane	--	--	--	--	<0.924	<0.924	<92.4	<0.924	--	<0.924	<0.924	<0.924	<0.924	--	<0.924	<0.924	<0.924	<0.924	--	--	110	23,000
cis-1,3-Dichloropropene	--	--	--	--	<0.908	<0.908	<90.8	<0.908	--	<0.908	<0.908	<0.908	<0.908	--	<0.908	<0.908	<0.908	<0.908	--	--	100	3,700
trans-1,3-Dichloropropene	--	--	--	--	<0.908	<0.908	<90.8	<0.908	--	<0.908	<0.908	<0.908	<0.908	--	<0.908	<0.908	<0.908	<0.908	--	--	100	3,700
1,4-Dioxane	<1.44	--	--	<1.44	<0.721	<0.721	*<227*	<2.27	<14.4	<0.721	<0.721	<2.27	<2.27	**3.52**	<0.721	<0.721	<2.27	<2.27	--	--	82	730,000
Ethanol	**98.9**	**70.5**	**17.9 J**	**259**	<4.71	**58.6**	**7.94**	**5.51**	**1,380**	**35.3**	**14.9**	**78.6**	**51.1**	**43.7**	**54.3**	**31.1**	**4.98 B**	**6.00**	**22.5**	**23.3**	--	--
Ethylbenzene	**17.5**	**4.84**	<1.73	<1.73	<0.867	<0.867	<0.867	<0.867	**45.1**	**2.37**	**2.44**	**1.03**	**1.19**	<1.73	**5.20**	<0.867	<0.867	<0.867	**320**	**4.52**	160	2,200,000
4-Ethyltoluene	**10.4**	**3.7**	<1.96	<1.96	<0.982	<0.982	<0.982	<0.982	**516**	<0.982	**6.43**	**4.61**	**3.61**	**3.75**	<0.982	<0.982	<0.982	<0.982	**43.5**	**2.2**	--	--
Trichlorofluoromethane	**3.49**	<2.25	<2.25	<3.07	**1.20**	<1.12	**1.20**	<1.12	<22.5	<1.12	**1.48**	**1.61**	**1.66**	**3.46**	<1.12	**1.17**	**1.46**	**1.79**	**2.26**	<2.25	--	--
Dichlorodifluoromethane	**2.45**	--	--	**2.08**	**2.84**	**1.99**	**1.41**	**1.97**	<34.0	<0.989	**1.70**	**1.16**	**1.48**	**2.27**	**2.11**	**2.06**	**1.36**	**1.66**	--	--	15,000	--
1,1,2-Trichlorotrifluoroethane	--	--	--	--	<1.53	<1.53	<1.53	<1.53	--	<1.53	<1.53	<1.53	<1.53	--	<1.53	<1.53	<1.53	<1.53	--	--	730,000	--
1,2-Dichlorotetrafluoroethane	--	--	--	--	<1.40	<1.40	<1.40	<1.40	--	<1.40	<1.40	<1.40	<1.40	--	<1.40	<1.40	<1.40	<1.40	--	--	--	--

Please see notes at end of table.

Table B-3
Soil Vapor Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Sample Location	Former Produce Market	Former Service Station Building							Turning Point Building										Outdoor Samples		RBC_{sv} - Commercial	
Sample ID	SG-9	SG 1	SG 2	SG-10					SG-7					SG-8					SG 3	SG 6		
Date	5/23/2019	5/9/2018	5/10/2018	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/23/2019	4/4/2023	11/7/2023	2/26/2024	7/22/2024	5/10/2018	5/10/2018	Chronic	Acute
Volatile Organic Compounds (VOCs) by EPA Method TO-15 in µg/m ^{3}																						
Heptane	**7.86**	**10.6**	<1.64	<1.64	**8.51**	**2.57**	**2,090**	<0.818	<16.4	<0.818	<0.818	**0.830**	**1.21**	<1.64	<0.818	<0.818	<0.818	<0.818	<1.64	**409**	58,000	--
Hexachloro-1,3-butadiene	--	--	--	--	<6.73	<6.73	<6.73	<6.73	--	<6.73	<6.73	<6.73	<6.73	--	<6.73	<6.73	<6.73	<6.73	--	--	19	--
n-Hexane	**3.32**	**4.32**	<1.41	**1.58**	**15.7**	<2.22	**2,240**	<2.22	<14.1	<2.22	<2.22	<2.22	**2.34**	<1.41	<2.22	<2.22	<2.22	<2.22	**40,100**	**3,020**	100,000	--
Isopropylbenzene	<1.97	<1.97	<1.97	<1.97	<0.983	<0.983	<0.983	**5.11**	**60.6**	**3.24**	**4.09**	<0.983	**2.09**	<1.97	<0.983	<0.983	<0.983	<0.983	**18.5**	**4.34**	58,000	--
Methylene Chloride	**3.99**	**3.51**	<1.39	**2.89**	<0.694	**5.17**	<0.694	<0.694	<13.9	<0.694	**1.50**	<0.694	**2.92**	**1.43**	<0.694	**3.09**	<0.694	<0.694	<1.39	<1.39	41,000	210,000
Methyl Butyl Ketone	--	--	--	--	<5.11	<5.11	<511	<5.11	--	<5.11	<5.11	<5.11	<5.11	--	<5.11	<5.11	<5.11	<5.11	--	--	4,400	--
2-Butanone (MEK)	<7.73	<7.37	<7.37	**20.6**	<3.69	**12.7**	<3.69	**5.22**	**403**	<3.69	<3.69	**3.98**	**11.1**	**16.1**	**9.94**	<3.69	<3.69	<3.69	<7.37	<7.37	730,000	500,000
4-Methyl-2-pentanone (MIBK)	--	--	--	--	<5.12	<5.12	<512	<5.12	--	<5.12	<5.12	<5.12	**5.73**	--	<5.12	<5.12	<5.12	<5.12	--	--	440,000	--
Methyl Methacrylate	--	--	--	--	<0.819	<0.819	<81.9	<0.819	--	<0.819	<0.819	<0.819	<0.819	--	<0.819	<0.819	<0.819	<0.819	--	--	100,000	--
Methyl Tert Butyl Ether (MTBE)	<1.44	<1.44	<1.44	<1.44	<0.721	<0.721	<0.721	<0.721	<14.4	<0.721	<0.721	<0.721	<0.721	<1.44	<0.721	<0.721	<0.721	<0.721	<1.44	<1.44	1,600	800,000
Naphthalene	<6.60	<6.60	<6.60	<6.60	<3.30	<3.30	<3.30	<3.30	**146**	<3.30	**9.32**	**71.2**	**9.95**	<6.60	<3.30	<3.30	<3.30	<3.30	<6.60	<6.60	12	20,000
2-Propanol	**11.9**	**8.29**	<6.15	**19.4**	<3.07	**49.9**	**5.19**	<3.07	**263**	<3.07	**4.99**	**17.3**	**34.9**	**102**	**7.25**	**9.78**	**3.22**	<3.07	<6.15	<6.15	29,000	320,000
Propene	<1.38	<1.38	**4.22**	**2.71**	<2.15	<2.15	<2.15	<2.15	<13.8	<2.15	<2.15	<2.15	<2.15	**1.43**	<2.15	<2.15	<2.15	<2.15	**422**	**2,090**	440,000	--
n-Propylbenzene	**2.36**	<1.96	<1.96	<1.96	<0.982	<0.982	<0.982	<0.982	**134**	**6.97**	**8.2**	<0.982	**4.02**	<1.96	<0.982	<0.982	<0.982	<0.982	<1.96	<1.96	150,000	--
Styrene	<1.70	<1.70	<1.70	<1.70	<0.851	<0.851	<0.851	<1.70	<17.0	<0.851	<0.851	<0.851	<1.70	<1.70	<0.851	<0.851	<0.851	<1.70	**15**	<1.70	150,000	2,100,000
1,1,2,2-Tetrachloroethane	--	--	--	--	<1.37	<1.37	<1.37	<1.37	--	<1.37	<1.37	<1.37	<1.37	--	<1.37	<1.37	<1.37	<1.37	--	--	7.1	--
Tetrachloroethylene	<2.72	**5.69**	**4.55**	**3.14**	<1.36	<1.36	<136	**1.57**	<27.2	<1.36	**2.96**	**1.84**	**5.27**	**5.31**	**6.22**	<1.36	<1.36	<1.36	<2.72	<2.72	1,600	4,000
Tetrahydrofuran	<1.18	<1.18	<1.18	<1.18	<0.590	**1.30**	<0.590	<0.590	<11.8	<0.590	<0.590	<0.590	**1.54**	**3.88**	<0.590	<0.590	<0.590	<0.590	<1.18	<1.18	290,000	--
Toluene	**75.6**	**15.8**	**4.69 J**	**6.13**	<1.88	**6.55**	<188	**2.46**	**25.6**	**4.44**	**3.35**	<1.88	**5.46**	**3.04**	**10.1**	**3.09**	<1.88	**1.88**	**1,060**	**21**	730,000	770,000
1,2,4-Trichlorobenzene	--	--	--	--	<4.66	<4.66	<4.66	<4.66	--	<4.66	<4.66	<4.66	<4.66	--	<4.66	<4.66	<4.66	<4.66	--	--	290	--
1,1,1-Trichloroethane	--	--	--	--	<1.09	<1.09	<1.09	<1.09	--	<1.09	<1.09	<1.09	<1.09	--	<1.09	<1.09	<1.09	<1.09	--	--	730,000	1,100,000
1,1,2-Trichloroethane	--	--	--	--	<1.09	<1.09	<109	<1.09	--	<1.09	<1.09	<1.09	<1.09	--	<1.09	<1.09	<1.09	<1.09	--	--	26	--
Trichloroethylene	--	--	--	--	**163**	<1.07	*<107*	<1.07	--	<1.07	<1.07	<1.07	<1.07	--	<1.07	<1.07	**1.78**	<1.07	--	--	100	210
1,2,4-Trimethylbenzene	**8.58**	**15.3**	**2.5**	<1.96	<0.982	<0.982	<0.982	<0.982	**844**	**49.1**	**52.5**	**51.5**	**30.0**	**6.77**	**1.13**	<0.982	<0.982	<0.982	**10.5**	**4.3**	8,800	--
1,3,5-Trimethylbenzene	**3.31**	**4.87**	<1.96	<1.96	<0.982	<0.982	<0.982	<0.982	**320**	**23.9**	**25.9**	**19.3**	**13.6**	<1.96	<0.982	<0.982	<0.982	<0.982	**7.23**	<1.96	8,800	--
2,2,4-Trimethylpentane	**14.5**	--	--	<1.87	<0.934	<0.934	**2,210**	<0.934	<18.7	**1.45**	<1.07	<0.934	**0.976**	<1.87	<0.934	<0.934	<0.934	<0.934	--	--	--	--
Vinyl Chloride	--	--	--	--	**1.85**	<0.511	<0.511	<0.511	--	<0.511	<0.511	<0.511	<0.511	--	<0.511	<0.511	<0.511	<0.511	--	--	93	130,000
Vinyl Bromide	--	--	--	--	<0.875	<0.875	<0.875	<0.875	--	<0.875	<0.875	<0.875	<0.875	--	<0.875	<0.875	<0.875	<0.875	--	--	27	--
Vinyl Acetate	<1.41	<1.41	<1.41	<1.41	<0.704	<0.704	<2.22	<2.22	<14.1	<0.704	<0.704	<2.22	<2.22	<1.41	<0.704	<0.704	<2.22	<2.22	<1.41	**18.9**	29,000	20,000
m&p-Xylene	--	--	--	--	<1.73	**1.82**	<1.73	<1.73	--	**12.0**	**12.1**	**6.07**	**5.51**	--	**10.0**	<1.73	<1.73	<1.73	--	--	--	--
o-Xylene	--	--	--	--	<0.867	<0.867	<0.867	<0.867	--	**9.93**	**10.6**	**4.73**	**3.92**	--	**2.11**	<0.867	<0.867	<0.867	--	--	15,000	--
TPH (GC/MS) Low Fraction	**953**	**2,300**	**479**	<413	<826	**1,160**	<82,600	**1,320**	**39,200**	**1,300 J+**	**1,400**	**967**	**843**	**531**	<826	<826	<826	<826	**358,000**	**256,000**	--	--
Dichlorodifluoromethane	--	2.12	<1.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<1.98	<1.98	--	--
Total Xylenes	**89.4**	**23.85**	**7.32**	**3.81**	--	--	--	--	**377**	--	--	--	--	**7.67**	--	--	--	--	**1,470**	**41.7**	15,000	870,000

Notes:

1. µg/m^3 = Micrograms per cubic meter.
2. **Bold** values indicate concentration detected above the minimum reporting limit.
3. Shaded values indicate concentrations detected above one or more applicable RBC.
4. *Italicized* values indicate a reporting limit above the applicable RBC
5. < = Concentration was not detected above the shown minimum reporting limit.
6. -- = Not available.
7. RBCsv = Soil Vapor Risk-Based Concentrations from the DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (updated June 2023).

Table B-4
Ambient Air Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Sample Location	Produce Market	Turning Point Building									Former Service Station Building			Outdoor Samples				RBC_{air} - Commercial	
Sample ID	AA-3	AA-1	AA-2	AMB-1			AMB-2				AMB-4			AA-BG	AMB-3				
Date	6/13/2018	6/13/2018	6/13/2018	11/13/2023	2/26/2024	7/30/2024	11/13/2023	2/26/2024	7/30/2024		11/13/2023	2/26/2024	7/30/2024	6/13/2018	11/13/2023	2/26/2024	7/30/2024	Chronic	Acute
Volatile Organic Compounds (VOCs) by EPA Method TO-17 Passive RAD145 in µg/m³																			
Acetone	**4.66**	**32**	**23.4**	--	--	--	--	--	--		--	--	--	<2.97	--	--	--	--	--
Benzene	**0.281**	**1.29**	**0.663**	**2.1**	**1.0**	**1.6**	**1.8**	**1.2**	**0.90**		**0.79**	--	<0.50	**0.157**	**1.1**	**0.67**	<0.50	1.6	87
2 Butanone (MEK)	<3.69	**4.82**	**3.95**	--	--	--	--	--	--		--	--	--	<3.69	--	--	--	--	--
Carbon tetrachloride	**0.522**	**0.499**	**0.5**	--	--	--	--	--	--		--	--	--	**0.48**	--	--	--	--	--
Chloroethane	<0.106	**0.256**	<0.106	--	--	--	--	--	--		--	--	--	<0.107	--	--	--	--	--
Chloromethane	**1.24**	**2.54**	**1.28**	--	--	--	--	--	--		--	--	--	**1.16**	--	--	--	--	--
Cyclohexane	--	--	--	**0.91**	**0.72**	**1.0**	**0.73**	**0.67**	**0.68**		**0.076**	--	<0.18	--	**0.19**	**0.86**	<0.18	26,000	--
1,2 Dibromoethane (EDB)	<0.154	<0.154	<0.154	--	--	--	--	--	--		--	--	--	<0.154	--	--	--	--	--
1,2 Dichloroethane (EDC)	**0.113**	**0.292**	**0.118**	--	--	--	--	--	--		--	--	--	**0.097**	--	--	--	--	--
Dichlorodifluoromethane	**2.13**	**1.99**	**2.43**	--	--	--	--	--	--		--	--	--	**1.97**	--	--	--	--	--
Ethanol	**8.1**	**172**	**136**	--	--	--	--	--	--		--	--	--	**1.84**	--	--	--	--	--
Ethylbenzene	**1.14**	**2.96**	**2.6**	**2.8**	**1.00**	**1.4**	**2.7**	**1.1**	**0.72**		**0.16**	--	<0.14	<0.130	**0.2**	**0.12**	<0.14	4.9	66,000
4 Ethyltoluene	<0.982	**1.27**	<0.982	--	--	--	--	--	--		--	--	--	<0.982	--	--	--	--	--
Heptane	<0.818	**1.42**	**0.858**	--	--	--	--	--	--		--	--	--	<0.818	--	--	--	--	--
n Hexane	<0.705	**1.18**	**1.1**	--	--	--	--	--	--		--	--	--	<0.705	--	--	--	--	--
Isopropylbenzene	<0.983	<0.983	<0.983	--	--	--	--	--	--		--	--	--	<0.983	--	--	--	--	--
Methyl tert butyl ether	<0.721	<0.721	<0.721	--	--	--	--	--	--		--	--	--	<0.721	--	--	--	--	--
Methylene Chloride	**1.67**	**1.38**	**1.9**	--	--	--	--	--	--		--	--	--	<0.694	--	--	--	--	--
Naphthalene	<3.3	<3.3	<3.3	--	--	--	--	--	--		--	--	--	<3.3	--	--	--	--	--
2 Propanol	<3.07	**8.56**	**4.55**	--	--	--	--	--	--		--	--	--	<3.07	--	--	--	--	--
n Propylbenzene	<0.982	<0.982	<0.982	--	--	--	--	--	--		--	--	--	<0.982	--	--	--	--	--
Styrene	<0.851	**0.87**	<0.851	**0.62**	**0.36**	<0.16	**0.66**	**0.52**	<0.16		**0.19**	--	<0.16	<0.851	**0.25**	**0.085**	<0.16	4,400	63,000
Tetrachloroethene	<0.136	**0.29**	**0.175**	**0.079**	**0.053**	<0.17	**0.095**	**0.056**	<0.17		**1.000**	--	**0.65**	<0.136	**0.065**	**0.044**	<0.17	47	120
Tetrahydrofuran	<0.590	**4.02**	**3.58**	--	--	--	--	--	--		--	--	--	<0.590	--	--	--	--	--
Toluene	**1.52**	**8.56**	**6.85**	**18 E**	**6.7 E**	**12**	**18 E**	**>6.3 S**	**6.2**		**0.81**	--	**0.21**	<0.753	**0.90**	**0.64**	**0.28**	22,000	23,000
1,1,1 Trichloroethane	<0.109	**0.672**	**0.503**	<0.058	<0.05	<0.14	<0.058	<0.05	<0.14		<0.058	--	<0.14	<0.109	<0.058	<0.05	<0.14	3	6.3
Trichloroethylene	--	--	--	<0.021	<0.018	<0.14	<0.021	<0.018	<0.14		**0.042**	--	<0.14	--	<0.021	<0.018	<0.14	3	6.3

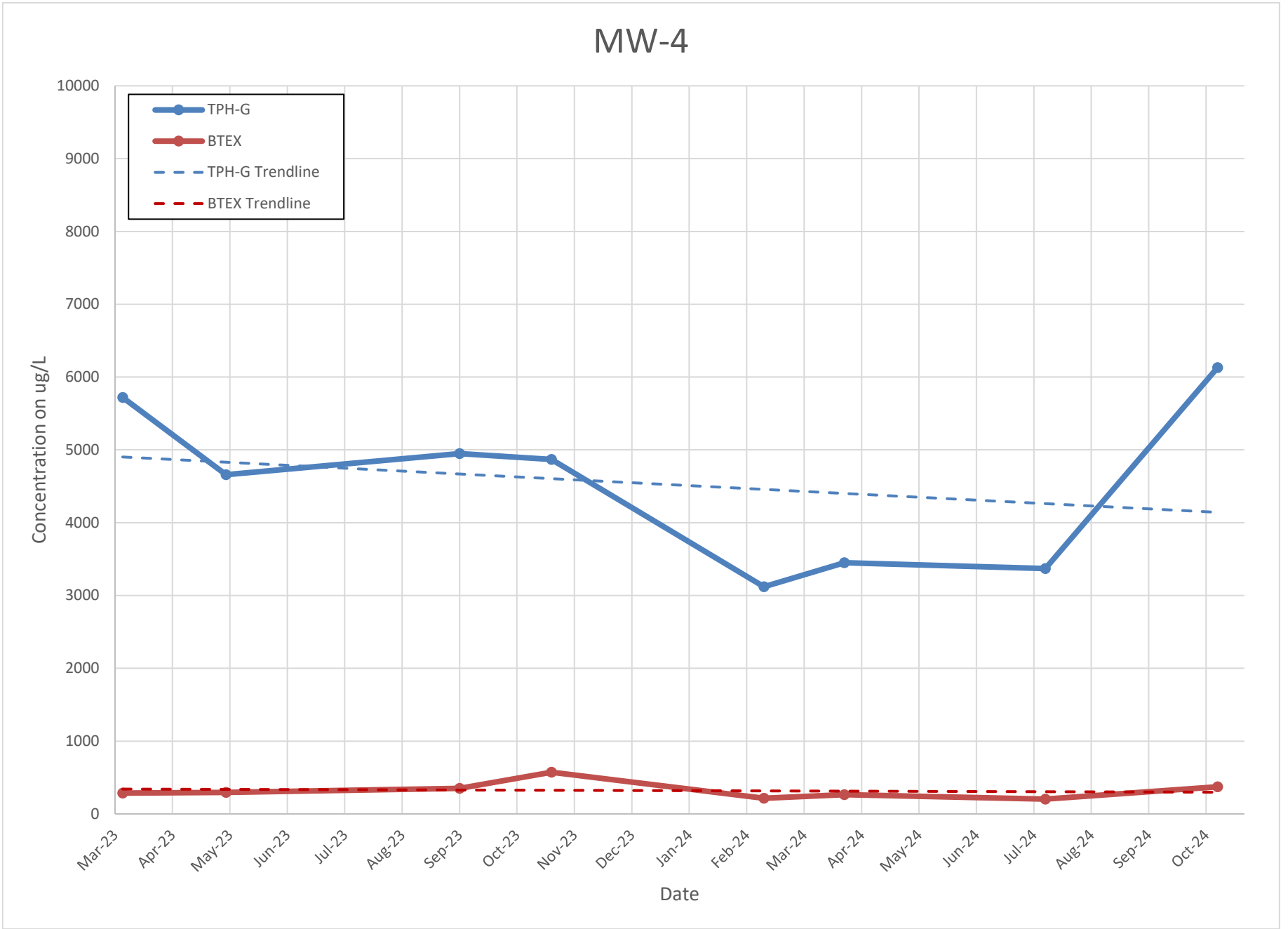
Please see notes at end of table.

Table B-4
Ambient Air Analytical Results
Former Johnson Oil
Clatskanie, Oregon

Sample Location	Produce Market	Turning Point Building									Former Service Station Building			Outdoor Samples				RBC_{air} - Commercial	
Sample ID	AA-3	AA-1	AA-2	AMB-1			AMB-2				AMB-4			AA-BG	AMB-3				
Date	6/13/2018	6/13/2018	6/13/2018	11/13/2023	2/26/2024	7/30/2024	11/13/2023	2/26/2024	7/30/2024		11/13/2023	2/26/2024	7/30/2024	6/13/2018	11/13/2023	2/26/2024	7/30/2024	Chronic	Acute
Volatile Organic Compounds (VOCs) by EPA Method TO-17 Passive RAD145 in µg/m^3																			
Trichlorofluoromethane	**1.44**	**2.73**	**2.26**	--	--	--	--	--	--		--	--	--	**1.30**	--	--	--	--	--
1,2,4 Trimethylbenzene	<0.982	**1.6**	**1.5**	--	--	--	--	--	--		--	--	--	<0.982	--	--	--	--	--
1,3,5 Trimethylbenzene	<0.982	<0.982	<0.982	--	--	--	--	--	--		--	--	--	<0.982	--	--	--	--	--
2,2,4 Trimethylpentane	<0.934	**1.12**	**1.25**	--	--	--	--	--			--	--		<0.934	--	--		--	--
Vinyl Acetate	<0.070	**0.143**	**0.167**	--	--	--	--	--	--		--	--	--	<0.070	--	--	--	--	--
m&p-Xylene	--	--	--	**11 E**	**3.8 E**	**6.0**	**3.600**	**3.900**	**2.9**		**0.5**	--	**0.16**	--	**0.55**	**0.34**	**0.16**	880	--
o-Xylene	--	--	--	**3.6**	**1.4**	**2.0**	**0.66**	**1.5**	**0.93**		**0.19**	--	<0.15	--	**0.22**	**0.14**	<0.15	440	--
Total Xylenes	**2.09**	**14.31**	**14.36**	--	--	--	--	--	--		--	--	--	<1.73	--	--	--	--	--
TPH-Low Fraction	<207	<207	<207	--	--	--	--	--	--		--	--	--	<207	--	--	--	--	--

Notes:

1. µg/m^3 = Micrograms per cubic meter.
2. Bold values indicate concentration detected above the minimum reporting limit.
3. Shaded values indicate concentrations detected above one or more applicable RBC.
4. -- = Not available.
5. E = Estimated concentration that may be biased high.
6. S = Saturated Peak; data reported as estimated
7. RBCair = Ambient Air Risk-Based Concentrations from the DEQ's *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* (updated June 2023).
8. TP = Turning Point building, OD = outdoor, FS = former station building


MW-4
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
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May-24
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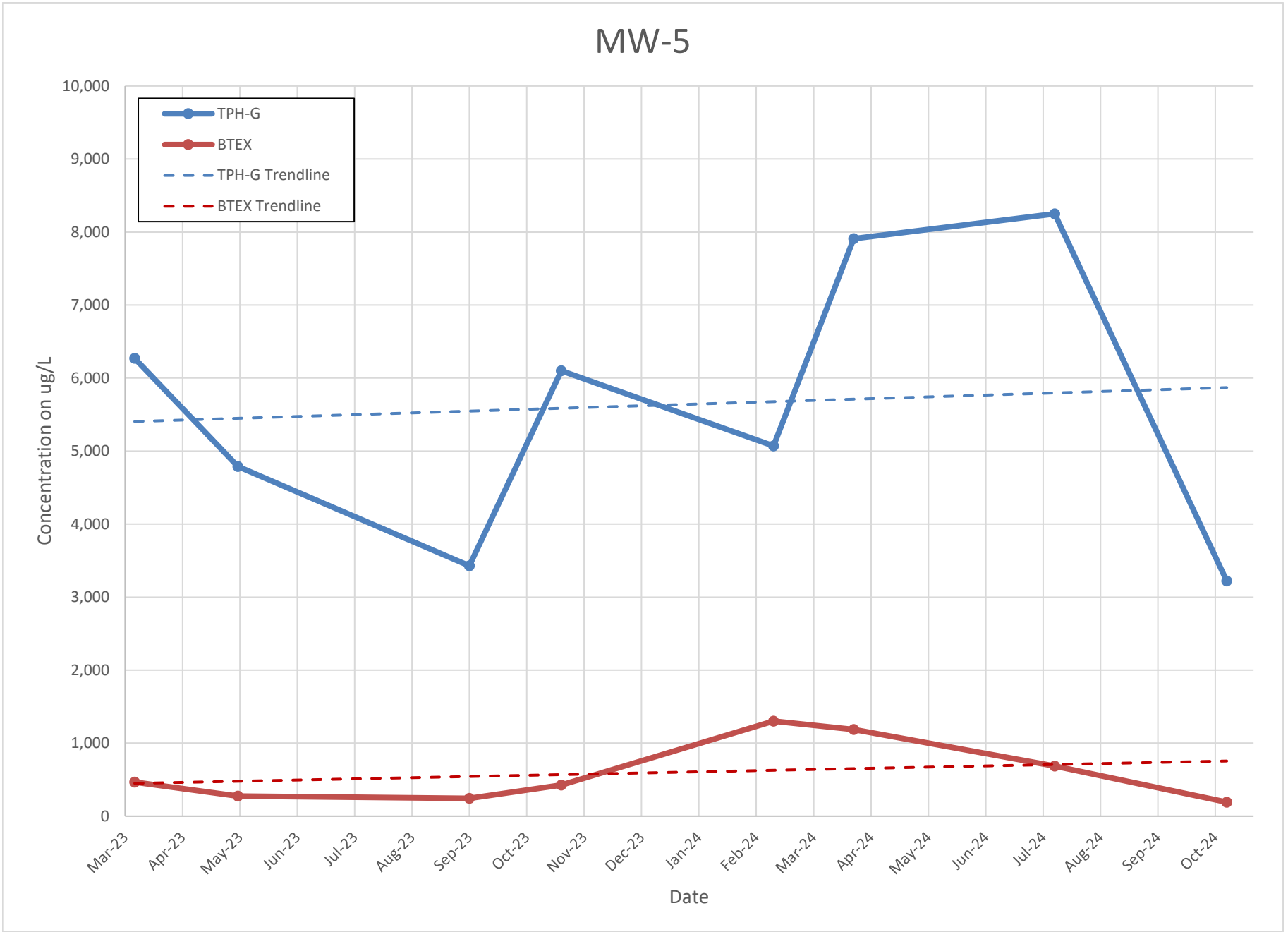
Jul-24
Aug-24
Sep-24
Oct-24
Date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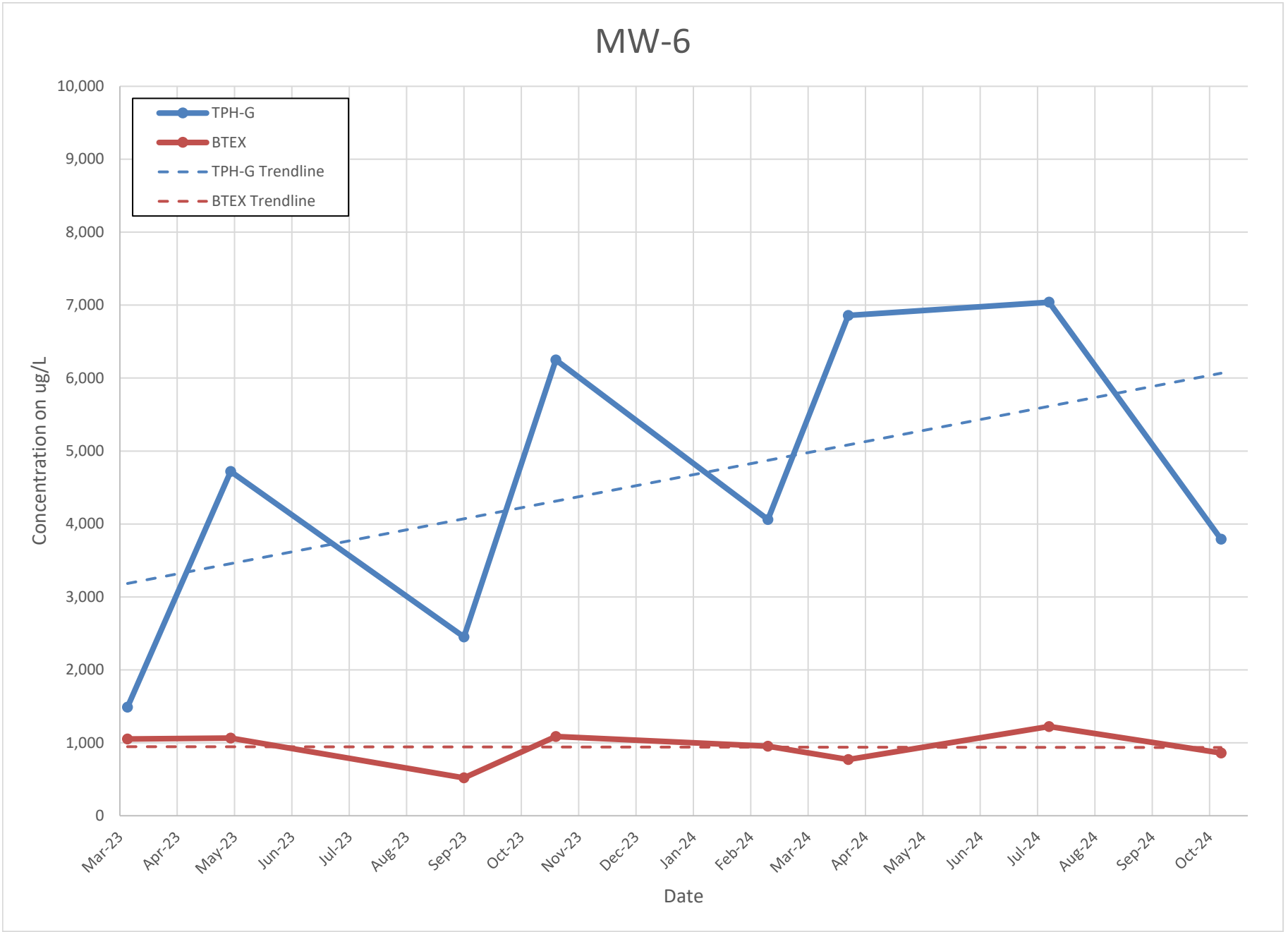
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date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TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
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8,000
7,000
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5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
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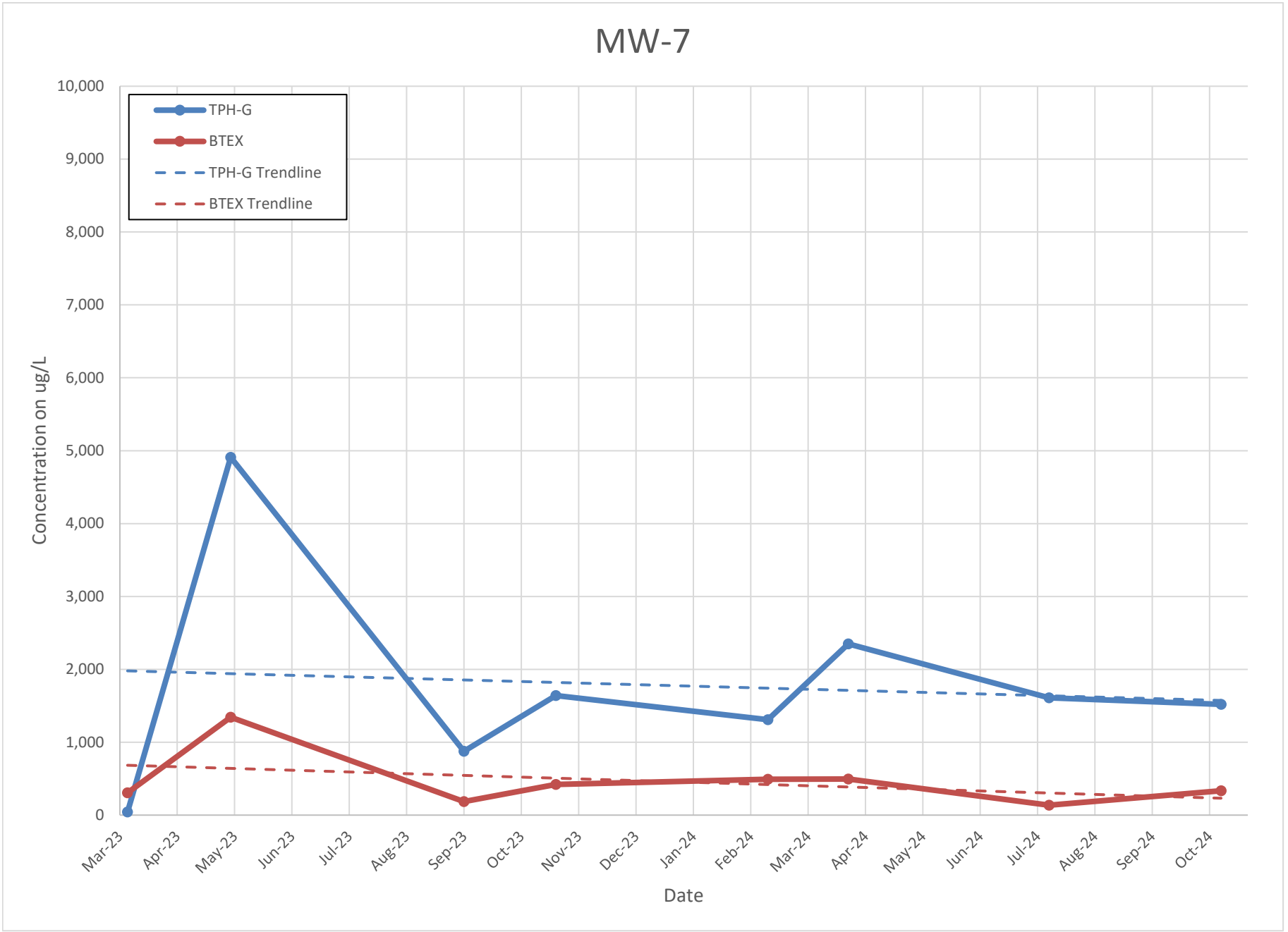
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date


MW-7
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
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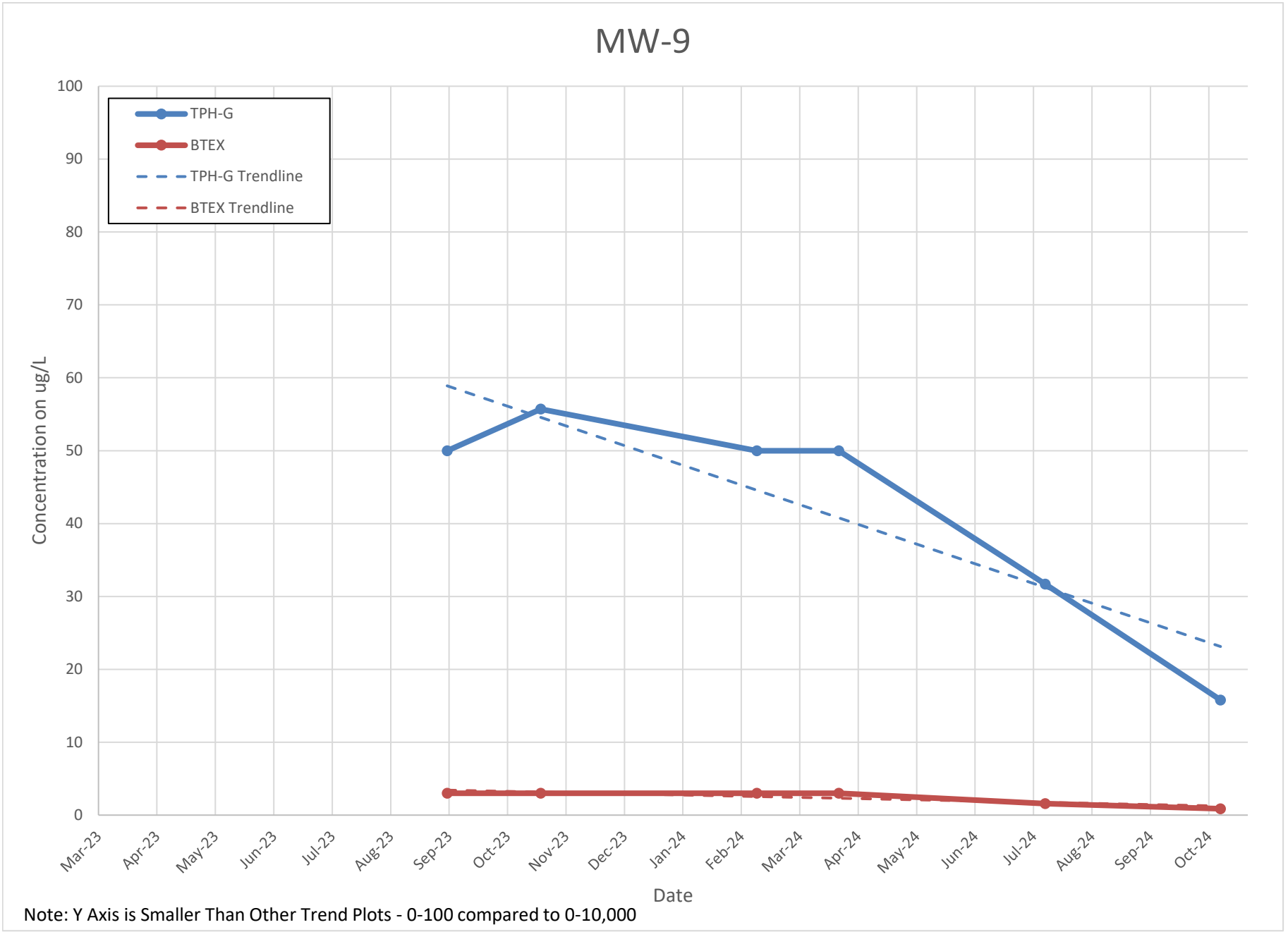
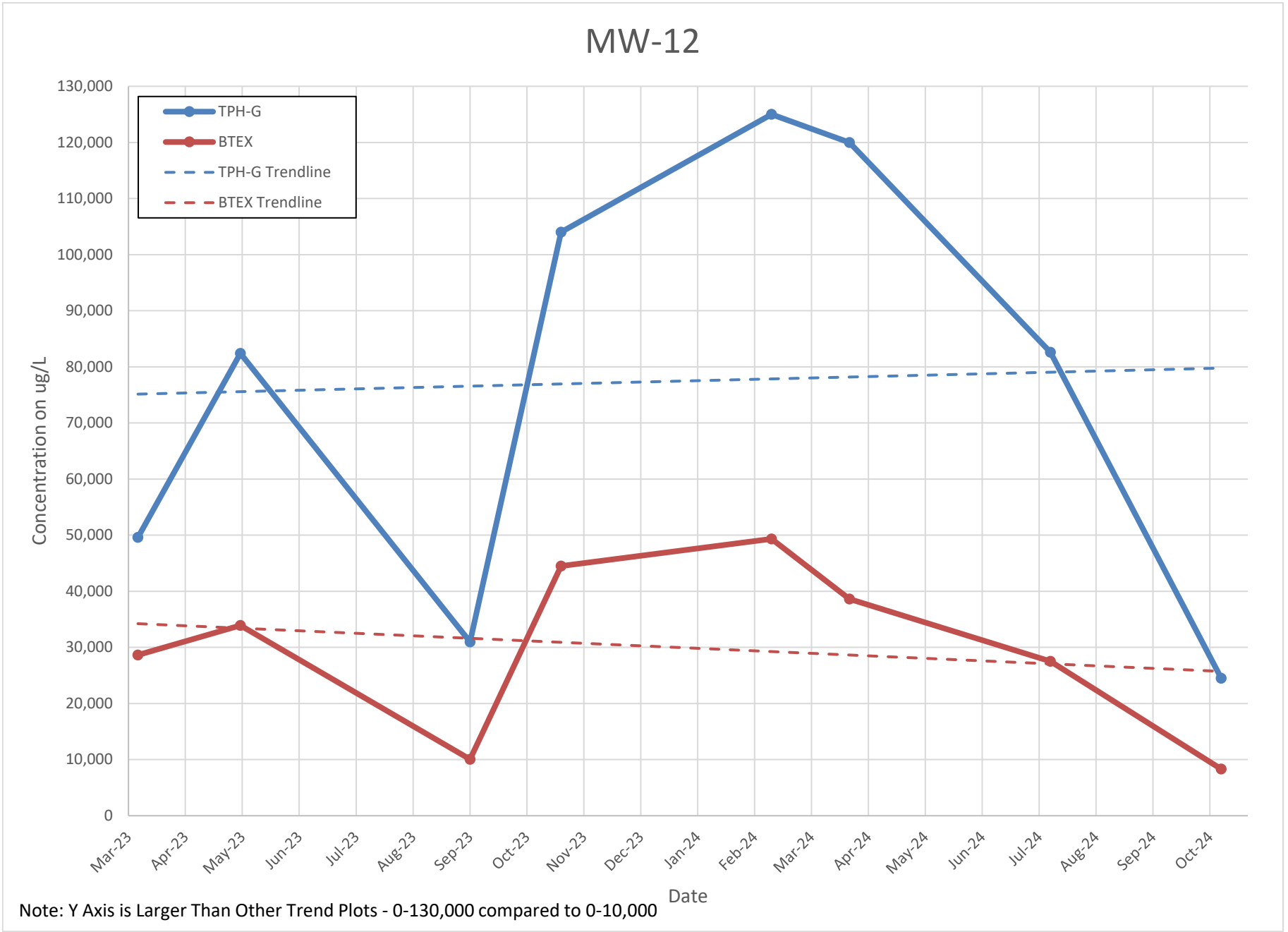
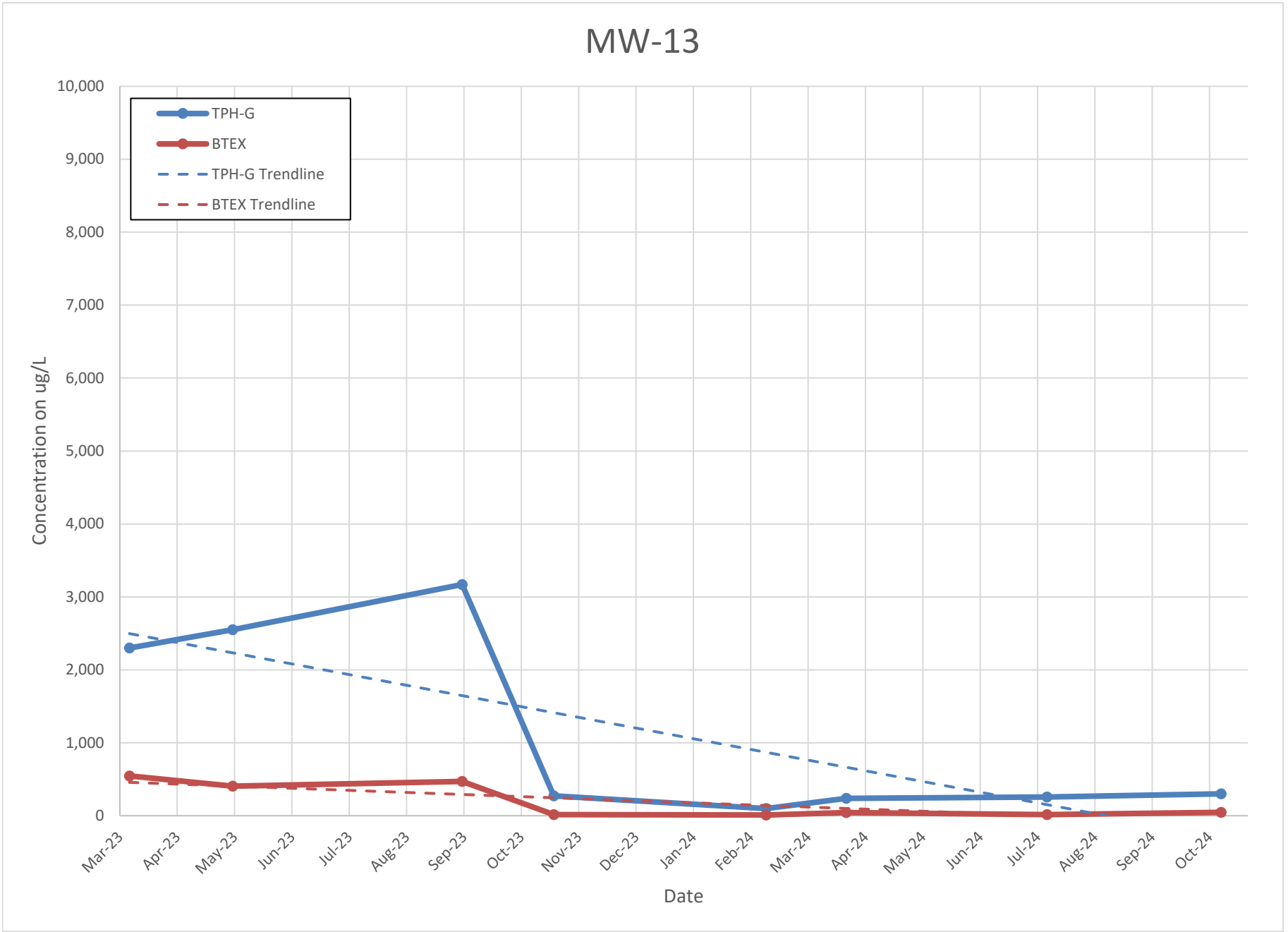
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date



Note: Y Axis is Smaller Than Other Trend Plots - 0-100 compared to 0-10,000



Note: Y Axis is Larger Than Other Trend Plots - 0-130,000 compared to 0-10,000


MW-13
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
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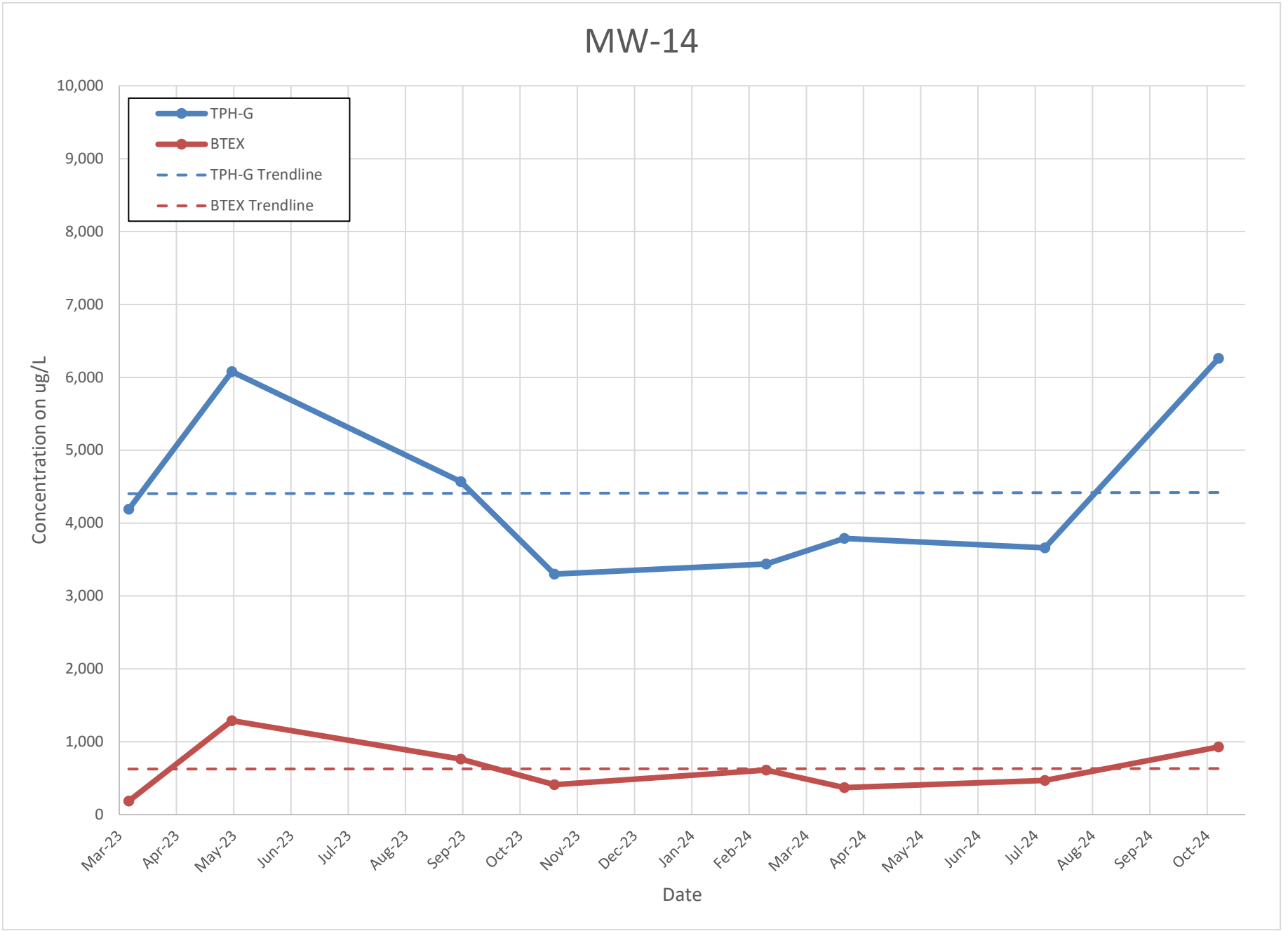
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date


MW-14
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
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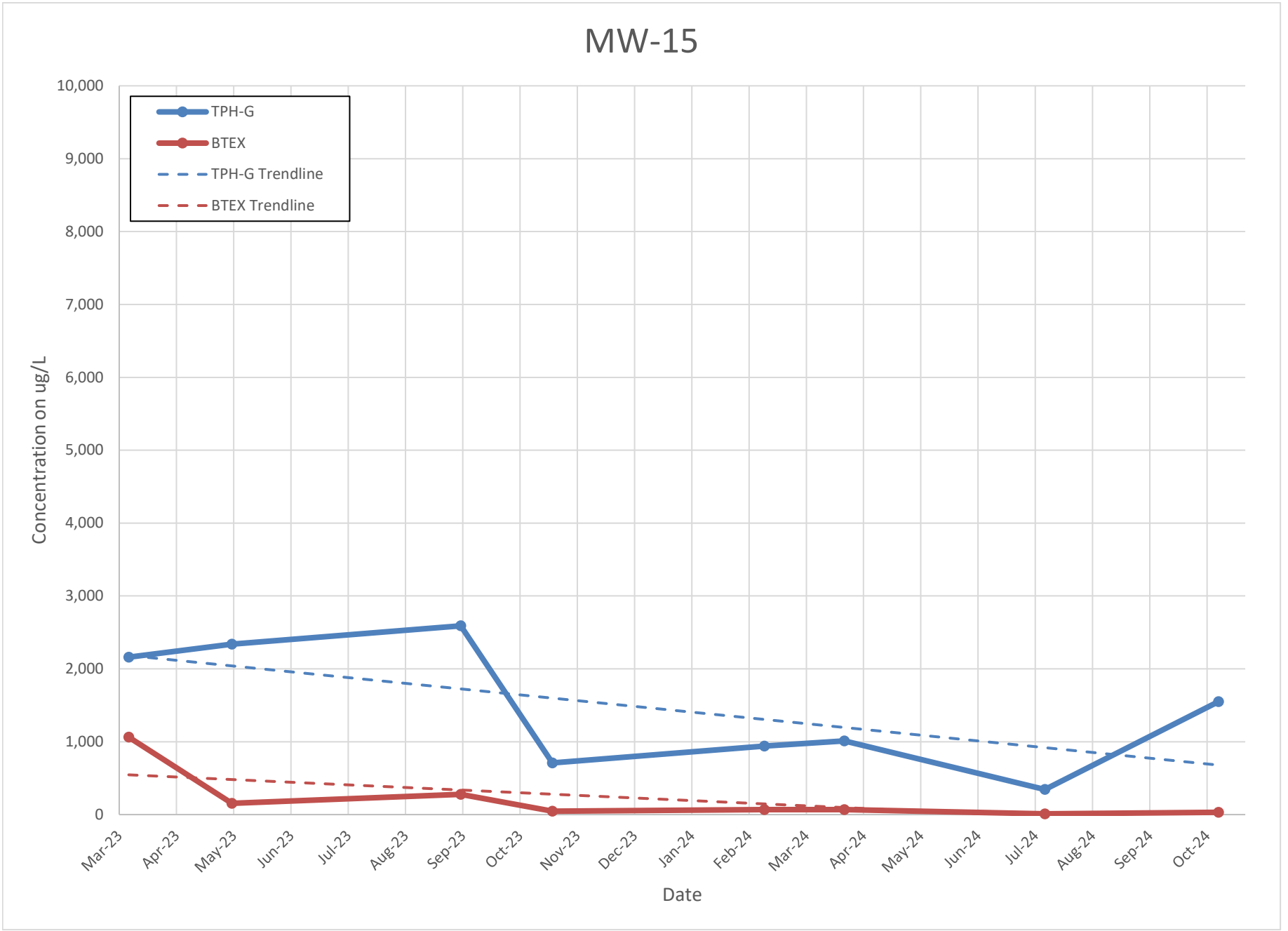
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date


MW-15
TPH-G
BTEX
TPH-G Trendline
BTEX Trendline
Concentration on ug/L
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Date

Appendix C

Laboratory Analytical Reports and Data Quality Review

Appendix C – QA/QC Review

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for the fourth quarter 2024 monitoring event at the former Johnson Oil Site in Clatskanie, Oregon. The groundwater samples were submitted to Pace Analytical Services, LLC (Pace) in Mt. Juliet, Tennessee under their Price Agreement with the Oregon Department of Environmental Quality (DEQ). Copies of the analytical laboratory reports are included in this appendix.

Laboratory Report	Date Reported
L1792371	November 5, 2024

1.0 Analytical Methods

Chemical analyses of groundwater samples included in this QA/QC Review consisted of the following:

- Total petroleum hydrocarbons as gasoline (TPH-Gx) by Northwest Method NWTPH-Gx; and
- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260D.

2.0 Data Validation

The QA/QC review included examination and validation of the laboratory data packages for the following:

- Analytical preparation and quantitation methods;
- Analytical method holding times;
- Sample handling;
- Chain of custody procedures;
- Detection and reporting limits;
- Method blank detections;
- Laboratory control samples, matrix spikes, and surrogates to assess accuracy; and
- Laboratory control sample duplicates and matrix spike duplicates.

The QA/QC review did not include a review of raw data.

This QA/QC review documents the relationship between analytical findings and data quality objectives based on precision and accuracy. It also summarizes possible error or bias and the effect on data quality and usability.

The laboratory QC samples provided in data packages were used to evaluate laboratory contamination or background interferences, sample preparation efficiency and instrumentation performance. The QC samples

provided by the analytical laboratory include method blanks, laboratory control samples (LCS/LCSD), and matrix spikes (MS/MSD). Surrogates are also required for VOC and TPH-Gx analysis to assess sample preparation efficiency and matrix interferences.

2.1 Data Qualifiers

Any data that is found to have possible bias or error was qualified and flagged. The following are definitions of qualifiers used in this data quality report and data tables.

Qualifier	Definition
J	Result is an estimated value.
J-	Result is an estimated value and may be biased low.
UJ	The analyte was not detected but the reporting limit may be inaccurate or imprecise.

3.0 Data Quality Assurance Review

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain of custody procedures.

Reporting limits and analytical results were compared to cleanup and screening levels for each parameter in the matrix of concern. Precision, accuracy, completeness, and comparability parameters used to indicate data quality are discussed below.

3.1 Reporting Limits

Reporting limits are the lowest concentration an instrument is capable of accurately detecting an analyte. Reporting limits are determined by the laboratory and are based on instrumentation capabilities, the matrix of field samples, sample preparation procedures, and EPA suggested reporting limits.

The reporting limits were consistent with method standards and were generally below applicable screening level values. Several analytes were identified by the laboratory at concentrations that were between the laboratory minimum reporting limit (MRL) and the method detection limit (MDL). These concentrations are estimated values and have been 'J' flagged accordingly.

3.2 Holding Times and Sample Receipt

The holding time is the minimum amount of time the sample can be stored before analytes start to degrade and are not representative of initial sampling concentrations. Holding times are defined by analytical methods and samples were analyzed within the method specified holding time.

The integrity of the groundwater and soil vapor samples received was documented by the Pace Analytical *Sample Receipt Checklist* or *Cooler Receipt Form,* which ensures that samples are representative of the field and were not compromised during shipment.

The chain of custody followed an unbroken procedure and was relinquished by the Apex Companies sampler and received by the analytical laboratory as indicated by signatures. The sample ID, collection time, and requested analyses were all clearly and properly filled in by the Apex Companies sampler.

The laboratory did not begin analysis of sample MW-13 until after the method specified holding time. The analysis was less than 24 hours past the 14-day method specific holding time limit. These results have been 'J-' flagged to indicate they are estimated concentrations that may be biased low. Not detected results are 'UJ' flagged.

3.3 Method Blanks

A method – or laboratory – blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected compounds may have been the result of contamination or background levels in the laboratory. No analytes were detected in the method blanks.

3.4 Accuracy

Accuracy is assessed through the comparison of analytes of known concentration to concentrations determined analytically. A percent recovery is calculated from the analytical concentration to the known concentration of analyte, which must be within control limits established by methods. If the percent recovery is outside of control limits, then data might be compromised. The analytical laboratory will provide quality control samples and surrogates to help determine the accuracy of the data provided. These quality control samples and surrogates are discussed below.

3.4.1 Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control duplicate samples (LCSD) were analyzed by the laboratory to assess the analytical methods. One set of LCS and LCSDs were analyzed per analytical batch. The samples were prepared from an analyte-free matrix that is then spiked with known levels of constituents

of interest (COI; i.e. a standard). The concentrations were measured, and the results compared to the known spiked levels. This comparison is expressed as a percent recovery.

The LCS associated with batch WG2393762 observed concentrations outside of recovery limits for chloromethane and dichlorodifluoromethane. These analytes are not target compounds and are not reported in the data tables, therefore, no data was flagged.

3.4.2 Matrix Samples

A matrix spike QC sample is used to assess the performance of the analytical method by determining potential matrix interferences. Matrix spike (MS) and matrix spike duplicate (MSD) analyses are performed on one environmental sample per analytical batch. A matrix spike sample uses an environmental sample that is spiked with known concentrations of analytes of interest. The matrix spike is then prepared and analyzed with the same analytical procedures as environmental samples in the analytical batch. The resulting concentration of the matrix spike is then compared to the known – or true – values added to the non-spiked environmental sample concentration. This comparison is expressed as a percent recovery. No matrix samples (MS/MSD) were included in this laboratory data set.

3.4.3 Surrogates

Surrogates are organic compounds that are similar in chemical composition to the analytes of interest but are not likely to be found in the environment. They are spiked into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference and sample preparation and analysis efficiency on a sample-specific basis. Surrogates were recovered within control limits.

3.4.4 Continuing Calibration Verification

Continuing calibration verification samples are analyzed at method-specified intervals to assess the performance and accuracy of the instrumentation. The continuing calibration standard was outside quality control limits for bromomethane, 1,2-dibromo-3-chloropropane, naphthalene, 1,2,3-trichlorobenzene in all samples. These analytes are not contaminants of concern, but results should be considered estimated.

3.5 Precision

Precision is measured by how close concentrations of duplicate analyses are to each other. These duplicate analyses are of separate aliquots of the same sample that are prepared or analyzed at the same (or similar) time. Precision in the field ensures that samples taken are representative of field concentrations. Field precision is demonstrated by field duplicates. Analytical precision is measured by the laboratory through duplicate analysis of samples and quality control samples. Precision is estimated by the relative percent difference (RPD) between the original analysis and the duplicate analysis.

3.5.1 Laboratory Control Sample Duplicates

LCSD analyte concentrations were compared to LCS analyte concentrations to assess the precision of the analytical method. This comparison can be expressed by the relative percent difference (RPD) between the LCS and LCSD samples. RPD values for LCS/LCSDs were within control limits.

3.5.2 Matrix Spike Duplicate

Similar to the LCS/LCSD, the analytical batch MS/MSD analyte concentrations are also compared to each other and expressed as an RPD. RPD values for MS/MSDs were within control limits.

3.5.3 Field Duplicate

A field duplicate is a second field sample collected from a selected sample location. Field duplicate samples serve as a check on laboratory precision, sampling quality, and potential variability of the sample matrix. The field duplicate is analyzed and compared to the original sample to assess precision. This comparison can be expressed by the RPD between the original and duplicate samples. RPDs between the primary and duplicate sample at MW-14 were below the 30 percent limit.

4.0 Conclusion

In conclusion, the QA objectives have been met and the data are of sufficient quality for use in this project.

ANALYTICAL REPORT

November 05, 2024

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group:	L1792371
Samples Received:	10/24/2024
Project Number:	24008422
Description:	Johnson Oil
Report To:	Kara Master

Entire Report Reviewed By:

Brian Ford

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 mydata.pacelabs.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

MW-4 L1792371-01 6

MW-5 L1792371-02 8

MW-6 L1792371-03 10

MW-7 L1792371-04 12

MW-9 L1792371-05 14

MW-12 L1792371-06 16

MW-13 L1792371-07 18

MW-14 L1792371-08 20

MW-15 L1792371-09 22

DUP L1792371-10 24

Qc: Quality Control Summary 26

Volatile Organic Compounds (GC) by Method NWTPHGX 26

Volatile Organic Compounds (GC/MS) by Method 8260D 30

Gl: Glossary of Terms 38

Al: Accreditations & Locations 39

Sc: Sample Chain of Custody 40

MW-4 L1792371-01 GW

Collected by	Collected date/time	Received date/time
	10/21/24 14:33	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391919	1	10/30/24 13:54	10/30/24 13:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 09:28	11/02/24 09:28	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	10	11/05/24 07:08	11/05/24 07:08	ACG	Mt. Juliet, TN

MW-5 L1792371-02 GW

Collected by	Collected date/time	Received date/time
	10/21/24 13:42	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391919	1	10/30/24 14:17	10/30/24 14:17	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 09:49	11/02/24 09:49	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	10	11/05/24 07:29	11/05/24 07:29	ACG	Mt. Juliet, TN

MW-6 L1792371-03 GW

Collected by	Collected date/time	Received date/time
	10/21/24 15:16	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2393772	20	11/02/24 02:27	11/02/24 02:27	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 10:11	11/02/24 10:11	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	20	11/05/24 07:51	11/05/24 07:51	ACG	Mt. Juliet, TN

MW-7 L1792371-04 GW

Collected by	Collected date/time	Received date/time
	10/21/24 15:48	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391948	1	10/30/24 05:25	10/30/24 05:25	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 10:33	11/02/24 10:33	ACG	Mt. Juliet, TN

MW-9 L1792371-05 GW

Collected by	Collected date/time	Received date/time
	10/21/24 10:52	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391948	1	10/30/24 05:48	10/30/24 05:48	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 10:54	11/02/24 10:54	ACG	Mt. Juliet, TN

MW-12 L1792371-06 GW

Collected by	Collected date/time	Received date/time
	10/21/24 16:36	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2395169	10	11/05/24 01:03	11/05/24 01:03	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 11:16	11/02/24 11:16	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	50	11/05/24 08:12	11/05/24 08:12	ACG	Mt. Juliet, TN

MW-13 L1792371-07 GW

Collected by	Collected date/time	Received date/time
	10/21/24 12:16	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2393772	1	11/02/24 02:04	11/02/24 02:04	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	1	11/05/24 05:02	11/05/24 05:02	ACG	Mt. Juliet, TN

MW-14 L1792371-08 GW

Collected by	Collected date/time	Received date/time
	10/21/24 13:02	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391948	1	10/30/24 07:27	10/30/24 07:27	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 12:00	11/02/24 12:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	25	11/05/24 08:33	11/05/24 08:33	ACG	Mt. Juliet, TN

MW-15 L1792371-09 GW

Collected by	Collected date/time	Received date/time
	10/21/24 11:37	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2395169	20	11/05/24 01:25	11/05/24 01:25	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 12:21	11/02/24 12:21	ACG	Mt. Juliet, TN

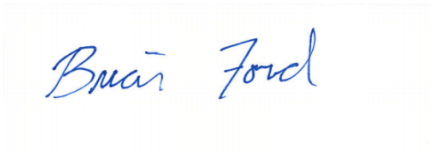
DUP L1792371-10 GW

Collected by	Collected date/time	Received date/time
	10/21/24 13:10	10/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2391948	1	10/30/24 08:11	10/30/24 08:11	CDD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2393762	1	11/02/24 12:43	11/02/24 12:43	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2395107	25	11/05/24 08:54	11/05/24 08:54	ACG	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.



Brian Ford
Project Manager

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	6130		31.6	100	1	10/30/2024 13:54	WG2391919
(S) a,a,a-Trifluorotoluene(FID)	*102*			*78.0-120*		*10/30/2024 13:54*	WG2391919

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 09:28	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 09:28	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 09:28	WG2393762
Benzene	140		0.0941	1.00	1	11/02/2024 09:28	WG2393762
Bromobenzene	U		0.118	1.00	1	11/02/2024 09:28	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 09:28	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 09:28	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 09:28	WG2393762
n-Butylbenzene	20.0		0.157	1.00	1	11/02/2024 09:28	WG2393762
sec-Butylbenzene	20.0		0.125	1.00	1	11/02/2024 09:28	WG2393762
tert-Butylbenzene	0.183	J	0.127	1.00	1	11/02/2024 09:28	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 09:28	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 09:28	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 09:28	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 09:28	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 09:28	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 09:28	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 09:28	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 09:28	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 09:28	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 09:28	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 09:28	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 09:28	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 09:28	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 09:28	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 09:28	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 09:28	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 09:28	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 09:28	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 09:28	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 09:28	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 09:28	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 09:28	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 09:28	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 09:28	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 09:28	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 09:28	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 09:28	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 09:28	WG2393762
Ethylbenzene	221	Q	1.37	10.0	10	11/05/2024 07:08	WG2395107
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 09:28	WG2393762
Isopropylbenzene	79.5		0.105	1.00	1	11/02/2024 09:28	WG2393762
p-Isopropyltoluene	0.208	J	0.120	1.00	1	11/02/2024 09:28	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 09:28	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 09:28	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 09:28	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 09:28	WG2393762
Naphthalene	324	C5 Q	10.0	50.0	10	11/05/2024 07:08	WG2395107

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	271	Q	0.993	10.0	10	11/05/2024 07:08	WG2395107
Styrene	U		0.118	1.00	1	11/02/2024 09:28	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 09:28	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 09:28	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 09:28	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 09:28	WG2393762
Toluene	4.28		0.278	1.00	1	11/02/2024 09:28	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 09:28	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 09:28	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 09:28	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 09:28	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 09:28	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 09:28	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 09:28	WG2393762
1,2,4-Trimethylbenzene	0.366	J	0.322	1.00	1	11/02/2024 09:28	WG2393762
1,2,3-Trimethylbenzene	2.87		0.104	1.00	1	11/02/2024 09:28	WG2393762
1,3,5-Trimethylbenzene	0.156	J	0.104	1.00	1	11/02/2024 09:28	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 09:28	WG2393762
Xylenes, Total	8.50		0.174	3.00	1	11/02/2024 09:28	WG2393762
(S) Toluene-d8	*93.9*			*80.0-120*		*11/02/2024 09:28*	WG2393762
(S) Toluene-d8	*110*			*80.0-120*		*11/05/2024 07:08*	WG2395107
(S) 4-Bromofluorobenzene	*99.6*			*77.0-126*		*11/02/2024 09:28*	WG2393762
(S) 4-Bromofluorobenzene	*107*			*77.0-126*		*11/05/2024 07:08*	WG2395107
(S) 1,2-Dichloroethane-d4	*90.2*			*70.0-130*		*11/02/2024 09:28*	WG2393762
(S) 1,2-Dichloroethane-d4	*115*			*70.0-130*		*11/05/2024 07:08*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	3220		31.6	100	1	10/30/2024 14:17	WG2391919
(S) a,a,a-Trifluorotoluene(FID)	*79.4*			*78.0-120*		*10/30/2024 14:17*	WG2391919

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 09:49	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 09:49	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 09:49	WG2393762
Benzene	34.4		0.0941	1.00	1	11/02/2024 09:49	WG2393762
Bromobenzene	U		0.118	1.00	1	11/02/2024 09:49	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 09:49	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 09:49	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 09:49	WG2393762
n-Butylbenzene	14.4		0.157	1.00	1	11/02/2024 09:49	WG2393762
sec-Butylbenzene	12.0		0.125	1.00	1	11/02/2024 09:49	WG2393762
tert-Butylbenzene	U		0.127	1.00	1	11/02/2024 09:49	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 09:49	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 09:49	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 09:49	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 09:49	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 09:49	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 09:49	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 09:49	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 09:49	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 09:49	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 09:49	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 09:49	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 09:49	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 09:49	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 09:49	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 09:49	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 09:49	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 09:49	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 09:49	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 09:49	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 09:49	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 09:49	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 09:49	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 09:49	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 09:49	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 09:49	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 09:49	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 09:49	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 09:49	WG2393762
Ethylbenzene	145		0.137	1.00	1	11/02/2024 09:49	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 09:49	WG2393762
Isopropylbenzene	71.5		0.105	1.00	1	11/02/2024 09:49	WG2393762
p-Isopropyltoluene	0.459	J	0.120	1.00	1	11/02/2024 09:49	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 09:49	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 09:49	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 09:49	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 09:49	WG2393762
Naphthalene	60.0		1.00	5.00	1	11/02/2024 09:49	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
n-Propylbenzene	304	Q	0.993	10.0	10	11/05/2024 07:29	WG2395107
Styrene	U		0.118	1.00	1	11/02/2024 09:49	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 09:49	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 09:49	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 09:49	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 09:49	WG2393762
Toluene	2.67		0.278	1.00	1	11/02/2024 09:49	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 09:49	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 09:49	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 09:49	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 09:49	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 09:49	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 09:49	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 09:49	WG2393762
1,2,4-Trimethylbenzene	0.350	J	0.322	1.00	1	11/02/2024 09:49	WG2393762
1,2,3-Trimethylbenzene	3.96		0.104	1.00	1	11/02/2024 09:49	WG2393762
1,3,5-Trimethylbenzene	0.527	J	0.104	1.00	1	11/02/2024 09:49	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 09:49	WG2393762
Xylenes, Total	9.70		0.174	3.00	1	11/02/2024 09:49	WG2393762
(S) Toluene-d8	*95.6*			*80.0-120*		*11/02/2024 09:49*	WG2393762
(S) Toluene-d8	*110*			*80.0-120*		*11/05/2024 07:29*	WG2395107
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/02/2024 09:49*	WG2393762
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*11/05/2024 07:29*	WG2395107
(S) 1,2-Dichloroethane-d4	*93.8*			*70.0-130*		*11/02/2024 09:49*	WG2393762
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*11/05/2024 07:29*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	3790		632	2000	20	11/02/2024 02:27	WG2393772
(S) a,a,a-Trifluorotoluene(FID)	*98.5*			*78.0-120*		*11/02/2024 02:27*	WG2393772

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 10:11	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 10:11	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 10:11	WG2393762
Benzene	619	Q	1.88	20.0	20	11/05/2024 07:51	WG2395107
Bromobenzene	U		0.118	1.00	1	11/02/2024 10:11	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 10:11	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 10:11	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 10:11	WG2393762
n-Butylbenzene	10.1		0.157	1.00	1	11/02/2024 10:11	WG2393762
sec-Butylbenzene	13.2		0.125	1.00	1	11/02/2024 10:11	WG2393762
tert-Butylbenzene	0.160	J	0.127	1.00	1	11/02/2024 10:11	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 10:11	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 10:11	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 10:11	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 10:11	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 10:11	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 10:11	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 10:11	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 10:11	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 10:11	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 10:11	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 10:11	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 10:11	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 10:11	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 10:11	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 10:11	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 10:11	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 10:11	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 10:11	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 10:11	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 10:11	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 10:11	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 10:11	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 10:11	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 10:11	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 10:11	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 10:11	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 10:11	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 10:11	WG2393762
Ethylbenzene	184		0.137	1.00	1	11/02/2024 10:11	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 10:11	WG2393762
Isopropylbenzene	101		0.105	1.00	1	11/02/2024 10:11	WG2393762
p-Isopropyltoluene	0.261	J	0.120	1.00	1	11/02/2024 10:11	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 10:11	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 10:11	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 10:11	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 10:11	WG2393762
Naphthalene	9.13		1.00	5.00	1	11/02/2024 10:11	WG2393762

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	407	Q	1.99	20.0	20	11/05/2024 07:51	WG2395107
Styrene	U		0.118	1.00	1	11/02/2024 10:11	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 10:11	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 10:11	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 10:11	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 10:11	WG2393762
Toluene	14.5		0.278	1.00	1	11/02/2024 10:11	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 10:11	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 10:11	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 10:11	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 10:11	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 10:11	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 10:11	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 10:11	WG2393762
1,2,4-Trimethylbenzene	8.97		0.322	1.00	1	11/02/2024 10:11	WG2393762
1,2,3-Trimethylbenzene	2.80		0.104	1.00	1	11/02/2024 10:11	WG2393762
1,3,5-Trimethylbenzene	4.87		0.104	1.00	1	11/02/2024 10:11	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 10:11	WG2393762
Xylenes, Total	43.8		0.174	3.00	1	11/02/2024 10:11	WG2393762
(S) Toluene-d8	*95.8*			*80.0-120*		*11/02/2024 10:11*	WG2393762
(S) Toluene-d8	*110*			*80.0-120*		*11/05/2024 07:51*	WG2395107
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/02/2024 10:11*	WG2393762
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*11/05/2024 07:51*	WG2395107
(S) 1,2-Dichloroethane-d4	*83.1*			*70.0-130*		*11/02/2024 10:11*	WG2393762
(S) 1,2-Dichloroethane-d4	*117*			*70.0-130*		*11/05/2024 07:51*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1520		31.6	100	1	10/30/2024 05:25	WG2391948
(S) a,a,a-Trifluorotoluene(FID)	*94.5*			*78.0-120*		*10/30/2024 05:25*	WG2391948

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 10:33	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 10:33	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 10:33	WG2393762
Benzene	108		0.0941	1.00	1	11/02/2024 10:33	WG2393762
Bromobenzene	U		0.118	1.00	1	11/02/2024 10:33	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 10:33	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 10:33	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 10:33	WG2393762
n-Butylbenzene	0.689	J	0.157	1.00	1	11/02/2024 10:33	WG2393762
sec-Butylbenzene	1.05		0.125	1.00	1	11/02/2024 10:33	WG2393762
tert-Butylbenzene	0.147	J	0.127	1.00	1	11/02/2024 10:33	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 10:33	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 10:33	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 10:33	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 10:33	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 10:33	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 10:33	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 10:33	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 10:33	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 10:33	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 10:33	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 10:33	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 10:33	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 10:33	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 10:33	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 10:33	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 10:33	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 10:33	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 10:33	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 10:33	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 10:33	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 10:33	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 10:33	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 10:33	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 10:33	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 10:33	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 10:33	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 10:33	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 10:33	WG2393762
Ethylbenzene	92.5		0.137	1.00	1	11/02/2024 10:33	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 10:33	WG2393762
Isopropylbenzene	17.0		0.105	1.00	1	11/02/2024 10:33	WG2393762
p-Isopropyltoluene	0.151	J	0.120	1.00	1	11/02/2024 10:33	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 10:33	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 10:33	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 10:33	WG2393762
Methyl tert-butyl ether	19.8		0.101	1.00	1	11/02/2024 10:33	WG2393762
Naphthalene	9.54		1.00	5.00	1	11/02/2024 10:33	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
n-Propylbenzene	31.4		0.0993	1.00	1	11/02/2024 10:33	WG2393762
Styrene	U		0.118	1.00	1	11/02/2024 10:33	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 10:33	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 10:33	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 10:33	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 10:33	WG2393762
Toluene	2.15		0.278	1.00	1	11/02/2024 10:33	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 10:33	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 10:33	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 10:33	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 10:33	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 10:33	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 10:33	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 10:33	WG2393762
1,2,4-Trimethylbenzene	34.0		0.322	1.00	1	11/02/2024 10:33	WG2393762
1,2,3-Trimethylbenzene	18.4		0.104	1.00	1	11/02/2024 10:33	WG2393762
1,3,5-Trimethylbenzene	9.58		0.104	1.00	1	11/02/2024 10:33	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 10:33	WG2393762
Xylenes, Total	132		0.174	3.00	1	11/02/2024 10:33	WG2393762
(S) Toluene-d8	*98.8*			*80.0-120*		*11/02/2024 10:33*	WG2393762
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*11/02/2024 10:33*	WG2393762
(S) 1,2-Dichloroethane-d4	*91.7*			*70.0-130*		*11/02/2024 10:33*	WG2393762

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	U		31.6	100	1	10/30/2024 05:48	WG2391948
(S) a,a,a-Trifluorotoluene(FID)	*98.4*			*78.0-120*		*10/30/2024 05:48*	WG2391948

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 10:54	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 10:54	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 10:54	WG2393762
Benzene	0.247	J	0.0941	1.00	1	11/02/2024 10:54	WG2393762
Bromobenzene	U		0.118	1.00	1	11/02/2024 10:54	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 10:54	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 10:54	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 10:54	WG2393762
n-Butylbenzene	U		0.157	1.00	1	11/02/2024 10:54	WG2393762
sec-Butylbenzene	U		0.125	1.00	1	11/02/2024 10:54	WG2393762
tert-Butylbenzene	U		0.127	1.00	1	11/02/2024 10:54	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 10:54	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 10:54	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 10:54	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 10:54	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 10:54	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 10:54	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 10:54	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 10:54	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 10:54	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 10:54	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 10:54	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 10:54	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 10:54	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 10:54	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 10:54	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 10:54	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 10:54	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 10:54	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 10:54	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 10:54	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 10:54	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 10:54	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 10:54	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 10:54	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 10:54	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 10:54	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 10:54	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 10:54	WG2393762
Ethylbenzene	0.221	J	0.137	1.00	1	11/02/2024 10:54	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 10:54	WG2393762
Isopropylbenzene	U		0.105	1.00	1	11/02/2024 10:54	WG2393762
p-Isopropyltoluene	U		0.120	1.00	1	11/02/2024 10:54	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 10:54	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 10:54	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 10:54	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 10:54	WG2393762
Naphthalene	U		1.00	5.00	1	11/02/2024 10:54	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
n-Propylbenzene	0.254	J	0.0993	1.00	1	11/02/2024 10:54	WG2393762
Styrene	U		0.118	1.00	1	11/02/2024 10:54	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 10:54	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 10:54	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 10:54	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 10:54	WG2393762
Toluene	U		0.278	1.00	1	11/02/2024 10:54	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 10:54	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 10:54	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 10:54	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 10:54	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 10:54	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 10:54	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 10:54	WG2393762
1,2,4-Trimethylbenzene	U		0.322	1.00	1	11/02/2024 10:54	WG2393762
1,2,3-Trimethylbenzene	0.106	J	0.104	1.00	1	11/02/2024 10:54	WG2393762
1,3,5-Trimethylbenzene	U		0.104	1.00	1	11/02/2024 10:54	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 10:54	WG2393762
Xylenes, Total	0.271	J	0.174	3.00	1	11/02/2024 10:54	WG2393762
(S) Toluene-d8	*101*			*80.0-120*		*11/02/2024 10:54*	WG2393762
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*11/02/2024 10:54*	WG2393762
(S) 1,2-Dichloroethane-d4	*98.3*			*70.0-130*		*11/02/2024 10:54*	WG2393762

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	24500		316	1000	10	11/05/2024 01:03	WG2395169
(S) a,a,a-Trifluorotoluene(FID)	*97.4*			*78.0-120*		*11/05/2024 01:03*	WG2395169

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 11:16	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 11:16	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 11:16	WG2393762
Benzene	3150	Q	4.71	50.0	50	11/05/2024 08:12	WG2395107
Bromobenzene	U		0.118	1.00	1	11/02/2024 11:16	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 11:16	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 11:16	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 11:16	WG2393762
n-Butylbenzene	18.2		0.157	1.00	1	11/02/2024 11:16	WG2393762
sec-Butylbenzene	17.1		0.125	1.00	1	11/02/2024 11:16	WG2393762
tert-Butylbenzene	0.586	J	0.127	1.00	1	11/02/2024 11:16	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 11:16	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 11:16	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 11:16	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 11:16	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 11:16	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 11:16	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 11:16	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 11:16	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 11:16	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 11:16	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 11:16	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 11:16	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 11:16	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 11:16	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 11:16	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 11:16	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 11:16	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 11:16	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 11:16	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 11:16	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 11:16	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 11:16	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 11:16	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 11:16	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 11:16	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 11:16	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 11:16	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 11:16	WG2393762
Ethylbenzene	1450	Q	6.85	50.0	50	11/05/2024 08:12	WG2395107
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 11:16	WG2393762
Isopropylbenzene	148		0.105	1.00	1	11/02/2024 11:16	WG2393762
p-Isopropyltoluene	14.3		0.120	1.00	1	11/02/2024 11:16	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 11:16	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 11:16	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 11:16	WG2393762
Methyl tert-butyl ether	16.6		0.101	1.00	1	11/02/2024 11:16	WG2393762
Naphthalene	193		1.00	5.00	1	11/02/2024 11:16	WG2393762

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	502	Q	4.97	50.0	50	11/05/2024 08:12	WG2395107
Styrene	U		0.118	1.00	1	11/02/2024 11:16	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 11:16	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 11:16	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 11:16	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 11:16	WG2393762
Toluene	181		0.278	1.00	1	11/02/2024 11:16	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 11:16	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 11:16	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 11:16	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 11:16	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 11:16	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 11:16	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 11:16	WG2393762
1,2,4-Trimethylbenzene	1350	Q	16.1	50.0	50	11/05/2024 08:12	WG2395107
1,2,3-Trimethylbenzene	387	Q	5.20	50.0	50	11/05/2024 08:12	WG2395107
1,3,5-Trimethylbenzene	354	Q	5.20	50.0	50	11/05/2024 08:12	WG2395107
Vinyl chloride	U		0.234	1.00	1	11/02/2024 11:16	WG2393762
Xylenes, Total	3530	Q	8.70	150	50	11/05/2024 08:12	WG2395107
(S) Toluene-d8	*107*			*80.0-120*		*11/02/2024 11:16*	WG2393762
(S) Toluene-d8	*111*			*80.0-120*		*11/05/2024 08:12*	WG2395107
(S) 4-Bromofluorobenzene	*117*			*77.0-126*		*11/02/2024 11:16*	WG2393762
(S) 4-Bromofluorobenzene	*103*			*77.0-126*		*11/05/2024 08:12*	WG2395107
(S) 1,2-Dichloroethane-d4	*91.6*			*70.0-130*		*11/02/2024 11:16*	WG2393762
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*11/05/2024 08:12*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	299		31.6	100	1	11/02/2024 02:04	WG2393772
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*		*11/02/2024 02:04*	WG2393772

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U	Q	11.3	50.0	1	11/05/2024 05:02	WG2395107
Acrolein	U	Q	2.54	50.0	1	11/05/2024 05:02	WG2395107
Acrylonitrile	U	Q	0.671	10.0	1	11/05/2024 05:02	WG2395107
Benzene	21.6	Q	0.0941	1.00	1	11/05/2024 05:02	WG2395107
Bromobenzene	U	Q	0.118	1.00	1	11/05/2024 05:02	WG2395107
Bromodichloromethane	U	Q	0.136	1.00	1	11/05/2024 05:02	WG2395107
Bromoform	U	Q	0.129	1.00	1	11/05/2024 05:02	WG2395107
Bromomethane	U	C3 Q	0.605	5.00	1	11/05/2024 05:02	WG2395107
n-Butylbenzene	0.552	J Q	0.157	1.00	1	11/05/2024 05:02	WG2395107
sec-Butylbenzene	2.43	Q	0.125	1.00	1	11/05/2024 05:02	WG2395107
tert-Butylbenzene	U	Q	0.127	1.00	1	11/05/2024 05:02	WG2395107
Carbon disulfide	U	Q	0.0962	1.00	1	11/05/2024 05:02	WG2395107
Carbon tetrachloride	U	Q	0.128	1.00	1	11/05/2024 05:02	WG2395107
Chlorobenzene	U	Q	0.116	1.00	1	11/05/2024 05:02	WG2395107
Chlorodibromomethane	U	Q	0.140	1.00	1	11/05/2024 05:02	WG2395107
Chloroethane	U	Q	0.192	5.00	1	11/05/2024 05:02	WG2395107
Chloroform	U	Q	0.111	5.00	1	11/05/2024 05:02	WG2395107
Chloromethane	U	C3 Q	0.960	2.50	1	11/05/2024 05:02	WG2395107
2-Chlorotoluene	U	Q	0.106	1.00	1	11/05/2024 05:02	WG2395107
4-Chlorotoluene	U	Q	0.114	1.00	1	11/05/2024 05:02	WG2395107
1,2-Dibromo-3-Chloropropane	U	Q	0.276	5.00	1	11/05/2024 05:02	WG2395107
1,2-Dibromoethane	U	Q	0.126	1.00	1	11/05/2024 05:02	WG2395107
Dibromomethane	U	Q	0.122	1.00	1	11/05/2024 05:02	WG2395107
1,2-Dichlorobenzene	U	Q	0.107	1.00	1	11/05/2024 05:02	WG2395107
1,3-Dichlorobenzene	U	Q	0.110	1.00	1	11/05/2024 05:02	WG2395107
1,4-Dichlorobenzene	U	Q	0.120	1.00	1	11/05/2024 05:02	WG2395107
Dichlorodifluoromethane	U	Q	0.374	5.00	1	11/05/2024 05:02	WG2395107
1,1-Dichloroethane	U	Q	0.100	1.00	1	11/05/2024 05:02	WG2395107
1,2-Dichloroethane	U	Q	0.0819	1.00	1	11/05/2024 05:02	WG2395107
1,1-Dichloroethene	U	Q	0.188	1.00	1	11/05/2024 05:02	WG2395107
cis-1,2-Dichloroethene	U	Q	0.126	1.00	1	11/05/2024 05:02	WG2395107
trans-1,2-Dichloroethene	U	Q	0.149	1.00	1	11/05/2024 05:02	WG2395107
1,2-Dichloropropane	U	Q	0.149	1.00	1	11/05/2024 05:02	WG2395107
1,1-Dichloropropene	U	Q	0.142	1.00	1	11/05/2024 05:02	WG2395107
1,3-Dichloropropane	U	Q	0.110	1.00	1	11/05/2024 05:02	WG2395107
cis-1,3-Dichloropropene	U	Q	0.111	1.00	1	11/05/2024 05:02	WG2395107
trans-1,3-Dichloropropene	U	Q	0.118	1.00	1	11/05/2024 05:02	WG2395107
2,2-Dichloropropane	U	Q	0.161	1.00	1	11/05/2024 05:02	WG2395107
Di-isopropyl ether	U	Q	0.105	1.00	1	11/05/2024 05:02	WG2395107
Ethylbenzene	20.6	Q	0.137	1.00	1	11/05/2024 05:02	WG2395107
Hexachloro-1,3-butadiene	U	Q	0.337	1.00	1	11/05/2024 05:02	WG2395107
Isopropylbenzene	4.78	Q	0.105	1.00	1	11/05/2024 05:02	WG2395107
p-Isopropyltoluene	0.169	J Q	0.120	1.00	1	11/05/2024 05:02	WG2395107
2-Butanone (MEK)	U	Q	1.19	10.0	1	11/05/2024 05:02	WG2395107
Methylene Chloride	U	Q	0.430	5.00	1	11/05/2024 05:02	WG2395107
4-Methyl-2-pentanone (MIBK)	U	Q	0.478	10.0	1	11/05/2024 05:02	WG2395107
Methyl tert-butyl ether	U	Q	0.101	1.00	1	11/05/2024 05:02	WG2395107
Naphthalene	2.79	J Q	1.00	5.00	1	11/05/2024 05:02	WG2395107

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	7.16	Q	0.0993	1.00	1	11/05/2024 05:02	WG2395107
Styrene	U	Q	0.118	1.00	1	11/05/2024 05:02	WG2395107
1,1,1,2-Tetrachloroethane	U	Q	0.147	1.00	1	11/05/2024 05:02	WG2395107
1,1,2,2-Tetrachloroethane	U	Q	0.133	1.00	1	11/05/2024 05:02	WG2395107
1,1,2-Trichlorotrifluoroethane	U	Q	0.180	1.00	1	11/05/2024 05:02	WG2395107
Tetrachloroethene	U	Q	0.300	1.00	1	11/05/2024 05:02	WG2395107
Toluene	U	Q	0.278	1.00	1	11/05/2024 05:02	WG2395107
1,2,3-Trichlorobenzene	U	Q	0.230	1.00	1	11/05/2024 05:02	WG2395107
1,2,4-Trichlorobenzene	U	Q	0.481	1.00	1	11/05/2024 05:02	WG2395107
1,1,1-Trichloroethane	U	Q	0.149	1.00	1	11/05/2024 05:02	WG2395107
1,1,2-Trichloroethane	U	Q	0.158	1.00	1	11/05/2024 05:02	WG2395107
Trichloroethene	U	Q	0.190	1.00	1	11/05/2024 05:02	WG2395107
Trichlorofluoromethane	U	Q	0.160	5.00	1	11/05/2024 05:02	WG2395107
1,2,3-Trichloropropane	U	Q	0.237	2.50	1	11/05/2024 05:02	WG2395107
1,2,4-Trimethylbenzene	2.90	Q	0.322	1.00	1	11/05/2024 05:02	WG2395107
1,2,3-Trimethylbenzene	1.45	Q	0.104	1.00	1	11/05/2024 05:02	WG2395107
1,3,5-Trimethylbenzene	0.288	J Q	0.104	1.00	1	11/05/2024 05:02	WG2395107
Vinyl chloride	U	Q	0.234	1.00	1	11/05/2024 05:02	WG2395107
Xylenes, Total	4.90	Q	0.174	3.00	1	11/05/2024 05:02	WG2395107
(S) Toluene-d8	*110*			*80.0-120*		*11/05/2024 05:02*	WG2395107
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*11/05/2024 05:02*	WG2395107
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*11/05/2024 05:02*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	6260		31.6	100	1	10/30/2024 07:27	WG2391948
(S) a,a,a-Trifluorotoluene(FID)	*102*			*78.0-120*		*10/30/2024 07:27*	WG2391948

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 12:00	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 12:00	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 12:00	WG2393762
Benzene	850	Q	2.35	25.0	25	11/05/2024 08:33	WG2395107
Bromobenzene	U		0.118	1.00	1	11/02/2024 12:00	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 12:00	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 12:00	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 12:00	WG2393762
n-Butylbenzene	6.61		0.157	1.00	1	11/02/2024 12:00	WG2393762
sec-Butylbenzene	6.51		0.125	1.00	1	11/02/2024 12:00	WG2393762
tert-Butylbenzene	U		0.127	1.00	1	11/02/2024 12:00	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 12:00	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 12:00	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 12:00	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 12:00	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 12:00	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 12:00	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 12:00	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 12:00	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 12:00	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 12:00	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 12:00	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 12:00	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 12:00	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 12:00	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 12:00	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 12:00	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 12:00	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 12:00	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 12:00	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 12:00	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 12:00	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 12:00	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 12:00	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 12:00	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 12:00	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 12:00	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 12:00	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 12:00	WG2393762
Ethylbenzene	56.3		0.137	1.00	1	11/02/2024 12:00	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 12:00	WG2393762
Isopropylbenzene	27.5		0.105	1.00	1	11/02/2024 12:00	WG2393762
p-Isopropyltoluene	2.86		0.120	1.00	1	11/02/2024 12:00	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 12:00	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 12:00	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 12:00	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 12:00	WG2393762
Naphthalene	5.71		1.00	5.00	1	11/02/2024 12:00	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
n-Propylbenzene	95.1		0.0993	1.00	1	11/02/2024 12:00	WG2393762
Styrene	U		0.118	1.00	1	11/02/2024 12:00	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 12:00	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 12:00	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 12:00	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 12:00	WG2393762
Toluene	5.69		0.278	1.00	1	11/02/2024 12:00	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 12:00	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 12:00	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 12:00	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 12:00	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 12:00	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 12:00	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 12:00	WG2393762
1,2,4-Trimethylbenzene	6.46		0.322	1.00	1	11/02/2024 12:00	WG2393762
1,2,3-Trimethylbenzene	23.5		0.104	1.00	1	11/02/2024 12:00	WG2393762
1,3,5-Trimethylbenzene	5.32		0.104	1.00	1	11/02/2024 12:00	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 12:00	WG2393762
Xylenes, Total	17.1		0.174	3.00	1	11/02/2024 12:00	WG2393762
(S) Toluene-d8	*94.8*			*80.0-120*		*11/02/2024 12:00*	WG2393762
(S) Toluene-d8	*110*			*80.0-120*		*11/05/2024 08:33*	WG2395107
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*11/02/2024 12:00*	WG2393762
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/05/2024 08:33*	WG2395107
(S) 1,2-Dichloroethane-d4	*91.4*			*70.0-130*		*11/02/2024 12:00*	WG2393762
(S) 1,2-Dichloroethane-d4	*117*			*70.0-130*		*11/05/2024 08:33*	WG2395107

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1550	J	632	2000	20	11/05/2024 01:25	WG2395169
(S) a,a,a-Trifluorotoluene(FID)	*97.5*			*78.0-120*		*11/05/2024 01:25*	WG2395169

Sample Narrative:

L1792371-09 WG2395169: Elevated RL due to foamy matrix.

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 12:21	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 12:21	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 12:21	WG2393762
Benzene	24.2		0.0941	1.00	1	11/02/2024 12:21	WG2393762
Bromobenzene	U		0.118	1.00	1	11/02/2024 12:21	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 12:21	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 12:21	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 12:21	WG2393762
n-Butylbenzene	4.10		0.157	1.00	1	11/02/2024 12:21	WG2393762
sec-Butylbenzene	5.92		0.125	1.00	1	11/02/2024 12:21	WG2393762
tert-Butylbenzene	U		0.127	1.00	1	11/02/2024 12:21	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 12:21	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 12:21	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 12:21	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 12:21	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 12:21	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 12:21	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 12:21	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 12:21	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 12:21	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 12:21	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 12:21	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 12:21	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 12:21	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 12:21	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 12:21	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 12:21	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 12:21	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 12:21	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 12:21	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 12:21	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 12:21	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 12:21	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 12:21	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 12:21	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 12:21	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 12:21	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 12:21	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 12:21	WG2393762
Ethylbenzene	0.692	J	0.137	1.00	1	11/02/2024 12:21	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 12:21	WG2393762
Isopropylbenzene	35.1		0.105	1.00	1	11/02/2024 12:21	WG2393762
p-Isopropyltoluene	0.737	J	0.120	1.00	1	11/02/2024 12:21	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 12:21	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 12:21	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 12:21	WG2393762
Methyl tert-butyl ether	7.72		0.101	1.00	1	11/02/2024 12:21	WG2393762
Naphthalene	2.06	J	1.00	5.00	1	11/02/2024 12:21	WG2393762
n-Propylbenzene	98.9		0.0993	1.00	1	11/02/2024 12:21	WG2393762
Styrene	U		0.118	1.00	1	11/02/2024 12:21	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 12:21	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 12:21	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 12:21	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 12:21	WG2393762
Toluene	3.19		0.278	1.00	1	11/02/2024 12:21	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 12:21	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 12:21	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 12:21	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 12:21	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 12:21	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 12:21	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 12:21	WG2393762
1,2,4-Trimethylbenzene	0.384	J	0.322	1.00	1	11/02/2024 12:21	WG2393762
1,2,3-Trimethylbenzene	3.98		0.104	1.00	1	11/02/2024 12:21	WG2393762
1,3,5-Trimethylbenzene	0.269	J	0.104	1.00	1	11/02/2024 12:21	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 12:21	WG2393762
Xylenes, Total	3.92		0.174	3.00	1	11/02/2024 12:21	WG2393762
(S) Toluene-d8	*96.1*			*80.0-120*		*11/02/2024 12:21*	WG2393762
(S) 4-Bromofluorobenzene	*97.6*			*77.0-126*		*11/02/2024 12:21*	WG2393762
(S) 1,2-Dichloroethane-d4	*96.5*			*70.0-130*		*11/02/2024 12:21*	WG2393762

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	4610		31.6	100	1	10/30/2024 08:11	WG2391948
(S) a,a,a-Trifluorotoluene(FID)	*98.9*			*78.0-120*		*10/30/2024 08:11*	WG2391948

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	11/02/2024 12:43	WG2393762
Acrolein	U		2.54	50.0	1	11/02/2024 12:43	WG2393762
Acrylonitrile	U		0.671	10.0	1	11/02/2024 12:43	WG2393762
Benzene	791	Q	2.35	25.0	25	11/05/2024 08:54	WG2395107
Bromobenzene	U		0.118	1.00	1	11/02/2024 12:43	WG2393762
Bromodichloromethane	U		0.136	1.00	1	11/02/2024 12:43	WG2393762
Bromoform	U		0.129	1.00	1	11/02/2024 12:43	WG2393762
Bromomethane	U	C3	0.605	5.00	1	11/02/2024 12:43	WG2393762
n-Butylbenzene	10.1		0.157	1.00	1	11/02/2024 12:43	WG2393762
sec-Butylbenzene	9.45		0.125	1.00	1	11/02/2024 12:43	WG2393762
tert-Butylbenzene	U		0.127	1.00	1	11/02/2024 12:43	WG2393762
Carbon disulfide	U		0.0962	1.00	1	11/02/2024 12:43	WG2393762
Carbon tetrachloride	U		0.128	1.00	1	11/02/2024 12:43	WG2393762
Chlorobenzene	U		0.116	1.00	1	11/02/2024 12:43	WG2393762
Chlorodibromomethane	U		0.140	1.00	1	11/02/2024 12:43	WG2393762
Chloroethane	U		0.192	5.00	1	11/02/2024 12:43	WG2393762
Chloroform	U		0.111	5.00	1	11/02/2024 12:43	WG2393762
Chloromethane	U	J4	0.960	2.50	1	11/02/2024 12:43	WG2393762
2-Chlorotoluene	U		0.106	1.00	1	11/02/2024 12:43	WG2393762
4-Chlorotoluene	U		0.114	1.00	1	11/02/2024 12:43	WG2393762
1,2-Dibromo-3-Chloropropane	U	C3	0.276	5.00	1	11/02/2024 12:43	WG2393762
1,2-Dibromoethane	U		0.126	1.00	1	11/02/2024 12:43	WG2393762
Dibromomethane	U		0.122	1.00	1	11/02/2024 12:43	WG2393762
1,2-Dichlorobenzene	U		0.107	1.00	1	11/02/2024 12:43	WG2393762
1,3-Dichlorobenzene	U		0.110	1.00	1	11/02/2024 12:43	WG2393762
1,4-Dichlorobenzene	U		0.120	1.00	1	11/02/2024 12:43	WG2393762
Dichlorodifluoromethane	U	J4	0.374	5.00	1	11/02/2024 12:43	WG2393762
1,1-Dichloroethane	U		0.100	1.00	1	11/02/2024 12:43	WG2393762
1,2-Dichloroethane	U		0.0819	1.00	1	11/02/2024 12:43	WG2393762
1,1-Dichloroethene	U		0.188	1.00	1	11/02/2024 12:43	WG2393762
cis-1,2-Dichloroethene	U		0.126	1.00	1	11/02/2024 12:43	WG2393762
trans-1,2-Dichloroethene	U		0.149	1.00	1	11/02/2024 12:43	WG2393762
1,2-Dichloropropane	U		0.149	1.00	1	11/02/2024 12:43	WG2393762
1,1-Dichloropropene	U		0.142	1.00	1	11/02/2024 12:43	WG2393762
1,3-Dichloropropane	U		0.110	1.00	1	11/02/2024 12:43	WG2393762
cis-1,3-Dichloropropene	U		0.111	1.00	1	11/02/2024 12:43	WG2393762
trans-1,3-Dichloropropene	U		0.118	1.00	1	11/02/2024 12:43	WG2393762
2,2-Dichloropropane	U		0.161	1.00	1	11/02/2024 12:43	WG2393762
Di-isopropyl ether	U		0.105	1.00	1	11/02/2024 12:43	WG2393762
Ethylbenzene	70.8		0.137	1.00	1	11/02/2024 12:43	WG2393762
Hexachloro-1,3-butadiene	U		0.337	1.00	1	11/02/2024 12:43	WG2393762
Isopropylbenzene	36.4		0.105	1.00	1	11/02/2024 12:43	WG2393762
p-Isopropyltoluene	2.40		0.120	1.00	1	11/02/2024 12:43	WG2393762
2-Butanone (MEK)	U		1.19	10.0	1	11/02/2024 12:43	WG2393762
Methylene Chloride	U		0.430	5.00	1	11/02/2024 12:43	WG2393762
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	11/02/2024 12:43	WG2393762
Methyl tert-butyl ether	U		0.101	1.00	1	11/02/2024 12:43	WG2393762
Naphthalene	6.77		1.00	5.00	1	11/02/2024 12:43	WG2393762

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
n-Propylbenzene	135		0.0993	1.00	1	11/02/2024 12:43	WG2393762
Styrene	U		0.118	1.00	1	11/02/2024 12:43	WG2393762
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	11/02/2024 12:43	WG2393762
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	11/02/2024 12:43	WG2393762
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	11/02/2024 12:43	WG2393762
Tetrachloroethene	U		0.300	1.00	1	11/02/2024 12:43	WG2393762
Toluene	6.77		0.278	1.00	1	11/02/2024 12:43	WG2393762
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	11/02/2024 12:43	WG2393762
1,2,4-Trichlorobenzene	U		0.481	1.00	1	11/02/2024 12:43	WG2393762
1,1,1-Trichloroethane	U		0.149	1.00	1	11/02/2024 12:43	WG2393762
1,1,2-Trichloroethane	U		0.158	1.00	1	11/02/2024 12:43	WG2393762
Trichloroethene	U		0.190	1.00	1	11/02/2024 12:43	WG2393762
Trichlorofluoromethane	U		0.160	5.00	1	11/02/2024 12:43	WG2393762
1,2,3-Trichloropropane	U		0.237	2.50	1	11/02/2024 12:43	WG2393762
1,2,4-Trimethylbenzene	8.62		0.322	1.00	1	11/02/2024 12:43	WG2393762
1,2,3-Trimethylbenzene	31.7		0.104	1.00	1	11/02/2024 12:43	WG2393762
1,3,5-Trimethylbenzene	7.35		0.104	1.00	1	11/02/2024 12:43	WG2393762
Vinyl chloride	U		0.234	1.00	1	11/02/2024 12:43	WG2393762
Xylenes, Total	21.3		0.174	3.00	1	11/02/2024 12:43	WG2393762
(S) Toluene-d8	*94.3*			*80.0-120*		*11/02/2024 12:43*	WG2393762
(S) Toluene-d8	*109*			*80.0-120*		*11/05/2024 08:54*	WG2395107
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*11/02/2024 12:43*	WG2393762
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/05/2024 08:54*	WG2395107
(S) 1,2-Dichloroethane-d4	*97.1*			*70.0-130*		*11/02/2024 12:43*	WG2393762
(S) 1,2-Dichloroethane-d4	*117*			*70.0-130*		*11/05/2024 08:54*	WG2395107

Method Blank (MB)

(MB) R4140109-2 10/30/24 06:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	86.7	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*96.8*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R4140109-1 10/30/24 05:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5000	5720	114	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*101*	*78.0-120*	

Method Blank (MB)

(MB) R4140838-2 10/30/24 02:50

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)	*99.2*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R4140838-1 10/30/24 01:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5000	5310	106	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*104*	*78.0-120*	

Method Blank (MB)

(MB) R4141649-2 11/01/24 20:38

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) R4141649-1 11/01/24 18:53

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5000	5170	103	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*78.0-120*	

Method Blank (MB)

(MB) R4141978-2 11/04/24 22:28

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)	*99.1*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R4141978-1 11/04/24 21:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5010	91.1	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*97.7*	*78.0-120*	

Method Blank (MB)

(MB) R4141596-3 11/02/24 08:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	50.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	10.0
Benzene	U		0.0941	1.00
Bromobenzene	U		0.118	1.00
Bromodichloromethane	U		0.136	1.00
Bromoform	U		0.129	1.00
Bromomethane	U		0.605	5.00
n-Butylbenzene	U		0.157	1.00
sec-Butylbenzene	U		0.125	1.00
tert-Butylbenzene	U		0.127	1.00
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chlorobenzene	U		0.116	1.00
Chlorodibromomethane	U		0.140	1.00
Chloroethane	U		0.192	5.00
Chloroform	U		0.111	5.00
Chloromethane	U		0.960	2.50
2-Chlorotoluene	U		0.106	1.00
4-Chlorotoluene	U		0.114	1.00
1,2-Dibromo-3-Chloropropane	U		0.276	5.00
1,2-Dibromoethane	U		0.126	1.00
Dibromomethane	U		0.122	1.00
1,2-Dichlorobenzene	U		0.107	1.00
1,3-Dichlorobenzene	U		0.110	1.00
1,4-Dichlorobenzene	U		0.120	1.00
Dichlorodifluoromethane	U		0.374	5.00
1,1-Dichloroethane	U		0.100	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
1,2-Dichloropropane	U		0.149	1.00
1,1-Dichloropropene	U		0.142	1.00
1,3-Dichloropropane	U		0.110	1.00
cis-1,3-Dichloropropene	U		0.111	1.00
trans-1,3-Dichloropropene	U		0.118	1.00
2,2-Dichloropropane	U		0.161	1.00
Di-isopropyl ether	U		0.105	1.00
Ethylbenzene	U		0.137	1.00

Method Blank (MB)

(MB) R4141596-3 11/02/24 08:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	U		0.337	1.00
Isopropylbenzene	U		0.105	1.00
p-Isopropyltoluene	U		0.120	1.00
2-Butanone (MEK)	U		1.19	10.0
Methylene Chloride	U		0.430	5.00
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0
Methyl tert-butyl ether	U		0.101	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.0993	1.00
Styrene	U		0.118	1.00
1,1,1,2-Tetrachloroethane	U		0.147	1.00
1,1,2,2-Tetrachloroethane	U		0.133	1.00
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	1.00
1,1,2-Trichloroethane	U		0.158	1.00
Trichloroethene	U		0.190	1.00
Trichlorofluoromethane	U		0.160	5.00
1,2,3-Trichloropropane	U		0.237	2.50
1,2,4-Trimethylbenzene	U		0.322	1.00
1,2,3-Trimethylbenzene	U		0.104	1.00
1,3,5-Trimethylbenzene	U		0.104	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*103*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

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

(LCS) R4141596-1 11/02/24 06:56 • (LCSD) R4141596-2 11/02/24 07:18

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 %
Acetone	25.0	21.1	23.0	84.4	92.0	19.0-160	J	J	8.62	27
Acrolein	25.0	21.8	22.9	87.2	91.6	10.0-160	J	J	4.92	26
Acrylonitrile	25.0	24.7	24.5	98.8	98.0	55.0-149			0.813	20

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

(LCS) R4141596-1 11/02/24 06:56 • (LCSD) R4141596-2 11/02/24 07:18

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	5.14	5.19	103	104	70.0-123			0.968	20
Bromobenzene	5.00	4.20	4.29	84.0	85.8	73.0-121			2.12	20
Bromodichloromethane	5.00	5.04	4.90	101	98.0	75.0-120			2.82	20
Bromoform	5.00	4.05	4.19	81.0	83.8	68.0-132			3.40	20
Bromomethane	5.00	2.05	2.16	41.0	43.2	10.0-160	J	J	5.23	25
n-Butylbenzene	5.00	4.02	4.06	80.4	81.2	73.0-125			0.990	20
sec-Butylbenzene	5.00	4.59	4.36	91.8	87.2	75.0-125			5.14	20
tert-Butylbenzene	5.00	4.51	4.44	90.2	88.8	76.0-124			1.56	20
Carbon disulfide	5.00	5.05	5.06	101	101	61.0-128			0.198	20
Carbon tetrachloride	5.00	5.23	5.26	105	105	68.0-126			0.572	20
Chlorobenzene	5.00	4.59	4.53	91.8	90.6	80.0-121			1.32	20
Chlorodibromomethane	5.00	4.30	4.32	86.0	86.4	77.0-125			0.464	20
Chloroethane	5.00	6.15	5.93	123	119	47.0-150			3.64	20
Chloroform	5.00	5.26	5.22	105	104	73.0-120			0.763	20
Chloromethane	5.00	8.42	8.97	168	179	41.0-142	J4	J4	6.33	20
2-Chlorotoluene	5.00	4.87	4.82	97.4	96.4	76.0-123			1.03	20
4-Chlorotoluene	5.00	4.34	4.22	86.8	84.4	75.0-122			2.80	20
1,2-Dibromo-3-Chloropropane	5.00	3.79	3.63	75.8	72.6	58.0-134	J	J	4.31	20
1,2-Dibromoethane	5.00	4.96	4.78	99.2	95.6	80.0-122			3.70	20
Dibromomethane	5.00	5.13	5.21	103	104	80.0-120			1.55	20
1,2-Dichlorobenzene	5.00	4.51	4.53	90.2	90.6	79.0-121			0.442	20
1,3-Dichlorobenzene	5.00	4.51	4.40	90.2	88.0	79.0-120			2.47	20
1,4-Dichlorobenzene	5.00	4.25	4.17	85.0	83.4	79.0-120			1.90	20
Dichlorodifluoromethane	5.00	7.65	7.60	153	152	51.0-149	J4	J4	0.656	20
1,1-Dichloroethane	5.00	5.07	4.96	101	99.2	70.0-126			2.19	20
1,2-Dichloroethane	5.00	5.16	4.90	103	98.0	70.0-128			5.17	20
1,1-Dichloroethene	5.00	5.22	5.48	104	110	71.0-124			4.86	20
cis-1,2-Dichloroethene	5.00	5.27	5.17	105	103	73.0-120			1.92	20
trans-1,2-Dichloroethene	5.00	5.24	5.24	105	105	73.0-120			0.000	20
1,2-Dichloropropane	5.00	4.86	4.86	97.2	97.2	77.0-125			0.000	20
1,1-Dichloropropene	5.00	5.38	5.50	108	110	74.0-126			2.21	20
1,3-Dichloropropane	5.00	4.76	4.78	95.2	95.6	80.0-120			0.419	20
cis-1,3-Dichloropropene	5.00	4.79	4.81	95.8	96.2	80.0-123			0.417	20
trans-1,3-Dichloropropene	5.00	4.53	4.37	90.6	87.4	78.0-124			3.60	20
2,2-Dichloropropane	5.00	4.59	4.58	91.8	91.6	58.0-130			0.218	20
Di-isopropyl ether	5.00	4.82	4.82	96.4	96.4	58.0-138			0.000	20
Ethylbenzene	5.00	4.76	4.86	95.2	97.2	79.0-123			2.08	20
Hexachloro-1,3-butadiene	5.00	4.50	4.47	90.0	89.4	54.0-138			0.669	20
Isopropylbenzene	5.00	4.60	4.62	92.0	92.4	76.0-127			0.434	20
p-Isopropyltoluene	5.00	4.41	4.53	88.2	90.6	76.0-125			2.68	20

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

(LCS) R4141596-1 11/02/24 06:56 • (LCSD) R4141596-2 11/02/24 07:18

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 %
2-Butanone (MEK)	25.0	30.7	30.8	123	123	44.0-160			0.325	20
Methylene Chloride	5.00	4.85	4.61	97.0	92.2	67.0-120	J	J	5.07	20
4-Methyl-2-pentanone (MIBK)	25.0	23.9	24.1	95.6	96.4	68.0-142			0.833	20
Methyl tert-butyl ether	5.00	5.05	5.18	101	104	68.0-125			2.54	20
Naphthalene	5.00	4.02	4.17	80.4	83.4	54.0-135	J	J	3.66	20
n-Propylbenzene	5.00	4.48	4.32	89.6	86.4	77.0-124			3.64	20
Styrene	5.00	4.62	4.18	92.4	83.6	73.0-130			10.0	20
1,1,1,2-Tetrachloroethane	5.00	4.66	4.41	93.2	88.2	75.0-125			5.51	20
1,1,2,2-Tetrachloroethane	5.00	4.77	4.47	95.4	89.4	65.0-130			6.49	20
1,1,2-Trichlorotrifluoroethane	5.00	5.53	5.37	111	107	69.0-132			2.94	20
Tetrachloroethene	5.00	5.13	5.14	103	103	72.0-132			0.195	20
Toluene	5.00	4.75	4.72	95.0	94.4	79.0-120			0.634	20
1,2,3-Trichlorobenzene	5.00	3.92	4.19	78.4	83.8	50.0-138			6.66	20
1,2,4-Trichlorobenzene	5.00	4.03	4.03	80.6	80.6	57.0-137			0.000	20
1,1,1-Trichloroethane	5.00	5.19	5.33	104	107	73.0-124			2.66	20
1,1,2-Trichloroethane	5.00	4.94	4.93	98.8	98.6	80.0-120			0.203	20
Trichloroethene	5.00	5.29	5.35	106	107	78.0-124			1.13	20
Trichlorofluoromethane	5.00	7.18	7.17	144	143	59.0-147			0.139	20
1,2,3-Trichloropropane	5.00	5.21	4.73	104	94.6	73.0-130			9.66	20
1,2,4-Trimethylbenzene	5.00	4.44	4.37	88.8	87.4	76.0-121			1.59	20
1,2,3-Trimethylbenzene	5.00	4.51	4.46	90.2	89.2	77.0-120			1.11	20
1,3,5-Trimethylbenzene	5.00	4.66	4.60	93.2	92.0	76.0-122			1.30	20
Vinyl chloride	5.00	6.00	6.10	120	122	67.0-131			1.65	20
Xylenes, Total	15.0	14.0	13.6	93.3	90.7	79.0-123			2.90	20
(S) Toluene-d8				*97.4*	*96.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*99.0*	*99.6*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*102*	*100*	*70.0-130*				

Method Blank (MB)

(MB) R4142078-4 11/04/24 23:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	50.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	10.0
Benzene	U		0.0941	1.00
Bromobenzene	U		0.118	1.00
Bromodichloromethane	U		0.136	1.00
Bromoform	U		0.129	1.00
Bromomethane	U		0.605	5.00
n-Butylbenzene	U		0.157	1.00
sec-Butylbenzene	U		0.125	1.00
tert-Butylbenzene	U		0.127	1.00
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chlorobenzene	U		0.116	1.00
Chlorodibromomethane	U		0.140	1.00
Chloroethane	U		0.192	5.00
Chloroform	U		0.111	5.00
Chloromethane	U		0.960	2.50
2-Chlorotoluene	U		0.106	1.00
4-Chlorotoluene	U		0.114	1.00
1,2-Dibromo-3-Chloropropane	U		0.276	5.00
1,2-Dibromoethane	U		0.126	1.00
Dibromomethane	U		0.122	1.00
1,2-Dichlorobenzene	U		0.107	1.00
1,3-Dichlorobenzene	U		0.110	1.00
1,4-Dichlorobenzene	U		0.120	1.00
Dichlorodifluoromethane	U		0.374	5.00
1,1-Dichloroethane	U		0.100	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
1,2-Dichloropropane	U		0.149	1.00
1,1-Dichloropropene	U		0.142	1.00
1,3-Dichloropropane	U		0.110	1.00
cis-1,3-Dichloropropene	U		0.111	1.00
trans-1,3-Dichloropropene	U		0.118	1.00
2,2-Dichloropropane	U		0.161	1.00
Di-isopropyl ether	U		0.105	1.00
Ethylbenzene	U		0.137	1.00

Method Blank (MB)

(MB) R4142078-4 11/04/24 23:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	U		0.337	1.00
Isopropylbenzene	U		0.105	1.00
p-Isopropyltoluene	U		0.120	1.00
2-Butanone (MEK)	U		1.19	10.0
Methylene Chloride	U		0.430	5.00
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0
Methyl tert-butyl ether	U		0.101	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.0993	1.00
Styrene	U		0.118	1.00
1,1,1,2-Tetrachloroethane	U		0.147	1.00
1,1,2,2-Tetrachloroethane	U		0.133	1.00
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	1.00
1,1,2-Trichloroethane	U		0.158	1.00
Trichloroethene	U		0.190	1.00
Trichlorofluoromethane	U		0.160	5.00
1,2,3-Trichloropropane	U		0.237	2.50
1,2,4-Trimethylbenzene	U		0.322	1.00
1,2,3-Trimethylbenzene	U		0.104	1.00
1,3,5-Trimethylbenzene	U		0.104	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*110*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*121*			*70.0-130*

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

(LCS) R4142078-1 11/04/24 21:50 • (LCSD) R4142078-2 11/04/24 22:11

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 %
Acetone	25.0	28.9	33.9	116	136	19.0-160	J	J	15.9	27
Acrolein	25.0	30.1	31.0	120	124	10.0-160	J	J	2.95	26
Acrylonitrile	25.0	29.3	28.9	117	116	55.0-149			1.37	20

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

(LCS) R4142078-1 11/04/24 21:50 • (LCSD) R4142078-2 11/04/24 22:11

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	4.86	4.98	97.2	99.6	70.0-123			2.44	20
Bromobenzene	5.00	5.40	5.62	108	112	73.0-121			3.99	20
Bromodichloromethane	5.00	5.36	5.28	107	106	75.0-120			1.50	20
Bromoform	5.00	4.28	4.46	85.6	89.2	68.0-132			4.12	20
Bromomethane	5.00	2.91	2.83	58.2	56.6	10.0-160	J	J	2.79	25
n-Butylbenzene	5.00	5.31	5.45	106	109	73.0-125			2.60	20
sec-Butylbenzene	5.00	5.12	5.28	102	106	75.0-125			3.08	20
tert-Butylbenzene	5.00	5.34	5.44	107	109	76.0-124			1.86	20
Carbon disulfide	5.00	4.80	4.89	96.0	97.8	61.0-128			1.86	20
Carbon tetrachloride	5.00	5.99	6.14	120	123	68.0-126			2.47	20
Chlorobenzene	5.00	4.99	5.05	99.8	101	80.0-121			1.20	20
Chlorodibromomethane	5.00	4.94	4.83	98.8	96.6	77.0-125			2.25	20
Chloroethane	5.00	6.14	6.85	123	137	47.0-150			10.9	20
Chloroform	5.00	5.33	5.67	107	113	73.0-120			6.18	20
Chloromethane	5.00	2.14	2.32	42.8	46.4	41.0-142	J	J	8.07	20
2-Chlorotoluene	5.00	5.91	5.99	118	120	76.0-123			1.34	20
4-Chlorotoluene	5.00	5.73	5.93	115	119	75.0-122			3.43	20
1,2-Dibromo-3-Chloropropane	5.00	6.32	6.30	126	126	58.0-134			0.317	20
1,2-Dibromoethane	5.00	4.82	5.02	96.4	100	80.0-122			4.07	20
Dibromomethane	5.00	5.37	5.65	107	113	80.0-120			5.08	20
1,2-Dichlorobenzene	5.00	5.04	5.06	101	101	79.0-121			0.396	20
1,3-Dichlorobenzene	5.00	5.04	5.15	101	103	79.0-120			2.16	20
1,4-Dichlorobenzene	5.00	5.13	5.33	103	107	79.0-120			3.82	20
Dichlorodifluoromethane	5.00	5.71	5.84	114	117	51.0-149			2.25	20
1,1-Dichloroethane	5.00	4.81	5.08	96.2	102	70.0-126			5.46	20
1,2-Dichloroethane	5.00	5.24	5.32	105	106	70.0-128			1.52	20
1,1-Dichloroethene	5.00	4.74	5.10	94.8	102	71.0-124			7.32	20
cis-1,2-Dichloroethene	5.00	4.67	4.81	93.4	96.2	73.0-120			2.95	20
trans-1,2-Dichloroethene	5.00	4.85	4.89	97.0	97.8	73.0-120			0.821	20
1,2-Dichloropropane	5.00	4.46	4.71	89.2	94.2	77.0-125			5.45	20
1,1-Dichloropropene	5.00	5.42	5.45	108	109	74.0-126			0.552	20
1,3-Dichloropropane	5.00	5.22	5.30	104	106	80.0-120			1.52	20
cis-1,3-Dichloropropene	5.00	4.79	4.78	95.8	95.6	80.0-123			0.209	20
trans-1,3-Dichloropropene	5.00	4.99	4.84	99.8	96.8	78.0-124			3.05	20
2,2-Dichloropropane	5.00	4.68	4.66	93.6	93.2	58.0-130			0.428	20
Di-isopropyl ether	5.00	3.98	4.15	79.6	83.0	58.0-138			4.18	20
Ethylbenzene	5.00	4.71	4.75	94.2	95.0	79.0-123			0.846	20
Hexachloro-1,3-butadiene	5.00	5.43	5.55	109	111	54.0-138			2.19	20
Isopropylbenzene	5.00	4.87	5.00	97.4	100	76.0-127			2.63	20
p-Isopropyltoluene	5.00	5.31	5.50	106	110	76.0-125			3.52	20

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

(LCS) R4142078-1 11/04/24 21:50 • (LCSD) R4142078-2 11/04/24 22:11

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 %
2-Butanone (MEK)	25.0	28.9	30.3	116	121	44.0-160			4.73	20
Methylene Chloride	5.00	4.81	4.91	96.2	98.2	67.0-120	J	J	2.06	20
4-Methyl-2-pentanone (MIBK)	25.0	26.4	26.7	106	107	68.0-142			1.13	20
Methyl tert-butyl ether	5.00	5.22	5.32	104	106	68.0-125			1.90	20
Naphthalene	5.00	6.12	6.31	122	126	54.0-135			3.06	20
n-Propylbenzene	5.00	5.52	5.73	110	115	77.0-124			3.73	20
Styrene	5.00	4.56	4.61	91.2	92.2	73.0-130			1.09	20
1,1,1,2-Tetrachloroethane	5.00	4.64	4.80	92.8	96.0	75.0-125			3.39	20
1,1,2,2-Tetrachloroethane	5.00	5.62	5.61	112	112	65.0-130			0.178	20
1,1,2-Trichlorotrifluoroethane	5.00	5.18	5.47	104	109	69.0-132			5.45	20
Tetrachloroethene	5.00	5.02	5.21	100	104	72.0-132			3.71	20
Toluene	5.00	5.23	5.39	105	108	79.0-120			3.01	20
1,2,3-Trichlorobenzene	5.00	5.60	5.79	112	116	50.0-138			3.34	20
1,2,4-Trichlorobenzene	5.00	5.15	5.24	103	105	57.0-137			1.73	20
1,1,1-Trichloroethane	5.00	5.49	5.85	110	117	73.0-124			6.35	20
1,1,2-Trichloroethane	5.00	4.79	4.87	95.8	97.4	80.0-120			1.66	20
Trichloroethene	5.00	5.12	5.40	102	108	78.0-124			5.32	20
Trichlorofluoromethane	5.00	5.72	6.26	114	125	59.0-147			9.02	20
1,2,3-Trichloropropane	5.00	6.48	6.36	130	127	73.0-130			1.87	20
1,2,4-Trimethylbenzene	5.00	5.44	5.65	109	113	76.0-121			3.79	20
1,2,3-Trimethylbenzene	5.00	5.45	5.57	109	111	77.0-120			2.18	20
1,3,5-Trimethylbenzene	5.00	5.32	5.57	106	111	76.0-122			4.59	20
Vinyl chloride	5.00	4.35	4.49	87.0	89.8	67.0-131			3.17	20
Xylenes, Total	15.0	14.3	14.7	95.3	98.0	79.0-123			2.76	20
(S) Toluene-d8				*107*	*107*	*80.0-120*				
(S) 4-Bromofluorobenzene				*102*	*103*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*121*	*124*	*70.0-130*				

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.
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.
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
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
C5	The reported concentration is an estimate. The continuing calibration standard associated with this data responded high. Data is likely to show a high bias concerning the result.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

ACCREDITATIONS & LOCATIONS

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.

D161

Agency, Authorized Purchaser or Agent: Oregon DEQ	**Contract Laboratory Name:** Pace National Lab Batch #:	**Lab Selection Criteria:** ☐ Proximity (if TAT < 48 hrs) ☐ Prior work on same project ☒ Cost (for anticipated analyses) ☐ Other labs disqualified or unable to perform requested services ☐ Emergency work	**Turn Around Time:** ☒ 10 days (std.) ☐ 5 days ☐ 72 hours ☐ 48 hours ☐ 24 hours ☐ Other
Send Lab Report To: Kara Master Address: Department of Environmental Quality, 700 NE Multnomah St, Suite 600, Portland, OR 97232 E-mail: Kara.E.MASTER@deq.oregon.gov	**Invoice To:** ODEQ/Business Office Address: 700 NE Multnomah Street, Suite 600, Portland, OR. 97232 Tel. #: (800) 452-4011		

Project Name: **Johnson Oil**
Project #: **24008422**

L1792371

Sample ID#	10/21/2024 Time	Matrix	Number of Containers	Sample Preservative: HCl	HCl								Comments
				Requested Analyses: NWTPH-Gx	VOCs – EPA 8260B								
MW-4	14:33	GW	6	X	X								- 01
MW-5	13:42	GW	6	X	X								- 02
MW-6	15:16	GW	6	X	X								- 03
MW-7	15:48	GW	6	X	X								- 04
MW-9	10:52	GW	6	X	X								- 05
MW-12	16:36	GW	6	X	X								- 06
MW-13	12:16	GW	6	X	X								- 07
MW-14	13:02	GW	6	X	X								- 08
MW-15	11:37	GW	6	X	X								- 09
Dup	13:10	GW	6	X	X								- 10

Notes: Report Results to: Michael.Stevens@apexcos.com;Carmen.Owens@apexcos.com; Kara.E.Master@deq.oregon.gov

Relinquished By: Chris Weer	Agency/Agent: Apex Companies	Received By: Closed	Agency:		
Signature: Chris Weer	Time & Date: 10/21/2024, 19:30	Signature: Closed	Time & Date: 10/24/24 0900		
Relinquished By: Jun M Chaaf RSS Chad.	Agency/Agent: Apex	Received By:	Agency/Agent:		
Signature:	Time & Date: 10/23 10:50	Signature:	Time & Date:		

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #**102-1098-07** AND PRICE AGREEMENT # **8903**. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S &C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample Receipt Checklist

eal Present/Intact:	Y N	If Applicable	
igned/Accurate:	Y N	VOA Zero Headspace:	N
es arrive intact:	Y N	Pres. Correct/Check:	Y N
ct bottles used:	Y N	MSAS 1.4 to 0.8 = 1.7	
cient volume sent:	Y N	6727 1897 3582	
reen <0.5 mR/hr:	Y N		

Appendix D

Statistical Evaluation

Table D-1
Statistical Evaluation - TPH in Groundwater
Former Johnson Oil
Clatskanie, Oregon

		Two-Year Statistics (2023-2024)												
Monitoring Well Number	Oct-24 Concentration [µg/L]	Detections	Oct-24 Ranking (1 = Highest)	Minimum Concentration [µg/L]	Maximum Concentration [µg/L]	Mean Concentration [µg/L]	Standard Deviation	Coefficient of Variation	24-Oct Relative to Mean	Mann Kendall			Linear Regression [mg/L/yr]	Data Tendency
										S-Statistic	Confidence	Trend		
MW-4	6,130	8 of 8	1	3,120	6,130	4,534	1,120	0.25	135%	-5	0.379	No Trend	-485	Downward
MW-5	3,220	8 of 8	8	3,220	8,250	5,630	1,865	0.33	57%	2	0.098	No Trend	298	Flat to Upward
MW-6	3,790	8 of 8	6	1,490	7,040	4,583	2,037	0.44	83%	11	0.784	No Trend	1,841	Flat to Upward
MW-7	1,520	8 of 8	5	43	4,910	1,782	1,429	0.80	85%	5	0.379	No Trend	-259	Flat to Downward
MW-9	0.221	2 of 6	--	--	--	--	--	--	--	--	--	--	--	--
MW-12	24,500	8 of 8	8	24,500	125,000	77,388	38,848	0.50	32%	2	0.098	No Trend	-12,299	Downward
MW-13	299	8 of 8	4	98	3,170	1,148	1,287	1.12	26%	-8	0.614	No Trend	-1,902	Downward
MW-14	6,260	8 of 8	1	3,300	6,260	4,411	1,159	0.26	142%	-1	0.000	No Trend	-118	Flat
MW-15	1,550	8 of 8	4	344	2,590	1,455	831	0.57	107%	-8	0.614	No Trend	-975	Downward

Notes:

1. Statistical analysis performed on monitoring results from March 2023 to October 2024 on wells with at least seven detections out of eight events.
2. Data Ranking shows position of October 2024 results relative to range of previously observed data.
3. Coefficient of Variation is the ratio between the standard deviation and the mean.
4. Mann Kendall Statistics:
   Mann-Kendall analysis done in accordance with procedure presented in Statistical Methods for Environmental Pollution Monitoring (Gilbert, 1987).
   The S statistic is based on a simple comparison of all the concentrations for a given well to each other. For each pair of concentrations, if the later one is bigger, a value of 1 is assigned to that pair.
   If the pair are equal, a value of 0 is assigned. If the later one is smaller, a value of -1 is assigned. All of the assigned values are summed to give the S statistic.
   Probability values taken from Table A18 (Probabilities for the Mann-Kendall Nonparametric Test for Trend) of Statistical Methods reference (Gilbert, 1987). For 90% confidence, $p < 0.100$.
   Trends are indicated in wells with probabilities greater than 90% confidence. Direction of trend (increasing/decreasing) is identified by sign of S-Statistic (positive/negative).
5. Regression slopes calculated for 2-year data sets used to qualatiatively assess tendencies in data sets, presented in change in mg/L per year defined by regression slope.