

First Semi-Annual 2025 Groundwater Monitoring Results

Terminal Core Redevelopment Portland International Airport

Prepared for:

Port of Portland

October 6, 2025

Project No. M0232.17.090

Prepared by:

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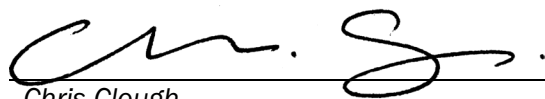
First Semi-Annual 2025 Groundwater Monitoring Results

Terminal Core Redevelopment

*The material and data in this report were prepared
under the supervision and direction of the undersigned.*

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A handwritten signature in black ink, appearing to read "Chris Clough", written over a horizontal line.

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Contents

Abbreviations and Acronyms.....	v
1 Introduction.....	1
2 Background.....	1
2.1 Site Description.....	1
2.2 Geology and Hydrogeology	1
2.3 City of Portland Well Field.....	2
2.4 Environmental Conditions	2
2.5 TCORE Baseline Monitoring Preparation.....	3
3 May 2025 Groundwater Sampling.....	3
3.1 Preparatory Activities	3
3.2 Field Activities	4
3.3 Groundwater Elevation and Gradients	4
3.4 Analytical Results	5
4 Data Evaluation	5
5 Apex Forensics Review.....	6
6 Conclusions and Future Activities	6
Limitations.....	7
References	8

Figures

- 1-1 Site Location, Portland International Airport
- 2-1 Groundwater Monitoring Well Locations
- 3-1 Groundwater Elevation, Columbia River Sand Aquifer – May 2025

Tables

- 3-1 Groundwater Elevations
- 3-2 Groundwater Analytical Results

Appendixes

Appendix A

Standard Operating Procedures

Appendix B

Field Sampling Data Sheets

Appendix C

Laboratory Reports and Data Validation Memorandum

Appendix D

Apex Forensics Letter Report, August 2025

Abbreviations and Acronyms

bgs	below ground surface
City	City of Portland
CRSA	Columbia River Sand Aquifer
CSSWF	Columbia South Shore Well Field
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	U.S. Environmental Protection Agency
FSDS	field sampling data sheets
HASP	health and safety plan
MFA	Maul Foster & Alongi, Inc.
mg/L	milligrams per liter
MRL	method reporting limit
NFA	no further action
NWTPH	Northwest Total Petroleum Hydrocarbons
OD	overbank deposits
PAH	polycyclic aromatic hydrocarbon
PDX	Portland International Airport
Port	Port of Portland
RBC	risk-based concentration
ROD	Record of Decision
Site	Port of Portland Terminal Core Redevelopment site at the Portland International Airport
SOP	Standard Operating Procedure
TCORE	Terminal Core Redevelopment
TES	Terminal Expansion South
TPH	total petroleum hydrocarbons
VOC	volatile organic compound

1 Introduction

Maul Foster & Alongi, Inc. (MFA) prepared this report to present the results of the first semi-annual groundwater sampling conducted at the Port of Portland (Port) Terminal Core (TCORE) Redevelopment site (the Site) at the Portland International Airport (PDX) (Figure 1-1).

2 Background

The TCORE project includes an expansion of the footprint of the main terminal. A portion of TCORE project overlaps with the location of a 1974 jet fuel release, which received no further action (NFA) letters in 2006 and 2008 (for soil and groundwater, respectively) from the Oregon Department of Environmental Quality (DEQ) (Environmental Cleanup Site Information [ECSI] No. 2118). The project includes approximately 300 micropile installations for the seismic protection of the existing and new terminal building. These installations began in January 2021 and were substantially complete in November 2023, however, several additional micropiles are scheduled for installation through the end of the project in 2026.

2.1 Site Description

The portion of the TCORE construction site that is expected to contain impacted soil and groundwater includes a portion of Concourse C and the area west of the existing terminal core, and within the terminal core western expansion footprint. The location of this area is further described as the NW quarter of Section 8, Township 1 North, Range 2 East of the Willamette Meridian (Figure 1-1). The entire Site is paved (with asphalt or Portland cement concrete) or covered with buildings and is surrounded by other impervious PDX facilities. The Site has been used as an airport since the late 1930s, and the main terminal has been present since 1957.

2.2 Geology and Hydrogeology

The Site is situated in the Columbia River Floodplain. Shallow soils (0 to 20 feet below ground surface [bgs]) at the Site are composed of imported dredge sand. Beneath those soils are 40 to 60 feet of overbank deposits (OD) characterized by fine-grained strata with discontinuous sand lenses interbedded in silts and clays that act as aquitards (i.e., inhibiting the vertical migration of groundwater). The sand lenses are more common in the lower portion of the OD. Historical geotechnical work for the Site encountered the OD to a depth of approximately 60 feet underlain by the Columbia River Sand Aquifer (CRSA); a filled paleochannel of the ancestral Columbia River. The top of the CRSA was encountered between 58 and 76 feet bgs in well installations located in the vicinity of TCORE project area.

The shallow water table aquifer is comprised of the sand fill that overlies the OD. Seasonal depths to shallow groundwater in wells from the vicinity of the TCORE construction activities historically ranged from 9 to 12 feet bgs in quarterly monitoring (with seasonal low water levels in the fall [fourth quarter] and seasonal high water levels in the spring [second quarter]). In the first quarter of 2020, groundwater depths measured in two wells at the Site were 12.5 and 12.8 feet bgs. The groundwater elevations from the Terminal Expansion South (TES) project indicated a consistent flow direction to the south/southeast.

The groundwater flow direction, as determined by water levels measured during eleven separate TCORE events conducted between October 2020 and May 2025, have demonstrated little seasonal variability within the CRSA. Groundwater within the CRSA generally flows to the south, away from the Columbia River which is approximately 2,600 feet north of the Site. The only exceptions have been the October 2020 and March 2023 events where groundwater flow in the CRSA was generally toward the Columbia River.

2.3 City of Portland Well Field

The City of Portland (City) maintains a well field to the southeast of the PDX property referred to as the Columbia South Shore Well Field (CSSWF). The City uses the CSSWF as an emergency backup water supply and sometimes to seasonally augment the drinking water supply. The CSSWF has municipal wells installed in the CRSA and deeper aquifers (City of Portland, 2009). As of 2020, the CSSWF had been used in its emergency capacity 12 times and for seasonal augmentation or maintenance 27 times since 1985 (City of Portland, 2020a). The closest active City water supply well is located within the Troutdale Sand Aquifer, over 300 feet bgs, and located approximately 3 miles southeast of the Site. The City indicated that there are three additional planned water supply well locations on established easements negotiated with the Port closer to the Site, with the nearest approximately 1.25 miles to the southeast (City of Portland, 2020b).

2.4 Environmental Conditions

In September 1996, the Port joined the DEQ Voluntary Cleanup Program to obtain oversight of investigation and cleanup associated with the TES construction project at PDX. The Site was assigned ECSI number 2118. The sources of contamination historically identified at the Site include jet fuel associated with fuel hydrants and a 1974 fuel line rupture. The selected remedial action as stated in the TES Phase I and Phase II/III Records of Decision (RODs) includes a pavement cap with institutional controls (Apex, 2005). The TES NFA states that following regarding risk at the Site.

- *Non-cancer risk under an industrial worker scenario exceeded the DEQ acceptable risk level in the TES I Gate Area and Pipeline Area, primarily as a result of potential direct contact with soil containing total petroleum, hydrocarbons (TPH). Cancer risk exceeded the acceptable risk level for benzo(a)pyrene in the TES I Pipeline Area and TES II/III Gate Area and Taxiway area. The total TES II/III Release Area risk was equal to the acceptable risk level (1×10^{-6} for carcinogenic compounds or a Hazard Index of 1 for non-carcinogens), and due to the presence of high concentrations of TPH (up to 25,000 milligrams per kilogram) the remedy was extended to this area of the site.*

Following the final construction activities, the Site will be fully paved and will remain paved in the future (with buildings or a minimum of 24-inches of pavement). The presence of pavement

eliminates the dermal contact pathway in an industrial worker scenario, reducing risk of exposure to hazardous substances to acceptable levels. The TES soil NFA determination is conditioned per the following:

- *Maintaining the pavement cap in accordance with the ROD, implementing the Airport Layout Plan provisions for the Cap Management Area, and implementing the Soil Management Plan if contaminated soil is exposed in the future.*

Institutional controls implemented for the Site consist of documentation on the Port's Airport Layout Plan. The Airport Layout Plan is required by the Federal Aviation Administration and is utilized by Port planners and engineers when new projects are developed.

2.5 TCORE Baseline Monitoring Preparation

As discussed above, micropile installations began in January 2021. These micropiles were installed through an area of known jet fuel impacts. Construction protocols were employed during micropile drilling to minimize the potential for vertical migration of jet fuel contamination. There were no existing monitoring wells in the vicinity of the Site installed in the lower OD or upper CRSA. Based on communication with DEQ and the City, the Port agreed to install two wells in the lower OD and five wells in the upper CRSA. To monitor aquifer impacts from the construction project, a network of groundwater monitoring wells was installed in September and October 2020, see Figure 2-1. Wells within the CRSA are gauged during sampling events to measure horizontal groundwater gradients, and wells within the OD aquifer allow for measurement of vertical gradients between the aquifers. Each of the wells were installed and developed in accordance with State regulations, as documented in the *Revised Baseline Monitoring Results* (MFA 2021). An initial baseline sampling event was conducted in October 2020, prior to micropile installations. Semi-annual groundwater sampling was expected to be undertaken for two years following the completion of micropile installations, however, based on DEQ's recommendation, semi-annual groundwater monitoring began in October 2022, during a break in the micropile installations which were scheduled to be completed in May 2024. Due to construction schedule changes and additional micropile installations planned in winter 2024, semi-annual monitoring was paused after the May 2024 event. The May 2025 event represents the first of the two years of post-micropile semi-annual monitoring events.

3 May 2025 Groundwater Sampling

3.1 Preparatory Activities

Health and Safety Plan (HASP). A site-specific HASP was prepared for the activities conducted at the Site. The HASP was prepared in general accordance with the Occupational Safety and Health Act and the Oregon Administrative Rules. A copy of the HASP was maintained on-site for use by MFA staff during the field activities.

Work in Aircraft Operations Areas. Work performed in aircraft operations areas was conducted in coordination with Port Airport Operations and airlines operating at the affected gate areas.

3.2 Field Activities

Groundwater monitoring was conducted from the seven TCORE wells on May 13 and 14, 2025. Groundwater sampling and water level measurements were completed in accordance with standard operating procedure (SOP) 9 and SOP 13 (Appendix A), respectively.

In accordance with the SOP the wells were opened to allow the water level to equilibrate with the ambient air pressure, followed by measurement of the static water level, using a water level indicator. The water levels were recorded on the water field sampling data sheets (FSDS), which are included as Appendix B. Groundwater levels and groundwater level elevations are discussed in Section 3.3.

In accordance with SOP 9, the monitoring wells were purged before they were sampled. Water quality parameter measurements were collected during low-flow purging with a flow-through cell and an in-line, multiprobe meter at approximately three-minute intervals. Water levels were also measured during purging to monitor drawdown. Parameter measurements recorded during purging included purge volume, purge flow rate, water level, temperature, specific conductivity, dissolved oxygen, pH, oxygen reduction potential, and turbidity. Once the monitoring parameters stabilized, sampling was conducted using a peristaltic pump with tubing dedicated to each well.

Laboratory-supplied containers appropriate for the analytical suite were filled, capped, labeled, and preserved consistent with method requirements. The sample bottles were then transferred to a cooler chilled with ice and delivered to the analytical laboratory. Primary samples were delivered to Apex Laboratories, LLC, in Tigard, Oregon by MFA field staff, under standard chain-of-custody procedures. Split samples from each of the wells with historical low-level TPH detections (TCORE-2, TCORE-20D, and TCORE-3) were collected and submitted to Specialty Analytical in Clackamas, Oregon.

Approximately 15.5 gallons of purge water and decontamination water investigation-derived waste were generated during the monitoring event. The investigation-derived waste was placed in an accumulation drum located in the PDX Waste Storage Building.

3.3 Groundwater Elevation and Gradients

The static water levels and groundwater level elevations measured on May 13, 2025, are presented in Table 3-1. The upper CRSA groundwater level elevations with potentiometric contours are shown on Figure 3-1. The potentiometric contours shown on Figure 3-1 indicate that groundwater in the upper CRSA during the May 2025 event generally flows away from the Columbia River, to the southwest, across PDX including the TCORE project area.

Groundwater level measurements from well pairs screened in distinct water-bearing zones revealed divergent hydraulic gradient patterns. In well pair TCORE-1/10D, an upward gradient was observed from the lower OD zone to the upper CRSA zone, with a hydraulic head difference of 0.19 feet. Conversely, TCORE-2/20D exhibited a downward gradient, showing a hydraulic head difference of 0.98 feet (see Table 3-1). Historically, monitoring events have consistently indicated a downward gradient, except during May 2023, May 2024, and the current event. This marks the third instance where the two well pairs have shown opposing gradient directions.

3.4 Analytical Results

The primary groundwater samples collected from the sampling event were submitted to Apex Laboratories, LLC in Tigard, Oregon, for chemical analysis. Split samples for each of the wells with low-level historical petroleum detections were submitted to Specialty Analytical of Clackamas, Oregon. The groundwater samples were analyzed on a standard turnaround time for the following:

- Diesel and oil-range TPH by Northwest Method NWTPH-Dx (with silica gel cleanup)
- Polycyclic aromatic hydrocarbons (PAH) by U.S. Environmental Protection Agency (EPA) Method 8270D-SIM
- Volatile organic compounds (VOC) by EPA Method 8260D

The analytical laboratory reports and a data validation memorandum, which presents the quality assurance/quality control review of the data, are included as Appendix C. The results of the data quality review indicate that the data are of acceptable quality and are suitable for their intended purpose. The groundwater analytical results are presented in Table 3-2.

- **TPH.** Oil-range TPH was detected in the TCORE-20D primary sample, TCORE-3 split sample, and TCORE-4 at concentrations of 0.158 (estimated) milligrams per liter (mg/L), 0.200 mg/L, and 0.161 mg/L, respectively.
- **PAHs.** PAHs were not detected above the MRLs.
- **VOCs.** VOC were not detected above the MRLs.

4 Data Evaluation

The data presented in Table 3-2 were screened against the DEQ Risk-Based Concentrations (RBCs) (DEQ 2023) from the Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites (DEQ 2017). Potentially applicable exposure scenarios for groundwater include ingestion and inhalation from tapwater for residential, urban residential, and occupational pathways.

- **TCORE-20D.** The estimated detection of oil-range TPH exceeded the RBCs for residential and urban residential exposure pathways for tapwater ingestion at 0.100 mg/L. The MRL for the split sample was higher than the primary sample concentration.
- **TCORE-3.** The detection of oil-range TPH in the split sample exceeded the RBCs for residential and urban residential exposure pathways for tapwater ingestion at 0.100 mg/L. The MRL for the primary sample was approximately 78.5 percent of the split sample concentration.
- **TCORE-4.** The detection of oil-range TPH in the split sample exceeded the RBCs for residential and urban residential exposure pathways for tapwater ingestion at 0.100 mg/L.

Low level oil-range TPH detections had previously been observed in three wells (TCORE-2, TCORE-3, and TCORE-20D) since October 2022 and subsequent detections have been inconsistent and highly variable. These wells were redeveloped in late 2022 to assess if the detections could be attributed to other factors that were not representative of the overall aquifer. The May 2025 event was the first detection of TPH in well TCORE-4.

5 Apex Forensics Review

To further evaluate the low-level TPH detections, Apex Forensics reviewed laboratory analytical data collected since 2023. Their assessment included an analysis of the detected compounds and a comparison of chromatograms against known laboratory solvents and jet fuel standards. Based on this review, Apex Forensics concluded that the oil-range organics found in groundwater at the Site exhibit chromatographic patterns inconsistent with both laboratory contamination and jet fuel. The detected material has a boiling range higher than jet fuel, and the absence of diesel-range detections further supports that these compounds are not linked to the historical jet fuel release at the TCORE Site. Additionally, Apex Forensics observed similar oil-range organics in other Site samples, though at concentrations below analytical reporting limits. Their findings and supporting chromatograms are documented in a letter report included in Appendix D.

6 Conclusions and Future Activities

The previously implemented semi-annual groundwater monitoring program targets one low river stage (October) and one high river stage (May) during each year of the monitoring period. The final micropile within the footprint of the historical TES project area (and the associated contaminated media management area) was installed in April 2025, however, additional micropiles outside the media management area are expected to be installed through 2026. The planned two years of semi-annual monitoring started with the May 2025 monitoring event and will continue through October 2026.

Apex Forensics review of the historical data indicated that the detected oil-range organics are inconsistent with impacts from historical jet fuel release at the TCORE Site. Consequently, split sample analysis by a secondary laboratory is no longer warranted and will not be conducted during the subsequent sampling events.

Limitations

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

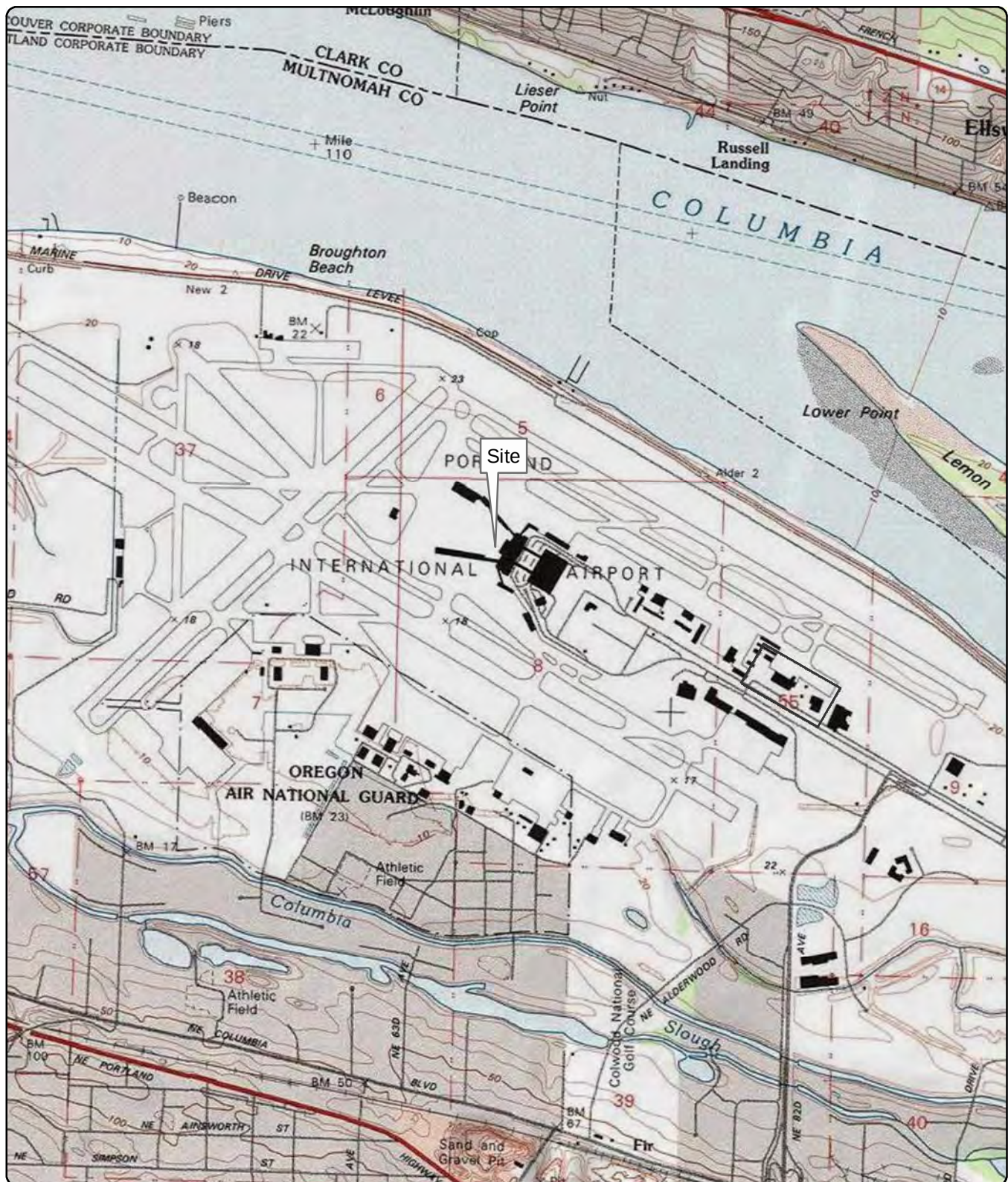
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Figures



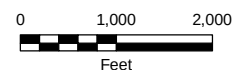
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Source: US Geological Survey (1990) 7.5-minute
topographic quadrangle: Mount Tabor
Section 8 & 9, Township 1 North, Range 2 East

Figure 1-1
Site Location

Terminal Core Redevelopment
Portland International Airport
Port of Portland
Portland, Oregon



Path: X:\0232.17 Portland Airport\65\Projects\Fig2_Groundwater_Monitoring_Well_Locations.mxd
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Approved By: sclee
Produced By: stumer
Project: 0232.17

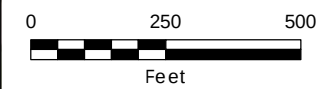


Figure 2-1 Groundwater Monitoring Well Locations
Terminal Core Redevelopment
Portland International Airport
Port of Portland
Portland, Oregon

Legend

-  Monitoring Well
-  Terminal Core Western Expansion

NOTES:
Survey of monitoring wells conducted by Port of Portland on 10/22/2020. Horizontal coordinates provided were State Plane Oregon North NAD83 and vertical measurements NAVD88.



Source:
Aerial photograph obtained from ArcGIS Online.

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Project: M0232.17.090 Produced By: sturner Reviewed By: carderson Print Date: 6/13/2025 Path: X:\0232.17 Portland Airport\090 Pro\M0232_17_090_002.aprx [Fig 3-1 GW Elevation Columbia River Sand Aquifer 20250513]

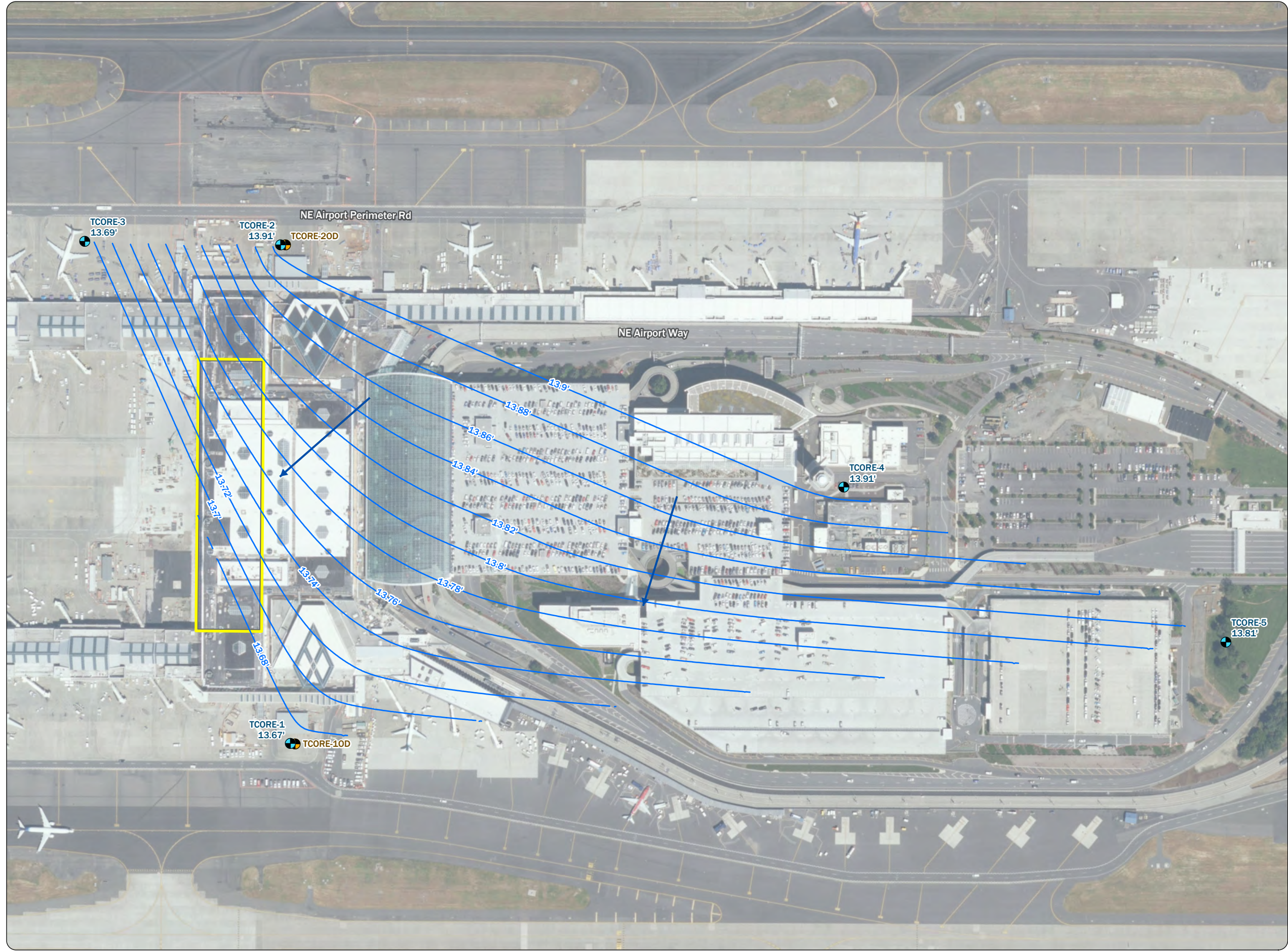


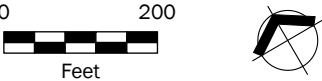
Figure 3-1
Groundwater Elevation
Columbia River
Sand Aquifer
May 13, 2025

Terminal Core Redevelopment
Portland International Airport
Port of Portland
Portland, OR

Legend

- Monitoring Well (Columbia River Sand Aquifer)
- Monitoring Well (Overbank Deposit)
- Groundwater Flow Direction
- Groundwater Elevation Contour (0.02-foot, NAVD88)
- Terminal Core Western Expansion

Notes
Survey of monitoring wells conducted by Port of Portland on 10/22/2020.
Groundwater measurements taken on 5/13/2025.
Groundwater elevations are relative to the North American Vertical Datum of 1988 (NAVD88).



Data Source
Aerial photograph obtained from the City of Portland (2024).



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Tables



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Table 3-1
Groundwater Elevations
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	TOC Elevation (feet)	Date	Water Level (feet below TOC)	Water Level Elevation (feet)	Difference in Hydraulic Head (feet)	Gage height (feet)	Calculated Vertical Gradient (negative value indicates downward gradient)
TCORE-1	120	135	24.74	02/09/2021	12.52	12.22	0.29	n/a	See below.
				02/25/2021	11.96	12.78	0.29	n/a	
				05/18/2021	12.80	11.94	0.29	n/a	
				08/20/2021	16.76	7.98	0.29	n/a	
				10/26/2021	15.00	9.74	0.29	n/a	
				10/24/2022	18.59	6.15	0.29	n/a	
				03/30/2023	13.34	11.40	0.29	n/a	
				05/11/2023	8.79	15.95	0.29	n/a	
				10/25/2023	16.97	7.77	0.29	n/a	
				05/22/2024	12.07	12.67	0.29	n/a	
TCORE-1OD	45	55	24.79	05/13/2025	11.07	13.67	0.29	n/a	See below.
				02/09/2021	12.28	12.51	0.29	n/a	
				02/25/2021	11.91	12.88	0.29	n/a	
				05/18/2021	12.54	12.25	0.29	n/a	
				08/20/2021	15.52	9.27	0.29	n/a	
				10/26/2021	14.70	10.09	0.29	n/a	
				10/24/2022	16.58	8.21	0.29	n/a	
				03/30/2023	12.56	12.23	0.29	n/a	
				05/11/2023	9.52	15.27	0.29	n/a	
				10/25/2023	15.74	9.05	0.29	n/a	
TCORE-2	100	115	25.83	05/22/2024	11.83	12.96	0.29	n/a	See below.
				05/13/2025	11.31	13.48	0.29	n/a	
				02/09/2021	13.60	12.23	1.29	n/a	
				02/25/2021	12.99	12.84	1.29	n/a	
				05/18/2021	13.85	11.98	1.29	n/a	
				08/20/2021	17.60	8.23	1.29	n/a	
				10/26/2021	15.98	9.85	1.29	n/a	
				10/24/2022	19.45	6.38	1.29	n/a	
				03/30/2023	14.55	11.28	1.29	n/a	
				05/11/2023	9.48	16.35	1.29	n/a	
TCORE-2OD	37	47	25.74	10/25/2023	17.92	7.91	1.29	n/a	See below.
				05/22/2024	13.02	12.81	1.29	n/a	
				05/13/2025	11.92	13.91	1.29	n/a	
				02/09/2021	12.22	13.52	1.29	n/a	
				02/25/2021	11.82	13.92	1.29	n/a	
				05/18/2021	11.98	13.76	1.29	n/a	
				08/20/2021	13.78	11.96	1.29	n/a	
				10/26/2021	13.60	12.14	1.29	n/a	
				10/24/2022	14.27	11.47	1.29	n/a	
				03/30/2023	11.96	13.78	1.29	n/a	
				05/11/2023	10.49	15.25	1.29	n/a	See below.
				10/25/2023	13.91	11.83	1.29	n/a	
				05/22/2024	13.46	12.28	1.29	n/a	
				05/13/2025	10.85	14.89	1.29	n/a	

Table 3-1
Groundwater Elevations
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	TOC Elevation (feet)	Date	Water Level (feet below TOC)	Water Level Elevation (feet)	Difference in Hydraulic Head (feet)	Gage height (feet)	Calculated Vertical Gradient (negative value indicates downward gradient)
TCORE-3	120	135	25.77	02/09/2021	13.62	12.15	n/a	n/a	n/a
				02/25/2021	13.02	12.75	n/a	n/a	n/a
				05/18/2021	13.89	11.88	n/a	n/a	n/a
				08/20/2021	17.57	8.20	n/a	n/a	n/a
				10/26/2021	15.98	9.79	n/a	n/a	n/a
				10/24/2022	19.30	6.47	n/a	n/a	n/a
				03/30/2023	14.55	11.22	n/a	n/a	n/a
				05/11/2023	9.59	16.18	n/a	n/a	n/a
				10/25/2023	17.91	7.86	n/a	n/a	n/a
				05/22/2024	13.00	12.77	n/a	n/a	n/a
TCORE-4	105	120	26.09	05/13/2025	12.08	13.69	n/a	n/a	n/a
				02/09/2021	13.94	12.15	n/a	n/a	n/a
				02/25/2021	13.36	12.73	n/a	n/a	n/a
				05/18/2021	14.14	11.95	n/a	n/a	n/a
				08/20/2021	18.08	8.01	n/a	n/a	n/a
				10/26/2021	16.29	9.80	n/a	n/a	n/a
				10/24/2022	19.84	6.25	n/a	n/a	n/a
				03/30/2023	14.80	11.29	n/a	n/a	n/a
				05/11/2023	9.71	16.38	n/a	n/a	n/a
				10/25/2023	18.20	7.89	n/a	n/a	n/a
TCORE-5	105	120	24.57	05/22/2024	13.30	12.79	n/a	n/a	n/a
				05/13/2025	12.18	13.91	n/a	n/a	n/a
				02/09/2021	12.41	12.16	n/a	n/a	n/a
				02/25/2021	11.83	12.74	n/a	n/a	n/a
				05/18/2021	12.60	11.97	n/a	n/a	n/a
				08/20/2021	16.46	8.11	n/a	n/a	n/a
				10/26/2021	14.68	9.89	n/a	n/a	n/a
				10/24/2022	18.22	6.35	n/a	n/a	n/a
				03/30/2023	13.29	11.28	n/a	n/a	n/a
				05/11/2023	8.26	16.31	n/a	n/a	n/a
Columbia River - NWS Gage on I-5 Bridge	n/a	n/a	n/a	10/25/2023	16.47	8.10	n/a	n/a	n/a
				05/22/2024	11.76	12.81	n/a	n/a	n/a
				05/13/2025	10.76	13.81	n/a	n/a	n/a
				02/09/2021	n/a	n/a	n/a	4.55	n/a
				02/25/2021	n/a	n/a	n/a	5.22	n/a
				05/18/2021	n/a	n/a	n/a	4.85	n/a
				08/20/2021	n/a	n/a	n/a	2.15	n/a
				10/26/2021	n/a	n/a	n/a	3.90	n/a
				10/24/2022	n/a	n/a	n/a	0.78	n/a
				03/30/2023	n/a	n/a	n/a	2.84	n/a
				05/11/2023	n/a	n/a	n/a	10.64	n/a
				10/25/2023	n/a	n/a	n/a	1.95	n/a
				05/22/2024	n/a	n/a	n/a	6.02	n/a
				05/13/2025	n/a	n/a	n/a	7.86	n/a

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1							TCORE-2				
Sample Name:				TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1	TCORE-1-GW	TCORE-2-GW	TCORE-2-GW	TCORE-2-GW ^(a)	TCORE-2-GW	TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/26/2020	10/24/2022	03/31/2023	05/12/2023	10/26/2023	05/23/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	05/11/2023
TPH with Silica-Gel Cleanup (mg/L)															
Initial Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	0.208 U	0.0792 U	0.0777 U	0.0777 U	0.0816 U	0.0792 U	0.0762 U	0.202 U	0.0762 U	0.0777 U	0.0784 U	0.0792 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.417 U	0.158 U	0.155 U	0.155 U	0.163 U	0.158 U	0.152 U	0.404 U	1.55	0.155 U	0.157 U	0.158 U
Confirmation Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	--	0.0769 UJ	--	--	--	--	--	--	0.0792 UJ	0.0777 UJ	--	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	0.154 UJ	--	--	--	--	--	--	0.583 J	0.155 UJ	--	--
VOCs (ug/L)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	1 U	0.4 U	--	0.4 U	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,1-Dichloroethane	2.8	13	13	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
1,1-Dichloroethene	280	1,100	1,400	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
1,1-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	--	2 UJ	2 U
1,2,3-Trichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U
1,2,4-Trimethylbenzene	54	230	250	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
1,2-Dichloropropane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,3,5-Trimethylbenzene	59	240	280	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
1,3-Dichlorobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
1,3-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
2,2-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
2-Butanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U
2-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
2-Hexanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U
4-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
4-Isopropyltoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
4-Methyl-2-pentanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U
Acetone	NV	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U	20 U
Acrylonitrile	0.052	0.23	0.25	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U
Benzene	0.46	2	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1							TCORE-2				
Sample Name:				TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1	TCORE-1-GW	TCORE-2-GW	TCORE-2-GW	TCORE-2-GW ^(a)	TCORE-2-GW	TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/26/2020	10/24/2022	03/31/2023	05/12/2023	10/26/2023	05/23/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	05/11/2023
VOCs cont. (ug/L)															
Bromobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Bromodichloromethane	0.13	0.62	0.6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Bromoform	3.3	15	16	2 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	--	1 U	1 U
Bromomethane	7.5	28	36	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	5 U
Carbon disulfide	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U
Carbon tetrachloride	0.46	2	2.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Chlorobenzene	77	290	350	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Chlorobromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Chloroethane	21,000	76,000	88,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	5 U
Chloroform	0.22	1	0.98	5.6	1 U	1 U	1 U	1 U	1 U	1 U	6.58	1 U	--	1 U	1 U
Chloromethane	190	690	790	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	--	5 U	5 U
cis-1,2-Dichloroethene	36	140	260	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Dibromochloromethane	0.17	0.77	0.77	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Dibromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	--	1 UJ	1 U
Ethylbenzene	1.5	6.7	6.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
Freon 113	55,000	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	5 U
Isopropylbenzene	440	1,800	2,000	4 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	--	1 U	1 U
m,p-Xylene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Methyl tert-butyl ether	14	64	68	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Methylene chloride	11	37	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U
Naphthalene	0.17	0.78	0.72	4 U	2 U	2 UJ	2 UJ	5 UJ	5 U	5 U	4 U	2 U	--	2 UJ	2 UJ
n-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
n-Propylbenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
o-Xylene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
sec-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Styrene	1,200	4,600	5,700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
tert-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
Tetrachloroethene	12	49	48	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
Toluene	1,100	4,400	6,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	2 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	--	1 U	1 U
Trichloroethene	0.49	2	3.3	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U
Vinyl chloride	0.027	0.066	0.49	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U	--	0.4 U	0.4 U
Xylenes (total) ^(c)	190	710	830	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1							TCORE-2				
Sample Name:				TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1-GW	TCORE-1	TCORE-1-GW	TCORE-2-GW	TCORE-2-GW	TCORE-2-GW ^(a)	TCORE-2-GW	TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/26/2020	10/24/2022	03/31/2023	05/12/2023	10/26/2023	05/23/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	05/11/2023
PAHs (ug/L)															
1-Methylnaphthalene	NV	NV	NV	0.0777 UJ	0.0698 U	0.0709 U	0.0693 U	0.0687 U	0.0679 U	0.0756 UJ	0.0792 U	0.0692 U	--	0.077 U	0.0684 U
2-Methylnaphthalene	NV	NV	NV	0.0777 UJ	0.0698 U	0.0709 U	0.0693 U	0.0687 U	0.0679 U	0.0756 UJ	0.0792 U	0.0692 U	--	0.077 U	0.0684 U
Acenaphthene	510	2400	2500	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Acenaphthylene	NV	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Anthracene	NV	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Benzo(a)anthracene	0.03	0.11	0.38	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Benzo(a)pyrene	0.025	0.08	0.47	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Benzo(b)fluoranthene	0.25	0.8	NV	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Benzo(ghi)perylene	NV	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Benzo(k)fluoranthene	NV	NV	NV	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Chrysene	NV	NV	NV	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Dibenzofuran	NV	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Fluoranthene	NV	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Fluorene	280	1400	1300	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	0.0388 UJ	0.0175 U	0.0177 U	0.0173 U	0.0172 U	0.017 U	0.0189 UJ	0.0396 U	0.0173 U	--	0.0193 U	0.0171 U
Naphthalene	0.17	0.78	0.72	0.0777 UJ	0.0698 U	0.0709 U	0.0693 U	0.0687 U	0.0679 U	0.0812 J+	0.0792 U	0.0692 U	--	0.077 U	0.0684 U
Phenanthrene	NV	NV	NV	0.0388 UJ	0.0698 U	0.0709 U	0.0693 U	0.0687 U	0.0679 U	0.0756 UJ	0.0396 U	0.0692 U	--	0.077 U	0.0684 U
Pyrene	110	NV	NV	0.0388 UJ	0.0349 U	0.0354 U	0.0346 U	0.0344 U	0.034 U	0.0378 UJ	0.0396 U	0.0346 U	--	0.0385 U	0.0342 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport

Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			
Sample Name:				TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023
TPH with Silica-Gel Cleanup (mg/L)				
Initial Analysis				
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0792 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.318
Confirmation Analysis				
Diesel-range hydrocarbons	0.100	0.100	0.430	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--
VOCs (ug/L)				
1,1,1,2-Tetrachloroethane	NV	NV	NV	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	0.5 U
1,1-Dichloroethane	2.8	13	13	0.4 U
1,1-Dichloroethene	280	1,100	1,400	0.4 U
1,1-Dichloropropene	NV	NV	NV	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	2 U
1,2,3-Trichloropropane	NV	NV	NV	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	2 U
1,2,4-Trimethylbenzene	54	230	250	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	0.4 U
1,2-Dichloropropane	NV	NV	NV	0.5 U
1,3,5-Trimethylbenzene	59	240	280	1 U
1,3-Dichlorobenzene	NV	NV	NV	0.5 U
1,3-Dichloropropane	NV	NV	NV	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	0.5 U
2,2-Dichloropropane	NV	NV	NV	1 U
2-Butanone	NV	NV	NV	10 U
2-Chlorotoluene	NV	NV	NV	1 U
2-Hexanone	NV	NV	NV	10 U
4-Chlorotoluene	NV	NV	NV	1 U
4-Isopropyltoluene	NV	NV	NV	1 U
4-Methyl-2-pentanone	NV	NV	NV	10 U
Acetone	NV	NV	NV	20 U
Acrylonitrile	0.052	0.23	0.25	2 U
Benzene	0.46	2	2.1	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport

Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			
Sample Name:				TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023
VOCs cont. (ug/L)				
Bromobenzene	NV	NV	NV	0.5 U
Bromodichloromethane	0.13	0.62	0.6	1 U
Bromoform	3.3	15	16	1 U
Bromomethane	7.5	28	36	5 U
Carbon disulfide	NV	NV	NV	10 U
Carbon tetrachloride	0.46	2	2.1	1 U
Chlorobenzene	77	290	350	0.5 U
Chlorobromomethane	NV	NV	NV	1 U
Chloroethane	21,000	76,000	88,000	5 U
Chloroform	0.22	1	0.98	1 U
Chloromethane	190	690	790	5 UJ
cis-1,2-Dichloroethene	36	140	260	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	1 U
Dibromochloromethane	0.17	0.77	0.77	1 U
Dibromomethane	NV	NV	NV	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	1 U
Ethylbenzene	1.5	6.7	6.4	0.5 U
Freon 113	55,000	NV	NV	--
Hexachlorobutadiene	NV	NV	NV	5 U
Isopropylbenzene	440	1,800	2,000	1 U
m,p-Xylene	NV	NV	NV	1 U
Methyl tert-butyl ether	14	64	68	1 U
Methylene chloride	11	37	200	10 U
Naphthalene	0.17	0.78	0.72	5 UJ
n-Butylbenzene	NV	NV	NV	1 U
n-Propylbenzene	NV	NV	NV	0.5 U
o-Xylene	NV	NV	NV	0.5 U
sec-Butylbenzene	NV	NV	NV	1 U
Styrene	1,200	4,600	5,700	1 U
tert-Butylbenzene	NV	NV	NV	1 U
Tetrachloroethene	12	49	48	0.4 U
Toluene	1,100	4,400	6,300	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	1 U
Trichloroethene	0.49	2	3.3	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	2 U
Vinyl chloride	0.027	0.066	0.49	0.2 U
Xylenes (total) ^(c)	190	710	830	1 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			
Sample Name:				TCORE-2-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023
PAHs (ug/L)				
1-Methylnaphthalene	NV	NV	NV	0.0683 U
2-Methylnaphthalene	NV	NV	NV	0.0683 U
Acenaphthene	510	2400	2500	0.0341 U
Acenaphthylene	NV	NV	NV	0.0341 U
Anthracene	NV	NV	NV	0.0341 U
Benzo(a)anthracene	0.03	0.11	0.38	0.0171 U
Benzo(a)pyrene	0.025	0.08	0.47	0.0171 U
Benzo(b)fluoranthene	0.25	0.8	NV	0.0171 U
Benzo(ghi)perylene	NV	NV	NV	0.0341 U
Benzo(k)fluoranthene	NV	NV	NV	0.0171 U
Chrysene	NV	NV	NV	0.0171 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	0.0171 U
Dibenzofuran	NV	NV	NV	0.0341 U
Fluoranthene	NV	NV	NV	0.0341 U
Fluorene	280	1400	1300	0.0341 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	0.0171 U
Naphthalene	0.17	0.78	0.72	0.0683 U
Phenanthrene	NV	NV	NV	0.0683 U
Pyrene	110	NV	NV	0.0341 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2 (cont.)					TCORE-3					
Sample Name:				TCORE-2-GW-DUP	TCORE-2	TCORE-2 DUP	TCORE-2-GW	TCORE-2-GW-DUP	TCORE-3-GW	TCORE-3-GW	TCORE-3-GW ^(a)	TCORE-3-GW-PRE	TCORE-3-GW-POST	TCORE-3-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/25/2022	11/30/2022	02/28/2023	02/28/2023	03/30/2023
TPH with Silica-Gel Cleanup (mg/L)														
Initial Analysis														
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0638 U	0.0800 U	0.0806 U	0.0784 U	0.0762 U	0.204 U	0.0777 U	0.0792 U	0.0769 U	0.0769 U	0.0762 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.112 J	0.160 U	0.270	0.157 U	0.191 U	0.408 U	0.195 U	0.964 J	0.154 U	0.154 U	0.152 U
Confirmation Analysis														
Diesel-range hydrocarbons	0.100	0.100	0.430	--	--	--	--	--	--	0.0769 UJ	0.0784 U	--	--	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	--	--	--	--	--	0.278 J	0.383	--	--	--
VOCs (ug/L)														
1,1,1,2-Tetrachloroethane	NV	NV	NV	--	0.4 U	--	0.4 U	--	1 U	0.4 U	--	0.4 U	0.4 U	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	2.8	13	13	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
1,1-Dichloroethene	280	1,100	1,400	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	--	2 U	--	2 U	--	2 U	2 U	--	2 U	2 U	2 UJ
1,2,3-Trichloropropane	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	--	2 U	--	2 U	--	2 U	2 U	--	2 U	2 U	2 U
1,2,4-Trimethylbenzene	54	230	250	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	--	5 U	--	5 U	--	5 U	5 U	--	5 U	5 U	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
1,2-Dichloropropane	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	59	240	280	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
1,3-Dichlorobenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
2-Butanone	NV	NV	NV	--	10 U	--	10 U	--	10 U	10 U	--	10 U	10 U	10 U
2-Chlorotoluene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
2-Hexanone	NV	NV	NV	--	10 U	--	10 U	--	10 U	10 U	--	10 U	10 U	10 U
4-Chlorotoluene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
4-Isopropyltoluene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
4-Methyl-2-pentanone	NV	NV	NV	--	10 U	--	10 U	--	10 U	10 U	--	10 U	10 U	10 U
Acetone	NV	NV	NV	--	20 U	--	20 U	--	20 U	20 U	--	20 U	20 U	20 U
Acrylonitrile	0.052	0.23	0.25	--	2 U	--	2 U	--	2 U	2 U	--	2 U	2 U	2 U
Benzene	0.46	2	2.1	--	0.2 U	--	0.2 U	--	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2 (cont.)					TCORE-3					
Sample Name:				TCORE-2-GW-DUP	TCORE-2	TCORE-2 DUP	TCORE-2-GW	TCORE-2-GW-DUP	TCORE-3-GW	TCORE-3-GW	TCORE-3-GW ^(a)	TCORE-3-GW-PRE	TCORE-3-GW-POST	TCORE-3-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/25/2022	11/30/2022	02/28/2023	02/28/2023	03/30/2023
VOCs cont. (ug/L)														
Bromobenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.13	0.62	0.6	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Bromoform	3.3	15	16	--	1 U	--	1 U	--	2 U	1 U	--	1 U	1 U	1 U
Bromomethane	7.5	28	36	--	5 U	--	5 U	--	5 U	5 U	--	5 U	5 U	5 U
Carbon disulfide	NV	NV	NV	--	10 U	--	10 U	--	10 U	10 U	--	10 U	10 U	10 U
Carbon tetrachloride	0.46	2	2.1	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Chlorobenzene	77	290	350	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Chlorobromomethane	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Chloroethane	21,000	76,000	88,000	--	5 U	--	5 U	--	5 U	5 U	--	5 U	5 U	5 U
Chloroform	0.22	1	0.98	--	1 U	--	1 U	--	3.42	1 U	--	1 U	1 U	1 U
Chloromethane	190	690	790	--	5 U	--	5 U	--	5 U	5 U	--	5 U	5 U	5 U
cis-1,2-Dichloroethene	36	140	260	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Dibromochloromethane	0.17	0.77	0.77	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Dibromomethane	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 UJ
Ethylbenzene	1.5	6.7	6.4	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
Freon 113	55,000	NV	NV	--	--	--	--	--	--	--	--	5 U	5 U	5 U
Hexachlorobutadiene	NV	NV	NV	--	5 U	--	5 U	--	5 U	5 U	--	1 U	1 U	1 U
Isopropylbenzene	440	1,800	2,000	--	1 U	--	1 U	--	4 U	1 U	--	1 U	1 U	1 U
m,p-Xylene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Methyl tert-butyl ether	14	64	68	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Methylene chloride	11	37	200	--	10 U	--	10 U	--	10 U	10 U	--	10 U	10 U	10 U
Naphthalene	0.17	0.78	0.72	--	5 U	--	5 U	--	4 U	2 U	--	2 U	2 U	2 UJ
n-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
n-Propylbenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
o-Xylene	NV	NV	NV	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Styrene	1,200	4,600	5,700	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
tert-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
Tetrachloroethene	12	49	48	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
Toluene	1,100	4,400	6,300	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--	2 U	1 U	--	1 U	1 U	1 U
Trichloroethene	0.49	2	3.3	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	--	2 U	--	2 U	--	2 U	2 U	--	2 U	2 U	2 U
Vinyl chloride	0.027	0.066	0.49	--	0.2 U	--	0.2 U	--	0.4 U	0.4 U	--	0.4 U	0.4 U	0.4 U
Xylenes (total) ^(c)	190	710	830	--	1 U	--	1 U	--	1 U	1 U	--	1 U	1 U	1 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2 (cont.)					TCORE-3					
Sample Name:				TCORE-2-GW-DUP	TCORE-2	TCORE-2 DUP	TCORE-2-GW	TCORE-2-GW-DUP	TCORE-3-GW	TCORE-3-GW	TCORE-3-GW ^(a)	TCORE-3-GW-PRE	TCORE-3-GW-POST	TCORE-3-GW
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/25/2022	11/30/2022	02/28/2023	02/28/2023	03/30/2023
PAHs (ug/L)														
1-Methylnaphthalene	NV	NV	NV	--	0.0662 U	--	0.0698 UJ	--	0.0784 U	0.0679 U	--	0.0642 U	0.0642 U	0.0708 U
2-Methylnaphthalene	NV	NV	NV	--	0.0662 U	--	0.0698 UJ	--	0.0784 U	0.0679 U	--	0.0642 U	0.0642 U	0.0708 U
Acenaphthene	510	2400	2500	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Acenaphthylene	NV	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Anthracene	NV	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Benzo(a)anthracene	0.03	0.11	0.38	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Benzo(a)pyrene	0.025	0.08	0.47	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Benzo(b)fluoranthene	0.25	0.8	NV	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Benzo(ghi)perylene	NV	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Benzo(k)fluoranthene	NV	NV	NV	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Chrysene	NV	NV	NV	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Dibenzofuran	NV	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Fluoranthene	NV	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Fluorene	280	1400	1300	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	--	0.0165 U	--	0.0175 UJ	--	0.0392 U	0.017 U	--	0.016 U	0.0161 U	0.0177 U
Naphthalene	0.17	0.78	0.72	--	0.0662 U	--	0.0698 UJ	--	0.0784 U	0.0679 U	--	0.0642 U	0.0642 U	0.0708 U
Phenanthrene	NV	NV	NV	--	0.0662 U	--	0.0698 UJ	--	0.0392 U	0.0679 U	--	0.0642 U	0.0642 U	0.0708 U
Pyrene	110	NV	NV	--	0.0331 U	--	0.0349 UJ	--	0.0392 U	0.0339 U	--	0.0321 U	0.0321 U	0.0354 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	--	ND	--	ND	--	ND	ND	--	ND	ND	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-3 (cont.)							TCORE-4				
Sample Name:				TCORE-3-GW	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-3	TCORE-3 DUP	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW
Collection Date:	Residential	Urban Residential	Occupational	05/11/2023	10/25/2023	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/24/2022	03/30/2023	05/11/2023	10/26/2023
TPH with Silica-Gel Cleanup (mg/L)															
Initial Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0769 U	0.0816 U	0.0707 J	0.0784 U	0.0791 U	0.0784 U	0.0801 U	0.196 U	0.0777 U	0.0777 U	0.0777 U	0.08 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.395	0.163 U	0.275 J	0.157 U	0.198 U	0.157 U	0.200	0.392 U	0.218 U	0.155 U	0.155 U	0.160 U
Confirmation Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	--	--	--	--	--	--	--	--	0.0769 UJ	--	--	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	--	--	--	--	--	--	--	0.154 UJ	--	--	--
VOCs (ug/L)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	1 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	2.8	13	13	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethene	280	1,100	1,400	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	2 U	2 U	--	2 U	--	2 U	--	2 U	2 U	2 UJ	2 U	2 U
1,2,3-Trichloropropane	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	2 U	2 U	--	2 U	--	2 U	--	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	54	230	250	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	5 U	5 U	--	5 U	--	5 U	--	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloropropane	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	59	240	280	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
2-Butanone	NV	NV	NV	10 U	10 U	--	10 U	--	10 U	--	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
2-Hexanone	NV	NV	NV	10 U	10 U	--	10 U	--	10 U	--	10 U	10 U	10 U	10 U	10 U
4-Chlorotoluene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
4-Isopropyltoluene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone	NV	NV	NV	10 U	10 U	--	10 U	--	10 U	--	10 U	10 U	10 U	10 U	10 U
Acetone	NV	NV	NV	20 U	20 U	--	20 U	--	20 U	--	20 U	20 U	20 U	20 U	20 U
Acrylonitrile	0.052	0.23	0.25	2 U	2 U	--	2 U	--	2 U	--	2 U	2 U	2 U	2 U	2 U
Benzene	0.46	2	2.1	0.2 U	0.2 U	--	0.2 U	--	0.2 U	--	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-3 (cont.)							TCORE-4				
Sample Name:				TCORE-3-GW	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-3	TCORE-3 DUP	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW
Collection Date:	Residential	Urban Residential	Occupational	05/11/2023	10/25/2023	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/24/2022	03/30/2023	05/11/2023	10/26/2023
VOCs cont. (ug/L)															
Bromobenzene	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.13	0.62	0.6	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Bromoform	3.3	15	16	1 U	1 U	--	1 U	--	1 U	--	2 U	1 U	1 U	1 U	1 U
Bromomethane	7.5	28	36	5 U	5 U	--	5 U	--	5 U	--	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	NV	NV	NV	10 U	10 U	--	10 U	--	10 U	--	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	0.46	2	2.1	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	77	290	350	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobromomethane	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Chloroethane	21,000	76,000	88,000	5 U	5 U	--	5 U	--	5 U	--	5 U	5 U	5 U	5 U	5 U
Chloroform	0.22	1	0.98	1 U	1 U	--	1 U	--	1 U	--	4.73	1 U	1 U	1 U	1 U
Chloromethane	190	690	790	5 U	5 UJ	--	5 U	--	5 U	--	5 U	5 U	5 U	5 U	5 UJ
cis-1,2-Dichloroethene	36	140	260	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.17	0.77	0.77	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Dibromomethane	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 UJ	1 U	1 U
Ethylbenzene	1.5	6.7	6.4	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	55,000	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	5 U	5 U	--	5 U	--	5 U	--	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	440	1,800	2,000	1 U	1 U	--	1 U	--	1 U	--	4 U	1 U	1 U	1 U	1 U
m,p-Xylene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether	14	64	68	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Methylene chloride	11	37	200	10 U	10 U	--	10 U	--	10 U	--	10 U	10 U	10 U	10 U	10 U
Naphthalene	0.17	0.78	0.72	2 UJ	5 UJ	--	5 U	--	5 U	--	4 U	2 U	2 UJ	2 UJ	5 UJ
n-Butylbenzene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	NV	NV	NV	0.5 U	0.5 U	--	0.5 U	--	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Styrene	1,200	4,600	5,700	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
tert-Butylbenzene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	12	49	48	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Toluene	1,100	4,400	6,300	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	--	1 U	--	1 U	--	2 U	1 U	1 U	1 U	1 U
Trichloroethene	0.49	2	3.3	0.4 U	0.4 U	--	0.4 U	--	0.4 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	2 U	2 U	--	2 U	--	2 U	--	2 U	2 U	2 U	2 U	2 U
Vinyl chloride	0.027	0.066	0.49	0.4 U	0.2 U	--	0.2 U	--	0.2 U	--	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U
Xylenes (total) ^(c)	190	710	830	1 U	1 U	--	1 U	--	1 U	--	1 U	1 U	1 U	1 U	1 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-3 (cont.)							TCORE-4				
Sample Name:				TCORE-3-GW	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-3	TCORE-3 DUP	TCORE-3-GW	TCORE-3-GW-DUP	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW	TCORE-4-GW
Collection Date:	Residential	Urban Residential	Occupational	05/11/2023	10/25/2023	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025	10/26/2020	10/24/2022	03/30/2023	05/11/2023	10/26/2023
PAHs (ug/L)															
1-Methylnaphthalene	NV	NV	NV	0.0721 U	0.0685 U	--	0.0674 U	--	0.0717 UJ	--	0.0777 UJ	0.0711 U	0.074 U	0.0705 U	0.0673 U
2-Methylnaphthalene	NV	NV	NV	0.0721 U	0.0685 U	--	0.0674 U	--	0.0717 UJ	--	0.0777 UJ	0.0711 U	0.074 U	0.0705 U	0.0673 U
Acenaphthene	510	2400	2500	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Acenaphthylene	NV	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Anthracene	NV	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Benzo(a)anthracene	0.03	0.11	0.38	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Benzo(a)pyrene	0.025	0.08	0.47	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Benzo(b)fluoranthene	0.25	0.8	NV	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Benzo(ghi)perylene	NV	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Benzo(k)fluoranthene	NV	NV	NV	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Chrysene	NV	NV	NV	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Dibenzofuran	NV	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Fluoranthene	NV	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Fluorene	280	1400	1300	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	0.018 U	0.0171 U	--	0.0168 U	--	0.0179 UJ	--	0.0388 UJ	0.0178 U	0.0185 U	0.0176 U	0.0168 U
Naphthalene	0.17	0.78	0.72	0.0721 U	0.0685 U	--	0.0674 U	--	0.0717 UJ	--	0.0777 UJ	0.0711 U	0.074 U	0.0705 U	0.0673 U
Phenanthrene	NV	NV	NV	0.0721 U	0.0685 U	--	0.0674 U	--	0.0717 UJ	--	0.0388 UJ	0.0711 U	0.074 U	0.0705 U	0.0673 U
Pyrene	110	NV	NV	0.036 U	0.0342 U	--	0.0337 U	--	0.0359 UJ	--	0.0388 UJ	0.0355 U	0.037 U	0.0352 U	0.0337 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	ND	ND	--	ND	--	ND	--	ND	ND	ND	ND	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-4 (cont.)		TCORE-5							TCORE-1OD		
Sample Name:				TCORE-4	TCORE-4-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5	TCORE-5-GW	TCORE-1OD-GW	TCORE-1OD-GW	TCORE-1OD-GW
Collection Date:	Residential	Urban Residential	Occupational	05/22/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023	05/11/2023	10/26/2023	05/23/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023
TPH with Silica-Gel Cleanup (mg/L)															
Initial Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0784 U	0.08 U	0.192 U	0.0762 U	0.0777 U	0.0769 U	0.0800 U	0.0800 U	0.0792 U	0.189 U	0.0784 U	0.0777 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.157 U	0.161	0.385 U	0.152 U	0.155 U	0.154 U	0.160 U	0.160 U	0.158 U	0.377 U	0.157 U	0.155 U
Confirmation Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	--	--	--	0.0784 UJ	--	--	--	--	--	--	0.0777 UJ	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	--	--	0.157 UJ	--	--	--	--	--	--	0.155 UJ	--
VOCs (ug/L)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	0.4 U	0.4 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	1 U	0.4 U	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	2.8	13	13	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethene	280	1,100	1,400	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
1,2,3-Trichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	54	230	250	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloropropane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	59	240	280	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Hexanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Isopropyltoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone	NV	NV	NV	10 U	10 U	17.5	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	NV	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Acrylonitrile	0.052	0.23	0.25	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Benzene	0.46	2	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-4 (cont.)		TCORE-5							TCORE-10D		
Sample Name:				TCORE-4	TCORE-4-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5	TCORE-5-GW	TCORE-10D-GW	TCORE-10D-GW	TCORE-10D-GW
Collection Date:	Residential	Urban Residential	Occupational	05/22/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023	05/11/2023	10/26/2023	05/23/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023
VOCs cont. (ug/L)															
Bromobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.13	0.62	0.6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	3.3	15	16	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U
Bromomethane	7.5	28	36	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	0.46	2	2.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	77	290	350	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	21,000	76,000	88,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	0.22	1	0.98	1 U	1 U	2.21	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	190	690	790	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	36	140	260	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	0.17	0.77	0.77	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Ethylbenzene	1.5	6.7	6.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	55,000	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	440	1,800	2,000	1 U	1 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	4 U	1 U	1 U
m,p-Xylene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether	14	64	68	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	11	37	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	0.17	0.78	0.72	5 U	5 U	4 U	2 U	2 UJ	2 UJ	5 UJ	5 U	5 U	4 U	2 U	2 UJ
n-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1,200	4,600	5,700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
tert-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	12	49	48	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Toluene	1,100	4,400	6,300	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U
Trichloroethene	0.49	2	3.3	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vinyl chloride	0.027	0.066	0.49	0.2 U	0.2 U	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U	0.4 U
Xylenes (total) ^(c)	190	710	830	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-4 (cont.)		TCORE-5							TCORE-10D		
Sample Name:				TCORE-4	TCORE-4-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5-GW	TCORE-5	TCORE-5-GW	TCORE-10D-GW	TCORE-10D-GW	TCORE-10D-GW
Collection Date:	Residential	Urban Residential	Occupational	05/22/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023	05/11/2023	10/26/2023	05/23/2024	05/14/2025	10/26/2020	10/24/2022	03/31/2023
PAHs (ug/L)															
1-Methylnaphthalene	NV	NV	NV	0.0679 U	0.0683 U	0.0792 U	0.0673 U	0.0695 U	0.0696 U	0.0672 U	0.0685 U	0.0684 U	0.0784 U	0.0781 U	0.0779 U
2-Methylnaphthalene	NV	NV	NV	0.0679 U	0.0683 U	0.0792 U	0.0673 U	0.0695 U	0.0696 U	0.0672 U	0.0685 U	0.0684 U	0.0784 U	0.0781 U	0.0779 U
Acenaphthene	510	2400	2500	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Acenaphthylene	NV	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Anthracene	NV	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Benzo(a)anthracene	0.03	0.11	0.38	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Benzo(a)pyrene	0.025	0.08	0.47	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Benzo(b)fluoranthene	0.25	0.8	NV	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Benzo(ghi)perylene	NV	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Benzo(k)fluoranthene	NV	NV	NV	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Chrysene	NV	NV	NV	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Dibenzofuran	NV	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Fluoranthene	NV	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Fluorene	280	1400	1300	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	0.017 U	0.0171 U	0.0396 U	0.0168 U	0.0174 U	0.0174 U	0.0168 U	0.0171 U	0.0171 U	0.0392 U	0.0195 U	0.0195 U
Naphthalene	0.17	0.78	0.72	0.0679 U	0.0683 U	0.0792 U	0.0673 U	0.0695 U	0.0696 U	0.0672 U	0.0685 U	0.0684 U	0.0784 U	0.0781 U	0.0779 U
Phenanthrene	NV	NV	NV	0.0679 U	0.0683 U	0.0396 U	0.0673 U	0.0695 U	0.0696 U	0.0672 U	0.0685 U	0.0684 U	0.0392 U	0.0781 U	0.0779 U
Pyrene	110	NV	NV	0.0339 U	0.0342 U	0.0396 U	0.0336 U	0.0347 U	0.0348 U	0.0336 U	0.0343 U	0.0342 U	0.0392 U	0.039 U	0.039 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1OD (cont.)				TCORE-2OD							
Sample Name:				TCORE-1OD- GW	TCORE-1OD- GW	TCORE-1OD	TCORE-1OD- GW	TCORE-2OD- GW	TCORE-2OD- GW	TCORE-2OD- GW ^(a)	TCORE-2OD- GW	TCORE-2OD- GW-DUP	TCORE-2OD- GW	TCORE-2OD- GW-DUP	TCORE-2OD- GW
Collection Date:	Residential	Urban Residential	Occupational	05/12/2023	10/26/2023	05/22/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	03/30/2023	05/11/2023	05/11/2023	10/25/2023
TPH with Silica-Gel Cleanup (mg/L)															
Initial Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0784 U	0.0755 U	0.0784 U	0.0784 U	0.202 U	78.4 U	0.0784 U	0.0808 UJ	0.0766 U	0.0769 UJ	0.0796 U	0.0800 UJ
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.157 U	0.151 U	0.157 U	0.157 U	0.404 U	1.94	0.908	0.174 J	0.191 U	0.154 UJ	0.199 U	0.201 J
Confirmation Analysis															
Diesel-range hydrocarbons	0.100	0.100	0.430	--	--	--	--	--	0.0879 UJ	0.0784 UJ	--	--	--	--	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	--	--	--	--	0.344 J	0.280 J-	--	--	--	--	--
VOCs (ug/L)															
1,1,1,2-Tetrachloroethane	NV	NV	NV	0.4 U	0.4 U	0.4 U	0.4 U	1 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
1,1,1-Trichloroethane	8,000	30,000	37,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,1,2-Trichloroethane	0.28	1.3	1.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,1-Dichloroethane	2.8	13	13	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
1,1-Dichloroethene	280	1,100	1,400	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
1,1-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
1,2,3-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	--	2 UJ	1 U	2 U	--	2 U
1,2,3-Trichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
1,2,4-Trichlorobenzene	NV	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	1 U	2 U	--	2 U
1,2,4-Trimethylbenzene	54	230	250	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
1,2-Dibromo-3-chloropropane	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	1 U	5 U	--	5 U
1,2-Dibromoethane	0.0075	0.034	0.034	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,2-Dichlorobenzene	300	1,200	1,400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,2-Dichloroethane	0.17	0.78	0.78	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
1,2-Dichloropropane	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,3,5-Trimethylbenzene	59	240	280	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
1,3-Dichlorobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
1,3-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
1,4-Dichlorobenzene	0.48	2.3	2.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
2,2-Dichloropropane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
2-Butanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U
2-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
2-Hexanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U
4-Chlorotoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
4-Isopropyltoluene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
4-Methyl-2-pentanone	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	--	10 U
Acetone	NV	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U	20 U	20 U	--	20 U
Acrylonitrile	0.052	0.23	0.25	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	5 U	2 U	--	2 U
Benzene	0.46	2	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.3 U	0.2 U	--	0.2 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1OD (cont.)				TCORE-2OD							
Sample Name:				TCORE-1OD- GW	TCORE-1OD- GW	TCORE-1OD	TCORE-1OD- GW	TCORE-2OD- GW	TCORE-2OD- GW	TCORE-2OD- GW ^(a)	TCORE-2OD- GW	TCORE-2OD- GW-DUP	TCORE-2OD- GW	TCORE-2OD- GW-DUP	TCORE-2OD- GW
Collection Date:	Residential	Urban Residential	Occupational	05/12/2023	10/26/2023	05/22/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	03/30/2023	05/11/2023	05/11/2023	10/25/2023
VOCs cont. (ug/L)															
Bromobenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
Bromodichloromethane	0.13	0.62	0.6	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Bromoform	3.3	15	16	1 U	1 U	1 U	1 U	2 U	1 U	--	1 U	1 U	1 U	--	1 U
Bromomethane	7.5	28	36	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	1 U	5 U	--	5 U
Carbon disulfide	NV	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	2 U	10 U	--	10 U
Carbon tetrachloride	0.46	2	2.1	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Chlorobenzene	77	290	350	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
Chlorobromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Chloroethane	21,000	76,000	88,000	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	1 U	5 U	--	5 U
Chloroform	0.22	1	0.98	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Chloromethane	190	690	790	5 U	5 UJ	5 U	5 U	5 U	5 U	--	5 U	1 U	5 U	--	5 UJ
cis-1,2-Dichloroethene	36	140	260	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
cis-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Dibromochloromethane	0.17	0.77	0.77	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Dibromomethane	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 UJ	1 U	1 U	--	1 U
Ethylbenzene	1.5	6.7	6.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
Freon 113	55,000	NV	NV	--	--	--	--	--	--	--	--	1 U	--	--	--
Hexachlorobutadiene	NV	NV	NV	5 U	5 U	5 U	5 U	5 U	5 U	--	5 U	1 U	5 U	--	5 U
Isopropylbenzene	440	1,800	2,000	1 U	1 U	1 U	1 U	4 U	1 U	--	1 U	1 U	1 U	--	1 U
m,p-Xylene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	2 U	1 U	--	1 U
Methyl tert-butyl ether	14	64	68	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Methylene chloride	11	37	200	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U	50 U	10 U	--	10 U
Naphthalene	0.17	0.78	0.72	2 UJ	5 UJ	5 U	5 U	4 U	2 U	--	2 UJ	1 U	2 UJ	--	5 UJ
n-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
n-Propylbenzene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
o-Xylene	NV	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	0.5 U	--	0.5 U
sec-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Styrene	1,200	4,600	5,700	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
tert-Butylbenzene	NV	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
Tetrachloroethene	12	49	48	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
Toluene	1,100	4,400	6,300	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	--	1 U
trans-1,2-Dichloroethene	360	1,400	2,600	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
trans-1,3-Dichloropropene	NV	NV	NV	1 U	1 U	1 U	1 U	2 U	1 U	--	1 U	1 U	1 U	--	1 U
Trichloroethene	0.49	2	3.3	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.4 U
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	1 U	2 U	--	2 U
Vinyl chloride	0.027	0.066	0.49	0.4 U	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U	--	0.4 U	1 U	0.4 U	--	0.2 U
Xylenes (total) ^(c)	190	710	830	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U	2 U	1 U	--	1 U

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-1OD (cont.)				TCORE-2OD							
Sample Name:				TCORE-1OD-GW	TCORE-1OD-GW	TCORE-1OD	TCORE-1OD-GW	TCORE-2OD-GW	TCORE-2OD-GW	TCORE-2OD-GW ^(a)	TCORE-2OD-GW	TCORE-2OD-GW-DUP	TCORE-2OD-GW	TCORE-2OD-GW-DUP	TCORE-2OD-GW
Collection Date:	Residential	Urban Residential	Occupational	05/12/2023	10/26/2023	05/22/2024	05/13/2025	10/26/2020	10/24/2022	11/30/2022	03/30/2023	03/30/2023	05/11/2023	05/11/2023	10/25/2023
PAHs (ug/L)															
1-Methylnaphthalene	NV	NV	NV	0.0756 U	0.0776 U	0.0762 UJ	0.0797 UJ	0.0755 U	0.0787 U	--	0.0772 U	0.094 U	0.075 U	--	0.0808 U
2-Methylnaphthalene	NV	NV	NV	0.0756 U	0.0776 U	0.0762 UJ	0.0797 UJ	0.0755 U	0.0787 U	--	0.0772 U	0.094 U	0.075 U	--	0.0808 U
Acenaphthene	510	2400	2500	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Acenaphthylene	NV	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Anthracene	NV	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Benzo(a)anthracene	0.03	0.11	0.38	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Benzo(a)pyrene	0.025	0.08	0.47	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Benzo(b)fluoranthene	0.25	0.8	NV	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Benzo(ghi)perylene	NV	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Benzo(k)fluoranthene	NV	NV	NV	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Chrysene	NV	NV	NV	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Dibenzo(a,h)anthracene	0.025	0.08	0.47	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Dibenzofuran	NV	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Fluoranthene	NV	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Fluorene	280	1400	1300	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.094 U	0.0375 U	--	0.0404 U
Indeno(1,2,3-cd)pyrene	NV	NV	NV	0.0189 U	0.0194 U	0.019 UJ	0.0199 UJ	0.0377 U	0.0197 U	--	0.0193 U	0.094 U	0.0187 U	--	0.0202 U
Naphthalene	0.17	0.78	0.72	0.0756 U	0.0776 U	0.0762 UJ	0.0797 UJ	0.0755 U	0.0787 U	--	0.0772 U	0.094 U	0.075 U	--	0.0808 U
Phenanthrene	NV	NV	NV	0.0756 U	0.0776 U	0.0762 UJ	0.0797 UJ	0.0377 U	0.0787 U	--	0.0772 U	0.094 U	0.075 U	--	0.0808 U
Pyrene	110	NV	NV	0.0378 U	0.0388 U	0.0381 UJ	0.0398 UJ	0.0377 U	0.0394 U	--	0.0386 U	0.188 U	0.0375 U	--	0.0404 U
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport

Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2OD (cont.)				
Sample Name:				TCORE-2OD- GW-DUP	TCORE-2OD	TCORE-2OD DUP	TCORE-2OD- GW	TCORE-2OD- GW-DUP
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025
TPH with Silica-Gel Cleanup (mg/L)								
Initial Analysis								
Diesel-range hydrocarbons	0.100	0.100	0.430	0.0654 U	0.0792 U	0.129	0.0762 UJ	0.0796 U
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	0.146 J	0.158 U	0.195 U	0.158 J	0.199 U
Confirmation Analysis								
Diesel-range hydrocarbons	0.100	0.100	0.430	--	--	--	--	--
Oil-range hydrocarbons	0.100 ^(b)	0.100 ^(b)	0.430 ^(b)	--	--	--	--	--
VOCs (ug/L)								
1,1,1,2-Tetrachloroethane	NV	NV	NV	--	0.4 U	--	0.4 U	--
1,1,1-Trichloroethane	8,000	30,000	37,000	--	0.4 U	--	0.4 U	--
1,1,2,2-Tetrachloroethane	NV	NV	NV	--	0.5 U	--	0.5 U	--
1,1,2-Trichloroethane	0.28	1.3	1.3	--	0.5 U	--	0.5 U	--
1,1-Dichloroethane	2.8	13	13	--	0.4 U	--	0.4 U	--
1,1-Dichloroethene	280	1,100	1,400	--	0.4 U	--	0.4 U	--
1,1-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--
1,2,3-Trichlorobenzene	NV	NV	NV	--	2 U	--	2 U	--
1,2,3-Trichloropropane	NV	NV	NV	--	1 U	--	1 U	--
1,2,4-Trichlorobenzene	NV	NV	NV	--	2 U	--	2 U	--
1,2,4-Trimethylbenzene	54	230	250	--	1 U	--	1 U	--
1,2-Dibromo-3-chloropropane	NV	NV	NV	--	5 U	--	5 U	--
1,2-Dibromoethane	0.0075	0.034	0.034	--	0.5 U	--	0.5 U	--
1,2-Dichlorobenzene	300	1,200	1,400	--	0.5 U	--	0.5 U	--
1,2-Dichloroethane	0.17	0.78	0.78	--	0.4 U	--	0.4 U	--
1,2-Dichloropropane	NV	NV	NV	--	0.5 U	--	0.5 U	--
1,3,5-Trimethylbenzene	59	240	280	--	1 U	--	1 U	--
1,3-Dichlorobenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--
1,3-Dichloropropane	NV	NV	NV	--	1 U	--	1 U	--
1,4-Dichlorobenzene	0.48	2.3	2.1	--	0.5 U	--	0.5 U	--
2,2-Dichloropropane	NV	NV	NV	--	1 U	--	1 U	--
2-Butanone	NV	NV	NV	--	10 U	--	10 U	--
2-Chlorotoluene	NV	NV	NV	--	1 U	--	1 U	--
2-Hexanone	NV	NV	NV	--	10 U	--	10 U	--
4-Chlorotoluene	NV	NV	NV	--	1 U	--	1 U	--
4-Isopropyltoluene	NV	NV	NV	--	1 U	--	1 U	--
4-Methyl-2-pentanone	NV	NV	NV	--	10 U	--	10 U	--
Acetone	NV	NV	NV	--	20 U	--	20 U	--
Acrylonitrile	0.052	0.23	0.25	--	2 U	--	2 U	--
Benzene	0.46	2	2.1	--	0.2 U	--	0.2 U	--

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport

Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2OD (cont.)				
Sample Name:				TCORE-2OD- GW-DUP	TCORE-2OD	TCORE-2OD DUP	TCORE-2OD- GW	TCORE-2OD- GW-DUP
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025
VOCs cont. (ug/L)								
Bromobenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--
Bromodichloromethane	0.13	0.62	0.6	--	1 U	--	1 U	--
Bromoform	3.3	15	16	--	1 U	--	1 U	--
Bromomethane	7.5	28	36	--	5 U	--	5 U	--
Carbon disulfide	NV	NV	NV	--	10 U	--	10 U	--
Carbon tetrachloride	0.46	2	2.1	--	1 U	--	1 U	--
Chlorobenzene	77	290	350	--	0.5 U	--	0.5 U	--
Chlorobromomethane	NV	NV	NV	--	1 U	--	1 U	--
Chloroethane	21,000	76,000	88,000	--	5 U	--	5 U	--
Chloroform	0.22	1	0.98	--	1 U	--	1 U	--
Chloromethane	190	690	790	--	5 U	--	5 U	--
cis-1,2-Dichloroethene	36	140	260	--	0.4 U	--	0.4 U	--
cis-1,3-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--
Dibromochloromethane	0.17	0.77	0.77	--	1 U	--	1 U	--
Dibromomethane	NV	NV	NV	--	1 U	--	1 U	--
Dichlorodifluoromethane (Freon 12)	NV	NV	NV	--	1 U	--	1 U	--
Ethylbenzene	1.5	6.7	6.4	--	0.5 U	--	0.5 U	--
Freon 113	55,000	NV	NV	--	--	--	--	--
Hexachlorobutadiene	NV	NV	NV	--	5 U	--	5 U	--
Isopropylbenzene	440	1,800	2,000	--	1 U	--	1 U	--
m,p-Xylene	NV	NV	NV	--	1 U	--	1 U	--
Methyl tert-butyl ether	14	64	68	--	1 U	--	1 U	--
Methylene chloride	11	37	200	--	10 U	--	10 U	--
Naphthalene	0.17	0.78	0.72	--	5 U	--	5 U	--
n-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--
n-Propylbenzene	NV	NV	NV	--	0.5 U	--	0.5 U	--
o-Xylene	NV	NV	NV	--	0.5 U	--	0.5 U	--
sec-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--
Styrene	1,200	4,600	5,700	--	1 U	--	1 U	--
tert-Butylbenzene	NV	NV	NV	--	1 U	--	1 U	--
Tetrachloroethene	12	49	48	--	0.4 U	--	0.4 U	--
Toluene	1,100	4,400	6,300	--	1 U	--	1 U	--
trans-1,2-Dichloroethene	360	1,400	2,600	--	0.4 U	--	0.4 U	--
trans-1,3-Dichloropropene	NV	NV	NV	--	1 U	--	1 U	--
Trichloroethene	0.49	2	3.3	--	0.4 U	--	0.4 U	--
Trichlorofluoromethane (Freon 11)	1,100	4,200	5,200	--	2 U	--	2 U	--
Vinyl chloride	0.027	0.066	0.49	--	0.2 U	--	0.2 U	--
Xylenes (total) ^(c)	190	710	830	--	1 U	--	1 U	--

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Location:	RBC, Groundwater, Ingestion & Inhalation from Tapwater ⁽¹⁾			TCORE-2OD (cont.)				
Sample Name:				TCORE-2OD- GW-DUP	TCORE-2OD	TCORE-2OD DUP	TCORE-2OD- GW	TCORE-2OD- GW-DUP
Collection Date:	Residential	Urban Residential	Occupational	10/25/2023	05/22/2024	05/22/2024	05/13/2025	05/13/2025
PAHs (ug/L)								
1-Methylnaphthalene	NV	NV	NV	--	0.0834 UJ	--	0.0815 UJ	--
2-Methylnaphthalene	NV	NV	NV	--	0.0834 UJ	--	0.0815 UJ	--
Acenaphthene	510	2400	2500	--	0.0417 UJ	--	0.0407 UJ	--
Acenaphthylene	NV	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
Anthracene	NV	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
Benzo(a)anthracene	0.03	0.11	0.38	--	0.0208 UJ	--	0.0204 UJ	--
Benzo(a)pyrene	0.025	0.08	0.47	--	0.0208 UJ	--	0.0204 UJ	--
Benzo(b)fluoranthene	0.25	0.8	NV	--	0.0208 UJ	--	0.0204 UJ	--
Benzo(ghi)perylene	NV	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
Benzo(k)fluoranthene	NV	NV	NV	--	0.0208 UJ	--	0.0204 UJ	--
Chrysene	NV	NV	NV	--	0.0208 UJ	--	0.0204 UJ	--
Dibenzo(a,h)anthracene	0.025	0.08	0.47	--	0.0208 UJ	--	0.0204 UJ	--
Dibenzofuran	NV	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
Fluoranthene	NV	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
Fluorene	280	1400	1300	--	0.0417 UJ	--	0.0407 UJ	--
Indeno(1,2,3-cd)pyrene	NV	NV	NV	--	0.0208 UJ	--	0.0204 UJ	--
Naphthalene	0.17	0.78	0.72	--	0.0834 UJ	--	0.0815 UJ	--
Phenanthrene	NV	NV	NV	--	0.0834 UJ	--	0.0815 UJ	--
Pyrene	110	NV	NV	--	0.0417 UJ	--	0.0407 UJ	--
cPAH TEQ ^{(d)(2)}	0.025	0.08	0.47	--	ND	--	ND	--

Table 3-2
Groundwater Analytical Results
Port of Portland - Terminal Core Redevelopment
Portland International Airport



Notes Bolded sample ID and dates indicate samples from the current reporting period. Split samples collected after 2020 were submitted to Speciality Analytical. The sample name was amended in this table to include "DUP" to indicate that it was not the sample analyzed by Apex Laboratories. Shading (color key below) indicates values that exceed screening criteria; non-detects (U and UJ) were not compared with screening criteria. When multiple screening criteria are exceeded, the result is shaded based on the highest criterion. When multiple screening criteria with the same value are exceeded, the result is shaded based on the criterion presented to the right. RBC, Groundwater, Ingestion & Inhalation from Tapwater, Residential RBC, Groundwater, Ingestion & Inhalation from Tapwater, Urban Residential RBC, Groundwater, Ingestion & Inhalation from Tapwater, Occupational -- = not analyzed. cont. = continued. cPAH = carcinogenic polycyclic aromatic hydrocarbon. J = result is estimated. J+ = result is estimated, but the result may be biased high. J- = result is estimated, but the result may be biased low. mg/L = milligrams per liter. ND = non-detect. NV = no value. PAH = polycyclic aromatic hydrocarbon. RBC = risk-based concentration. TEQ = toxicity equivalency. TPH = total petroleum hydrocarbons. U = result is non-detect at the method detection limit or method reporting limit. ug/L = micrograms per liter. UJ = result is non-detect with an estimated method reporting limit. VOC = volatile organic compound. ^(a) Groundwater collected for TPH confirmation reanalysis. ^(b) Value is for generic diesel/heating oil, since generic residual-range hydrocarbons values are not available. ^(c) Total xylenes is the sum of m,p-xylene and o-xylene. When both results are non-detect, the higher reporting limit is shown. ^(d) cPAH TEQ calculated with non-detect results multiplied by one-half the reporting limit. When all cPAHs are non-detect, the TEQ is reported as non-detect. References ⁽¹⁾ DEQ. 2023. Table: <i>Risk-Based Concentrations for Individual Chemicals</i> . Oregon Department of Environmental Quality, Environmental Cleanup Program. August. ⁽²⁾ EPA. 1993. <i>Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons</i> . 600/R-93/089. U.S. Environmental Protection Agency. July.
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Appendix A

Standard Operating Procedures



MAUL
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Standard Operating Procedure

Low-Flow Groundwater Sampling

SOP Number: 9

Date: 06/29/2023

Revision Number: 0.2

Scope and Application

This standard operating procedure (SOP) describes use of the low-flow sampling method for collection of reconnaissance groundwater samples from borings and groundwater samples from monitoring wells. The method uses low pumping rates during purging and sample collection to minimize water-level drawdown and hydraulic stress at the well-aquifer interface.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- Water quality meter (e.g., Oakton, YSI Inc. multiparameter meter)
- Turbidity meter
- Water-level meter
- Peristaltic pump and tubing
- Laboratory-supplied sample containers
- Laboratory chain-of-custody form and cooler with ice
- Filter if dissolved analyses will be performed
- Well construction logs documenting the screen depth and interval for all wells to be sampled
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures)
- 5-gallon buckets with lids
- Department of Transportation-approved storage containers (e.g., drums, totes)
- Groundwater field sampling datasheet and notebook

Methodology

When the project-specific sampling and analysis plan (SAP) provides additional or different requirements for low-flow groundwater sampling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

General Sampling Procedure (Heading 3 No Number Style):

Water Level Measurement

- Water-level measurement procedures are described in detail in SOP 13.

- Open the well cap to allow the water level to equilibrate (approximately ten minutes).
- Measure the water level in the well, using an electronic water-level meter to the nearest 0.01 foot to determine the depth to groundwater below the top of the well casing.
- If light nonaqueous-phase liquid (LNAPL) is present (typically indicated by a dark, oily sheen on the top of the water level meter), discuss with the MFA project manager how to proceed.

Purging

- If the water level is above the top of the well screen, place the end of the sample tubing in the middle of the well screen interval. If the water level is below the top of the screen, place the end of the sample tubing at the midpoint between the water level and the bottom of the well screen.
- Typical low-flow sampling pumping rates range from 0.1 to 0.5 liters per minute, depending on the hydrogeologic characteristics at the site. The objective of the rate selected is to minimize excessive drawdown (<0.3 feet) of the water level.
- Measure water quality parameters (dissolved oxygen, pH, electrical conductivity, turbidity, and temperature) using a flow-through cell connected to the discharge end of the peristaltic pump tubing. Purging will be considered complete when the water quality parameters stabilize per the following for three consecutive readings taken over 3-minute intervals (consistent with EPA guidance)¹:

Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),

Specific Conductance (3%),

Temperature (3%),

pH (± 0.1 unit),

Oxidation/Reduction Potential (± 10 millivolts).

- Document the purge procedures, including pumping rates, water quality parameter measurements, and the water level during purging, on the groundwater field sampling datasheet.
- Place purge water in Department of Transportation-approved containers (e.g., 55-gallon drum) stored on site. See SOP 1 for drum storage, labeling, and documentation procedures.

Sample Collection

- Following the purging process, collect groundwater samples in laboratory-supplied containers.
- Confirm the laboratory analytical methods and sample container requirement with the MFA project manager or project chemist. If analysis for gasoline-range petroleum hydrocarbons or volatile organic compounds (VOCs) is proposed, fill the sample containers for gasoline and VOC analysis before filling sample containers for other analytical methods. Sample containers for gasoline and VOC analysis shall be filled to capacity without overfilling and capped so that no headspace or air bubbles remain in the container.

¹ EPA. 2017. Low stress (low flow) purging and sampling procedure for the collection of groundwater samples from monitoring wells. September 19.

Low Yield (Alternate Method)

- If drawdown of the water table cannot be avoided by reducing the pumping rate, and the well goes dry during purging, discontinue pumping and water quality parameter measurements.
- Collect the groundwater sample after the water level above the well bottom recovers to 90 percent of the prepurge water level. For example, if the water level was 10 feet above the well bottom before purging, begin sampling when the water level has recovered to 9 feet or more above the well bottom.
- If the water column volume is insufficient to meet the sample volume requirement, allow the water level to again recover to 90 percent before continuing sampling. Repeat this procedure until all sample containers are filled.



Standard Operating Procedure

Monitoring Well—Water Elevation

SOP Number: 13

Date: 03/09/2021

Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the methods for obtaining groundwater level measurements and light nonaqueous-phase liquid (LNAPL) measurements from monitoring wells. Measurement may be collected as an independent event or in conjunction with groundwater sampling or sampling of removed LNAPL.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- Equipment decontamination supplies if equipment will be reused between well locations (see SOP 1 for equipment decontamination procedures)
- Field notebook
- Water-level meter or oil/water interface probe if water levels and LNAPL levels will be measured
- Bailers or tape/paste to confirm LNAPL detections if required; see SOP 10 for procedures for managing LNAPL when removing LNAPL from a well

Methodology

When the project-specific sampling and analysis plan (SAP) provides additional or different requirements for water-level and LNAPL measurements, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

General Sampling Procedure:

Review well construction details and historical groundwater and LNAPL levels and thicknesses if available.

During groundwater sampling events, measurements should be collected before, during, and after purging and sampling. During purging and low-flow sampling, water-level measurements are conducted to ensure that drawdown is not occurring. Low-flow sampling methods are described in SOP 9. The following procedures should be followed when collecting groundwater-level and LNAPL measurements from wells.

Water Level Measurement

1. Test the water-level meter to ensure proper instrument response. This can be accomplished by immersing the probe tip in a small container of water.
2. Open the well cover and cap and allow the water level to equilibrate with atmospheric pressure for several minutes so that a static water level is attained. Audible air movement into or out of

the well upon loosening of the well cap is an indication that the water level is not in equilibrium with atmospheric pressure.

3. Locate the measurement reference point at the top of the well casing. Typically, this is a small notch in the casing or a point marked with a pen. If no measure point is present, measure the water level from the north side of the casing and note the result in the field notebook.
4. Lower the water-level meter probe into the well casing until the probe signal indicates that water has been contacted.
5. Observe the depth-to-water (DTW) reading from the measurement reference point at the top of the well casing to the nearest 0.01 foot. Over the course of about a minute, raise and re-lower the probe and observe the resulting DTW reading. If the reading remains unchanged to within 0.01 foot, this is an indication that the water level has equilibrated with atmospheric pressure; the reading can then be recorded in the field notebook as the static water level reading. If the reading changes, allow more time for the water level to become static.
6. If the work scope or SAP requires measurement of the depth-to-bottom (DTB), lower the probe to the bottom of the well and record the DTB reading from the reference point to the nearest 0.01 foot.
7. Remove the probe and decontaminate the probe and the portion of the probe tape inserted into the well casing.

Water Level and LNAPL Measurement

1. Repeat above steps 1 through 7.
2. Lower the interface probe into the well casing until the probe signal indicates that LNAPL has been contacted. Typically, the interface probe will signal by a repeating beep when LNAPL is present. A steady signal indicates that LNAPL is absent and that the probe is recording the DTW.
3. Observe the LNAPL reading as described in step 5 above until a static reading to the nearest 0.01 foot is achieved, and record the reading in the field notebook.
4. Lower the probe until a steady signal indicates that water has been contacted. Observe the water-level reading as described in step 5 above to confirm a static water level, and record the reading in the field notebook.
5. If LNAPL is detected in a well with no prior history of LNAPL presence, or the LNAPL thickness is greater than in prior observations, verify the presence and thickness using an alternative technique (e.g., bailer, tape, and water/petroleum colorimetric paste). See SOP 10 for procedures for managing LNAPL when removing LNAPL from a well.
6. Remove the interface probe and decontaminate the probe and the portion of the probe tape inserted into the well casing.

Appendix B

Field Sampling Data Sheets



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Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type	Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)			
TCORE-1	Monitoring	Flush-mount		Top of Casing		2.0	120-135	127.5			
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	13:58	135.0		11.0		124.00	20.21				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	14:03		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
14:07	0.32	0.3	11.01	7.47	17.3	362.0	2.25			-43.6	7.25
14:10	0.56	0.3	11.01	7.47	17.2	357.4	0.48			-48.9	4.58
14:13	0.80	0.3	11.10	7.47	17.2	356.9	0.36	-50.9	2.97		
14:16	1.04	0.3	11.00	7.47	17.2	356.8	0.33	-51.7	2.49		
14:19	1.28	0.3	11.00	7.47	17.2	356.4	0.32	-51.9	2.81		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless.					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-1				
						Sample Date	05/13/2025	Sample Time	14:19		
						Container Type	Preservative	Filtered (Y/N)			
						General Comments		VOA	HCl	N	3
						Amber glass	HCl	N	3		
						Poly		N	1		
						Amber poly		N	2		
								Total No. Containers:		9	

Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type	Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)			
TCORE-10D	Monitoring	Flush-mount		Top of Casing		2.0	45-55	50.0			
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	12:59	55.00		11.26		43.74	7.13				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	13:01		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
13:14	0.24	0.3	11.69	6.82	17.2	784	0.34			-67.4	50.8
13:17	0.48	0.3	11.69	6.82	17.3	782	0.27			-76.7	50.4
13:20	0.72	0.3	11.70	6.82	17.2	781	0.23	-82.6	30.7		
13:23	0.96	0.3	11.71	6.82	17.3	779	0.22	-86.5	22.2		
13:26	1.20	0.3	11.69	6.82	17.3	780	0.20	-89.9	19.6		
13:29	1.44	0.3	11.68	6.82	17.3	781	0.19	-91.9	12.0		
13:32	1.68	0.3	11.68	6.82	17.4	782	0.18	-93.7	8.41		
13:35	1.92	0.3	11.65	6.82	17.5	783	0.16	-95.3	8.07		
13:38	2.16	0.3	11.64	6.82	17.5	782	0.16	-96.8	6.43		
13:41	2.40	0.3	11.66	6.82	17.5	781	0.16	-97.7	5.70		
13:44	2.64	0.3	11.66	6.82	17.6	779	0.16	-98.9	5.85		
13:47	2.88	0.3	11.65	6.82	17.6	778	0.15	-99.6	5.26		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless, effervescent.					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-10D				
						Sample Date	05/13/2025	Sample Time	13:47		
						Container Type	Preservative	Filtered (Y/N)		No. Containers	
General Comments						VOA	HCl	N	3		
						Amber glass	HCl	N	3		
						Poly		N	1		
						Amber poly		N	2		
						Total No. Containers:				9	

Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type		Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)		
TCORE-2	Monitoring		Flush-mount		Top of Casing		2.0	100-115	105.0		
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	11:09	115.00		11.93		103.07	16.80				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	11:11		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
11:14	0.24	0.3	11.95	7.13	17.0	649	3.01			-18.8	4.14
11:17	0.48	0.3	11.94	7.23	16.9	634	0.91			-44.7	2.97
11:20	0.72	0.3	11.95	7.26	16.9	630	0.45	-61.9	2.14		
11:23	0.96	0.3	11.95	7.26	16.9	625	0.35	-72.9	1.98		
11:26	1.20	0.3	11.94	7.28	16.9	622	0.28	-80.0	1.92		
11:29	1.44	0.3	11.95	7.30	16.9	618	0.25	-84.9	1.79		
11:32	1.68	0.3	11.95	7.31	16.9	616	0.22	-89.2	2.33		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-2				
						Sample Date	05/13/2025	Sample Time	11:32		
						Container Type	Preservative	Filtered (Y/N)		No. Containers	
General Comments						VOA	HCl	N	3		
Split sample collected.						Amber glass	HCl	N	4		
						Poly		N	1		
						Amber poly		N	2		
						Total No. Containers:				10	

Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type	Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)			
TCORE-20D	Monitoring	Flush-mount		Top of Casing		2.0	37-47	40.0			
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	9:58	55.00		13.46		41.54	6.77				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	10:00		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
10:02	0.16	0.3	12.00	6.54	17.0	1,304	1.04			-0.7	8.8
10:05	0.40	0.3	12.39	6.54	17.0	1,577	0.61			-50.6	6.2
10:08	0.64	0.3	12.63	6.55	17.1	1,592	0.51	-72.0	17.1		
10:11	0.88	0.3	12.79	6.55	17.1	1,597	0.39	-81.4	20.6		
10:14	1.12	0.3	12.91	6.54	17.0	1,602	0.31	-86.7	28.1		
10:17	1.36	0.3	12.99	6.55	17.0	1,598	0.28	-90.4	29.0		
10:20	1.60	0.3	13.04	6.55	17.0	1,598	0.25	-92.9	34.5		
10:23	1.84	0.3	13.11	6.55	17.0	1,604	0.24	-94.8	13.4		
10:26	2.08	0.3	13.20	6.55	17.0	1,603	0.23	-96.5	21.8		
10:29	2.32	0.3	13.24	6.55	16.9	1,603	0.22	-97.6	11.4		
10:32	2.56	0.3	13.22	6.55	16.9	1,603	0.20	-98.7	10.5		
10:35	2.80	0.3	13.22	6.55	16.9	1,601	0.18	-99.5	8.0		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless, effervescent.					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-20D				
						Sample Date		Sample Time			
						Container Type	Preservative	Filtered (Y/N)	No. Containers		
General Comments						VOA	HCl	N	3		
Split sample collected.						Amber glass	HCl	N	4		
						Poly		N	1		
						Amber poly		N	2		
						Total No. Containers:				10	

Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type		Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)		
TCORE-3	Monitoring		Flush-mount		Top of Casing		2.0	120-135	125.0		
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	7:53	135.00		12.10		122.90	20.03				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	8:24		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
8:34	0.79	0.3	12.10	7.46	16.0	715	0.31			10.0	0.56
8:37	1.03	0.3	12.11	7.49	16.0	709	0.27			-15.6	0.94
8:40	1.27	0.3	12.11	7.51	16.4	707	0.24	-31.8	0.62		
8:43	1.51	0.3	12.12	7.52	16.5	709	0.23	-43.7	0.52		
8:46	1.75	0.3	12.11	7.53	16.4	710	0.21	-52.8	0.80		
8:49	1.99	0.3	12.10	7.54	16.4	708	0.20	-61.8	1.07		
8:52	2.23	0.3	12.10	7.54	16.2	710	0.20	-69.3	1.20		
8:55	2.47	0.3	12.10	7.55	16.3	708	0.20	-76.9	1.61		
8:58	2.71	0.3	12.10	7.55	16.3	708	0.19	-82.0	0.88		
9:01	2.95	0.3	12.11	7.56	16.5	708	0.20	-87.3	0.66		
9:04	3.19	0.3	12.10	7.57	16.6	708	0.20	-92.0	0.88		
9:07	3.43	0.3	12.10	7.57	16.6	707	0.22	-96.6	1.03		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-3				
						Sample Date	05/13/2025	Sample Time	9:07		
						Container Type	Preservative	Filtered (Y/N)		No. Containers	
General Comments						VOA	HCl	N	3		
Split sample collected.						Amber glass	HCl	N	4		
						Poly		N	1		
						Amber poly		N	2		
						Total No. Containers:					

Groundwater Field Sampling Data Sheet



Project Information												
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)				
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson				
Well Information												
Location ID	Well Type		Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)			
TCORE-4	Monitoring		Flush-mount		Top of Casing		2.0	105-120	112.5			
Hydrology/Level Measurements												
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft				
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)					
05/13/2025	10:15	135.00		12.18		122.82	20.02					
Water Quality Data												
Purge Method		Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time		11:45		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%			± 10% if > 0.5	± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity	
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU	
11:48	0.16	0.2	12.22	7.13	17.3	536.2	1.18			47.1	12.6	
11:51	0.32	0.2	12.23	7.29	17.3	449.2	0.64			36.8	4.5	
11:54	0.48	0.2	12.23	7.44	16.9	371.8	0.46	23.4	2.8			
11:57	0.64	0.2	12.23	7.49	16.8	360.0	0.42	15.3	2.7			
12:00	0.80	0.2	12.23	7.52	16.7	350.1	0.38	6.9	2.7			
12:03	0.96	0.2	12.23	7.54	16.7	337.9	0.35	-3.1	2.2			
12:06	1.12	0.2	12.23	7.56	17.0	342.2	0.33	-14.8	2.1			
12:09	1.28	0.2	12.23	7.58	17.3	335.8	0.30	-31.9	2.2			
12:12	1.44	0.2	12.23	7.59	17.6	334.0	0.27	-39.7	1.5			
12:15	1.60	0.2	12.23	7.60	17.3	330.3	0.26	-49.8	1.9			
12:18	1.76	0.2	12.23	7.61	17.4	330.0	0.25	-57.9	2.1			
12:21	1.92	0.2	12.23	7.61	17.4	330.3	0.24	-58.8	2.4			
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information						
Water Quality Observations (clarity, tint, odor, sheen, etc.)		Clear, colorless.				Sampling Method	Peristaltic Pump					
						Sample Name	TCORE-4					
						Sample Date	05/14/2025	Sample Time	12:21			
						Container Type	Preservative	Filtered (Y/N)	No. Containers			
General Comments						VOA	HCl	N	3			
						Amber glass	HCl	N	3			
						Poly		N	1			
						Amber poly		N	2			
						Total No. Containers:				9		

Groundwater Field Sampling Data Sheet



Project Information											
Project No.		Client Name		Project Name		Sampling Event		Sampler(s)			
M0232.17.090		Port of Portland		TCORE GW Monitoring		May 2025		C. Anderson			
Well Information											
Location ID	Well Type		Monument Type		Depth Measuring Point		Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)		
TCORE-5	Monitoring		Flush-mount		Top of Casing		2.0	105-120	112.5		
Hydrology/Level Measurements											
Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	0.75" = 0.023 gal/ft 1" = 0.041 gal/ft 1.5" = 0.092 gal/ft 2" = 0.163 gal/ft 3" = 0.367 gal/ft 4" = 0.653 gal/ft 6" = 1.469 gal/ft 8" = 2.611 gal/ft			
		DTB	DTP	DTW	DTW - DTP	DTB - DTW	(gal/ft x water column)				
05/13/2025	6:45	120.00		10.76		109.24	17.81				
Water Quality Data											
Purge Method	Peristaltic Pump		Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other								
Purge Start Time	13:24		ideally < 0.3 ft drawdown	± 0.1	± 3%	± 3%	± 10% if > 0.5			± 10	< 5 or ± 10% if > 5
Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen			ORP	Turbidity
	gal	L/min	ft	SU	degrees C	uS/cm	mg/L			mV	NTU
13:27	0.24	0.3	10.81	7.64	14.0	245.6	0.88			28.6	6.34
13:30	0.48	0.3	10.82	7.68	14.0	243.6	0.72			25.8	1.86
13:33	0.72	0.3	10.82	7.70	14.0	242.6	0.62	22.4	1.35		
13:36	0.96	0.3	10.82	7.71	14.1	242.1	0.55	18.3	2.78		
13:39	1.20	0.3	10.82	7.67	14.1	242.1	0.54	18.5	1.47		
13:42	1.44	0.3	10.82	7.68	14.1	241.9	0.52	15.2	1.65		
Last row of water quality data are considered final field parameters unless otherwise noted.						Sample Information					
Water Quality Observations (clarity, tint, odor, sheen, etc.)	Clear, colorless					Sampling Method	Peristaltic Pump				
						Sample Name	TCORE-5				
						Sample Date	05/14/2025	Sample Time	13:42		
						Container Type	Preservative	Filtered (Y/N)			
						No. Containers					
General Comments						VOA	HCl	N	3		
						Amber glass	HCl	N	3		
						Poly		N	1		
						Amber poly		N	2		
						Total No. Containers:				9	

Appendix C

Laboratory Reports and Data Validation Memorandum



MAUL
FOSTER
ALONGI



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Tuesday, June 3, 2025

Michael Pickering

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

RE: A5E1360 - POP TCORE - GWM - M0232.17.090

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A5E1360, which was received by the laboratory on 5/15/2025 at 12:55:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information		
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>		
(See Cooler Receipt Form for details)		
Cooler #1	4.6 degC	Cooler #2 2.8 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

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Darrell Auvil, Client Services Manager

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042****ANALYTICAL REPORT FOR SAMPLES****SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TCORE-1-GW	A5E1360-01	Water	05/13/25 14:19	05/15/25 12:55
TCORE-1OD-GW	A5E1360-02	Water	05/13/25 13:47	05/15/25 12:55
TCORE-2-GW	A5E1360-03	Water	05/13/25 11:32	05/15/25 12:55
TCORE-2OD-GW	A5E1360-04	Water	05/13/25 10:35	05/15/25 12:55
TCORE-3-GW	A5E1360-05	Water	05/13/25 09:07	05/15/25 12:55
TCORE-4-GW	A5E1360-06	Water	05/14/25 12:21	05/15/25 12:55
TCORE-5-GW	A5E1360-07	Water	05/14/25 13:42	05/15/25 12:55

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Silica Gel Column Cleanup

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-1-GW (A5E1360-01)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0762	mg/L	1	05/23/25 20:40	NWTPH-Dx/SGC	
Oil	ND	---	0.152	mg/L	1	05/23/25 20:40	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	05/23/25 20:40	NWTPH-Dx/SGC	
TCORE-1OD-GW (A5E1360-02)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0784	mg/L	1	05/23/25 21:01	NWTPH-Dx/SGC	
Oil	ND	---	0.157	mg/L	1	05/23/25 21:01	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 68 %		Limits: 50-150 %	1	05/23/25 21:01	NWTPH-Dx/SGC	
TCORE-2-GW (A5E1360-03)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0784	mg/L	1	05/23/25 21:42	NWTPH-Dx/SGC	
Oil	ND	---	0.157	mg/L	1	05/23/25 21:42	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 69 %		Limits: 50-150 %	1	05/23/25 21:42	NWTPH-Dx/SGC	
TCORE-2OD-GW (A5E1360-04)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0762	mg/L	1	05/23/25 22:02	NWTPH-Dx/SGC	
Oil	0.158	---	0.152	mg/L	1	05/23/25 22:02	NWTPH-Dx/SGC	PRES
Surrogate: o-Terphenyl (Surr)		Recovery: 57 %		Limits: 50-150 %	1	05/23/25 22:02	NWTPH-Dx/SGC	
TCORE-3-GW (A5E1360-05)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0784	mg/L	1	05/23/25 22:44	NWTPH-Dx/SGC	
Oil	ND	---	0.157	mg/L	1	05/23/25 22:44	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 60 %		Limits: 50-150 %	1	05/23/25 22:44	NWTPH-Dx/SGC	
TCORE-4-GW (A5E1360-06)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0800	mg/L	1	05/23/25 23:04	NWTPH-Dx/SGC	
Oil	0.161	---	0.160	mg/L	1	05/23/25 23:04	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 69 %		Limits: 50-150 %	1	05/23/25 23:04	NWTPH-Dx/SGC	
TCORE-5-GW (A5E1360-07)		Matrix: Water			Batch: 25E0812			
Diesel	ND	---	0.0792	mg/L	1	05/23/25 23:46	NWTPH-Dx/SGC	
Oil	ND	---	0.158	mg/L	1	05/23/25 23:46	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	05/23/25 23:46	NWTPH-Dx/SGC	

Apex Laboratories

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Darrell Auvil, Client Services Manager

**ANALYTICAL REPORT****Apex Laboratories, LLC**6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062**Maul Foster & Alongi, INC.**3140 NE Broadway Street
Portland, OR 97232Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042****ANALYTICAL SAMPLE RESULTS****Volatile Organic Compounds by EPA 8260D**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-1-GW (A5E1360-01)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 17:14	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 17:14	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 17:14	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 17:14	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062Maul Foster & Alongi, INC.3140 NE Broadway Street
Portland, OR 97232Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-1-GW (A5E1360-01)		Matrix: Water			Batch: 25E0580			
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 17:14	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 17:14	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	05/16/25 17:14	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 17:14	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 17:14	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 17:14	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 17:14	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 17:14	EPA 8260D	

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-1-GW (A5E1360-01)		Matrix: Water			Batch: 25E0580			
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery: 109 %	Limits: 80-120 %	1	05/16/25 17:14	EPA 8260D		
Toluene-d8 (Surr)		102 %	80-120 %	1	05/16/25 17:14	EPA 8260D		
4-Bromofluorobenzene (Surr)		98 %	80-120 %	1	05/16/25 17:14	EPA 8260D		
TCORE-10D-GW (A5E1360-02)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 17:36	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 17:36	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 17:36	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 17:36	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-10D-GW (A5E1360-02)		Matrix: Water			Batch: 25E0580			
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 17:36	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 17:36	EPA 8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	10.0	ug/L	1	05/16/25 17:36	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 17:36	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 17:36	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-10D-GW (A5E1360-02)		Matrix: Water			Batch: 25E0580			
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 17:36	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 17:36	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 17:36	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/16/25 17:36</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 17:36</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 17:36</i>	<i>EPA 8260D</i>	
TCORE-2-GW (A5E1360-03)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 17:59	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 17:59	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 17:59	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 17:59	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-2-GW (A5E1360-03)		Matrix: Water			Batch: 25E0580			
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 17:59	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 17:59	EPA 8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	10.0	ug/L	1	05/16/25 17:59	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 17:59	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-2-GW (A5E1360-03)		Matrix: Water			Batch: 25E0580			
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 17:59	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 17:59	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 17:59	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 17:59	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	110 %	<i>Limits:</i>	80-120 %	1	05/16/25 17:59	EPA 8260D
<i>Toluene-d8 (Surr)</i>			102 %		80-120 %	1	05/16/25 17:59	EPA 8260D
<i>4-Bromofluorobenzene (Surr)</i>			98 %		80-120 %	1	05/16/25 17:59	EPA 8260D
TCORE-2OD-GW (A5E1360-04)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 18:22	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 18:22	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 18:22	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 18:22	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-2OD-GW (A5E1360-04)		Matrix: Water			Batch: 25E0580			
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 18:22	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 18:22	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	05/16/25 18:22	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 18:22	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	

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Darrell Auvil, Client Services Manager

Page 11 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-2OD-GW (A5E1360-04)		Matrix: Water			Batch: 25E0580			
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 18:22	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 18:22	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 18:22	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 18:22	EPA 8260D	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	111 %	Limits:	80-120 %	1	05/16/25 18:22	EPA 8260D
Toluene-d8 (Surr)			100 %		80-120 %	1	05/16/25 18:22	EPA 8260D
4-Bromofluorobenzene (Surr)			97 %		80-120 %	1	05/16/25 18:22	EPA 8260D
TCORE-3-GW (A5E1360-05)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 19:06	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 19:06	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 19:06	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 19:06	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062Maul Foster & Alongi, INC.3140 NE Broadway Street
Portland, OR 97232Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-3-GW (A5E1360-05)		Matrix: Water			Batch: 25E0580			
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 19:06	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 19:06	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	05/16/25 19:06	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 19:06	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering**Report ID:**A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-3-GW (A5E1360-05)		Matrix: Water			Batch: 25E0580			
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 19:06	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 19:06	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 19:06	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 19:06	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/16/25 19:06</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 19:06</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 19:06</i>	<i>EPA 8260D</i>	
TCORE-4-GW (A5E1360-06)		Matrix: Water			Batch: 25E0580			
Acetone	ND	---	20.0	ug/L	1	05/16/25 18:44	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	05/16/25 18:44	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/16/25 18:44	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/16/25 18:44	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-4-GW (A5E1360-06)		Matrix: Water			Batch: 25E0580			
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/16/25 18:44	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/16/25 18:44	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	05/16/25 18:44	EPA 8260D	

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Darrell Auvil, Client Services Manager

Page 15 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-4-GW (A5E1360-06)		Matrix: Water			Batch: 25E0580			
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/25 18:44	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/16/25 18:44	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/16/25 18:44	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/16/25 18:44	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/16/25 18:44	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	<i>111 %</i>	<i>Limits:</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/25 18:44</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>			<i>101 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 18:44</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>		<i>80-120 %</i>	<i>1</i>	<i>05/16/25 18:44</i>	<i>EPA 8260D</i>

TCORE-5-GW (A5E1360-07)**Matrix: Water****Batch: 25E0606**

Acetone	ND	---	20.0	ug/L	1	05/19/25 15:59	EPA 8260D
Acrylonitrile	ND	---	2.00	ug/L	1	05/19/25 15:59	EPA 8260D
Benzene	ND	---	0.200	ug/L	1	05/19/25 15:59	EPA 8260D
Bromobenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D
Bromochloromethane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D
Bromodichloromethane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D
Bromoform	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D
Bromomethane	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D
2-Butanone (MEK)	ND	---	10.0	ug/L	1	05/19/25 15:59	EPA 8260D

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-5-GW (A5E1360-07)		Matrix: Water			Batch: 25E0606			
n-Butylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	05/19/25 15:59	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	05/19/25 15:59	EPA 8260D	

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Page 17 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-5-GW (A5E1360-07)		Matrix: Water			Batch: 25E0606			
Isopropylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	05/19/25 15:59	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	05/19/25 15:59	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/19/25 15:59	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	05/19/25 15:59	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	05/19/25 15:59	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	05/19/25 15:59	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	05/19/25 15:59	EPA 8260D	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	101 %	Limits:	80-120 %	1	05/19/25 15:59	EPA 8260D
Toluene-d8 (Surr)			101 %		80-120 %	1	05/19/25 15:59	EPA 8260D
4-Bromofluorobenzene (Surr)			94 %		80-120 %	1	05/19/25 15:59	EPA 8260D

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Darrell Auvil, Client Services Manager

Page 18 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-1-GW (A5E1360-01)		Matrix: Water			Batch: 25E0639		DCNT	
Acenaphthene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Anthracene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Chrysene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Fluoranthene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Fluorene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0189	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0756	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0756	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Naphthalene	0.0812	---	0.0756	ug/L	1	05/20/25 14:49	EPA 8270E LVI	B-02, Q-29
Phenanthrene	ND	---	0.0756	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Pyrene	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0378	ug/L	1	05/20/25 14:49	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 99 %		Limits: 78-134 %	1	05/20/25 14:49	EPA 8270E LVI	
Benzo(a)pyrene-d12 (Surr)		116 %		80-132 %	1	05/20/25 14:49	EPA 8270E LVI	

TCORE-10D-GW (A5E1360-02)**Matrix: Water****Batch: 25E0639****DCNT**

Acenaphthene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Acenaphthylene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Anthracene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Benz(a)anthracene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Benzo(a)pyrene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Benzo(b)fluoranthene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Benzo(k)fluoranthene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Benzo(g,h,i)perylene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Chrysene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI
Dibenz(a,h)anthracene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-10D-GW (A5E1360-02)		Matrix: Water			Batch: 25E0639		DCNT	
Fluoranthene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Fluorene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0199	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0797	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0797	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Naphthalene	ND	---	0.0797	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Phenanthrene	ND	---	0.0797	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Pyrene	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0398	ug/L	1	05/20/25 18:36	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery:	100 %	Limits:	78-134 %	1	05/20/25 18:36	EPA 8270E LVI
Benzo(a)pyrene-d12 (Surr)			119 %		80-132 %	1	05/20/25 18:36	EPA 8270E LVI
TCORE-2-GW (A5E1360-03)		Matrix: Water			Batch: 25E0639		DCNT	
Acenaphthene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Anthracene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Chrysene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Fluoranthene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Fluorene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0175	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0698	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0698	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Naphthalene	ND	---	0.0698	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Phenanthrene	ND	---	0.0698	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Pyrene	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0349	ug/L	1	05/20/25 19:08	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery:	102 %	Limits:	78-134 %	1	05/20/25 19:08	EPA 8270E LVI
Benzo(a)pyrene-d12 (Surr)			119 %		80-132 %	1	05/20/25 19:08	EPA 8270E LVI

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062Maul Foster & Alongi, INC.3140 NE Broadway Street
Portland, OR 97232Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-2-GW (A5E1360-03)				Matrix: Water		Batch: 25E0639		DCNT
TCORE-2OD-GW (A5E1360-04)				Matrix: Water		Batch: 25E0639		DCNT
Acenaphthene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Anthracene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Chrysene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Fluoranthene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Fluorene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0204	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0815	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0815	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Naphthalene	ND	---	0.0815	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Phenanthrene	ND	---	0.0815	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Pyrene	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0407	ug/L	1	05/20/25 19:40	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 100 %		Limits: 78-134 %	1	05/20/25 19:40	EPA 8270E LVI	
Benzo(a)pyrene-d12 (Surr)		120 %		80-132 %	1	05/20/25 19:40	EPA 8270E LVI	
TCORE-3-GW (A5E1360-05)				Matrix: Water		Batch: 25E0639		DCNT
Acenaphthene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Anthracene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Chrysene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-3-GW (A5E1360-05)		Matrix: Water			Batch: 25E0639		DCNT	
Dibenz(a,h)anthracene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Fluoranthene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Fluorene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0179	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0717	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0717	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Naphthalene	ND	---	0.0717	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Phenanthrene	ND	---	0.0717	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Pyrene	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0359	ug/L	1	05/20/25 20:13	EPA 8270E LVI	
<i>Surrogate: Acenaphthylene-d8 (Surr)</i>		<i>Recovery:</i>	<i>100 %</i>	<i>Limits:</i>	<i>78-134 %</i>	<i>1</i>	<i>05/20/25 20:13</i>	<i>EPA 8270E LVI</i>
<i>Benzo(a)pyrene-d12 (Surr)</i>			<i>121 %</i>		<i>80-132 %</i>	<i>1</i>	<i>05/20/25 20:13</i>	<i>EPA 8270E LVI</i>
TCORE-4-GW (A5E1360-06)		Matrix: Water			Batch: 25E0639			
Acenaphthene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Anthracene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Chrysene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Fluoranthene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Fluorene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0171	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0683	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0683	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Naphthalene	ND	---	0.0683	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Phenanthrene	ND	---	0.0683	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Pyrene	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0342	ug/L	1	05/20/25 20:45	EPA 8270E LVI	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

ANALYTICAL SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
TCORE-4-GW (A5E1360-06)			Matrix: Water			Batch: 25E0639		
Surrogate: Acenaphthylene-d8 (Surr)		Recovery:	104 %	Limits:	78-134 %	1	05/20/25 20:45	EPA 8270E LVI
Benzo(a)pyrene-d12 (Surr)			118 %		80-132 %	1	05/20/25 20:45	EPA 8270E LVI
TCORE-5-GW (A5E1360-07)			Matrix: Water			Batch: 25E0639		
Acenaphthene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Anthracene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Chrysene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Fluoranthene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Fluorene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0171	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0684	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0684	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Naphthalene	ND	---	0.0684	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Phenanthrene	ND	---	0.0684	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Pyrene	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0342	ug/L	1	05/20/25 21:17	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery:	102 %	Limits:	78-134 %	1	05/20/25 21:17	EPA 8270E LVI
Benzo(a)pyrene-d12 (Surr)			117 %		80-132 %	1	05/20/25 21:17	EPA 8270E LVI

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Page 23 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Silica Gel Column Cleanup

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 25E0812 - EPA 3510C (Fuels/Acid Ext.) w/SGC						Water							
Blank (25E0812-BLK1)			Prepared: 05/23/25 07:24		Analyzed: 05/23/25 19:38								
NWTPH-Dx/SGC													
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 84 %		Limits: 50-150 %		Dilution: 1x							
LCS (25E0812-BS1)			Prepared: 05/23/25 07:24		Analyzed: 05/23/25 19:59								
NWTPH-Dx/SGC													
Diesel	0.330	---	0.0800	mg/L	1	0.500	---	66	36-132%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 91 %		Limits: 50-150 %		Dilution: 1x							
LCS Dup (25E0812-BSD1)			Prepared: 05/23/25 07:24		Analyzed: 05/23/25 20:19								Q-19
NWTPH-Dx/SGC													
Diesel	0.320	---	0.0800	mg/L	1	0.500	---	64	36-132%	3	30%		
Surr: o-Terphenyl (Surr)		Recovery: 91 %		Limits: 50-150 %		Dilution: 1x							

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Blank (25E0580-BLK1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 16:07							
EPA 8260D												
Acetone	ND	---	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Blank (25E0580-BLK1)						Prepared: 05/16/25 14:00 Analyzed: 05/16/25 16:07						
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 107 % Limits: 80-120 % Dilution: 1x												

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ANALYTICAL REPORT

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503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Blank (25E0580-BLK1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 16:07							
Surr: Toluene-d8 (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		100 %		80-120 %		"						
LCS (25E0580-BS1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 15:21							
EPA 8260D												
Acetone	41.5	---	20.0	ug/L	1	40.0	---	104	80-120%	---	---	
Acrylonitrile	20.9	---	2.00	ug/L	1	20.0	---	105	80-120%	---	---	
Benzene	20.8	---	0.200	ug/L	1	20.0	---	104	80-120%	---	---	
Bromobenzene	19.1	---	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Bromochloromethane	22.0	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Bromodichloromethane	24.1	---	1.00	ug/L	1	20.0	---	121	80-120%	---	---	Q-56
Bromoform	22.6	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
Bromomethane	22.4	---	5.00	ug/L	1	20.0	---	112	80-120%	---	---	
2-Butanone (MEK)	40.5	---	10.0	ug/L	1	40.0	---	101	80-120%	---	---	
n-Butylbenzene	22.0	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
sec-Butylbenzene	22.6	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
tert-Butylbenzene	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
Carbon disulfide	26.4	---	10.0	ug/L	1	20.0	---	132	80-120%	---	---	Q-56
Carbon tetrachloride	24.5	---	1.00	ug/L	1	20.0	---	122	80-120%	---	---	Q-56
Chlorobenzene	20.0	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Chloroethane	21.6	---	5.00	ug/L	1	20.0	---	108	80-120%	---	---	
Chloroform	21.7	---	1.00	ug/L	1	20.0	---	108	80-120%	---	---	
Chloromethane	20.8	---	5.00	ug/L	1	20.0	---	104	80-120%	---	---	
2-Chlorotoluene	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
4-Chlorotoluene	20.0	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
Dibromochloromethane	21.3	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
1,2-Dibromo-3-chloropropane	22.2	---	5.00	ug/L	1	20.0	---	111	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.0	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Dibromomethane	22.5	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,2-Dichlorobenzene	20.1	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
1,3-Dichlorobenzene	20.7	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
1,4-Dichlorobenzene	19.8	---	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Dichlorodifluoromethane	22.8	---	1.00	ug/L	1	20.0	---	114	80-120%	---	---	
1,1-Dichloroethane	21.7	---	0.400	ug/L	1	20.0	---	109	80-120%	---	---	

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Darrell Auvil, Client Services Manager

Page 27 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
LCS (25E0580-BS1)						Prepared: 05/16/25 14:00 Analyzed: 05/16/25 15:21						
1,2-Dichloroethane (EDC)	20.8	---	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
1,1-Dichloroethene	21.5	---	0.400	ug/L	1	20.0	---	108	80-120%	---	---	
cis-1,2-Dichloroethene	20.6	---	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
trans-1,2-Dichloroethene	20.7	---	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
1,2-Dichloropropane	20.8	---	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,3-Dichloropropane	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
2,2-Dichloropropane	23.9	---	1.00	ug/L	1	20.0	---	119	80-120%	---	---	
1,1-Dichloropropene	21.2	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
cis-1,3-Dichloropropene	20.0	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
trans-1,3-Dichloropropene	20.9	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Ethylbenzene	20.3	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Hexachlorobutadiene	21.0	---	5.00	ug/L	1	20.0	---	105	80-120%	---	---	
2-Hexanone	40.0	---	10.0	ug/L	1	40.0	---	100	80-120%	---	---	
Isopropylbenzene	20.5	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
4-Isopropyltoluene	22.0	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Methylene chloride	22.6	---	10.0	ug/L	1	20.0	---	113	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	38.2	---	10.0	ug/L	1	40.0	---	95	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	20.4	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Naphthalene	16.7	---	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
n-Propylbenzene	20.6	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Styrene	20.3	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.2	---	0.400	ug/L	1	20.0	---	106	80-120%	---	---	
1,1,2,2-Tetrachloroethane	22.3	---	0.500	ug/L	1	20.0	---	111	80-120%	---	---	
Tetrachloroethene (PCE)	20.2	---	0.400	ug/L	1	20.0	---	101	80-120%	---	---	
Toluene	19.5	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2,3-Trichlorobenzene	19.6	---	2.00	ug/L	1	20.0	---	98	80-120%	---	---	
1,2,4-Trichlorobenzene	18.8	---	2.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,1,1-Trichloroethane	23.2	---	0.400	ug/L	1	20.0	---	116	80-120%	---	---	
1,1,2-Trichloroethane	21.1	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Trichloroethene (TCE)	20.2	---	0.400	ug/L	1	20.0	---	101	80-120%	---	---	
Trichlorofluoromethane	27.9	---	2.00	ug/L	1	20.0	---	140	80-120%	---	---	Q-56
1,2,3-Trichloropropane	21.3	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
1,2,4-Trimethylbenzene	22.3	---	1.00	ug/L	1	20.0	---	111	80-120%	---	---	
1,3,5-Trimethylbenzene	21.4	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	

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Page 28 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C												
Water												
LCS (25E0580-BS1)				Prepared: 05/16/25 14:00		Analyzed: 05/16/25 15:21						
Vinyl chloride	21.1	---	0.200	ug/L	1	20.0	---	105	80-120%	---	---	
m,p-Xylene	41.8	---	1.00	ug/L	1	40.0	---	105	80-120%	---	---	
o-Xylene	19.5	---	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 106 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		95 %		80-120 %		"						
Duplicate (25E0580-DUP1)				Prepared: 05/16/25 14:00		Analyzed: 05/16/25 23:36						
QC Source Sample: Non-SDG (A5E1408-03)												
Acetone	ND	---	200	ug/L	10	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	140	ug/L	10	---	ND	---	---	---	30%	R-02
Benzene	184	---	2.00	ug/L	10	---	197	---	---	7	30%	
Bromobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromoform	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Bromomethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
n-Butylbenzene	18.3	---	10.0	ug/L	10	---	19.6	---	---	7	30%	M-02
sec-Butylbenzene	11.6	---	10.0	ug/L	10	---	12.2	---	---	5	30%	
tert-Butylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Chloroethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
Chloroform	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Chloromethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Dibromomethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Duplicate (25E0580-DUP1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 23:36							
QC Source Sample: Non-SDG (A5E1408-03)												
1,3-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	956	---	5.00	ug/L	10	---	1000	---	---	5	30%	
Hexachlorobutadiene	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Hexanone	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
Isopropylbenzene	53.3	---	10.0	ug/L	10	---	54.2	---	---	2	30%	
4-Isopropyltoluene	ND	---	10.0	ug/L	10	---	10.6	---	---	***	30%	M-02
Methylene chloride	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Naphthalene	305	---	50.0	ug/L	10	---	313	---	---	2	30%	
n-Propylbenzene	103	---	5.00	ug/L	10	---	106	---	---	3	30%	
Styrene	ND	---	10.0	ug/L	10	---	7.70	---	---	***	30%	
1,1,1,2-Tetrachloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	74.8	---	10.0	ug/L	10	---	77.6	---	---	4	30%	
1,2,3-Trichlorobenzene	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	

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Page 30 of 55



ANALYTICAL REPORT

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6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C							Water					
Duplicate (25E0580-DUP1)			Prepared: 05/16/25 14:00 Analyzed: 05/16/25 23:36									
QC Source Sample: Non-SDG (A5E1408-03)												
Trichloroethene (TCE)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	101	---	10.0	ug/L	10	---	105	---	---	4	30%	
1,3,5-Trimethylbenzene	54.4	---	10.0	ug/L	10	---	55.7	---	---	2	30%	
Vinyl chloride	ND	---	2.00	ug/L	10	---	ND	---	---	---	30%	
m,p-Xylene	534	---	10.0	ug/L	10	---	558	---	---	4	30%	
o-Xylene	14.9	---	5.00	ug/L	10	---	15.2	---	---	2	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 110 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		94 %		80-120 %		"						

Duplicate (25E0580-DUP2) Prepared: 05/16/25 14:00 Analyzed: 05/17/25 01:06**QC Source Sample: Non-SDG (A5E1326-01)**

Acetone	ND	---	2000	ug/L	100	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
Benzene	ND	---	20.0	ug/L	100	---	ND	---	---	---	30%	
Bromobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Bromoform	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Bromomethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
n-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Chloroethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
Chloroform	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Chloromethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	

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Page 31 of 55



ANALYTICAL REPORT

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503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Duplicate (25E0580-DUP2)			Prepared: 05/16/25 14:00		Analyzed: 05/17/25 01:06							
QC Source Sample: Non-SDG (A5E1326-01)												
4-Chlorotoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Dibromomethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloroethene	59.0	---	40.0	ug/L	100	---	60.0	---	---	2	30%	
cis-1,2-Dichloroethene	35900	---	40.0	ug/L	100	---	33800	---	---	6	30%	E
trans-1,2-Dichloroethene	97.0	---	40.0	ug/L	100	---	159	---	---	48	30%	Q-17
1,2-Dichloropropane	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
2-Hexanone	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Methylene chloride	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Naphthalene	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Styrene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Duplicate (25E0580-DUP2)			Prepared: 05/16/25 14:00 Analyzed: 05/17/25 01:06									
QC Source Sample: Non-SDG (A5E1326-01)												
Tetrachloroethene (PCE)	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
Toluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	64.0	---	50.0	ug/L	100	---	58.0	---	---	10	30%	
Trichloroethene (TCE)	959	---	40.0	ug/L	100	---	912	---	---	5	30%	
Trichlorofluoromethane	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Vinyl chloride	270	---	20.0	ug/L	100	---	239	---	---	12	30%	
m,p-Xylene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
o-Xylene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 111 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		95 %		80-120 %		"						

Matrix Spike (25E0580-MS1)

Prepared: 05/16/25 14:00 Analyzed: 05/16/25 19:29

QC Source Sample: TCORE-3-GW (A5E1360-05)

EPA 8260D												
Acetone	43.3	---	20.0	ug/L	1	40.0	ND	108	39-160%	---	---	
Acrylonitrile	21.1	---	2.00	ug/L	1	20.0	ND	106	63-135%	---	---	
Benzene	22.1	---	0.200	ug/L	1	20.0	ND	110	79-120%	---	---	
Bromobenzene	19.5	---	0.500	ug/L	1	20.0	ND	97	80-120%	---	---	
Bromochloromethane	23.1	---	1.00	ug/L	1	20.0	ND	116	78-123%	---	---	
Bromodichloromethane	25.6	---	1.00	ug/L	1	20.0	ND	128	79-125%	---	---	Q-54
Bromoform	22.1	---	1.00	ug/L	1	20.0	ND	110	66-130%	---	---	
Bromomethane	24.3	---	5.00	ug/L	1	20.0	ND	121	53-141%	---	---	
2-Butanone (MEK)	40.2	---	10.0	ug/L	1	40.0	ND	100	56-143%	---	---	
n-Butylbenzene	22.2	---	1.00	ug/L	1	20.0	ND	111	75-128%	---	---	
sec-Butylbenzene	23.2	---	1.00	ug/L	1	20.0	ND	116	77-126%	---	---	
tert-Butylbenzene	20.1	---	1.00	ug/L	1	20.0	ND	100	78-124%	---	---	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

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6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C							Water					
Matrix Spike (25E0580-MS1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 19:29							
QC Source Sample: TCORE-3-GW (A5E1360-05)												
Carbon disulfide	30.4	---	10.0	ug/L	1	20.0	ND	152	64-133%	---	---	Q-54a
Carbon tetrachloride	29.4	---	1.00	ug/L	1	20.0	ND	147	72-136%	---	---	Q-54c
Chlorobenzene	21.3	---	0.500	ug/L	1	20.0	ND	107	80-120%	---	---	
Chloroethane	22.1	---	5.00	ug/L	1	20.0	ND	110	60-138%	---	---	
Chloroform	23.3	---	1.00	ug/L	1	20.0	ND	116	79-124%	---	---	
Chloromethane	20.6	---	5.00	ug/L	1	20.0	ND	103	50-139%	---	---	
2-Chlorotoluene	20.8	---	1.00	ug/L	1	20.0	ND	104	79-122%	---	---	
4-Chlorotoluene	20.5	---	1.00	ug/L	1	20.0	ND	103	78-122%	---	---	
Dibromochloromethane	21.6	---	1.00	ug/L	1	20.0	ND	108	74-126%	---	---	
1,2-Dibromo-3-chloropropane	21.7	---	5.00	ug/L	1	20.0	ND	109	62-128%	---	---	
1,2-Dibromoethane (EDB)	21.5	---	0.500	ug/L	1	20.0	ND	107	77-121%	---	---	
Dibromomethane	23.7	---	1.00	ug/L	1	20.0	ND	118	79-123%	---	---	
1,2-Dichlorobenzene	20.5	---	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
1,3-Dichlorobenzene	21.5	---	0.500	ug/L	1	20.0	ND	108	80-120%	---	---	
1,4-Dichlorobenzene	20.8	---	0.500	ug/L	1	20.0	ND	104	79-120%	---	---	
Dichlorodifluoromethane	18.9	---	1.00	ug/L	1	20.0	ND	95	32-152%	---	---	
1,1-Dichloroethane	23.3	---	0.400	ug/L	1	20.0	ND	117	77-125%	---	---	
1,2-Dichloroethane (EDC)	21.8	---	0.400	ug/L	1	20.0	ND	109	73-128%	---	---	
1,1-Dichloroethene	23.1	---	0.400	ug/L	1	20.0	ND	116	71-131%	---	---	
cis-1,2-Dichloroethene	21.0	---	0.400	ug/L	1	20.0	ND	105	78-123%	---	---	
trans-1,2-Dichloroethene	21.8	---	0.400	ug/L	1	20.0	ND	109	75-124%	---	---	
1,2-Dichloropropane	22.0	---	0.500	ug/L	1	20.0	ND	110	78-122%	---	---	
1,3-Dichloropropane	20.3	---	1.00	ug/L	1	20.0	ND	102	80-120%	---	---	
2,2-Dichloropropane	24.2	---	1.00	ug/L	1	20.0	ND	121	60-139%	---	---	
1,1-Dichloropropene	22.7	---	1.00	ug/L	1	20.0	ND	113	79-125%	---	---	
cis-1,3-Dichloropropene	17.3	---	1.00	ug/L	1	20.0	ND	86	75-124%	---	---	
trans-1,3-Dichloropropene	20.6	---	1.00	ug/L	1	20.0	ND	103	73-127%	---	---	
Ethylbenzene	21.5	---	0.500	ug/L	1	20.0	ND	108	79-121%	---	---	
Hexachlorobutadiene	20.9	---	5.00	ug/L	1	20.0	ND	105	66-134%	---	---	
2-Hexanone	37.6	---	10.0	ug/L	1	40.0	ND	94	57-139%	---	---	
Isopropylbenzene	21.1	---	1.00	ug/L	1	20.0	ND	105	72-131%	---	---	
4-Isopropyltoluene	22.5	---	1.00	ug/L	1	20.0	ND	113	77-127%	---	---	
Methylene chloride	23.2	---	10.0	ug/L	1	20.0	ND	116	74-124%	---	---	

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Darrell Auvil, Client Services Manager

Page 34 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

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503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0580 - EPA 5030C						Water						
Matrix Spike (25E0580-MS1)			Prepared: 05/16/25 14:00		Analyzed: 05/16/25 19:29							
QC Source Sample: TCORE-3-GW (A5E1360-05)												
4-Methyl-2-pentanone (MiBK)	35.6	---	10.0	ug/L	1	40.0	ND	89	67-130%	---	---	Q-54d
Methyl tert-butyl ether (MTBE)	19.5	---	1.00	ug/L	1	20.0	ND	98	71-124%	---	---	
Naphthalene	15.4	---	5.00	ug/L	1	20.0	ND	77	61-128%	---	---	
n-Propylbenzene	21.7	---	0.500	ug/L	1	20.0	ND	108	76-126%	---	---	
Styrene	21.2	---	1.00	ug/L	1	20.0	ND	106	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.2	---	0.400	ug/L	1	20.0	ND	111	78-124%	---	---	
1,1,2,2-Tetrachloroethane	24.3	---	0.500	ug/L	1	20.0	ND	121	71-121%	---	---	
Tetrachloroethene (PCE)	20.7	---	0.400	ug/L	1	20.0	ND	103	74-129%	---	---	
Toluene	20.7	---	1.00	ug/L	1	20.0	ND	103	80-121%	---	---	
1,2,3-Trichlorobenzene	18.6	---	2.00	ug/L	1	20.0	ND	93	69-129%	---	---	
1,2,4-Trichlorobenzene	17.6	---	2.00	ug/L	1	20.0	ND	88	69-130%	---	---	
1,1,1-Trichloroethane	25.2	---	0.400	ug/L	1	20.0	ND	126	74-131%	---	---	
1,1,2-Trichloroethane	21.6	---	0.500	ug/L	1	20.0	ND	108	80-120%	---	---	
Trichloroethene (TCE)	20.0	---	0.400	ug/L	1	20.0	ND	100	79-123%	---	---	
Trichlorofluoromethane	31.1	---	2.00	ug/L	1	20.0	ND	155	65-141%	---	---	
1,2,3-Trichloropropane	20.9	---	1.00	ug/L	1	20.0	ND	104	73-122%	---	---	
1,2,4-Trimethylbenzene	22.6	---	1.00	ug/L	1	20.0	ND	113	76-124%	---	---	
1,3,5-Trimethylbenzene	22.4	---	1.00	ug/L	1	20.0	ND	112	75-124%	---	---	
Vinyl chloride	22.0	---	0.200	ug/L	1	20.0	ND	110	58-137%	---	---	
m,p-Xylene	44.3	---	1.00	ug/L	1	40.0	ND	111	80-121%	---	---	
o-Xylene	19.9	---	0.500	ug/L	1	20.0	ND	99	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery:		107 %	Limits:		80-120 %		Dilution: 1x			
Toluene-d8 (Surr)				97 %			80-120 %		"			
4-Bromofluorobenzene (Surr)				92 %			80-120 %		"			

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ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Blank (25E0606-BLK1)			Prepared: 05/19/25 10:43		Analyzed: 05/19/25 13:17							
EPA 8260D												
Acetone	ND	---	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	

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ORELAP ID: OR100062

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3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Blank (25E0606-BLK1)						Prepared: 05/19/25 10:43 Analyzed: 05/19/25 13:17						
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 98 % Limits: 80-120 % Dilution: 1x												

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Blank (25E0606-BLK1)			Prepared: 05/19/25 10:43		Analyzed: 05/19/25 13:17							
Surr: Toluene-d8 (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		96 %		80-120 %		"						
LCS (25E0606-BS1)			Prepared: 05/19/25 10:43		Analyzed: 05/19/25 12:23							
EPA 8260D												
Acetone	40.0	---	20.0	ug/L	1	40.0	---	100	80-120%	---	---	
Acrylonitrile	20.4	---	2.00	ug/L	1	20.0	---	102	80-120%	---	---	
Benzene	19.1	---	0.200	ug/L	1	20.0	---	95	80-120%	---	---	
Bromobenzene	17.0	---	0.500	ug/L	1	20.0	---	85	80-120%	---	---	
Bromochloromethane	20.9	---	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
Bromodichloromethane	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Bromoform	20.0	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
Bromomethane	23.2	---	5.00	ug/L	1	20.0	---	116	80-120%	---	---	
2-Butanone (MEK)	40.8	---	10.0	ug/L	1	40.0	---	102	80-120%	---	---	
n-Butylbenzene	17.9	---	1.00	ug/L	1	20.0	---	89	80-120%	---	---	
sec-Butylbenzene	18.6	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
tert-Butylbenzene	19.7	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Carbon disulfide	27.2	---	10.0	ug/L	1	20.0	---	136	80-120%	---	---	Q-56
Carbon tetrachloride	23.5	---	1.00	ug/L	1	20.0	---	118	80-120%	---	---	
Chlorobenzene	19.0	---	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
Chloroethane	24.7	---	5.00	ug/L	1	20.0	---	124	80-120%	---	---	Q-56
Chloroform	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Chloromethane	20.6	---	5.00	ug/L	1	20.0	---	103	80-120%	---	---	
2-Chlorotoluene	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
4-Chlorotoluene	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Dibromochloromethane	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2-Dibromo-3-chloropropane	18.8	---	5.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,2-Dibromoethane (EDB)	19.9	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Dibromomethane	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
1,2-Dichlorobenzene	18.7	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
1,3-Dichlorobenzene	19.3	---	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
1,4-Dichlorobenzene	18.4	---	0.500	ug/L	1	20.0	---	92	80-120%	---	---	
Dichlorodifluoromethane	18.5	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
1,1-Dichloroethane	19.7	---	0.400	ug/L	1	20.0	---	98	80-120%	---	---	

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Page 38 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

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503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
LCS (25E0606-BS1)						Prepared: 05/19/25 10:43 Analyzed: 05/19/25 12:23						
1,2-Dichloroethane (EDC)	20.1	---	0.400	ug/L	1	20.0	---	100	80-120%	---	---	
1,1-Dichloroethene	22.4	---	0.400	ug/L	1	20.0	---	112	80-120%	---	---	
cis-1,2-Dichloroethene	19.0	---	0.400	ug/L	1	20.0	---	95	80-120%	---	---	
trans-1,2-Dichloroethene	18.0	---	0.400	ug/L	1	20.0	---	90	80-120%	---	---	
1,2-Dichloropropane	19.1	---	0.500	ug/L	1	20.0	---	95	80-120%	---	---	
1,3-Dichloropropane	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
2,2-Dichloropropane	21.9	---	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
1,1-Dichloropropene	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
cis-1,3-Dichloropropene	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
trans-1,3-Dichloropropene	20.4	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
Ethylbenzene	19.9	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Hexachlorobutadiene	17.1	---	5.00	ug/L	1	20.0	---	86	80-120%	---	---	
2-Hexanone	42.3	---	10.0	ug/L	1	40.0	---	106	80-120%	---	---	
Isopropylbenzene	17.6	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
4-Isopropyltoluene	18.1	---	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Methylene chloride	20.3	---	10.0	ug/L	1	20.0	---	101	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	42.5	---	10.0	ug/L	1	40.0	---	106	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	19.7	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Naphthalene	17.1	---	5.00	ug/L	1	20.0	---	85	80-120%	---	---	
n-Propylbenzene	20.0	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Styrene	19.1	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,1,1,2-Tetrachloroethane	20.5	---	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
1,1,2,2-Tetrachloroethane	19.3	---	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Tetrachloroethene (PCE)	17.7	---	0.400	ug/L	1	20.0	---	89	80-120%	---	---	
Toluene	18.5	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
1,2,3-Trichlorobenzene	18.1	---	2.00	ug/L	1	20.0	---	91	80-120%	---	---	
1,2,4-Trichlorobenzene	16.9	---	2.00	ug/L	1	20.0	---	85	80-120%	---	---	
1,1,1-Trichloroethane	20.0	---	0.400	ug/L	1	20.0	---	100	80-120%	---	---	
1,1,2-Trichloroethane	19.2	---	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Trichloroethene (TCE)	18.3	---	0.400	ug/L	1	20.0	---	92	80-120%	---	---	
Trichlorofluoromethane	25.2	---	2.00	ug/L	1	20.0	---	126	80-120%	---	---	Q-56
1,2,3-Trichloropropane	20.1	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
1,2,4-Trimethylbenzene	21.3	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
1,3,5-Trimethylbenzene	21.7	---	1.00	ug/L	1	20.0	---	108	80-120%	---	---	

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Page 39 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

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503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
LCS (25E0606-BS1)				Prepared: 05/19/25 10:43		Analyzed: 05/19/25 12:23						
Vinyl chloride	19.4	---	0.200	ug/L	1	20.0	---	97	80-120%	---	---	
m,p-Xylene	42.6	---	1.00	ug/L	1	40.0	---	106	80-120%	---	---	
o-Xylene	20.2	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			Recovery: 99 %		Limits: 80-120 %		Dilution: 1x					
Toluene-d8 (Surr)			101 %		80-120 %		"					
4-Bromofluorobenzene (Surr)			91 %		80-120 %		"					
Duplicate (25E0606-DUP1)						Prepared: 05/19/25 10:43		Analyzed: 05/19/25 18:41				
QC Source Sample: Non-SDG (A5E1372-03)												
Acetone	ND	---	400	ug/L	20	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	100	ug/L	20	---	ND	---	---	---	30%	R-02
Benzene	4770	---	4.00	ug/L	20	---	4630	---	---	3	30%	E
Bromobenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Bromoform	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Bromomethane	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	200	ug/L	20	---	ND	---	---	---	30%	
n-Butylbenzene	21.0	---	20.0	ug/L	20	---	22.0	---	---	5	30%	
sec-Butylbenzene	ND	---	20.0	ug/L	20	---	13.2	---	---	***	30%	
tert-Butylbenzene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	200	ug/L	20	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Chloroethane	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
Chloroform	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Chloromethane	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Dibromomethane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	

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Darrell Auvil, Client Services Manager

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3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Duplicate (25E0606-DUP1)			Prepared: 05/19/25 10:43 Analyzed: 05/19/25 18:41									
QC Source Sample: Non-SDG (A5E1372-03)												
1,3-Dichlorobenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Ethylbenzene	540	---	10.0	ug/L	20	---	516	---	---	5	30%	
Hexachlorobutadiene	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
2-Hexanone	ND	---	200	ug/L	20	---	ND	---	---	---	30%	
Isopropylbenzene	75.8	---	20.0	ug/L	20	---	72.2	---	---	5	30%	
4-Isopropyltoluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Methylene chloride	ND	---	200	ug/L	20	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	200	ug/L	20	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Naphthalene	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
n-Propylbenzene	234	---	10.0	ug/L	20	---	227	---	---	3	30%	
Styrene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
Toluene	211	---	20.0	ug/L	20	---	203	---	---	4	30%	
1,2,3-Trichlorobenzene	ND	---	40.0	ug/L	20	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	40.0	ug/L	20	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	

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Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C							Water					
Duplicate (25E0606-DUP1)			Prepared: 05/19/25 10:43 Analyzed: 05/19/25 18:41									
QC Source Sample: Non-SDG (A5E1372-03)												
Trichloroethene (TCE)	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	40.0	ug/L	20	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	23.0	---	20.0	ug/L	20	---	22.2	---	---	4	30%	
1,3,5-Trimethylbenzene	22.4	---	20.0	ug/L	20	---	22.6	---	---	0.9	30%	
Vinyl chloride	ND	---	4.00	ug/L	20	---	ND	---	---	---	30%	
m,p-Xylene	388	---	20.0	ug/L	20	---	371	---	---	4	30%	
o-Xylene	32.2	---	10.0	ug/L	20	---	31.8	---	---	1	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 95 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		104 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		97 %		80-120 %		"						

Matrix Spike (25E0606-MS1)

Prepared: 05/19/25 10:43 Analyzed: 05/19/25 19:08

QC Source Sample: TCORE-5-GW (A5E1360-07)

EPA 8260D												
Acetone	44.3	---	20.0	ug/L	1	40.0	ND	111	39-160%	---	---	
Acrylonitrile	20.7	---	2.00	ug/L	1	20.0	ND	103	63-135%	---	---	
Benzene	21.5	---	0.200	ug/L	1	20.0	ND	108	79-120%	---	---	
Bromobenzene	18.0	---	0.500	ug/L	1	20.0	ND	90	80-120%	---	---	
Bromochloromethane	22.1	---	1.00	ug/L	1	20.0	ND	111	78-123%	---	---	
Bromodichloromethane	21.5	---	1.00	ug/L	1	20.0	ND	108	79-125%	---	---	
Bromoform	20.6	---	1.00	ug/L	1	20.0	ND	103	66-130%	---	---	
Bromomethane	27.8	---	5.00	ug/L	1	20.0	ND	139	53-141%	---	---	
2-Butanone (MEK)	42.0	---	10.0	ug/L	1	40.0	ND	105	56-143%	---	---	
n-Butylbenzene	19.5	---	1.00	ug/L	1	20.0	ND	98	75-128%	---	---	
sec-Butylbenzene	20.6	---	1.00	ug/L	1	20.0	ND	103	77-126%	---	---	
tert-Butylbenzene	22.2	---	1.00	ug/L	1	20.0	ND	111	78-124%	---	---	
Carbon disulfide	31.9	---	10.0	ug/L	1	20.0	ND	159	64-133%	---	---	Q-54b
Carbon tetrachloride	25.4	---	1.00	ug/L	1	20.0	ND	127	72-136%	---	---	
Chlorobenzene	20.7	---	0.500	ug/L	1	20.0	ND	103	80-120%	---	---	
Chloroethane	24.9	---	5.00	ug/L	1	20.0	ND	124	60-138%	---	---	Q-54e
Chloroform	20.4	---	1.00	ug/L	1	20.0	ND	102	79-124%	---	---	
Chloromethane	22.8	---	5.00	ug/L	1	20.0	ND	114	50-139%	---	---	

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Page 42 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Matrix Spike (25E0606-MS1)			Prepared: 05/19/25 10:43 Analyzed: 05/19/25 19:08									
QC Source Sample: TCORE-5-GW (A5E1360-07)												
2-Chlorotoluene	21.3	---	1.00	ug/L	1	20.0	ND	107	79-122%	---	---	
4-Chlorotoluene	22.4	---	1.00	ug/L	1	20.0	ND	112	78-122%	---	---	
Dibromochloromethane	21.4	---	1.00	ug/L	1	20.0	ND	107	74-126%	---	---	
1,2-Dibromo-3-chloropropane	18.6	---	5.00	ug/L	1	20.0	ND	93	62-128%	---	---	
1,2-Dibromoethane (EDB)	21.0	---	0.500	ug/L	1	20.0	ND	105	77-121%	---	---	
Dibromomethane	20.5	---	1.00	ug/L	1	20.0	ND	102	79-123%	---	---	
1,2-Dichlorobenzene	19.9	---	0.500	ug/L	1	20.0	ND	99	80-120%	---	---	
1,3-Dichlorobenzene	20.4	---	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
1,4-Dichlorobenzene	19.5	---	0.500	ug/L	1	20.0	ND	98	79-120%	---	---	
Dichlorodifluoromethane	20.4	---	1.00	ug/L	1	20.0	ND	102	32-152%	---	---	
1,1-Dichloroethane	21.6	---	0.400	ug/L	1	20.0	ND	108	77-125%	---	---	
1,2-Dichloroethane (EDC)	21.4	---	0.400	ug/L	1	20.0	ND	107	73-128%	---	---	
1,1-Dichloroethene	26.2	---	0.400	ug/L	1	20.0	ND	131	71-131%	---	---	
cis-1,2-Dichloroethene	21.5	---	0.400	ug/L	1	20.0	ND	107	78-123%	---	---	
trans-1,2-Dichloroethene	20.9	---	0.400	ug/L	1	20.0	ND	104	75-124%	---	---	
1,2-Dichloropropane	20.8	---	0.500	ug/L	1	20.0	ND	104	78-122%	---	---	
1,3-Dichloropropane	20.9	---	1.00	ug/L	1	20.0	ND	104	80-120%	---	---	
2,2-Dichloropropane	22.2	---	1.00	ug/L	1	20.0	ND	111	60-139%	---	---	
1,1-Dichloropropene	22.5	---	1.00	ug/L	1	20.0	ND	112	79-125%	---	---	
cis-1,3-Dichloropropene	19.5	---	1.00	ug/L	1	20.0	ND	98	75-124%	---	---	
trans-1,3-Dichloropropene	21.8	---	1.00	ug/L	1	20.0	ND	109	73-127%	---	---	
Ethylbenzene	21.6	---	0.500	ug/L	1	20.0	ND	108	79-121%	---	---	
Hexachlorobutadiene	18.3	---	5.00	ug/L	1	20.0	ND	92	66-134%	---	---	
2-Hexanone	45.3	---	10.0	ug/L	1	40.0	ND	113	57-139%	---	---	
Isopropylbenzene	20.2	---	1.00	ug/L	1	20.0	ND	101	72-131%	---	---	
4-Isopropyltoluene	19.8	---	1.00	ug/L	1	20.0	ND	99	77-127%	---	---	
Methylene chloride	21.3	---	10.0	ug/L	1	20.0	ND	107	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	44.9	---	10.0	ug/L	1	40.0	ND	112	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	21.7	---	1.00	ug/L	1	20.0	ND	108	71-124%	---	---	
Naphthalene	17.4	---	5.00	ug/L	1	20.0	ND	87	61-128%	---	---	
n-Propylbenzene	22.0	---	0.500	ug/L	1	20.0	ND	110	76-126%	---	---	
Styrene	20.9	---	1.00	ug/L	1	20.0	ND	105	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.5	---	0.400	ug/L	1	20.0	ND	113	78-124%	---	---	

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Page 43 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0606 - EPA 5030C						Water						
Matrix Spike (25E0606-MS1)			Prepared: 05/19/25 10:43		Analyzed: 05/19/25 19:08							
QC Source Sample: TCORE-5-GW (A5E1360-07)												
1,1,2,2-Tetrachloroethane	20.3	---	0.500	ug/L	1	20.0	ND	102	71-121%	---	---	Q-54f
Tetrachloroethene (PCE)	19.7	---	0.400	ug/L	1	20.0	ND	99	74-129%	---	---	
Toluene	20.7	---	1.00	ug/L	1	20.0	ND	104	80-121%	---	---	
1,2,3-Trichlorobenzene	18.9	---	2.00	ug/L	1	20.0	ND	94	69-129%	---	---	
1,2,4-Trichlorobenzene	17.7	---	2.00	ug/L	1	20.0	ND	89	69-130%	---	---	
1,1,1-Trichloroethane	22.0	---	0.400	ug/L	1	20.0	ND	110	74-131%	---	---	
1,1,2-Trichloroethane	20.2	---	0.500	ug/L	1	20.0	ND	101	80-120%	---	---	
Trichloroethene (TCE)	19.9	---	0.400	ug/L	1	20.0	ND	100	79-123%	---	---	
Trichlorofluoromethane	26.7	---	2.00	ug/L	1	20.0	ND	133	65-141%	---	---	
1,2,3-Trichloropropane	20.0	---	1.00	ug/L	1	20.0	ND	100	73-122%	---	---	
1,2,4-Trimethylbenzene	22.7	---	1.00	ug/L	1	20.0	ND	113	76-124%	---	---	
1,3,5-Trimethylbenzene	23.6	---	1.00	ug/L	1	20.0	ND	118	75-124%	---	---	
Vinyl chloride	22.6	---	0.200	ug/L	1	20.0	ND	113	58-137%	---	---	
m,p-Xylene	46.8	---	1.00	ug/L	1	40.0	ND	117	80-121%	---	---	
o-Xylene	22.4	---	0.500	ug/L	1	20.0	ND	112	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 98 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		91 %		80-120 %		"						

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Page 44 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0639 - EPA 3511 (Bottle Extraction)						Water						
Blank (25E0639-BLK1)			Prepared: 05/20/25 07:06		Analyzed: 05/20/25 12:40							
EPA 8270E LVI												
Acenaphthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	B-02
Acenaphthylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 111 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		108 %		80-132 %		"						

LCS (25E0639-BS1)

Prepared: 05/20/25 07:06 Analyzed: 05/20/25 13:12

EPA 8270E LVI

Acenaphthene	1.97	---	0.0320	ug/L	1	1.60	---	123	80-120%	---	---	Q-29
Acenaphthylene	2.13	---	0.0320	ug/L	1	1.60	---	133	80-124%	---	---	Q-29
Anthracene	1.93	---	0.0320	ug/L	1	1.60	---	120	80-123%	---	---	
Benz(a)anthracene	1.95	---	0.0160	ug/L	1	1.60	---	122	80-122%	---	---	
Benzo(a)pyrene	2.15	---	0.0160	ug/L	1	1.60	---	134	80-129%	---	---	Q-29
Benzo(b)fluoranthene	1.97	---	0.0160	ug/L	1	1.60	---	123	80-124%	---	---	
Benzo(k)fluoranthene	2.04	---	0.0160	ug/L	1	1.60	---	128	80-125%	---	---	Q-29
Benzo(g,h,i)perylene	1.84	---	0.0320	ug/L	1	1.60	---	115	80-120%	---	---	

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ANALYTICAL REPORT

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6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0639 - EPA 3511 (Bottle Extraction)						Water						
LCS (25E0639-BS1)			Prepared: 05/20/25 07:06		Analyzed: 05/20/25 13:12							
Chrysene	1.85	---	0.0160	ug/L	1	1.60	---	116	80-120%	---	---	
Dibenz(a,h)anthracene	1.91	---	0.0160	ug/L	1	1.60	---	120	80-120%	---	---	
Fluoranthene	1.95	---	0.0320	ug/L	1	1.60	---	122	80-126%	---	---	
Fluorene	2.20	---	0.0320	ug/L	1	1.60	---	137	77-127%	---	---	Q-29
Indeno(1,2,3-cd)pyrene	1.87	---	0.0160	ug/L	1	1.60	---	117	80-121%	---	---	
1-Methylnaphthalene	2.27	---	0.0640	ug/L	1	1.60	---	142	53-148%	---	---	
2-Methylnaphthalene	2.31	---	0.0640	ug/L	1	1.60	---	144	48-150%	---	---	
Naphthalene	2.09	---	0.0640	ug/L	1	1.60	---	131	78-120%	---	---	B-02, Q-29
Phenanthrene	1.89	---	0.0640	ug/L	1	1.60	---	118	80-120%	---	---	
Pyrene	1.98	---	0.0320	ug/L	1	1.60	---	124	80-125%	---	---	
Carbazole	2.07	---	0.0320	ug/L	1	1.60	---	129	65-141%	---	---	
Dibenzofuran	2.14	---	0.0320	ug/L	1	1.60	---	134	76-121%	---	---	Q-29
Surr: Acenaphthylene-d8 (Surr)		Recovery: 105 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		115 %		80-132 %		"						

LCS Dup (25E0639-BSD1)				Prepared: 05/20/25 07:06 Analyzed: 05/20/25 13:45								Q-19
EPA 8270E LVI												
Acenaphthene	1.79	---	0.0320	ug/L	1	1.60	---	112	80-120%	10	30%	
Acenaphthylene	1.90	---	0.0320	ug/L	1	1.60	---	119	80-124%	11	30%	
Anthracene	1.79	---	0.0320	ug/L	1	1.60	---	112	80-123%	7	30%	
Benz(a)anthracene	1.79	---	0.0160	ug/L	1	1.60	---	112	80-122%	8	30%	
Benzo(a)pyrene	1.96	---	0.0160	ug/L	1	1.60	---	122	80-129%	9	30%	
Benzo(b)fluoranthene	1.75	---	0.0160	ug/L	1	1.60	---	109	80-124%	12	30%	
Benzo(k)fluoranthene	1.84	---	0.0160	ug/L	1	1.60	---	115	80-125%	11	30%	
Benzo(g,h,i)perylene	1.66	---	0.0320	ug/L	1	1.60	---	104	80-120%	11	30%	
Chrysene	1.69	---	0.0160	ug/L	1	1.60	---	106	80-120%	9	30%	
Dibenz(a,h)anthracene	1.70	---	0.0160	ug/L	1	1.60	---	106	80-120%	12	30%	
Fluoranthene	1.77	---	0.0320	ug/L	1	1.60	---	110	80-126%	10	30%	
Fluorene	2.01	---	0.0320	ug/L	1	1.60	---	126	77-127%	9	30%	
Indeno(1,2,3-cd)pyrene	1.69	---	0.0160	ug/L	1	1.60	---	105	80-121%	10	30%	
1-Methylnaphthalene	2.00	---	0.0640	ug/L	1	1.60	---	125	53-148%	13	30%	
2-Methylnaphthalene	2.04	---	0.0640	ug/L	1	1.60	---	127	48-150%	12	30%	
Naphthalene	1.85	---	0.0640	ug/L	1	1.60	---	116	78-120%	12	30%	B-02
Phenanthrene	1.71	---	0.0640	ug/L	1	1.60	---	107	80-120%	10	30%	

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Page 46 of 55



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street

Portland, OR 97232

Project: POPTCORE - GWMProject Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 25E0639 - EPA 3511 (Bottle Extraction)						Water						
LCS Dup (25E0639-BSD1)			Prepared: 05/20/25 07:06 Analyzed: 05/20/25 13:45						Q-19			
Pyrene	1.80	---	0.0320	ug/L	1	1.60	---	112	80-125%	9	30%	
Carbazole	1.89	---	0.0320	ug/L	1	1.60	---	118	65-141%	9	30%	
Dibenzofuran	1.88	---	0.0320	ug/L	1	1.60	---	117	76-121%	13	30%	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 104 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		115 %		80-132 %		"						

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Page 47 of 55

**ANALYTICAL REPORT****Apex Laboratories, LLC**6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062**Maul Foster & Alongi, INC.**3140 NE Broadway Street
Portland, OR 97232Project: **POPTCORE - GWM**Project Number: **M0232.17.090**Project Manager: **Michael Pickering****Report ID:****A5E1360 - 06 03 25 1042****SAMPLE PREPARATION INFORMATION****Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Silica Gel Column Cleanup****Prep: EPA 3510C (Fuels/Acid Ext.) w/SGC**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 25E0812</u>							
A5E1360-01	Water	NWTPH-Dx/SGC	05/13/25 14:19	05/23/25 07:24	1050mL/2mL	1000mL/2mL	0.95
A5E1360-02	Water	NWTPH-Dx/SGC	05/13/25 13:47	05/23/25 07:24	1020mL/2mL	1000mL/2mL	0.98
A5E1360-03	Water	NWTPH-Dx/SGC	05/13/25 11:32	05/23/25 07:24	1020mL/2mL	1000mL/2mL	0.98
A5E1360-04	Water	NWTPH-Dx/SGC	05/13/25 10:35	05/23/25 07:24	1050mL/2mL	1000mL/2mL	0.95
A5E1360-05	Water	NWTPH-Dx/SGC	05/13/25 09:07	05/23/25 07:24	1020mL/2mL	1000mL/2mL	0.98
A5E1360-06	Water	NWTPH-Dx/SGC	05/14/25 12:21	05/23/25 07:24	1000mL/2mL	1000mL/2mL	1.00
A5E1360-07	Water	NWTPH-Dx/SGC	05/14/25 13:42	05/23/25 07:24	1010mL/2mL	1000mL/2mL	0.99

Volatile Organic Compounds by EPA 8260D**Prep: EPA 5030C**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 25E0580</u>							
A5E1360-01	Water	EPA 8260D	05/13/25 14:19	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
A5E1360-02	Water	EPA 8260D	05/13/25 13:47	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
A5E1360-03	Water	EPA 8260D	05/13/25 11:32	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
A5E1360-04	Water	EPA 8260D	05/13/25 10:35	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
A5E1360-05	Water	EPA 8260D	05/13/25 09:07	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
A5E1360-06	Water	EPA 8260D	05/14/25 12:21	05/16/25 14:00	5mL/5mL	5mL/5mL	1.00
<u>Batch: 25E0606</u>							
A5E1360-07	Water	EPA 8260D	05/14/25 13:42	05/19/25 13:10	5mL/5mL	5mL/5mL	1.00

Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)**Prep: EPA 3511 (Bottle Extraction)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 25E0639</u>							
A5E1360-01	Water	EPA 8270E LVI	05/13/25 14:19	05/20/25 07:06	105.85mL/5mL	125mL/5mL	1.18
A5E1360-02	Water	EPA 8270E LVI	05/13/25 13:47	05/20/25 07:06	100.43mL/5mL	125mL/5mL	1.24
A5E1360-03	Water	EPA 8270E LVI	05/13/25 11:32	05/20/25 07:06	114.6mL/5mL	125mL/5mL	1.09
A5E1360-04	Water	EPA 8270E LVI	05/13/25 10:35	05/20/25 07:06	98.19mL/5mL	125mL/5mL	1.27
A5E1360-05	Water	EPA 8270E LVI	05/13/25 09:07	05/20/25 07:06	111.52mL/5mL	125mL/5mL	1.12
A5E1360-06	Water	EPA 8270E LVI	05/14/25 12:21	05/20/25 07:07	117.1mL/5mL	125mL/5mL	1.07
A5E1360-07	Water	EPA 8270E LVI	05/14/25 13:42	05/20/25 07:07	117.02mL/5mL	125mL/5mL	1.07

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **POPTCORE - GWM**

Project Number: **M0232.17.090**

Project Manager: **Michael Pickering**

Report ID:

A5E1360 - 06 03 25 1042

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- B-02** Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- DCNT** Sample decanted due to the presence of sediment in water samples, or water in sediment or soil samples. (Note: Decanted aqueous sample bottles are not solvent rinsed.)
- E** Estimated Value. The result is above the calibration range of the instrument.
- M-02** Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
- PRES** Incomplete field preservation. Additional preservative was added to adjust the pH within the appropriate range for this analysis.
- Q-17** RPD between original and duplicate sample, or spike duplicates, is outside of established control limits.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-29** Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +1%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +12%. The results are reported as Estimated Values.
- Q-54b** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +16%. The results are reported as Estimated Values.
- Q-54c** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +2%. The results are reported as Estimated Values.
- Q-54d** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +20%. The results are reported as Estimated Values.
- Q-54e** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +4%. The results are reported as Estimated Values.
- Q-54f** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +6%. The results are reported as Estimated Values.
- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260. Samples that are ND (Non-Detect) are not impacted.
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

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Darrell Auvil, Client Services Manager

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting and Detection Limits: Default Limits

Default Reporting and Detection Limits are based on 100% dry weight with the minimum dilution for the analysis. Reporting and Detection Limits are raised due to moisture content, additional dilutions required for analysis, matrix interferences and in other cases, as necessary.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.

The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")

See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Darrell Auvin, Client Services Manager



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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

- Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses.

In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

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LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
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All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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APEX LABS COOLER RECEIPT FORM

Client: Maul Foster & Alongi Element WO#: A5E1360Project/Project #: POP - T CORE GWM / M0232.17.090Delivery Info:Date/time received: 5/15/25 @ 1255 By: KNDelivered by: Apex Client XESS FedEx UPS Radio Morgan SDS Evergreen OtherFrom USDA Regulated Origin? Yes No ✓Cooler Inspection Date/time inspected: 5/15/25 @ 1255 By: KNChain of Custody included? Yes ✓ No Signed/dated by client? Yes ✓ No Contains USDA Reg. Soils? Yes No ✓ Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>4.6</u>	<u>2.8</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Custody seals? (Y/N)	<u>N</u>	<u>N</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Received on ice? (Y/N)	<u>Y</u>	<u>Y</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Temp. blanks? (Y/N)	<u>Y</u>	<u>Y</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>Real</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Condition (In/Out):	<u>In</u>	<u>In</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Cooler out of temp? (Y/N) Possible reason why: Green dots applied to out of temperature samples? Yes NoOut of temperature samples form initiated? Yes NoSample Inspection: Date/time inspected: 5/15/25 @ 1450 By: JSAll samples intact? Yes No Comments: Bottle labels/COCs agree? Yes No ✓ Comments: All samples missingSub fix - GW.COC/container discrepancies form initiated? Yes No ✓Containers/volumes received appropriate for analysis? Yes ✓ No Comments: Do VOA vials have visible headspace? Yes No ✓ NA Comments: Water samples: pH checked: Yes ✓ No NA pH appropriate? Yes ✓ No NA pH ID: A23I172Comments: Labeled by: JSWitness: Cooler Inspected by: JS

Form Y-003 R-02

Apex Laboratories

Darrell Auvil, Client Services Manager

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Data Validation Memorandum

Project No. M0232.17.090 | June 17, 2025 | Port of Portland

Maul Foster & Alongi, Inc. (MFA), conducted an independent Stage 2A review of the quality of analytical results for groundwater and associated quality control samples collected on May 13 and 14, 2025, at the Port of Portland Terminal Core Redevelopment site at the Portland International Airport.

Apex Laboratories, LLC (Apex) and Specialty Analytical Inc. (SA) performed the analyses. MFA reviewed Apex report number A5E1360 and SA report number 2505112. The reviewer confirmed that samples TCORE-3-GW/TCORE-3, TCORE-2-GW/TCORE-2 and TCORE-20D-GW/TCORE-20D are field split samples, respectively, and were submitted to both Apex and SA for Northwest Total Petroleum Hydrocarbons (NWTPH)-Dx analysis with silica-gel cleanup (SG). The analyses performed and the samples analyzed are listed in the following tables.

Analysis	Reference
Diesel- and oil-range hydrocarbons with silica-gel cleanup	NWTPH-Dx/SG
Polycyclic aromatic hydrocarbons	EPA 8270E
Volatile organic compounds	EPA 8260D

Notes

EPA = U.S. Environmental Protection Agency.

NWTPH = Northwest Total Petroleum Hydrocarbons.

SG = silica gel cleanup.

Samples Analyzed		
Report A5E1360		Report 2505112
TCORE-1-GW	TCORE-3-GW	TCORE-3
TCORE-10D-GW	TCORE-4-GW	TCORE-2
TCORE-2-GW	TCORE-5-GW	TCORE-20D
TCORE-20D-GW	--	--

Data Validation Procedures

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020) and appropriate laboratory- and method-specific guidelines (Apex 2023, EPA 1986, SA 2024).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods that EPA data review guidelines do not specifically address (e.g., NWTPH-Dx/SG).

Based on the data quality assurance/quality control review described herein, the data, with the appropriate final data qualifiers assigned, are considered acceptable for their intended use. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, and data qualifiers assigned by the reviewer during validation.

Final data qualifiers:

- J = result is estimated.

- J+ = result is estimated, but the result may be biased high.
- U = result is non-detect at the method reporting limit (MRL).
- UJ = result is non-detect with an estimated MRL.

Sample Conditions

Sample Custody

Sample custody was appropriately documented on the chain-of-custody (COC) forms accompanying the reports.

Holding Times

Extractions and analyses were performed within the recommended holding times.

Preservation and Sample Storage

According to report A5E1360, the NWTPH-Dx/SG fraction of sample TCORE-20D-GW was outside the method-recommended pH and additional preservative was added prior to analysis. According to the cooler receipt form, pH was acceptable upon receipt at the laboratory. The reviewer confirmed that the sample was collected into a container pre-preserved with hydrochloric acid. Since the pH was not within the method-recommended pH upon receipt, the sample is considered unpreserved and thus the holding time could not be extended from 7 days for unpreserved samples to 14 samples for preserved samples. NWTPH-Dx/SG preparation of sample TCORE-20D-GW was performed 10 days after sample collection, which exceeds the 7-day holding time. The reviewer qualified the associated sample results, as shown in the following table.

Report	Sample	Analyte	Original Result (mg/L)	Qualified Result (mg/L)
A5E1360	TCORE-20D-GW	Diesel-range hydrocarbons	0.0762 U	0.0762 UJ
		Oil-range hydrocarbons	0.158	0.158 J

Notes

J = result is estimated.

mg/L= milligrams per liter.

U = result is non-detect at the method reporting limit.

UJ = result is non-detect with an estimated method reporting limit.

According to report A5E1360, the EPA Method 8270E portions of samples TCORE-1-GW, TCORE-10D-GW, TCORE-2-GW, TCORE-20D-GW, and TCORE-3-GW were decanted prior to preparation due to the presence of sediment. Apex noted that the sample bottles were not rinsed with solvent, so the reviewer qualified the associated sample results, as shown in the following table. The TCORE-1-GW detected naphthalene result is separately qualified in the Method Blanks section below.

Report	Samples	Analysis	Original Results	Qualification
A5E1360	TCORE-1-GW TCORE-10D-GW TCORE-2-GW TCORE-20D-GW TCORE-3-GW	EPA 8270E	Non-detect	UJ

Notes

EPA = U.S. Environmental Protection Agency.

UJ = result is non-detect with an estimated method reporting limit.

The remaining samples were preserved and stored appropriately.

Reporting Limits

The laboratory evaluated results to MRLs.

Blank Results

Method Blanks

Laboratory method blanks are used to evaluate whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies, in accordance with laboratory- and method-specific requirements.

According to report A5E1360, the EPA Method 8270E batch 25E0639 laboratory method blank had a naphthalene result between one-half the MRL and the MRL. The blank was reported as non-detect at the MRL. The associate TCORE-1-GW naphthalene result was within five times the MRL and was qualified by the reviewer, as shown in the following table. All remaining associated sample results were non-detect and did not require qualification based on the blank result.

Report	Sample	Analyte	Original Result (ug/L)	Qualified Result (ug/L)
A5E1360	TCORE-1-GW	Naphthalene	0.0812	0.0812 J+ ^(a)

Notes

J+ = result is estimated, but the result may be biased high

ug/L = micrograms per liter.

^(a)Final qualification based on laboratory method blank detection and laboratory control sample results. Sample fraction was also decanted without rinsing. Directional bias was applied due to overwhelming influence in one direction.

All remaining laboratory method blank results were non-detect to MRLs.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate the adequacy of the field equipment decontamination process when decontaminated sampling equipment is used to collect samples.

These blanks were not required for this sampling event, as all samples were collected using dedicated or single-use equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during shipping and field handling procedures.

No trip blank samples were submitted for analysis. All field samples were non-detect for volatile organic compounds by EPA Method 8260D.

Laboratory Control Sample and Laboratory Control Sample Duplicate Results

Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) results are used to evaluate laboratory precision and accuracy. Where LCSD were not reported, laboratory precision was evaluated using laboratory duplicate results. All LCS and LCSD were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

According to report A5E1360, the EPA Method 8260D batch 25E0580 LCS results for bromodichloromethane, carbon disulfide, carbon tetrachloride, and trichlorofluoromethane were above the upper percent recovery acceptance limit of 120 percent, ranging from 122 percent to 140 percent. All associated sample results were non-detect and thus did not require qualification.

According to report A5E1360, the EPA Method 8260D batch 25E0606 LCS results for carbon disulfide, chloroethane, and trichlorofluoromethane were above the upper percent recovery acceptance limit of 120 percent, ranging from 124 percent to 136 percent. All associated sample results were non-detect and thus did not require qualification.

According to report A5E1360, the EPA Method 8270E batch 25E0639 LCS results for acenaphthene, acenaphthylene, benzo(a)pyrene, benzo(k)fluoranthene, fluorene, naphthalene, and dibenzofuran were above their respective upper percent recovery acceptance limits, ranging from 123 percent to 137 percent. The associated detected TCORE-1-GW naphthalene results is qualified in the Method Blanks section above. The remaining associated sample results were non-detect and thus did not require qualification.

All remaining LCS and LCSD results were within acceptance limits for percent recovery and relative percent difference (RPD).

Laboratory Duplicate Results

Laboratory duplicate results are used to evaluate laboratory precision and sample homogeneity. All laboratory duplicate samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

Laboratory duplicate results greater than five times the MRL were evaluated using laboratory RPD control limits. A secondary criterion was used when laboratory duplicate results were non-detect or less than five times the MRL. Results meet the secondary criterion if the absolute difference of the laboratory duplicate sample result and the parent sample result, or the MRL for non-detects, is equal to or less than the MRL value of the parent sample.

In cases where the laboratory had prepared laboratory duplicates with samples from unrelated projects, laboratory duplicate RPD control limit exceedances did not require qualification because these sample matrices were not representative of project sample matrices.

All remaining laboratory duplicate results met the acceptance criteria.

Matrix Spike and Matrix Spike Duplicate Results

Matrix spike (MS) and matrix spike duplicate (MSD) results are used to evaluate laboratory precision, accuracy, and the effect of the sample matrix on sample preparation and target analyte recovery. No MSD were reported; all MS samples were prepared and analyzed at the required frequency, in accordance with laboratory- and method-specific requirements.

According to report A5E1360, the EPA Method 8260D batch 25E0580 MS prepared with sample TCORE-3-GW had bromodichloromethane, carbon disulfide, carbon tetrachloride, and trichlorofluoromethane results above their respective upper percent recovery acceptance limits, ranging from 128 percent to 155 percent. All associated sample results were non-detect and thus did not require qualification.

According to report A5E1360, the EPA Method 8260D batch 25E0606 MS prepared with sample TCORE-5-GW had a carbon disulfide result above the upper percent recovery acceptance limit of 133

percent, at 159 percent. The associated sample result was non-detect and thus did not require qualification.

All remaining MS results were within acceptance limits for percent recovery.

Continuing Calibration Verification Results

Continuing calibration verification (CCV) results are used to evaluate instrument sensitivity, precision, and accuracy throughout the analytical sequence.

CCV results are not required for Stage 2A validation, however, the reviewer evaluated CCV results when provided by the laboratory in report 2505112.

All CCV results were within percent recovery acceptance limits.

Surrogate Results

Surrogate results are used to evaluate laboratory performance of target organic compounds for individual samples.

In report 2505112, the NWTPH-Dx/SG decanoic acid surrogate recoveries are not listed. The reviewer confirmed with the laboratory that the decanoic acid is a negative control that demonstrates whether the silica gel cleanup is removing the correct fraction of the sample. Decanoic acid was not recovered in any samples; thus, qualification by the reviewer was not required.

All surrogate results were within percent recovery acceptance limits.

Field Duplicate Results

Field duplicate results are used to evaluate field precision and sample homogeneity.

No field duplicate samples were submitted for analysis.

Data Package

The data package was reviewed for transcription errors, omissions, and anomalies.

According to the cooler receipt form accompanying report A5E1360, all sample labels were missing the “-GW” suffix. The reviewer confirmed Apex was able to correctly identify all samples, and the laboratory correctly logged samples using the sample names provided on the COC form.

No other issues were found.

References

Apex. 2023. *Quality Systems Manual*. Rev. 11. Apex Laboratories, LLC: Tigard, OR. June 20.

EPA. 1986. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. EPA publication SW-846. 3rd ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), VI phase II (2018), VI phase III (2019), VII phase I (2019), and VII phase II (2020).

EPA. 2020. *National Functional Guidelines for Organic Superfund Methods Data Review*. EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

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Appendix D

Apex Forensics Letter Report, August 2025



MAUL
FOSTER
ALONGI

August 19, 2025

Michael Pickering
Maul Foster & Alongi, Inc.
3140 NE Broadway Street
Portland, OR 97232

Dear Mr. Pickering:

As requested, we have reviewed the reports issued by Apex Laboratories, LLC in 2023, 2024, and 2025 for your POP-TCORE GW Monitoring, M0232.17.090/M0232.17.65/0232.17.63, Apex WO A3E1348/A3J1754/A4E1568/A5E1360 project. These reports included results from the testing of water samples collected from monitoring events at the Site between May 2023 and May 2025. The purpose of this review was to evaluate whether or not contamination related to a documented release of Jet A fuel has impacted these water samples.

1.0 WATER SAMPLE ANALYSIS SUMMARY

The analytical work completed at Apex included testing of water samples collected in May 2023, October 2023, May 2024, and May 2025 from the TCORE-1-GW, TCORE-2-GW, TCORE-3-GW, TCORE-4-GW, TCORE-5-GW, TCORE-1OD-GW, and TCORE-2OD-GW locations at the Site. These samples were analyzed for diesel and oil range hydrocarbons with silica gel column cleanup (SGCC) using a gas chromatograph fitted with a flame ionization detector (GC/FID) following Method NWTPH-Dx. The GC/FID traces generated from this analysis are provided in Appendix A.

2.0 WATER SAMPLE TESTING RESULTS SUMMARY

The results of the NWTPH-Dx testing with SGCC of the samples TCORE-1-GW, TCORE-2-GW, TCORE-3-GW, TCORE-4-GW, TCORE-5-GW, TCORE-1OD-GW, and TCORE-2OD-GW between 2023 and 2025 are provided in Table 1. It should be noted that diesel range hydrocarbons were not identified in any of the samples analyzed, therefore only oil range hydrocarbon results are included in Table 1.

Table 1. Summary of NWTPH-Dx with SGCC Results in Water Samples

Sample ID	Lab ID	Date Sampled	Oil (ug/L)
TCORE-1-GW	A3E1348-01	05/12/23	<160
	A3J1754-01	10/26/23	<160
	A4E1568-01	05/23/24	<160
	A5E1360-01	05/13/25	<150
TCORE-2-GW	A3E1348-03	05/11/23	<160
	A3J1754-03	10/25/23	320
	A4E1568-03	05/22/24	<160
	A5E1360-03	05/13/25	<160
TCORE-3-GW	A3E1348-05	05/11/23	400
	A3J1754-05	10/25/23	<160
	A4E1568-05	05/22/24	<160
	A5E1360-05	05/13/25	<160
TCORE-4-GW	A3E1348-06	05/11/23	<160
	A3J1754-06	10/26/23	<160
	A4E1568-06	05/22/24	<160
	A5E1360-06	05/14/25	160
TCORE-5-GW	A3E1348-07	05/11/23	<150
	A3J1754-07	10/26/23	<160
	A4E1568-07	05/23/24	<160
	A5E1360-07	05/14/25	<160
TCORE-1OD-GW	A3E1348-02	05/12/23	<160
	A3J1754-02	10/26/23	<150
	A4E1568-02	05/22/24	<160
	A5E1360-02	05/13/25	<160
TCORE-2OD-GW	A3E1348-04	05/11/23	<150
	A3J1754-04	10/25/23	200
	A4E1568-04	05/22/24	<160
	A5E1360-04	05/13/25	160

3.0 DISCUSSION OF WATER SAMPLE TESTING RESULTS

3.1 Method Blank and Jet A Standard Evaluation

The method blanks associated with the water samples were first evaluated. For example, the GC/FID trace of one of these method blanks is provided as Figure 1. The peak corresponding to the extraction solvent is seen eluting between 0.8 and 1.8 minutes. The peak near 6.2 minutes corresponds to the surrogate (a compound added as a quality assurance check for this GC analysis). In addition, peaks are seen eluting between approximately 3.4 and 4.0 minutes which are indicative of laboratory contamination. The peaks corresponding to the extraction solvent, surrogate compound, and laboratory contamination are labeled on Figure 1 with a blue “x”.

For reference, the GC/FID trace of a typical undegraded Jet A fuel is provided as Figure 2. This material elutes as a dominant, Gaussian pattern of peaks on top of a broad hump or unresolved complex mixture (UCM) between approximately 3.2 and 6.6 minutes. These dominant peaks are indicative of normal alkanes. The Jet A fuel range is shown on Figure 2 with a red bracket. The peak corresponding to the extraction solvent is labeled on Figure 2 with a blue “x”.

Figure 1. Method Blank

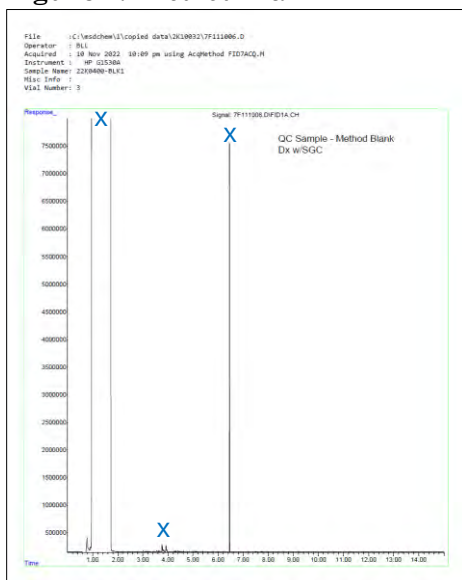
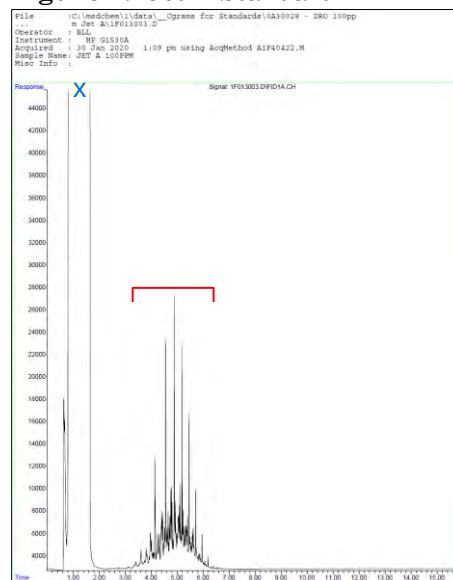


Figure 2. Jet A Standard



3.2 Water Sample Evaluation

The GC/FID traces of the water samples TCORE-1-GW, TCORE-2-GW, TCORE-3-GW, TCORE-4-GW, TCORE-5-GW, TCORE-10D-GW, and TCORE-20D-GW were then evaluated. The GC/FID traces of the samples with oil range detections after SGCC are provided as Figures 3 through 7. These include the samples TCORE-2-GW (October 2023), TCORE-3-GW (May 2023), TCORE-4-GW (May 2025), TCORE-20D-GW (October 2023) and TCORE-20D-GW (May 2025). The peaks corresponding to the extraction solvent, surrogate compound, and laboratory contamination are labeled on these figures with a blue “x”.

Figure 3. TCORE-2-GW (October 2023)

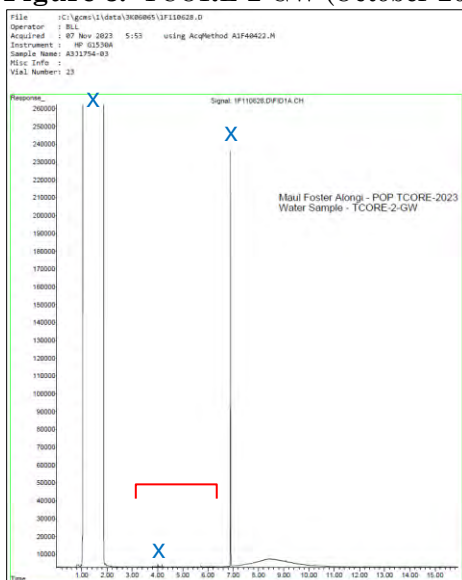
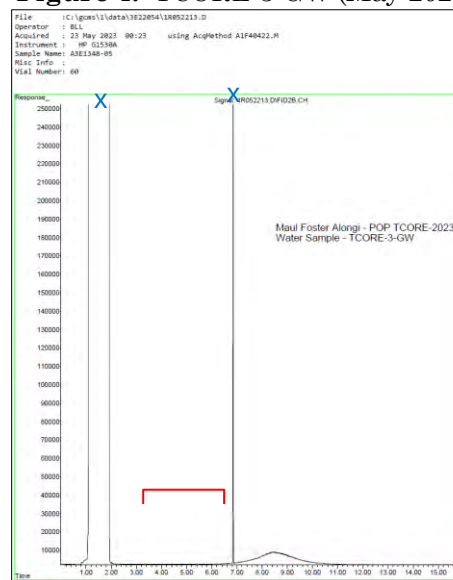
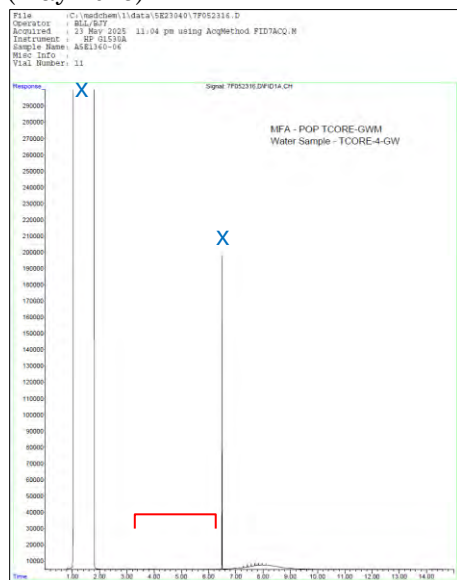


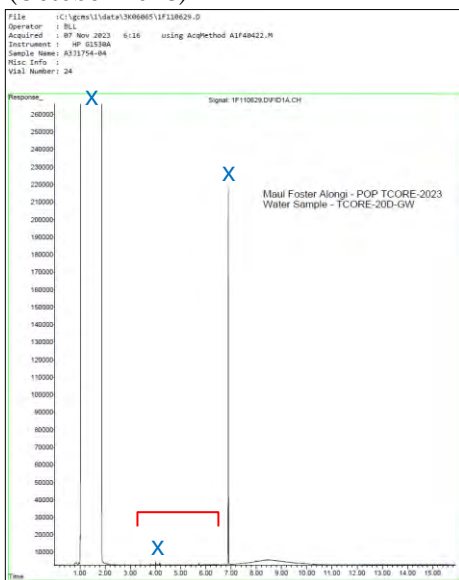
Figure 4. TCORE-3-GW (May 2023)



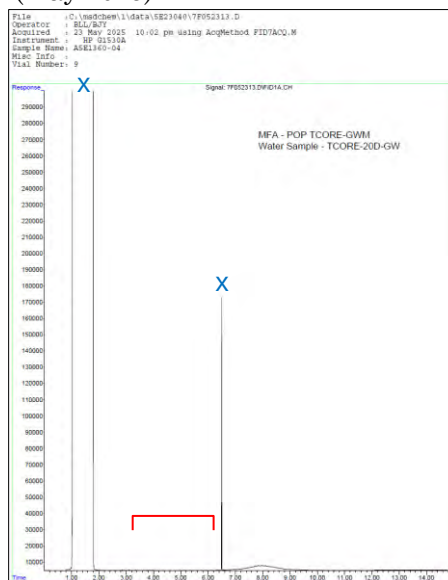
**Figure 5. TCORE-4-GW
(May 2025)**



**Figure 6. TCORE-2OD-GW
(October 2023)**



**Figure 7. TCORE-2OD-GW
(May 2025)**



As shown in Figures 3 through 7, the material identified in the site samples elutes as a broad hump or UCM between approximately 7 and 9 or 10 minutes on the GC/FID trace. Within this range, a dominant, Gaussian pattern of peaks indicative of the normal alkanes was not present.

Comparison of Figures 3 through 7 to Figure 2 shows that the material present in the Site samples elutes in a higher boiling range than Jet A. In addition, the dominant pattern of normal alkanes present in the Jet A standard are not present in the site samples. The Jet A range is shown with a red bracket in Figures 3 through 7. Based on the GC/FID traces generated, the material quantified at the Site is not indicative of Jet A.

It should also be noted that based on the GC/FID traces generated, some samples such as TCORE-2-GW (May 2025), TCORE-3-GW (May 2025), TCORE-4-GW (May 2023), TCORE-4-GW (May 2024), TCORE-5-GW (October 2023), TCORE-1OD-GW (May 2023), TCORE-1OD-GW (May 2025), and TCORE-2OD-GW (May 2023) contain material with a high boiling UCM similar to that seen in Figures 3 through 7. This material was present in these samples below the analytical reporting limit. The presence of this material in these samples indicates that the high boiling UCM at the Site is widespread.

CONCLUSION

It was requested that we review the data generated in order to evaluate whether contamination related to Jet A fuel had impacted the water samples collected in 2023 through 2025 at the POP-TCORE Site. Review of the GC/FID traces generated shows that the boiling range and general chemical composition of the material present in the site samples analyzed is not related to a release of Jet A.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

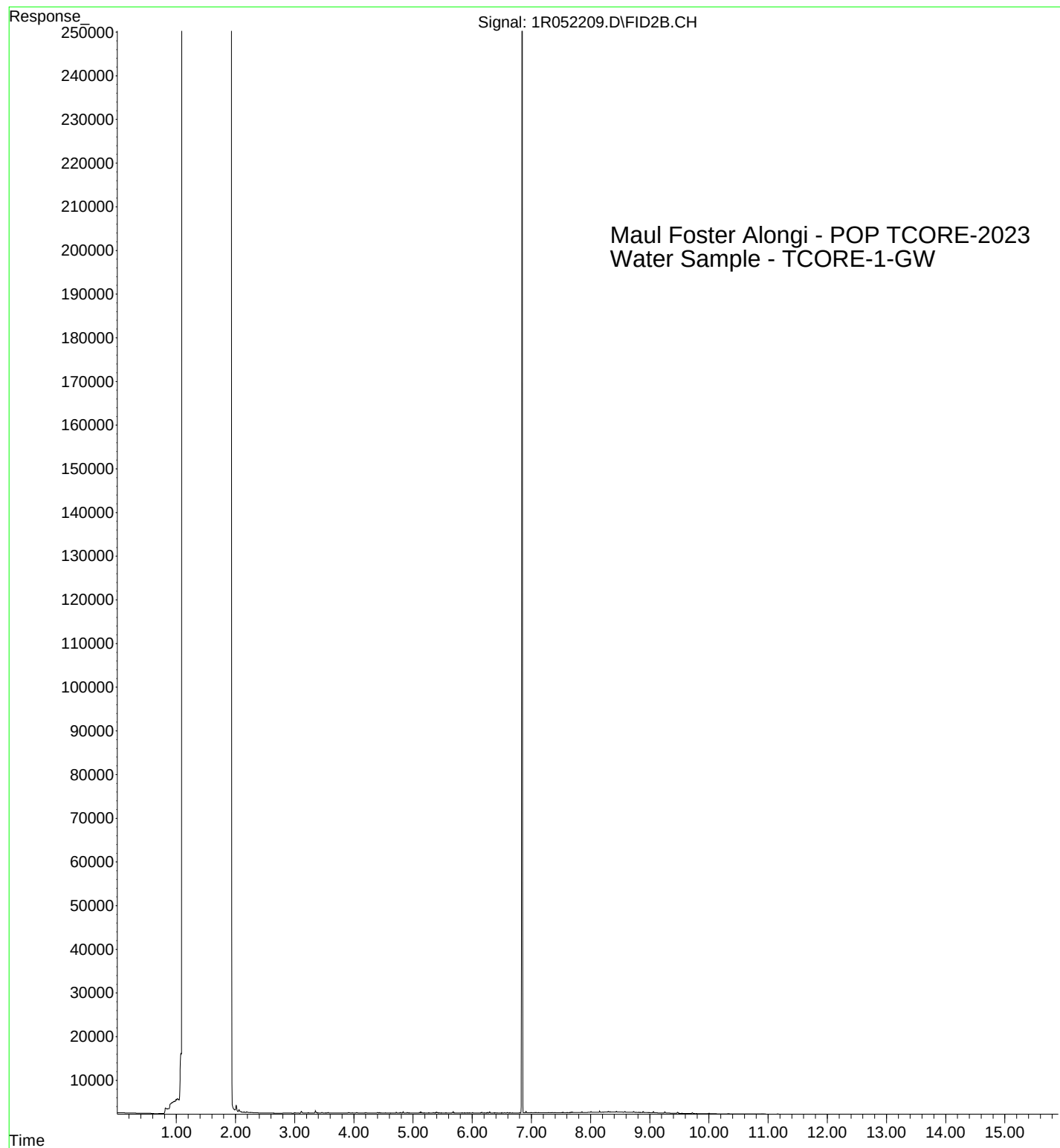
Respectfully,



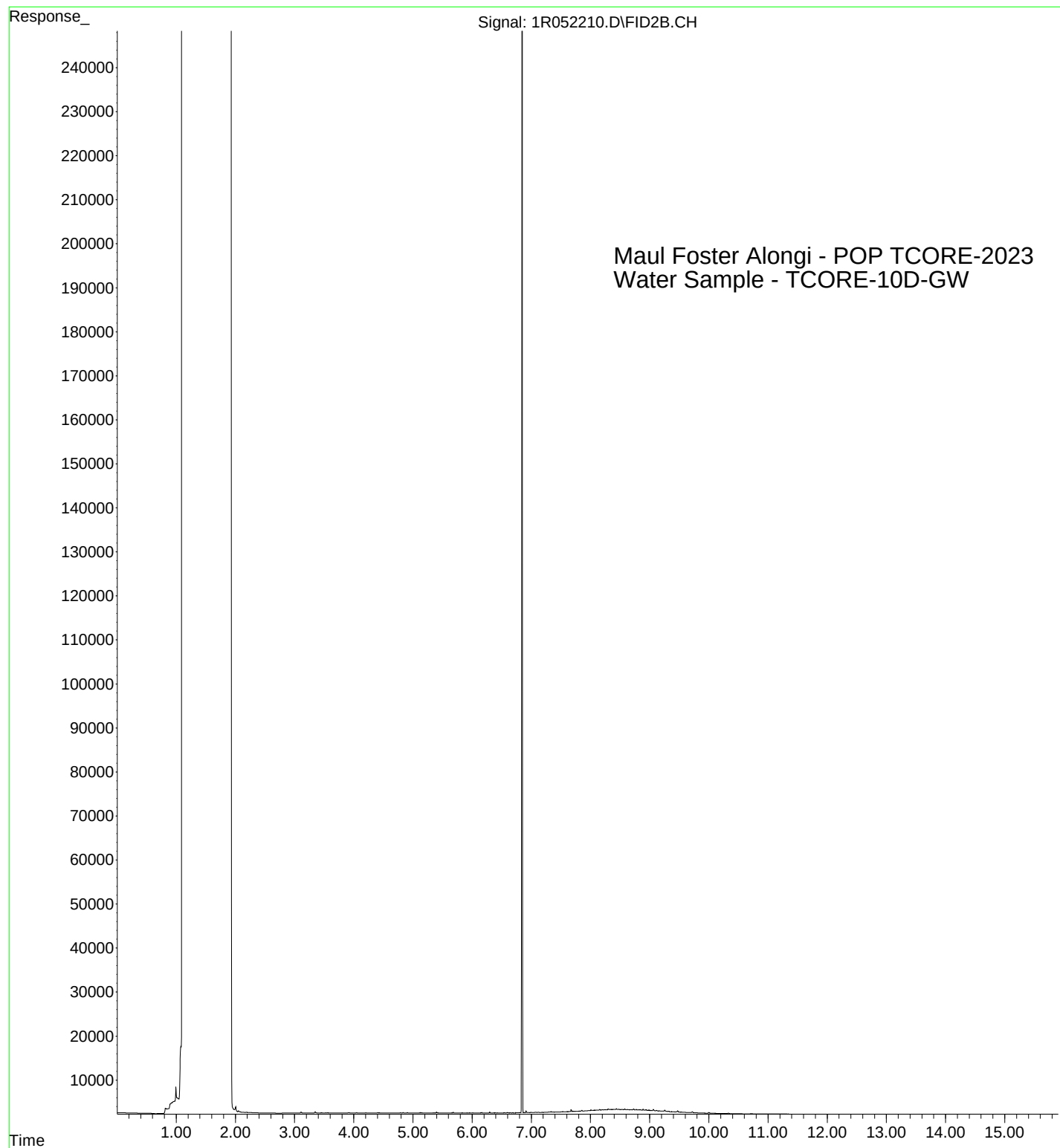
Kurt Johnson, Senior Chemist
Director of Forensic Services
Apex Laboratories, LLC
Enclosures

APPENDIX A

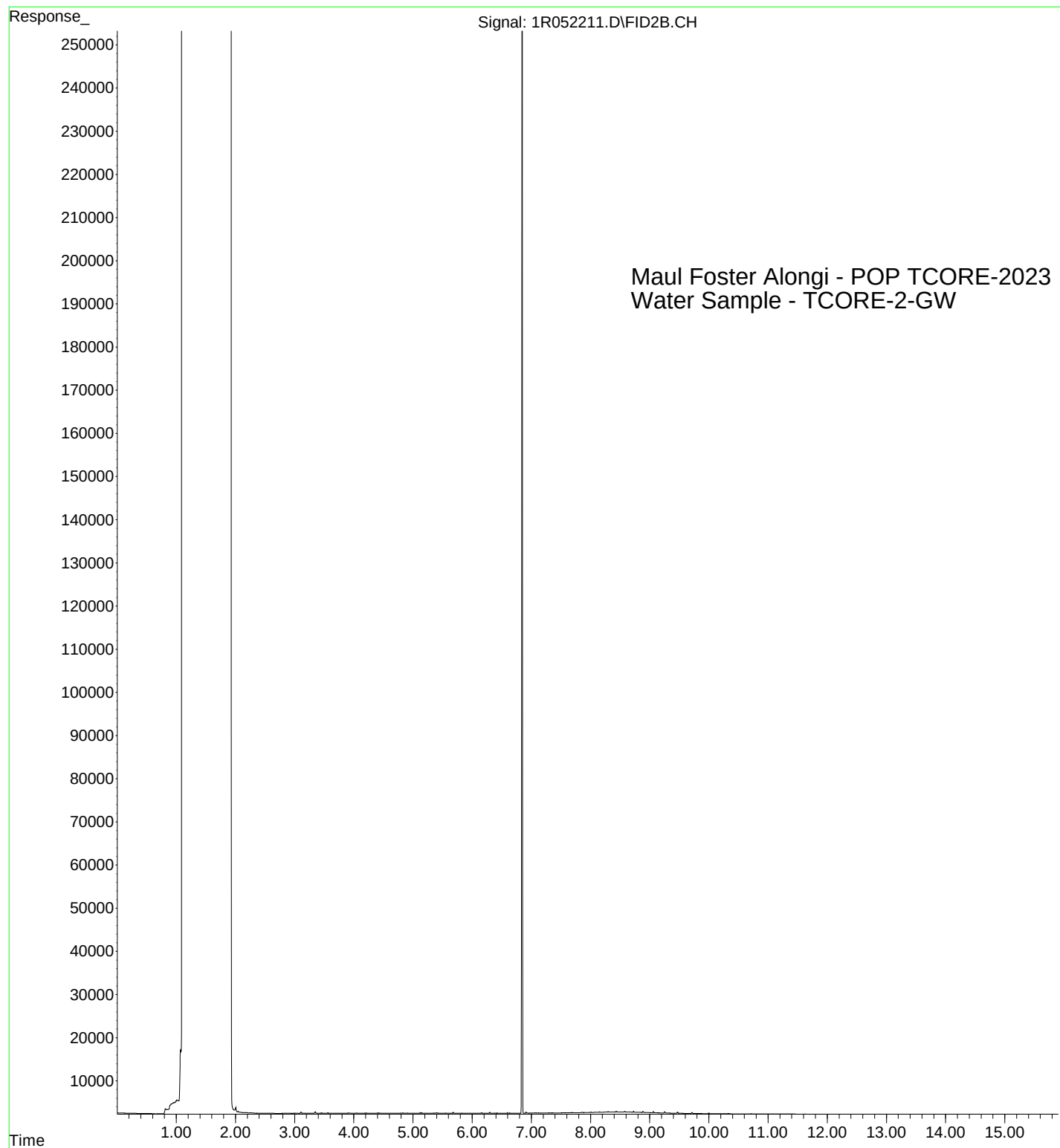
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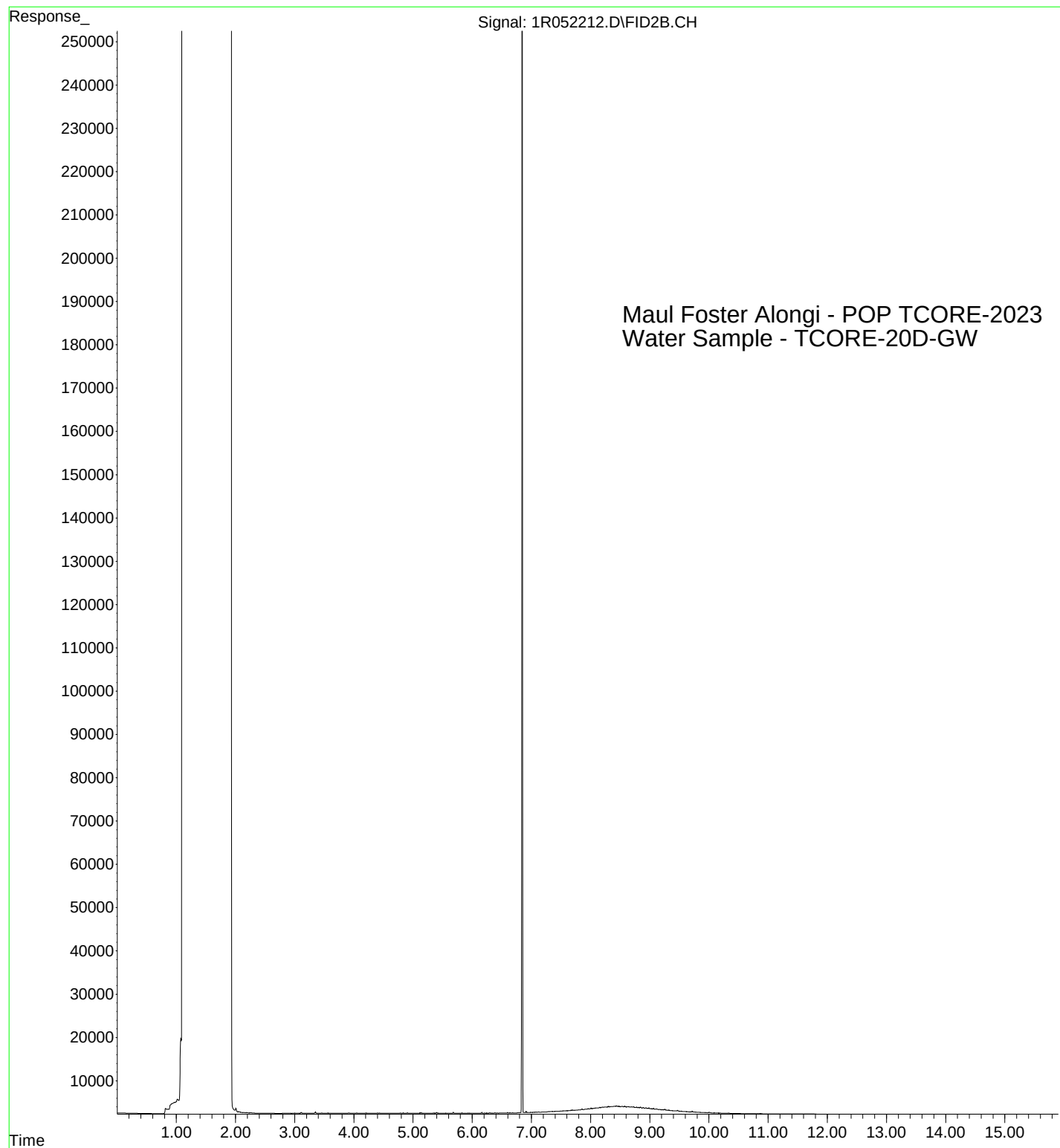
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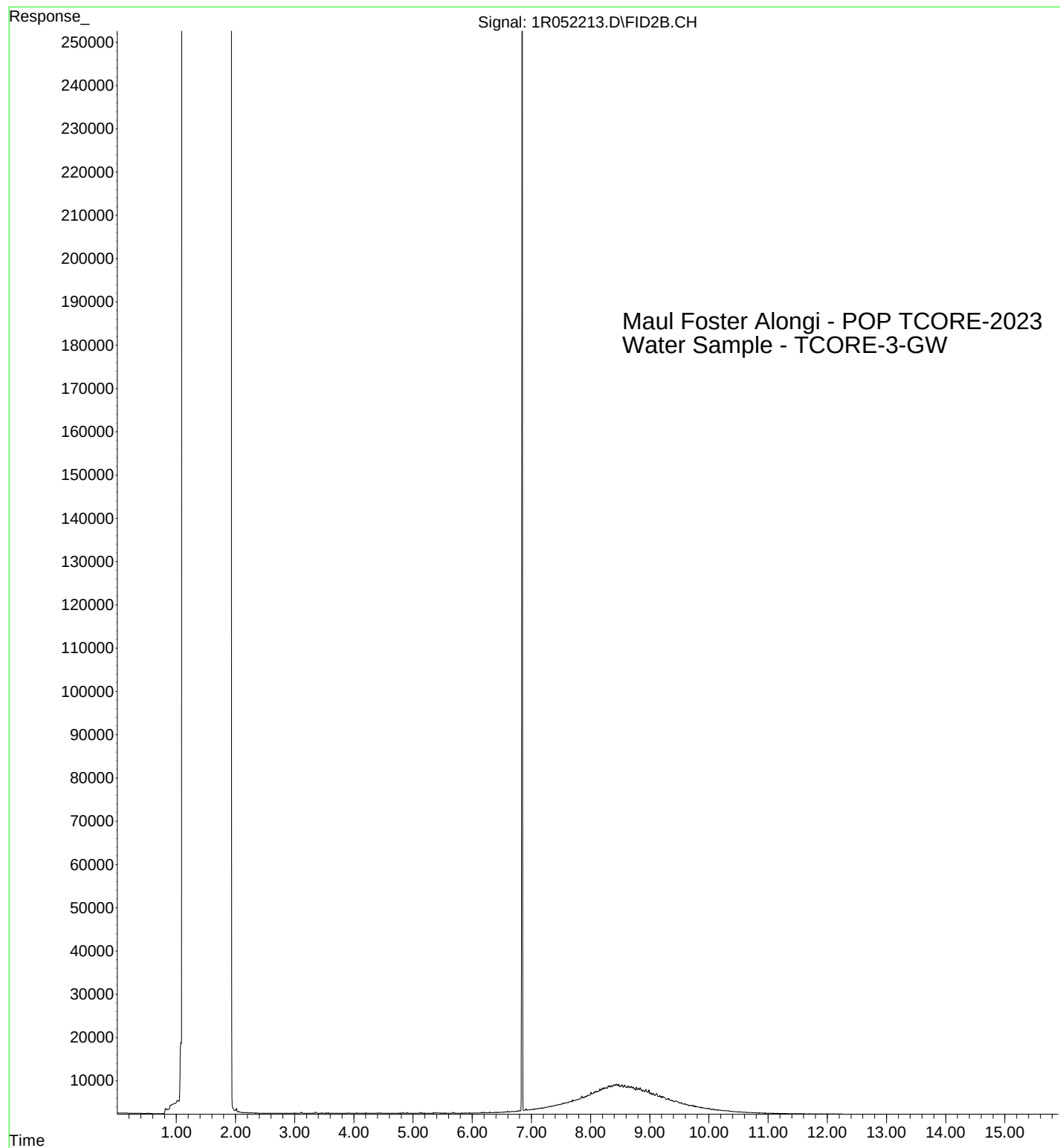
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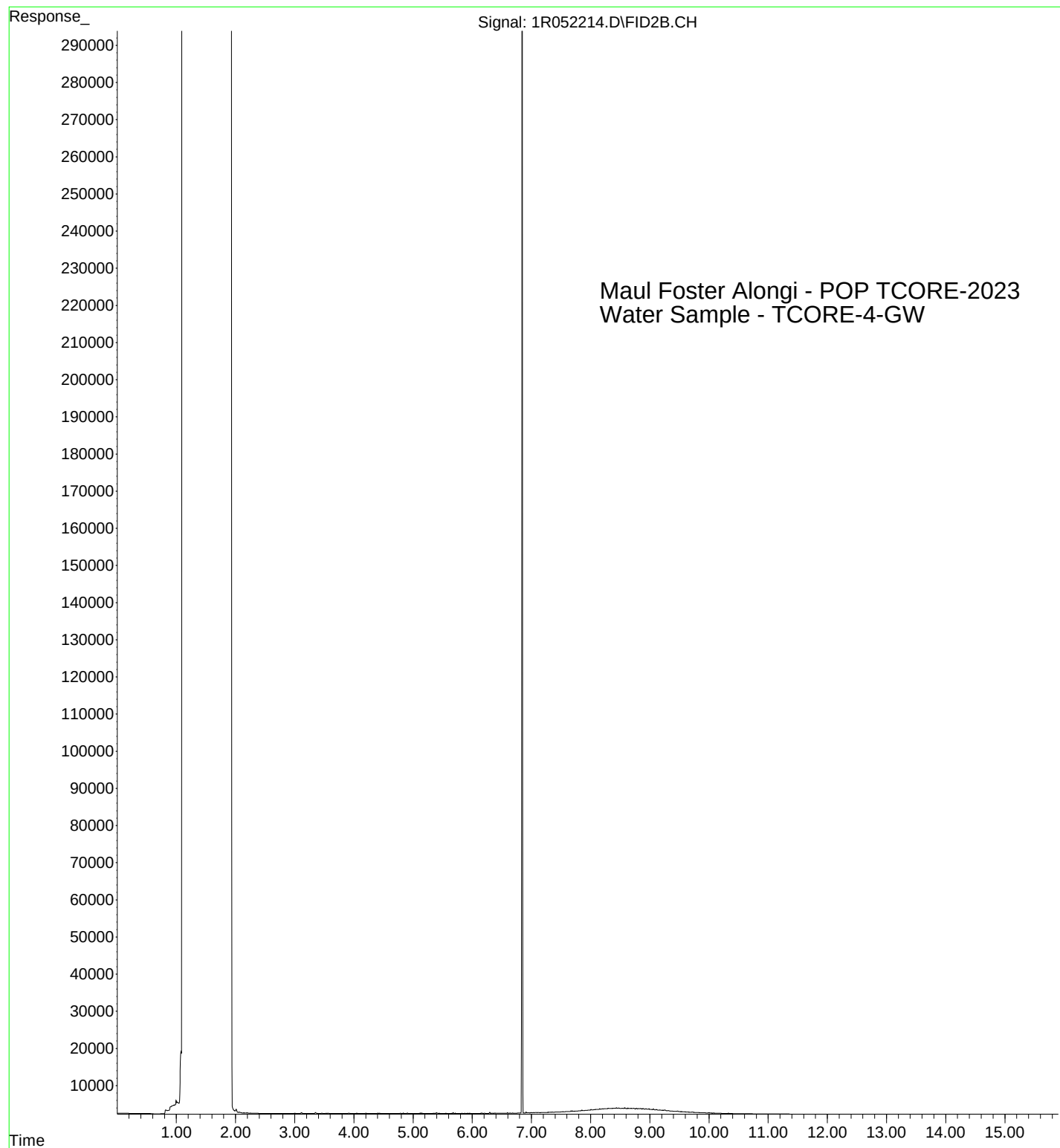
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Misc Info :
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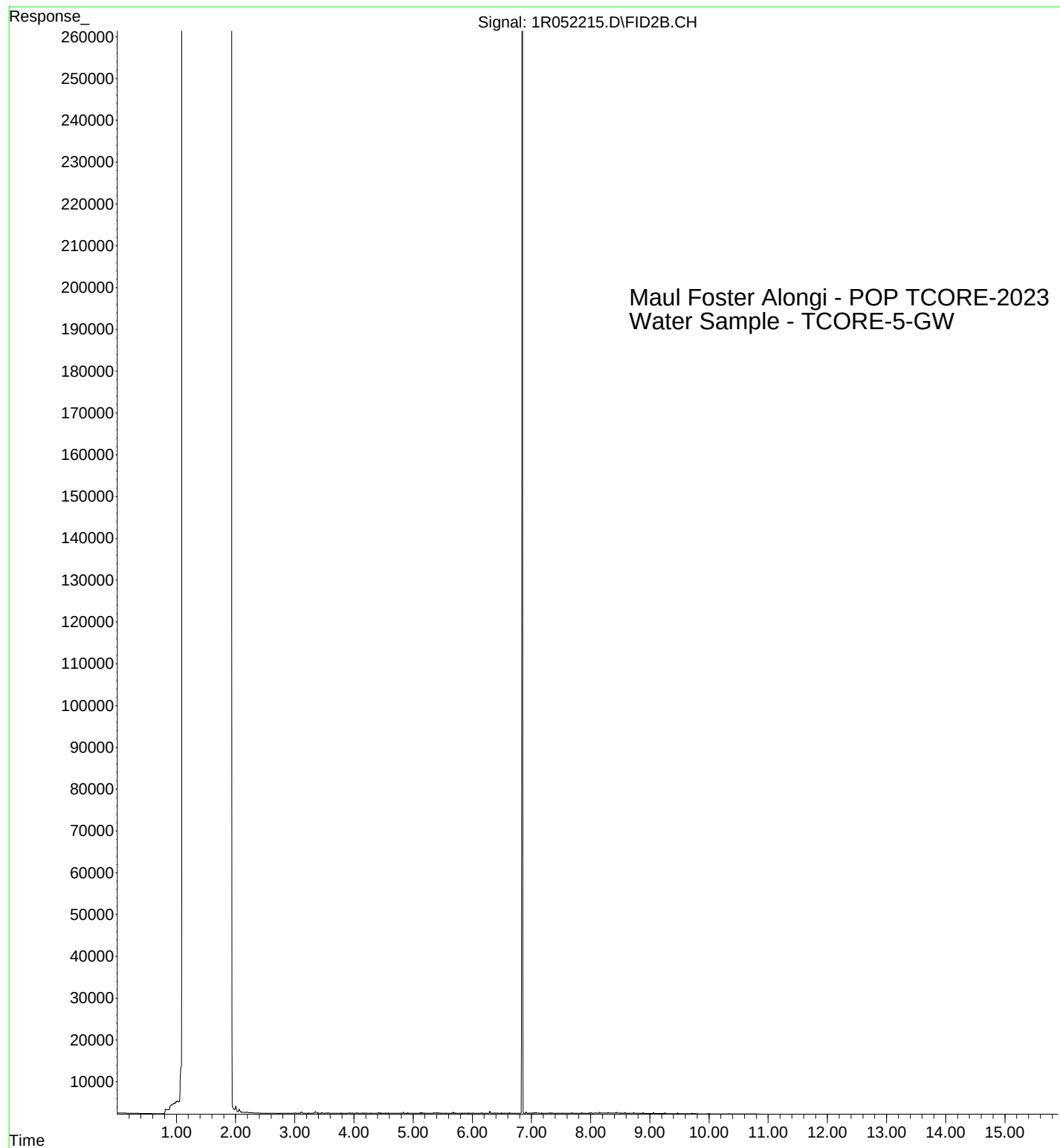
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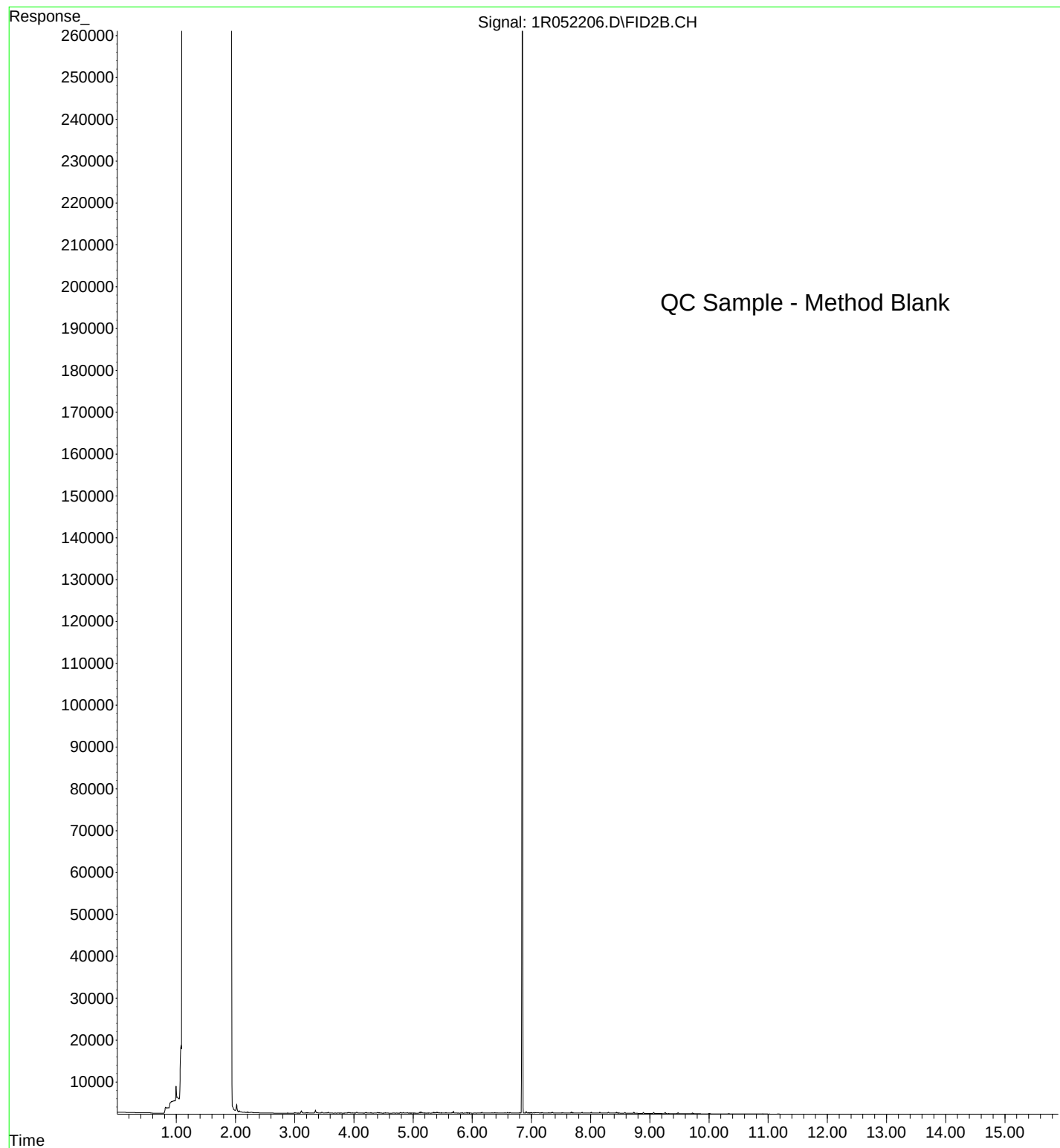
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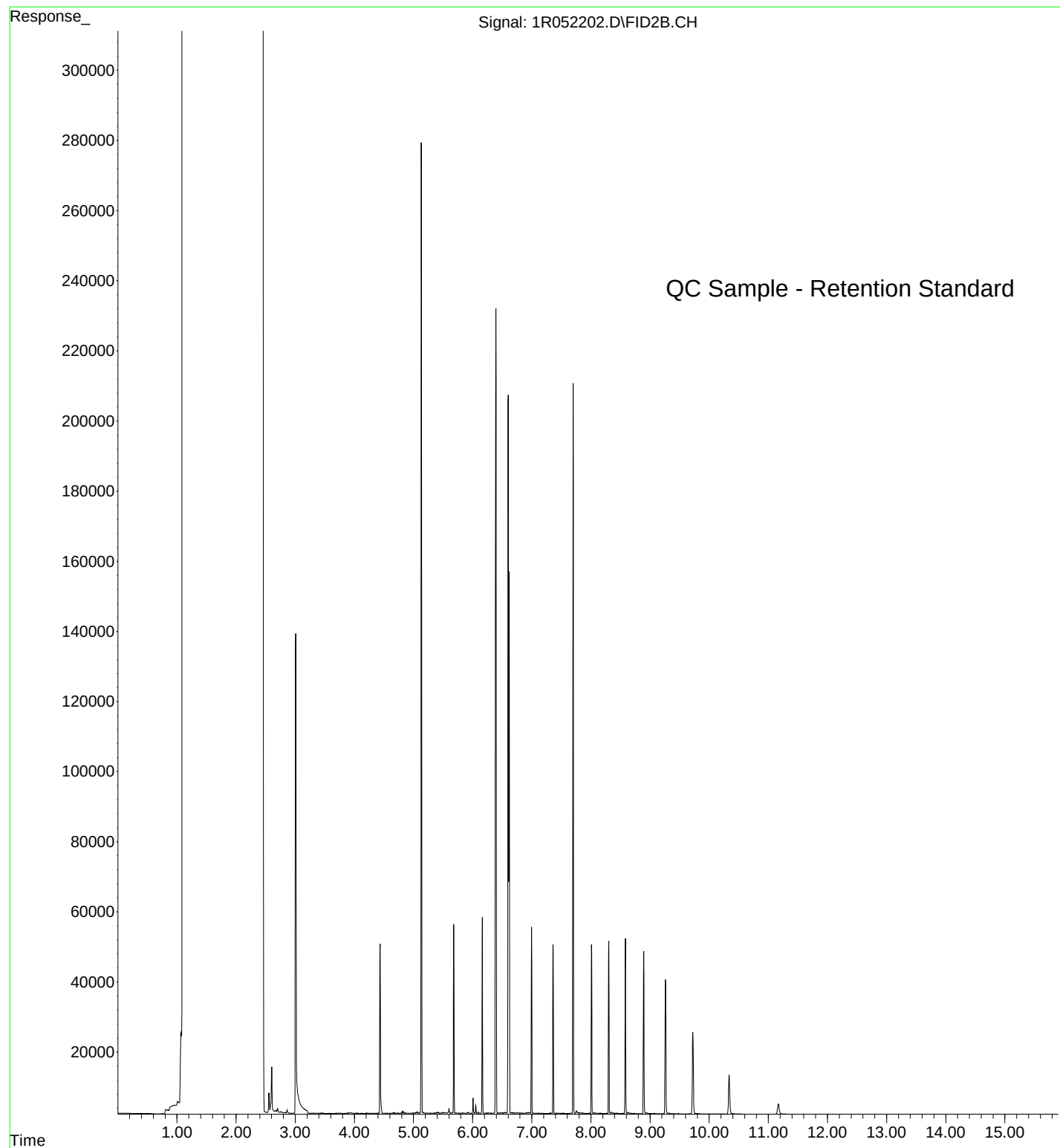
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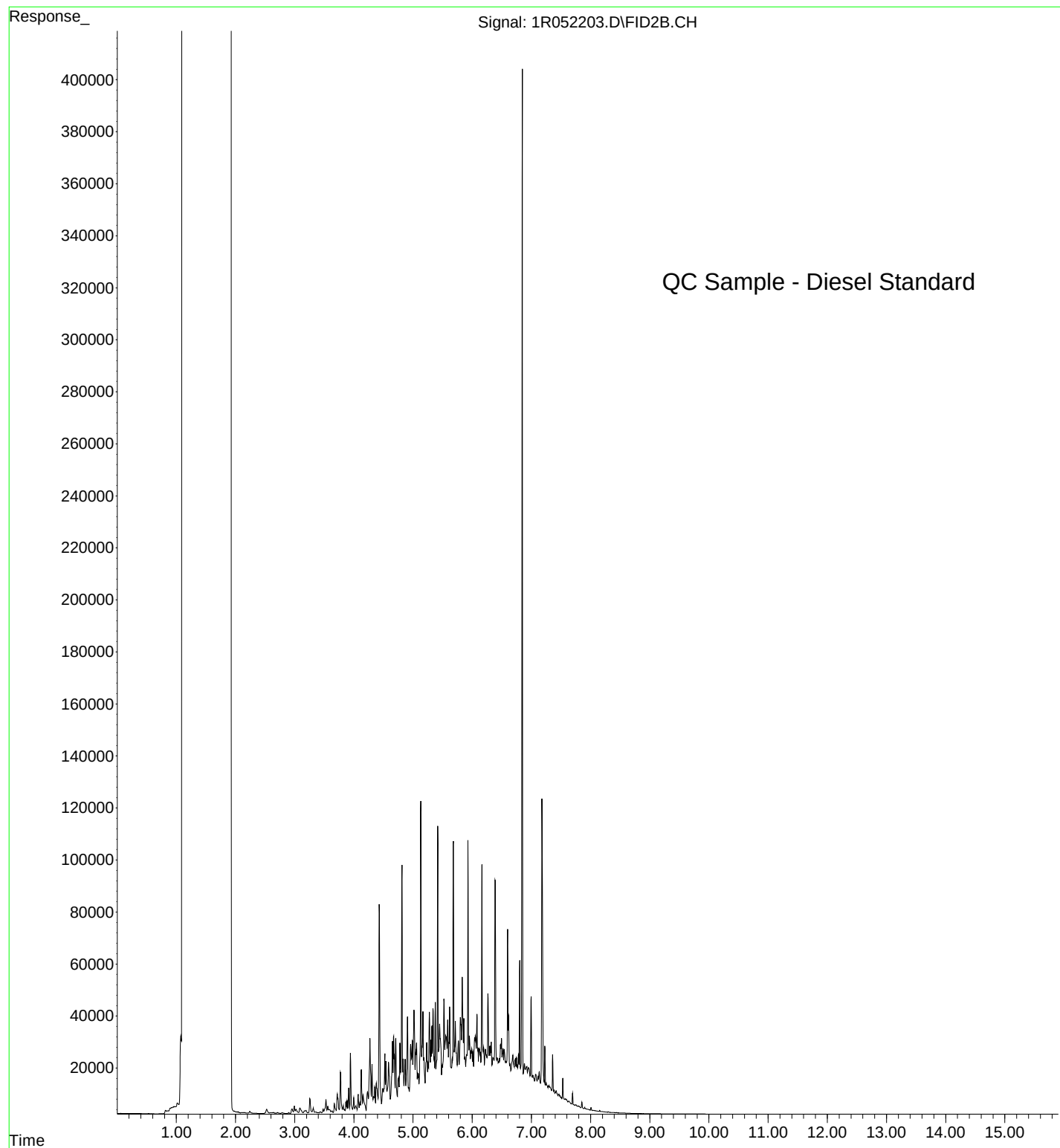
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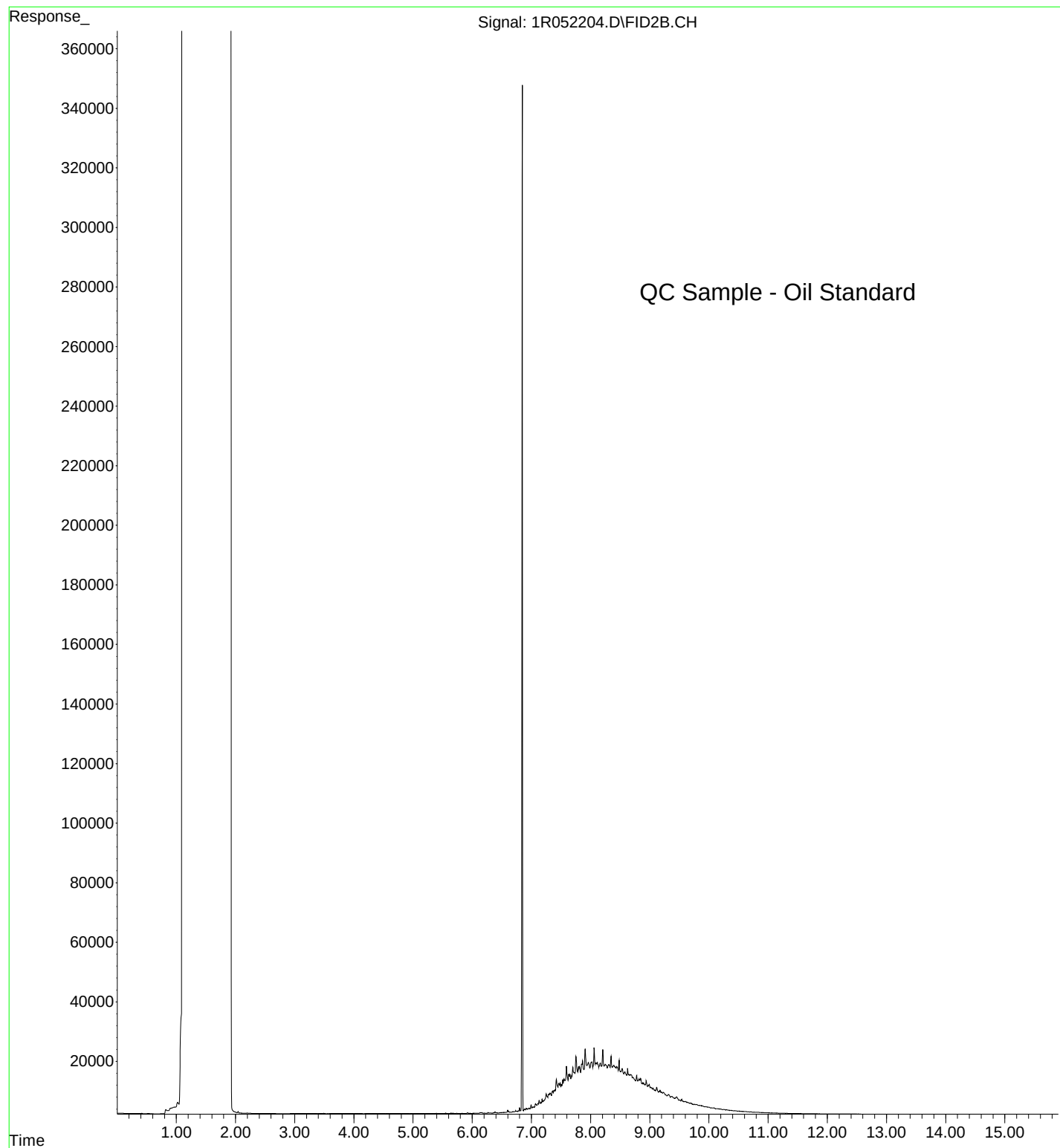
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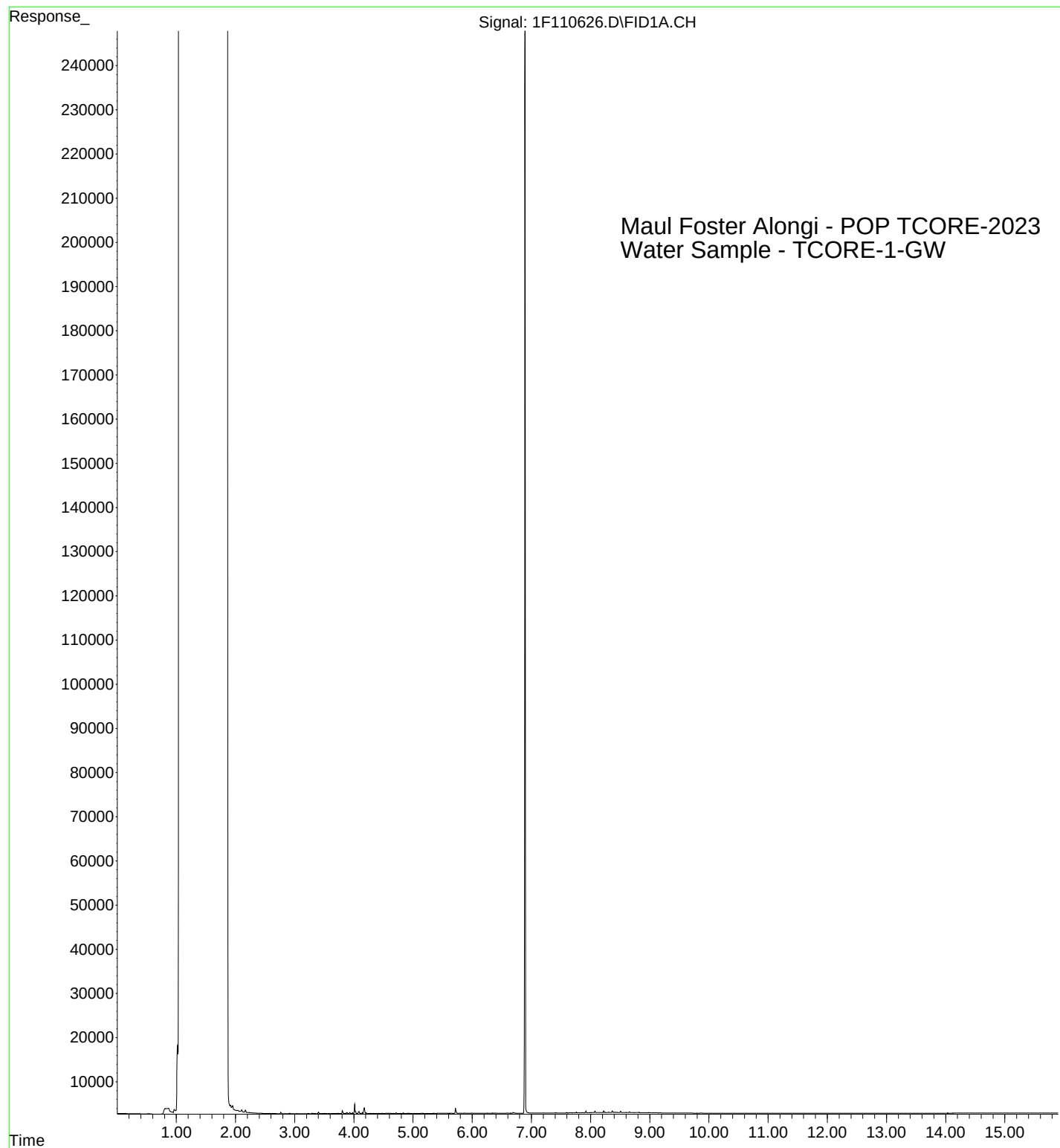
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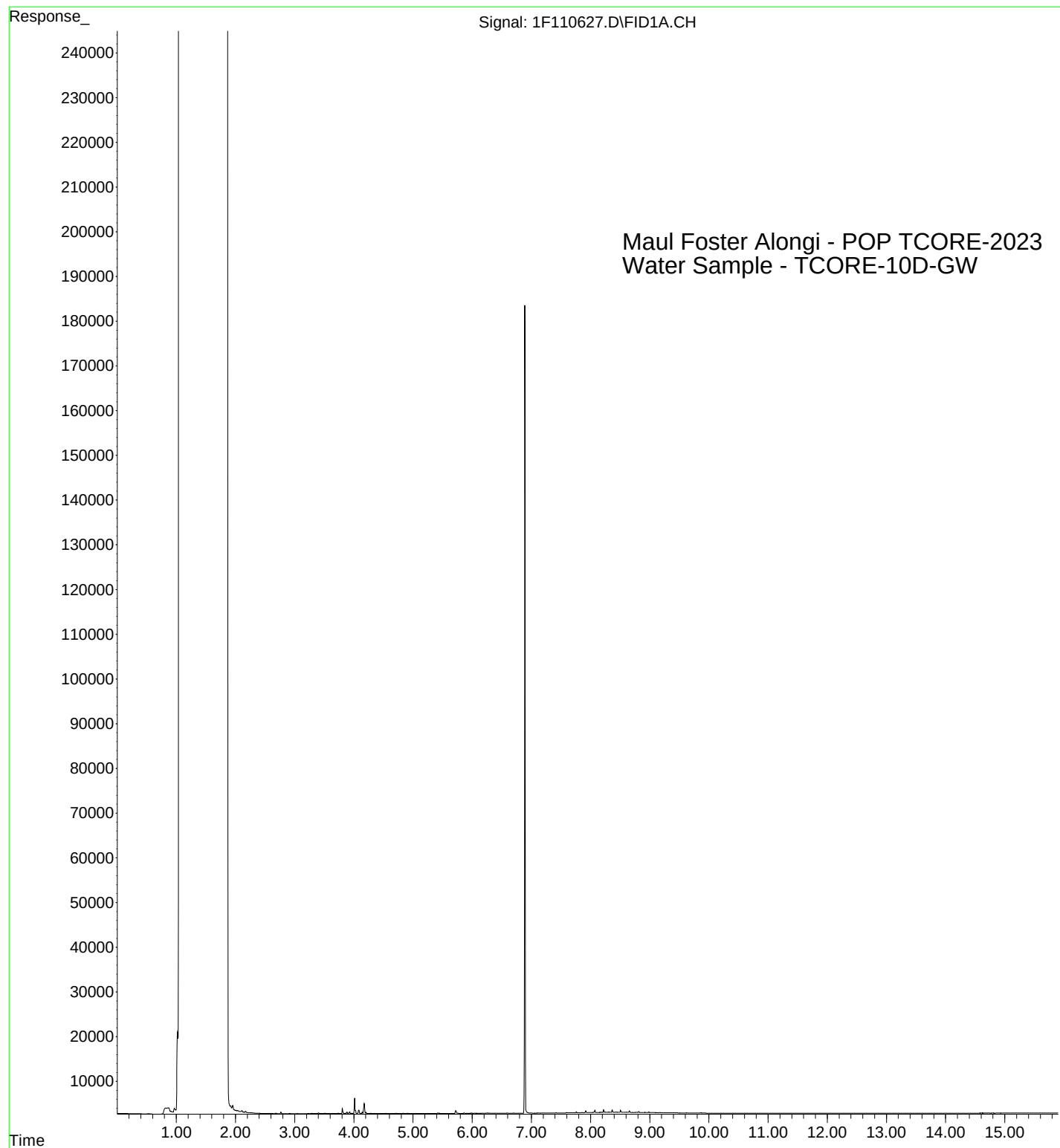
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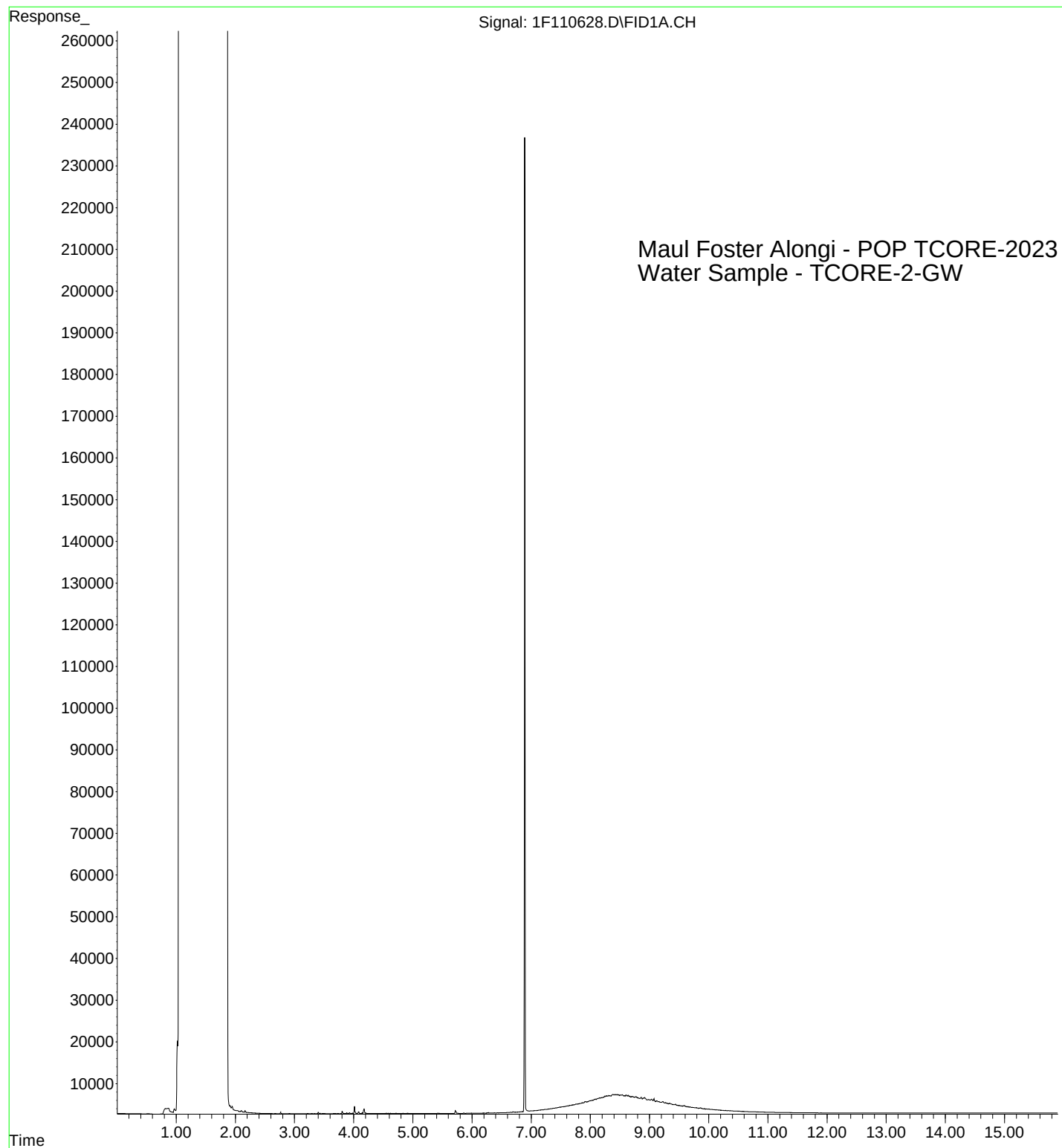
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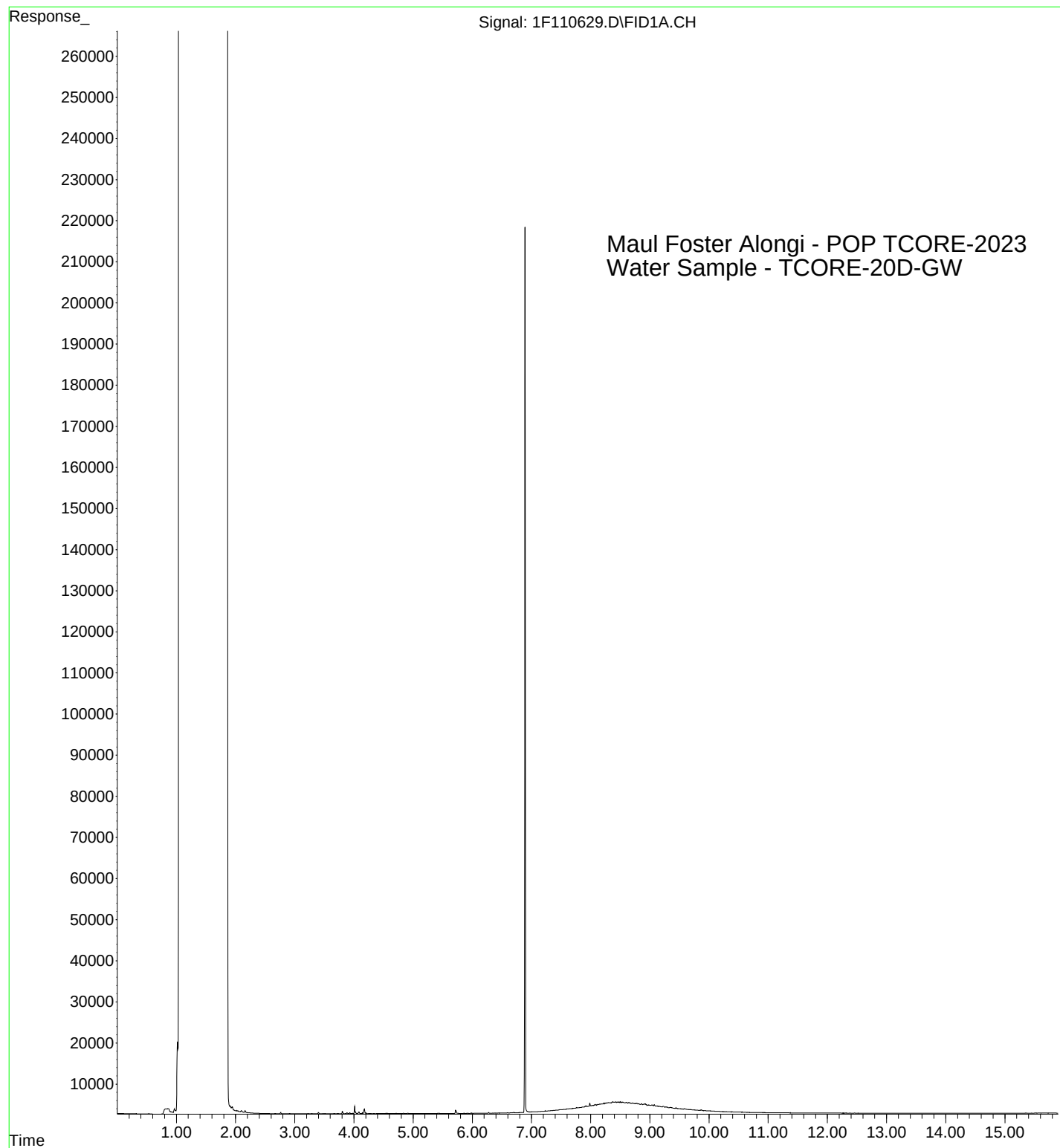
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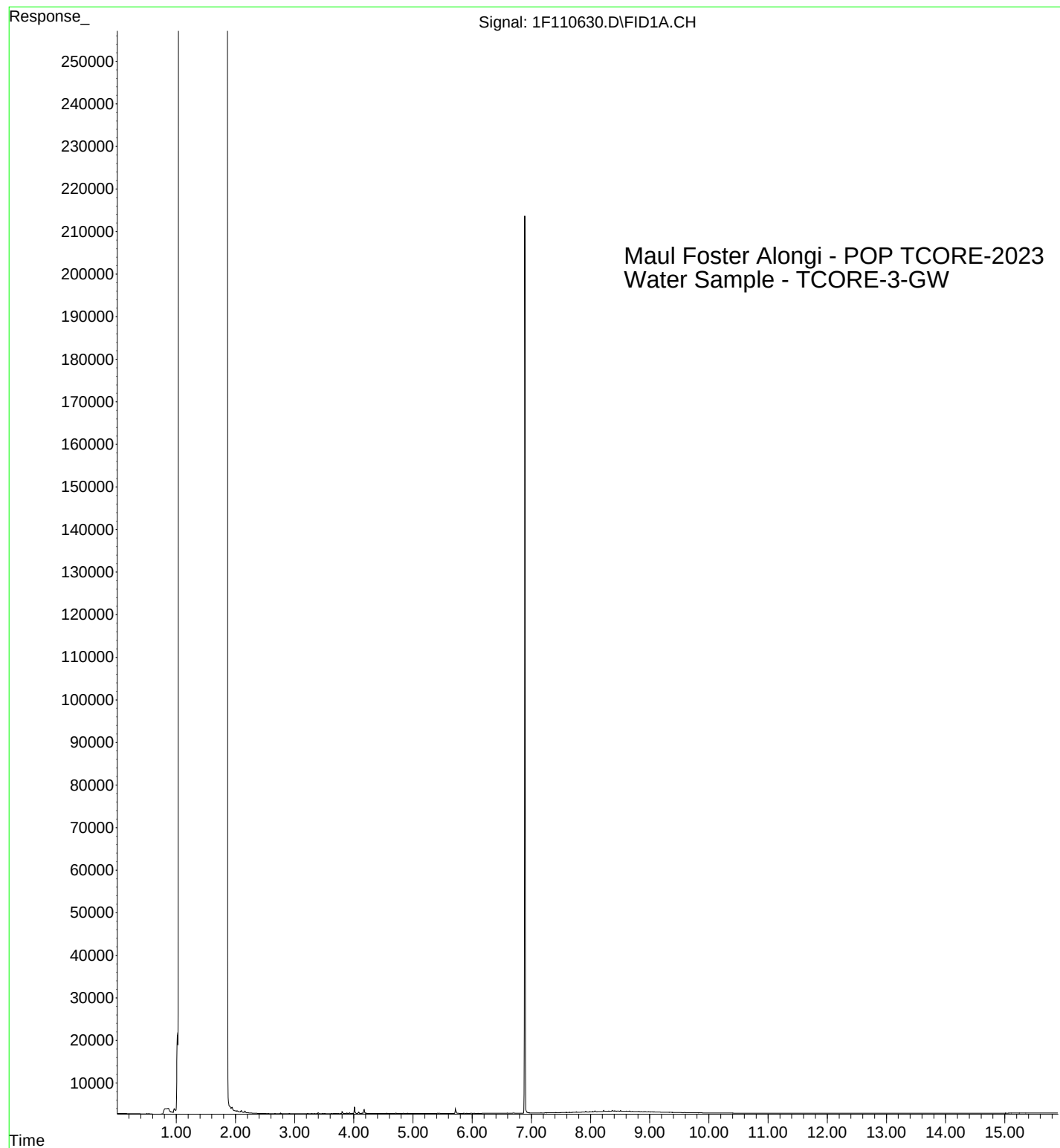
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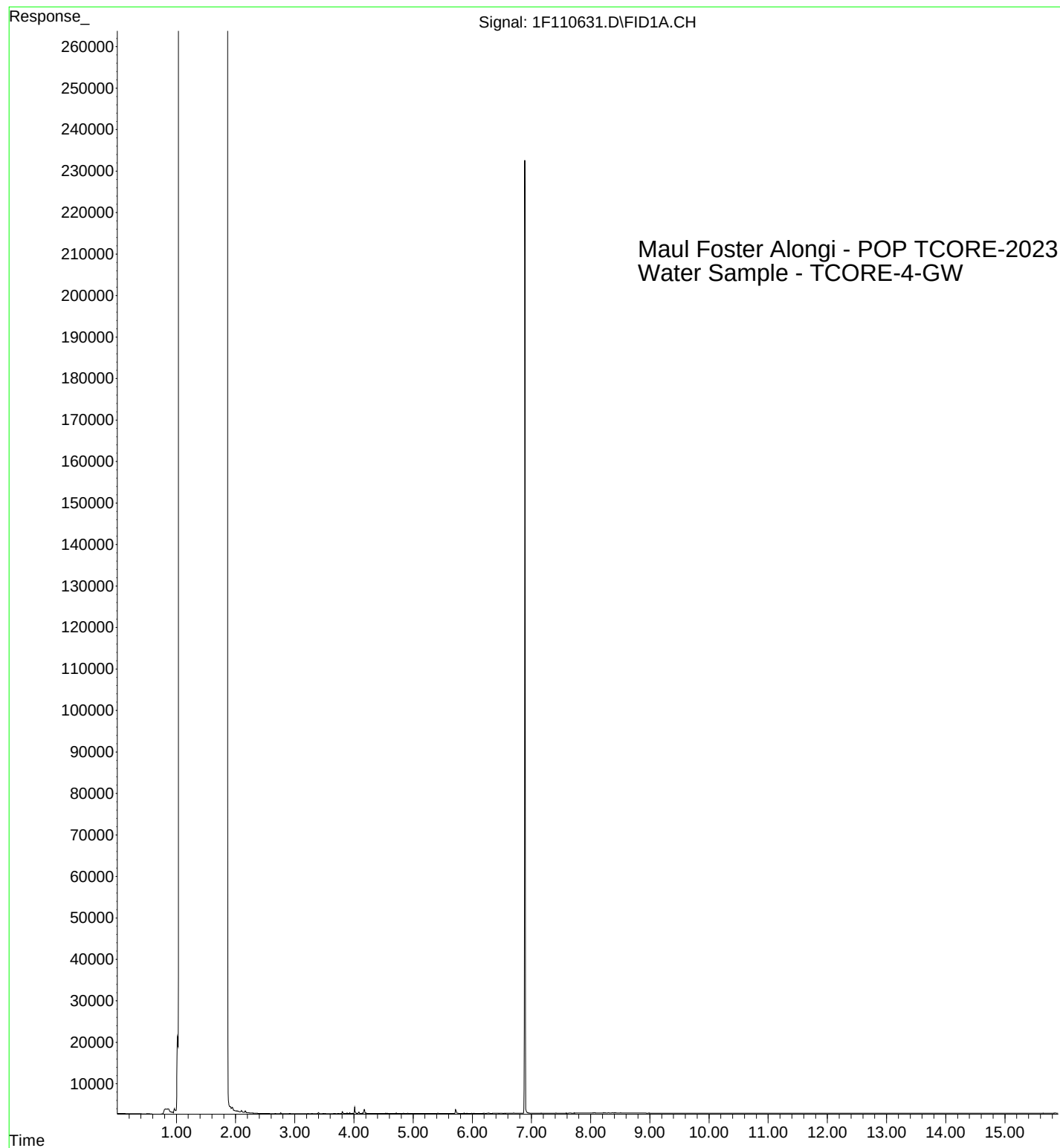
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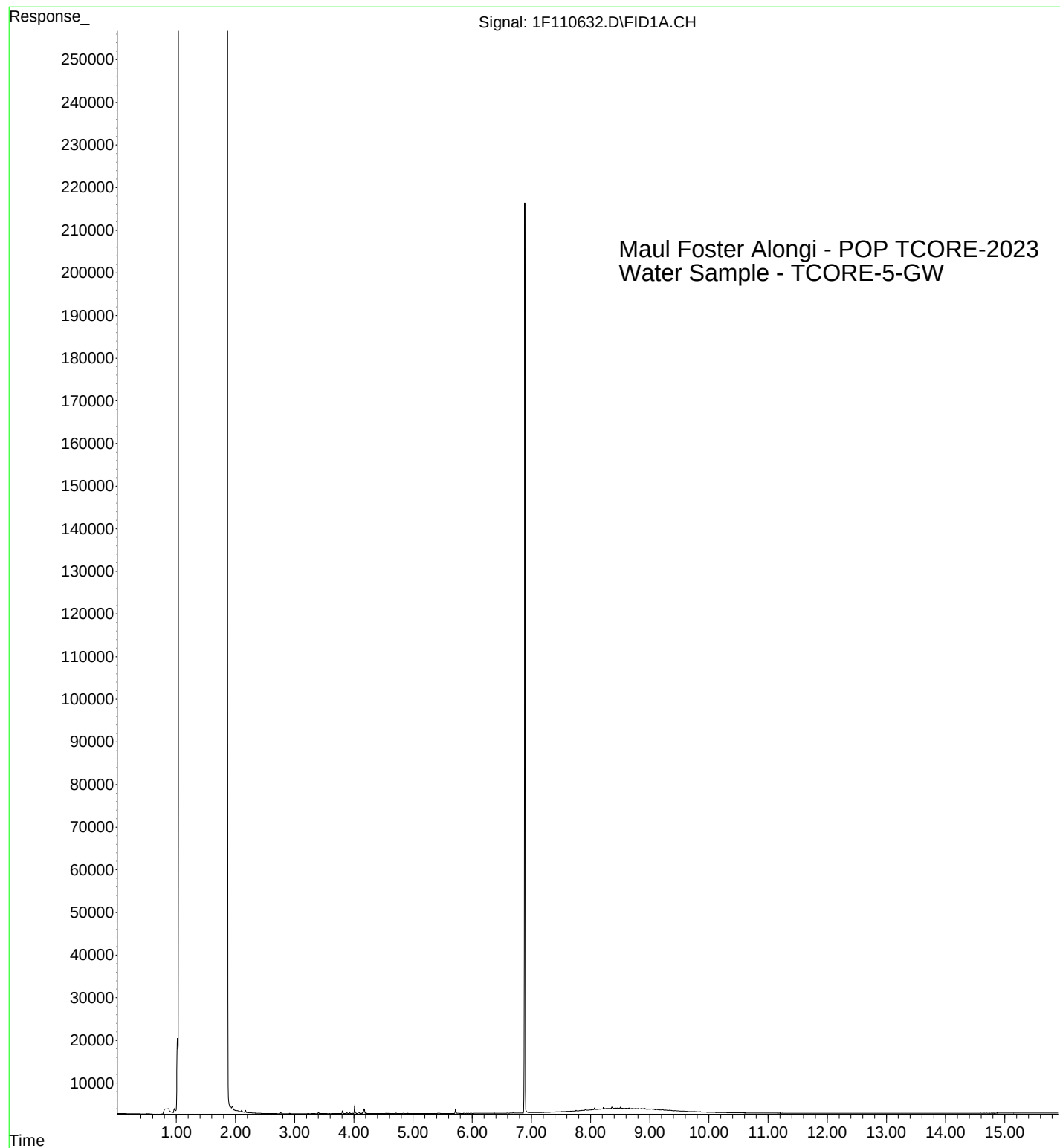
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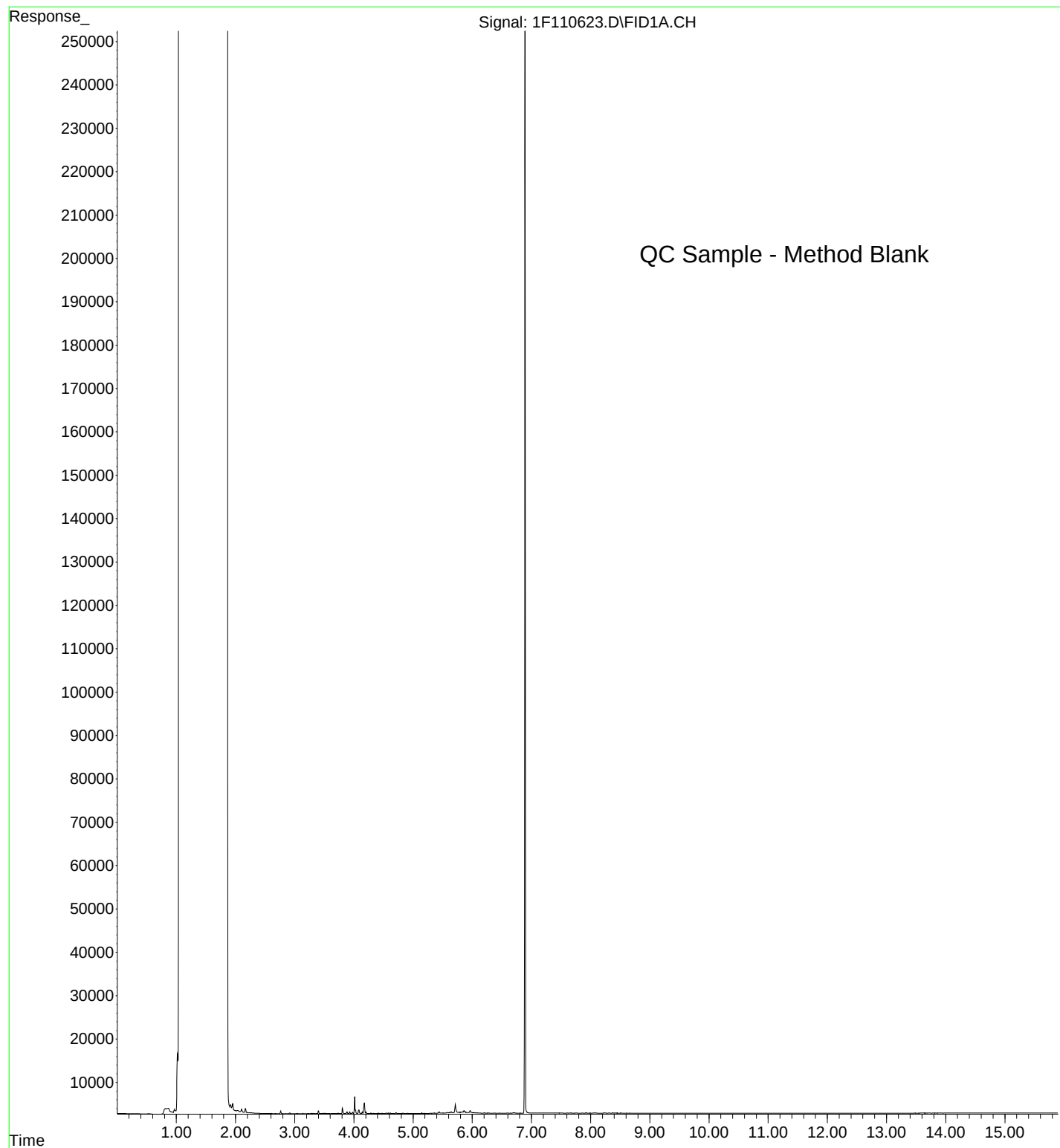
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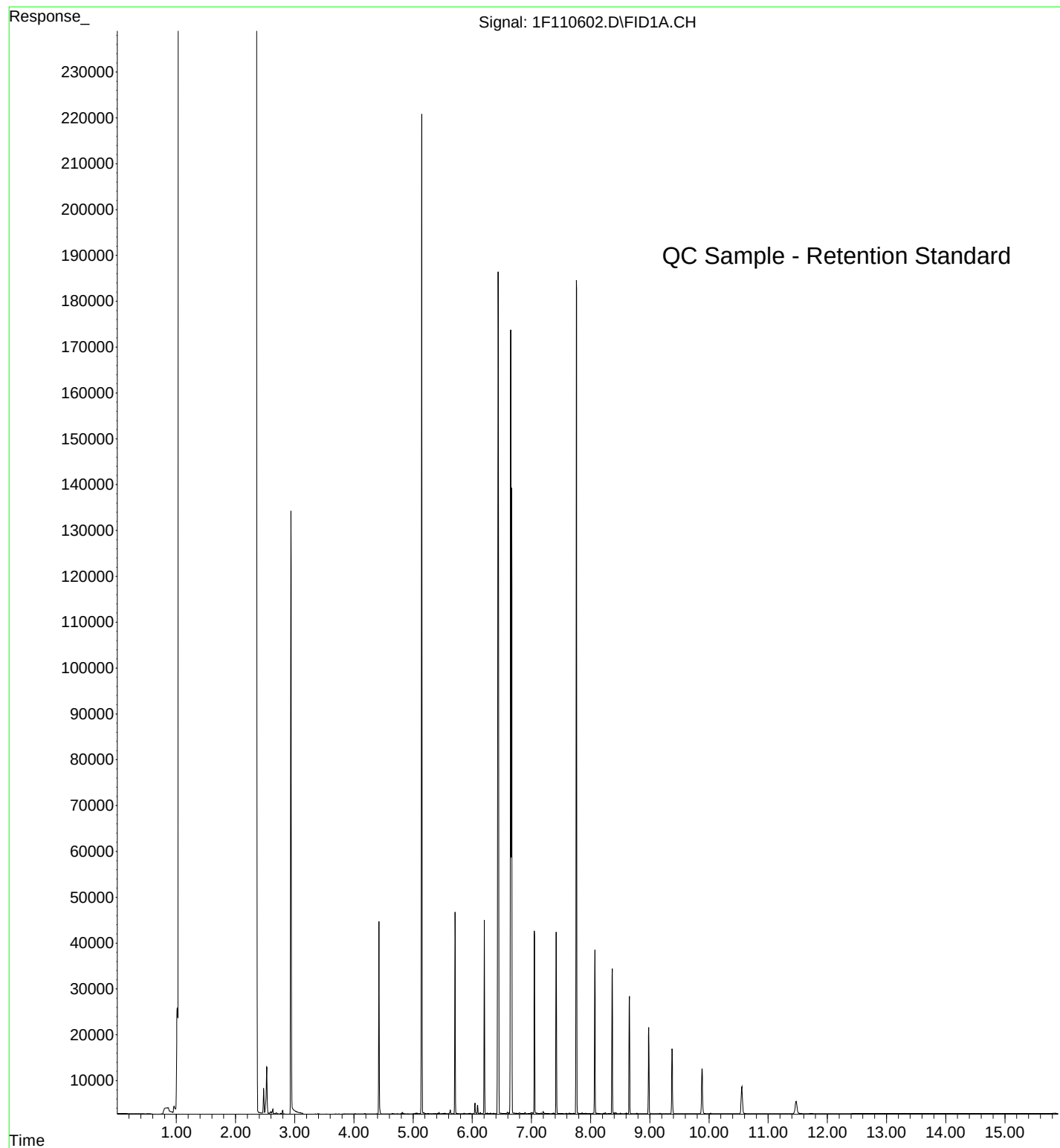
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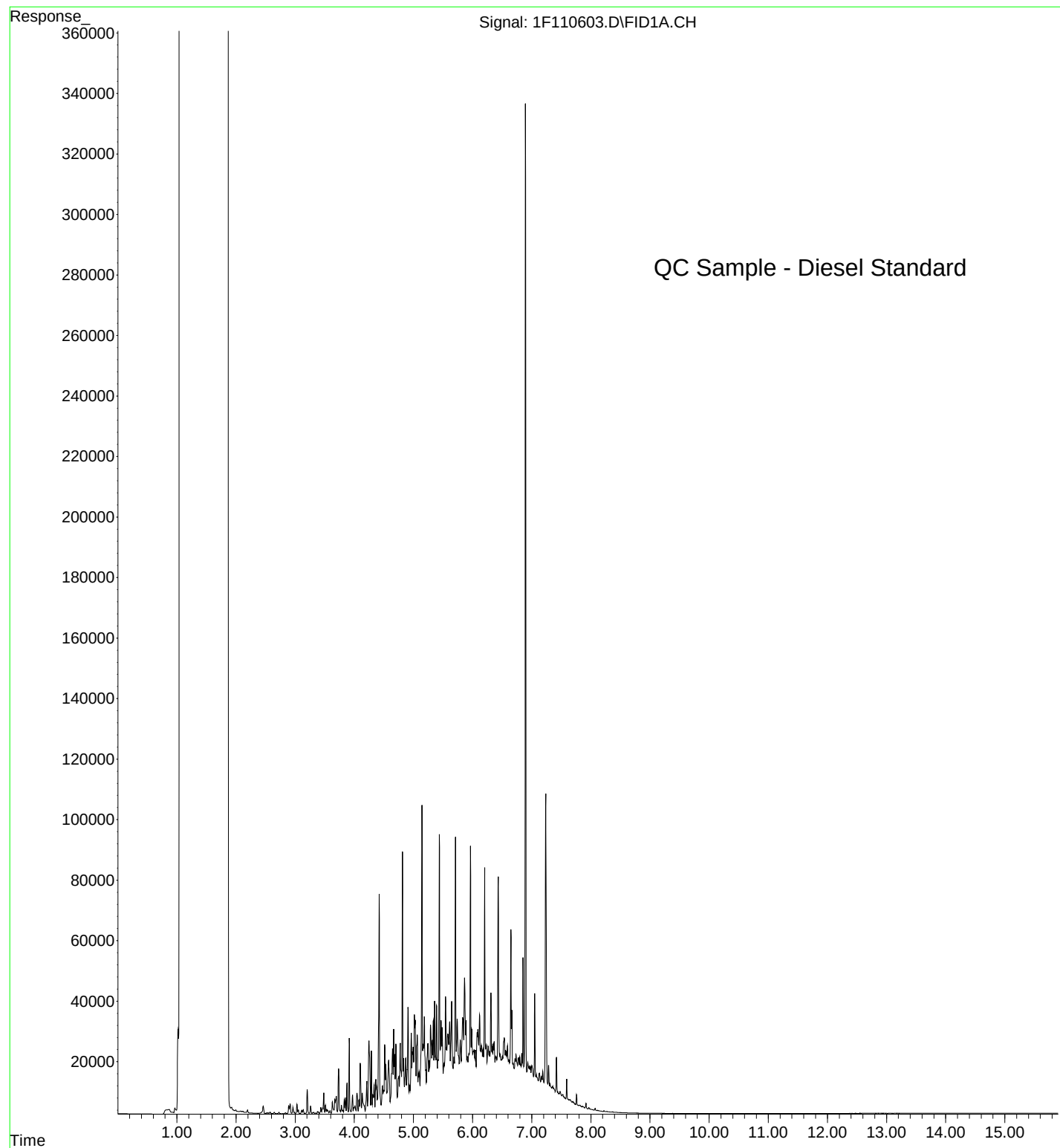
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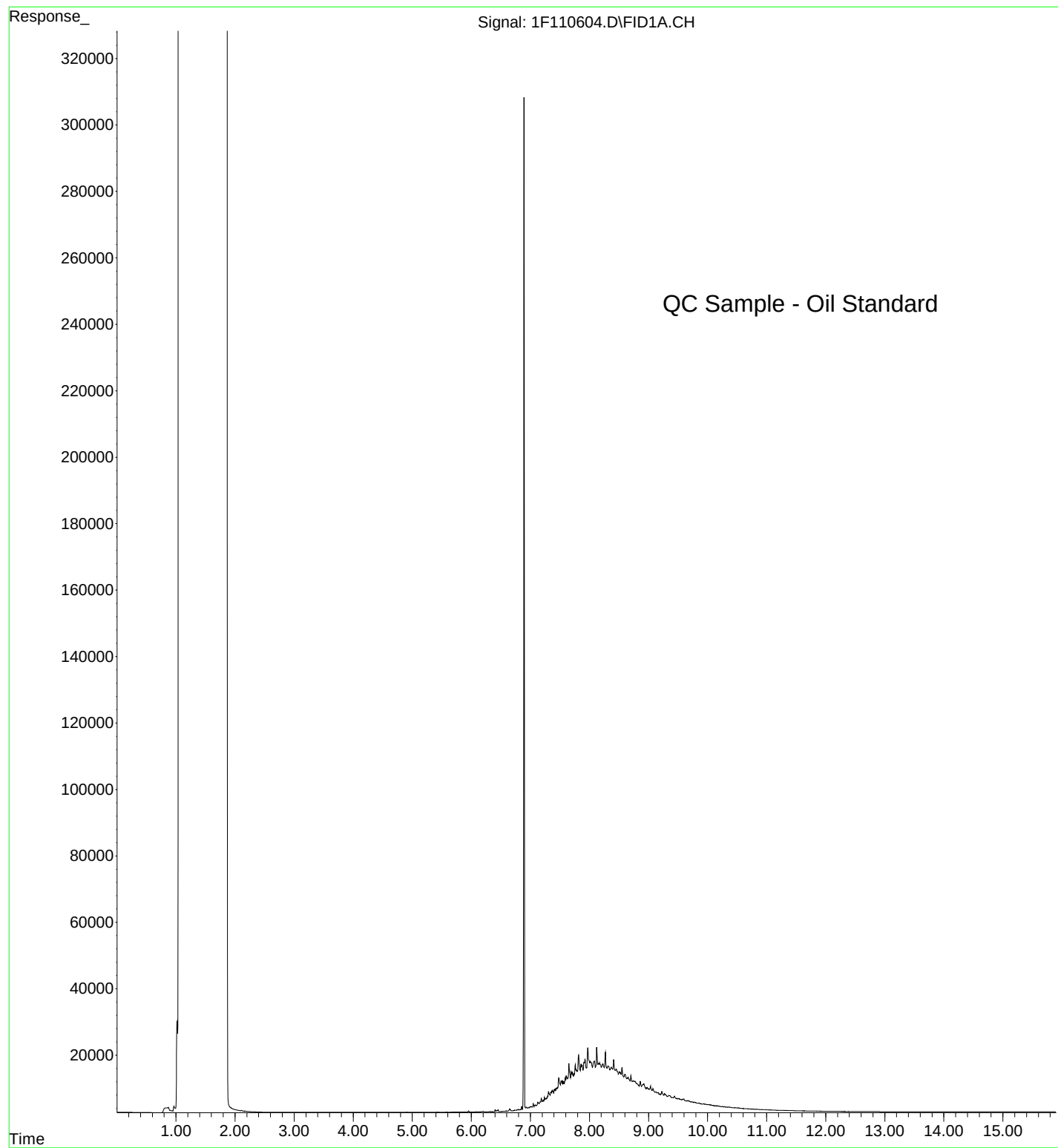
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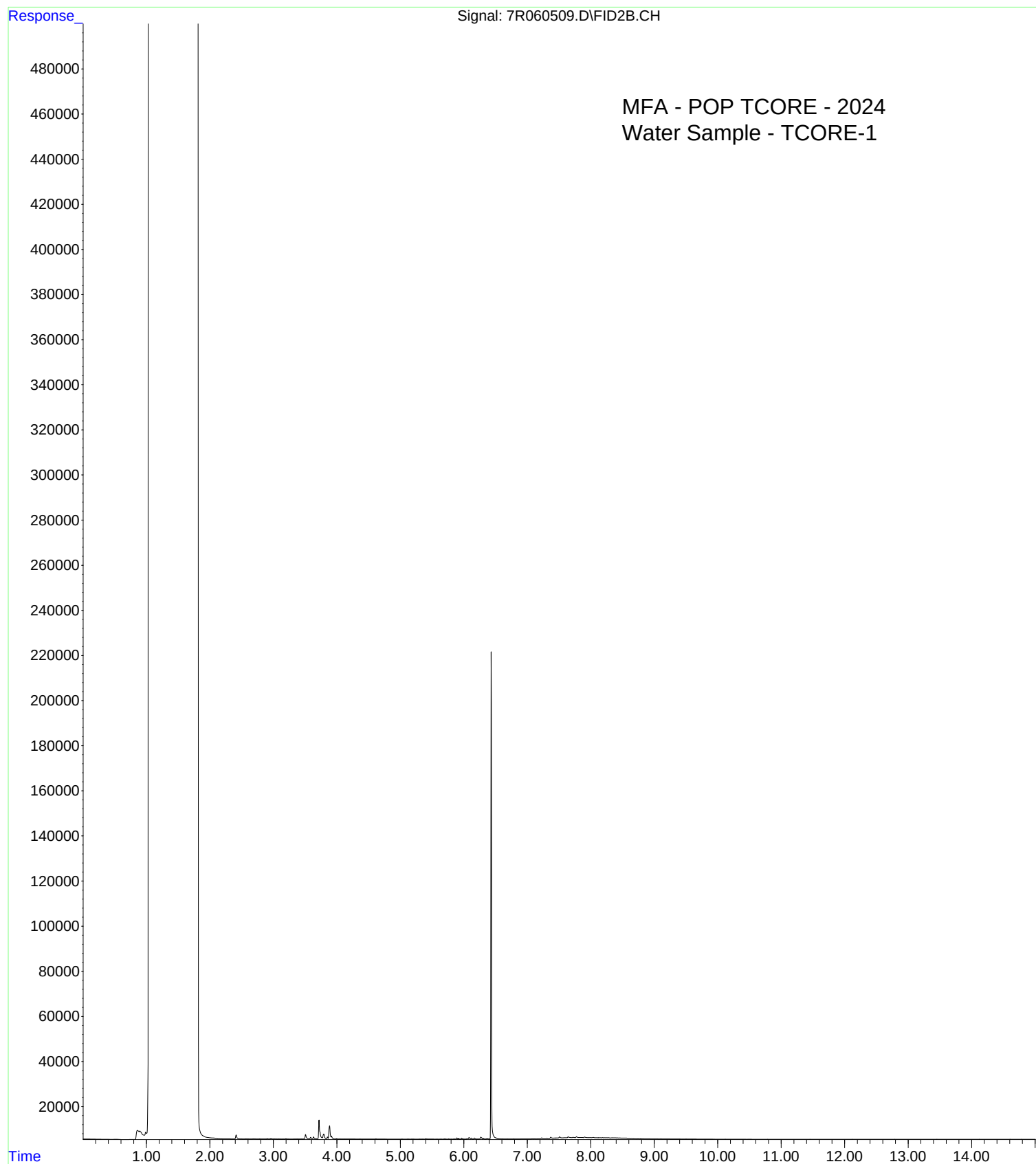
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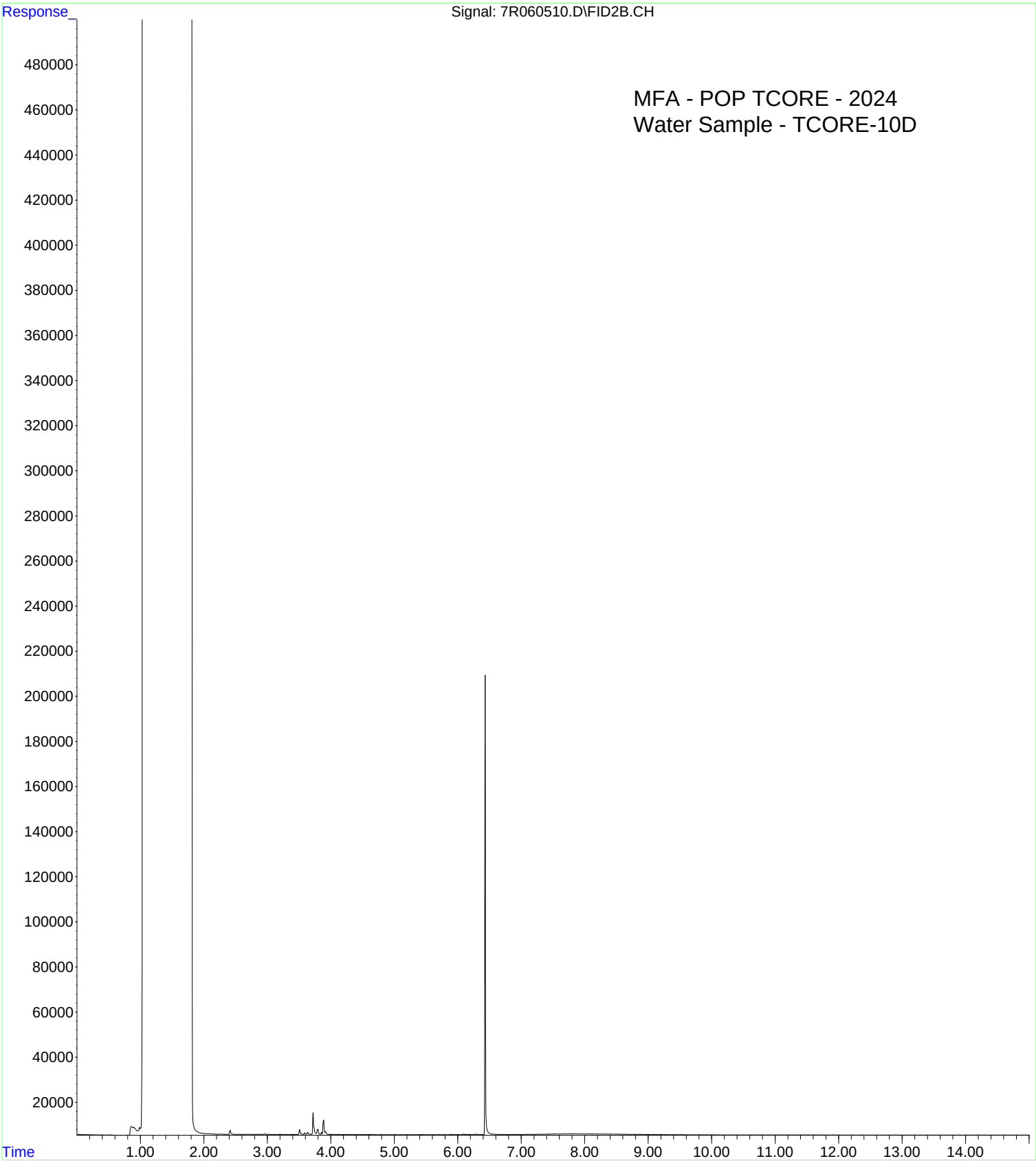
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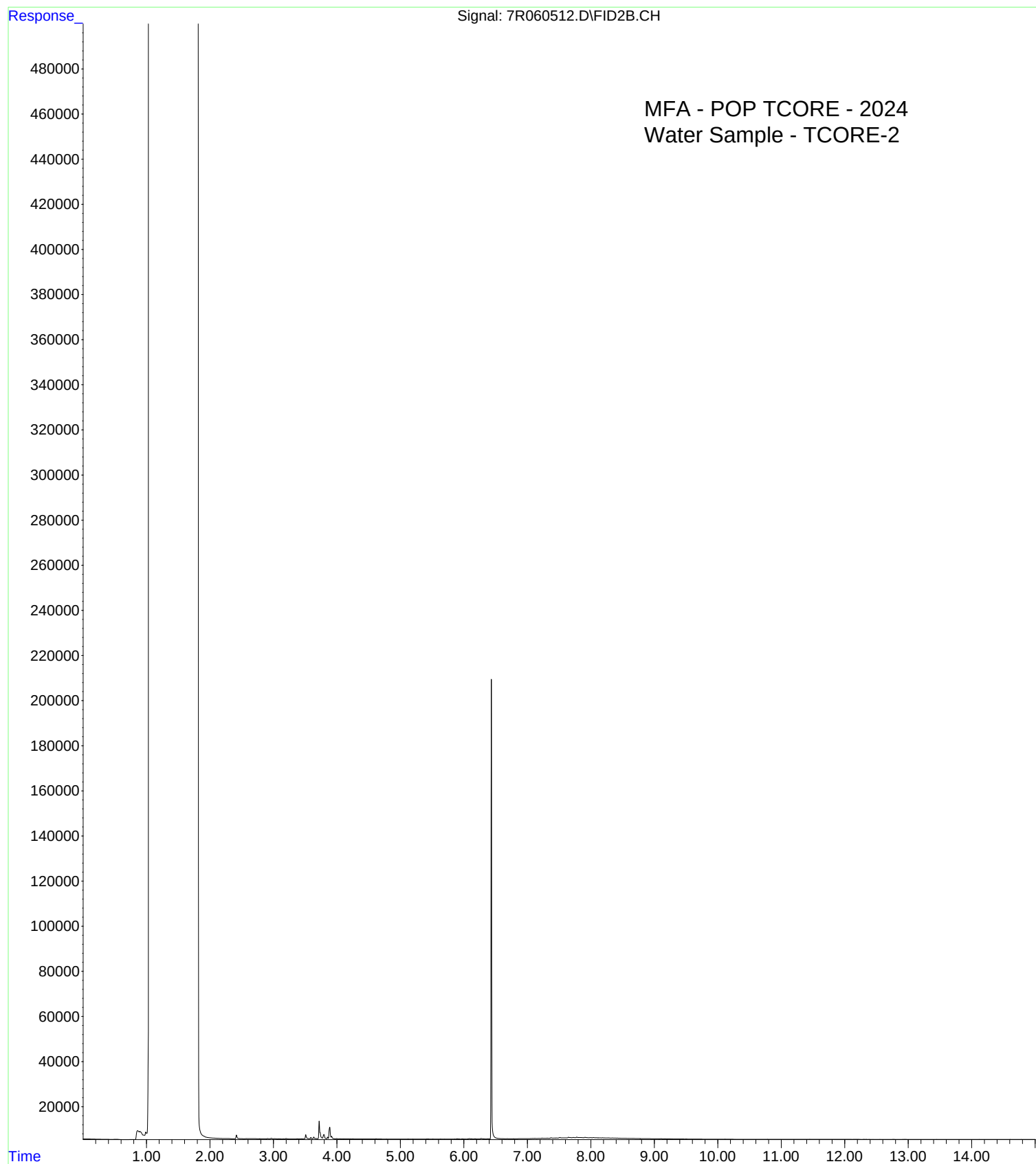
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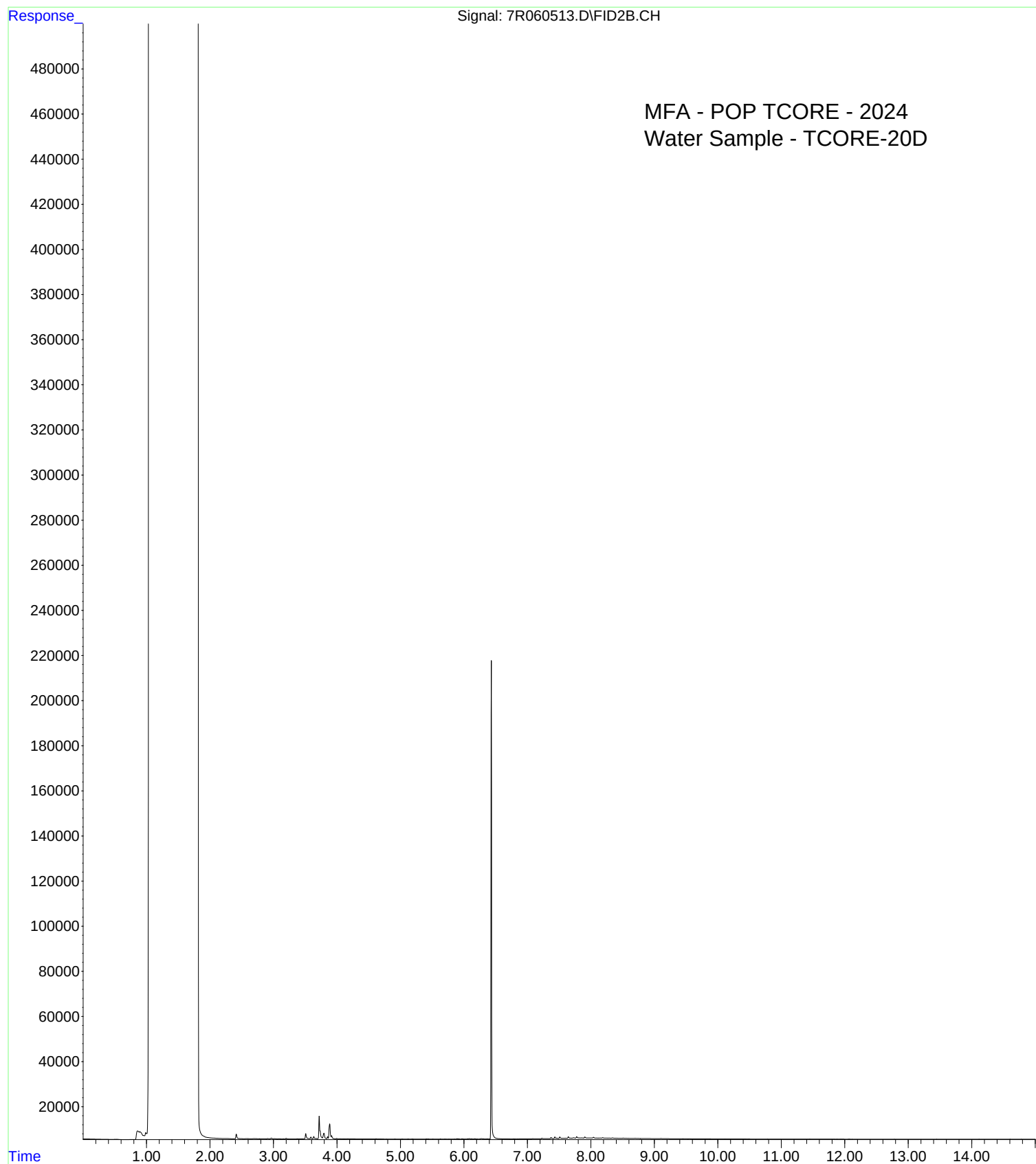
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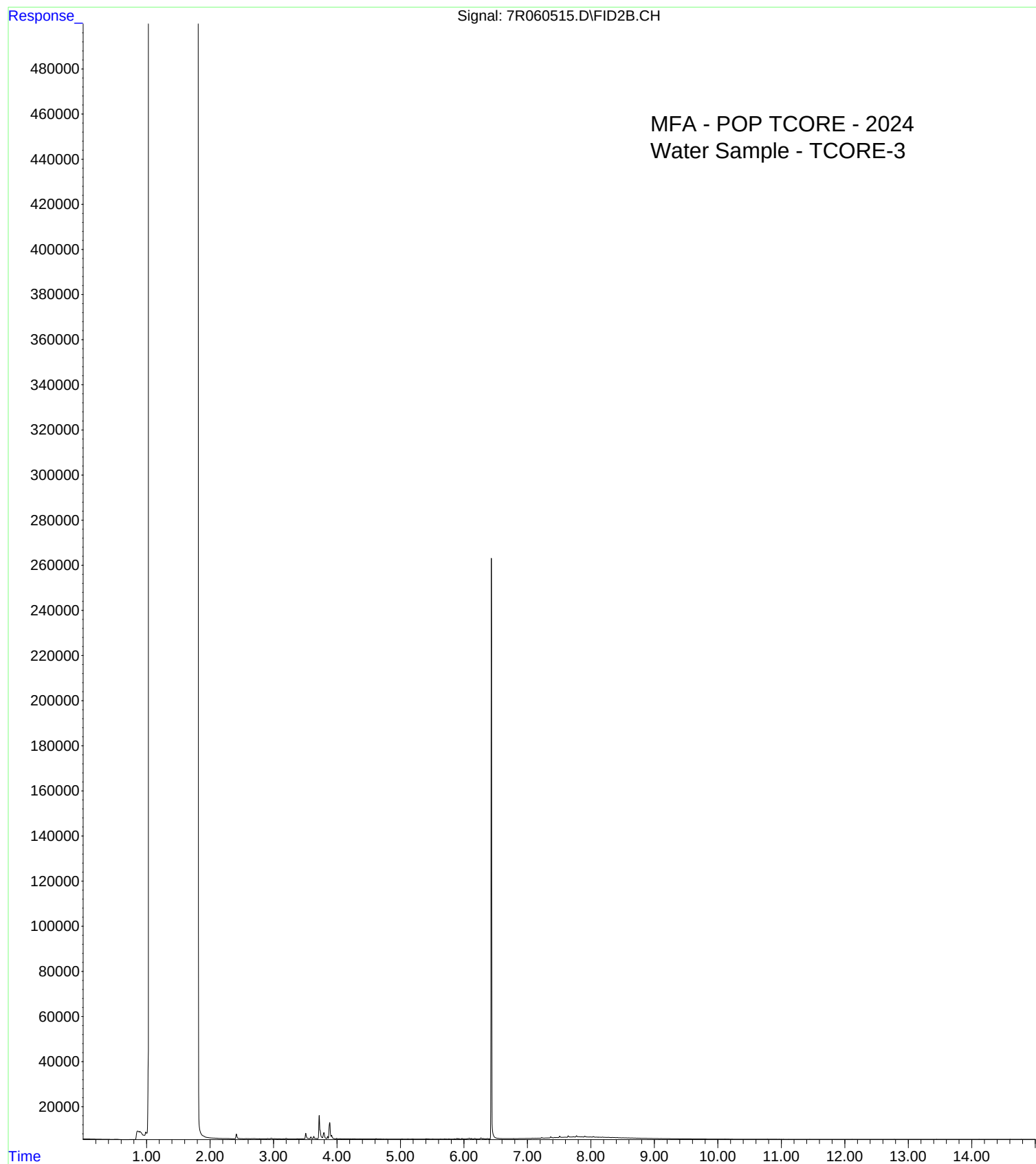
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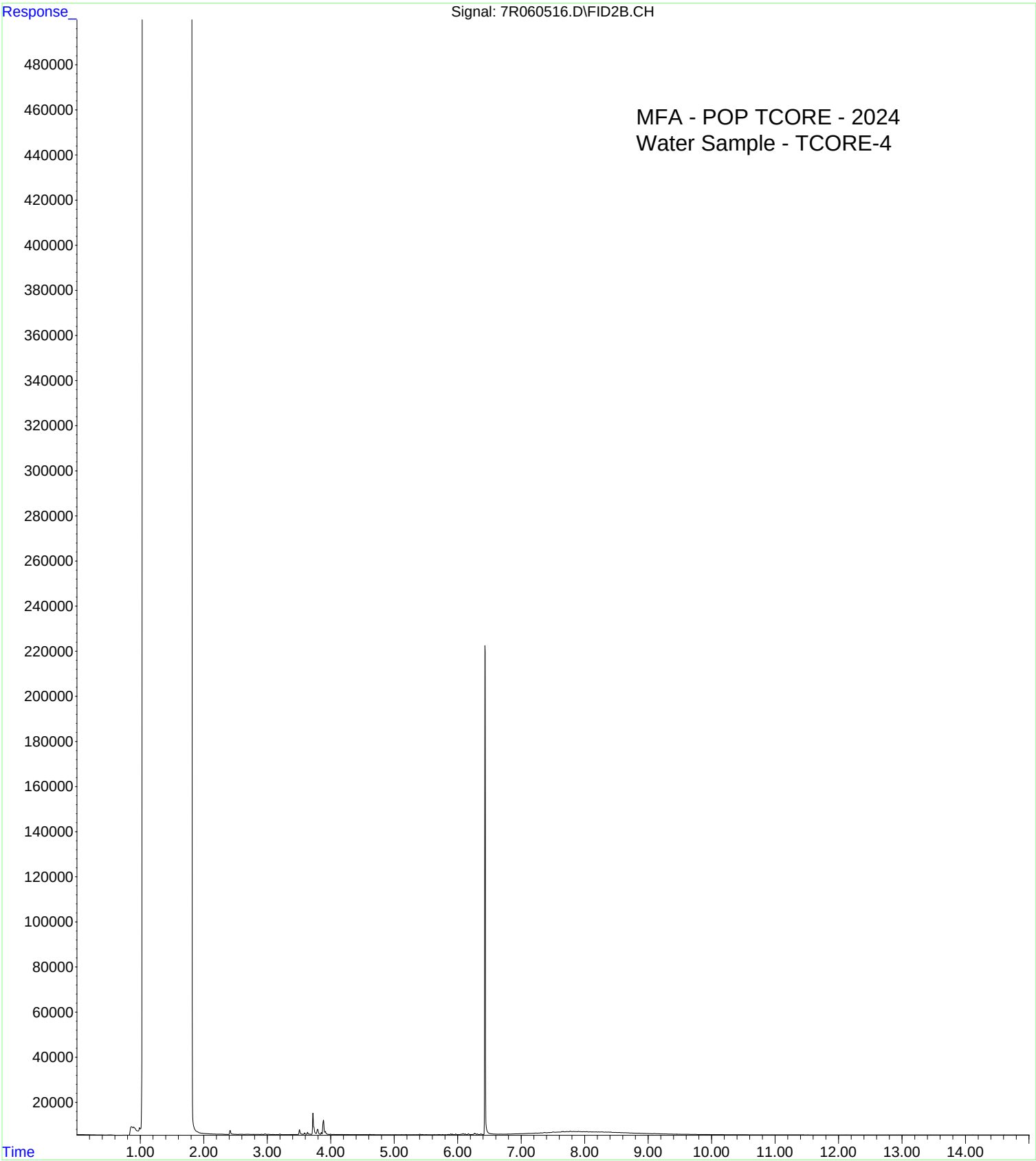
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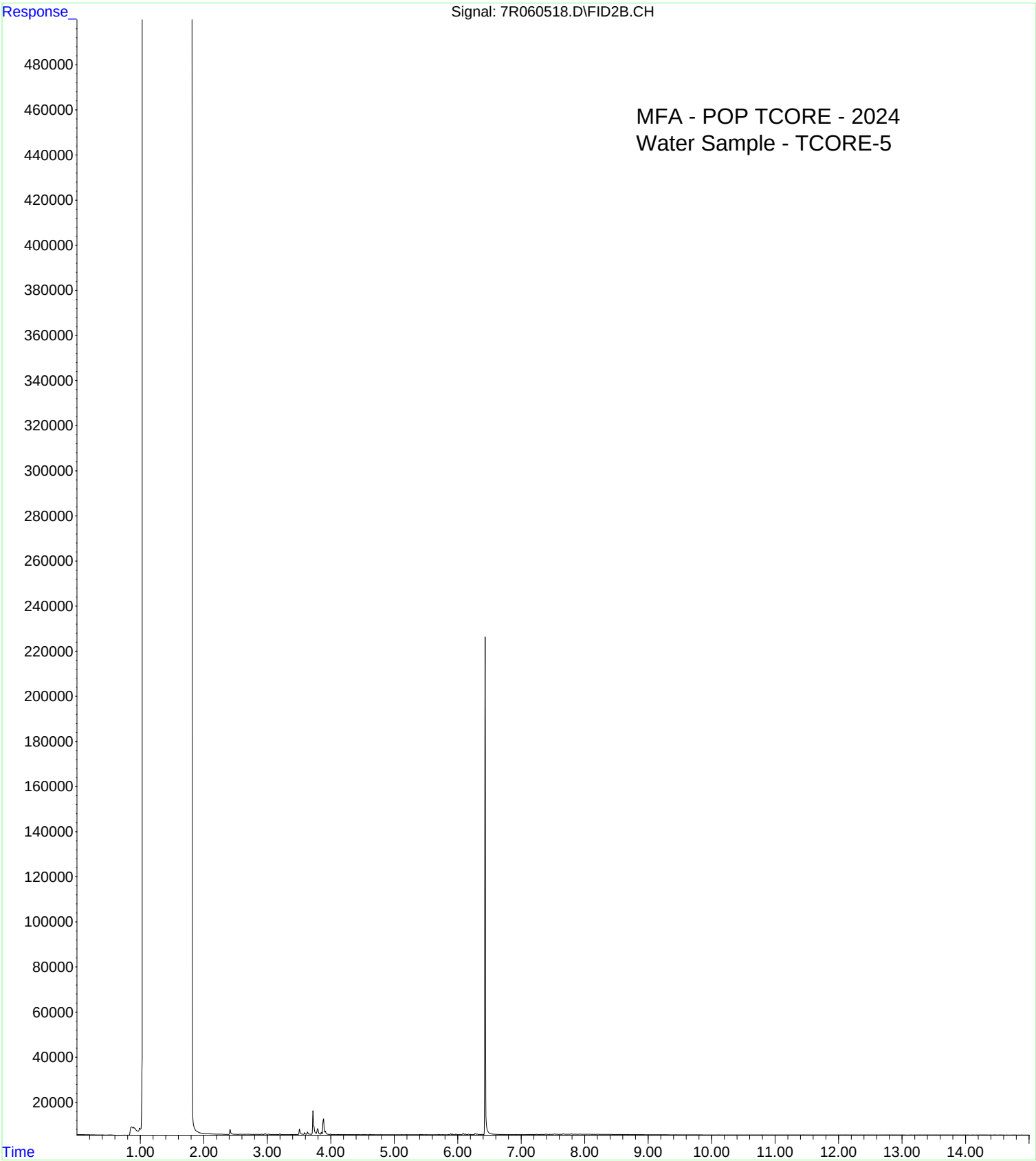
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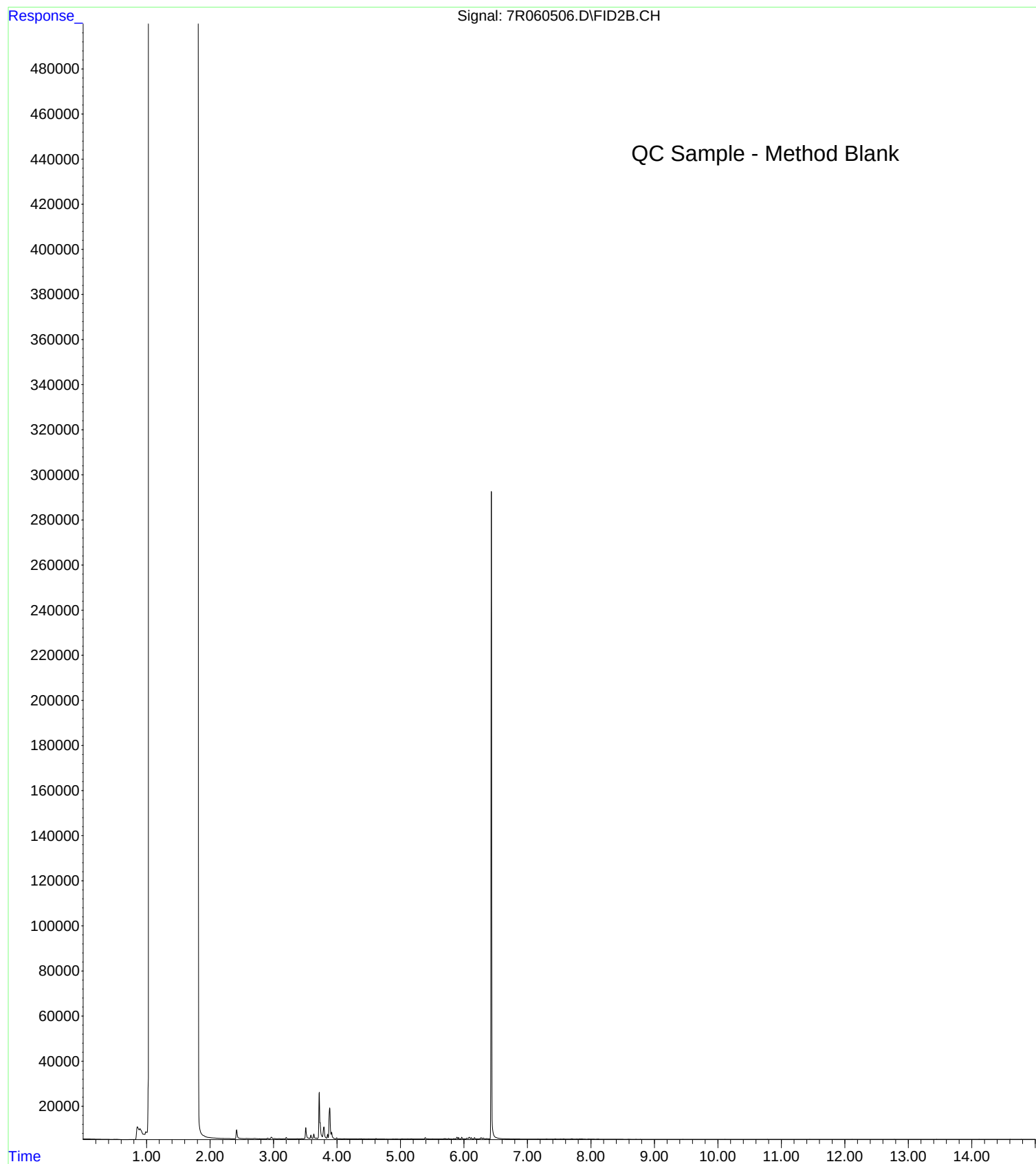
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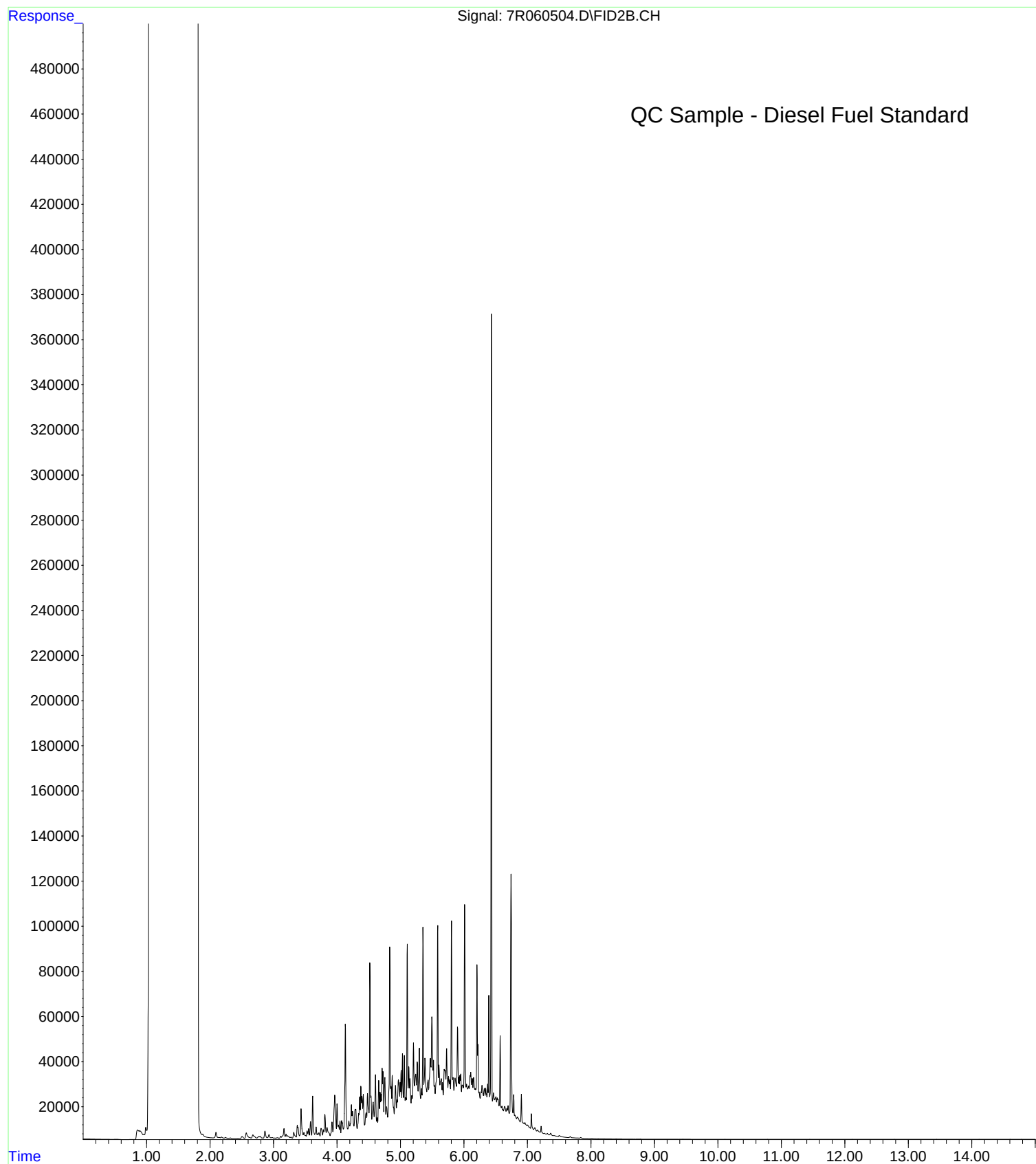
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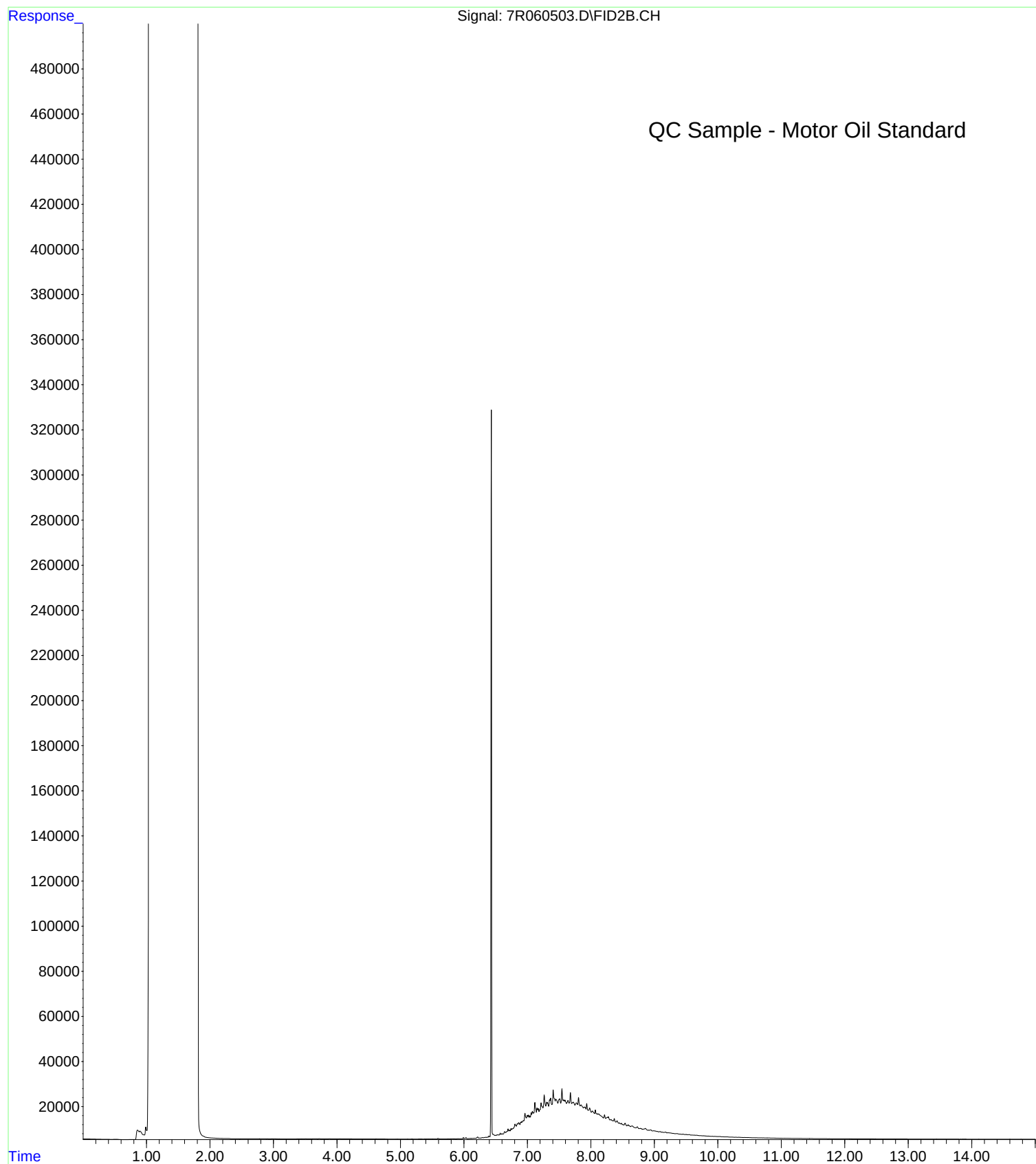
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Operator : BLL/BJY
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Instrument : HP G1530A
Sample Name: 24F0114-BLK1
Misc Info :
Vial Number: 51



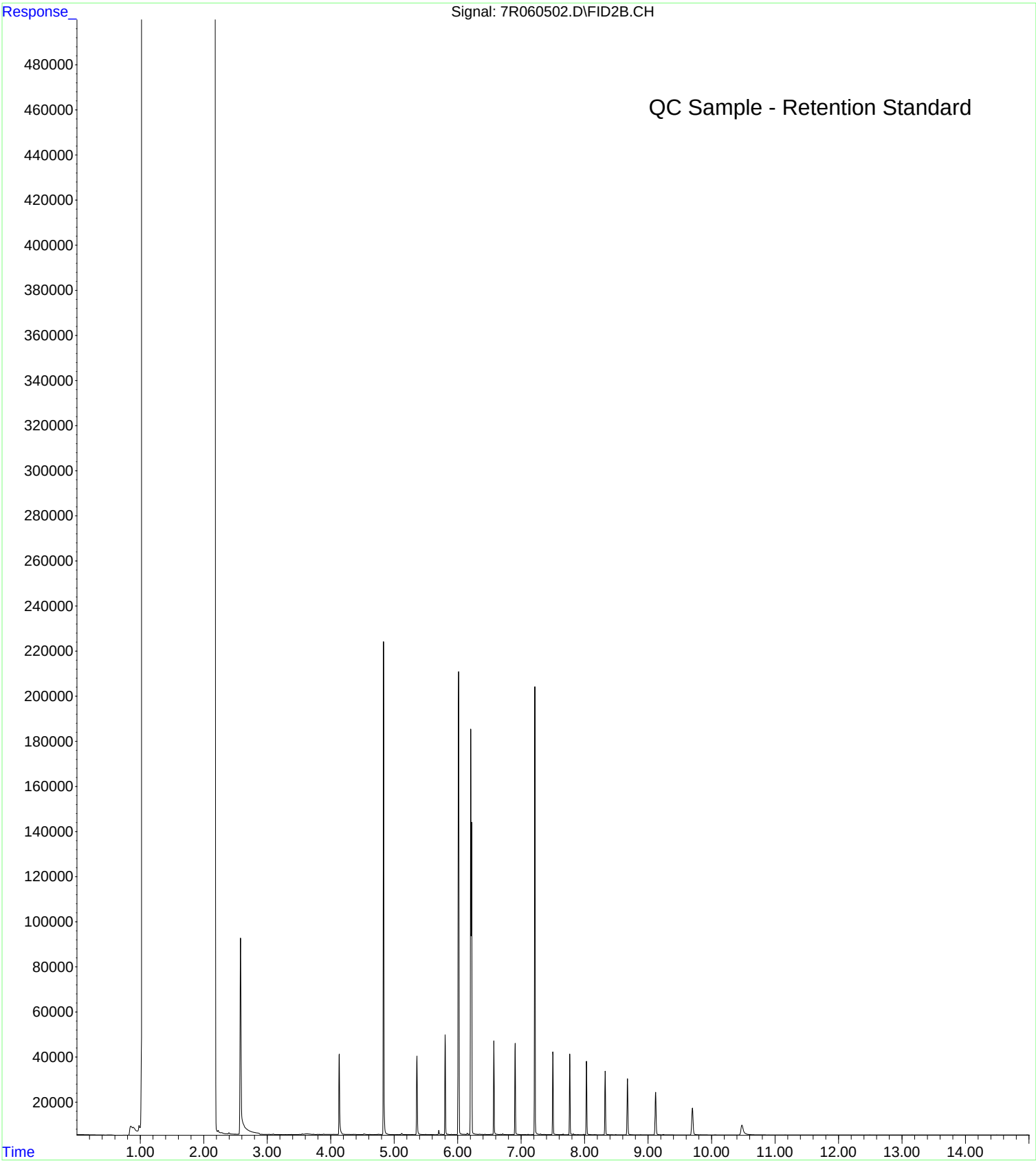
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Operator : BLL/BJY
Acquired : 05 Jun 2024 4:14 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 4F05074-CCV2
Misc Info :
Vial Number: 1



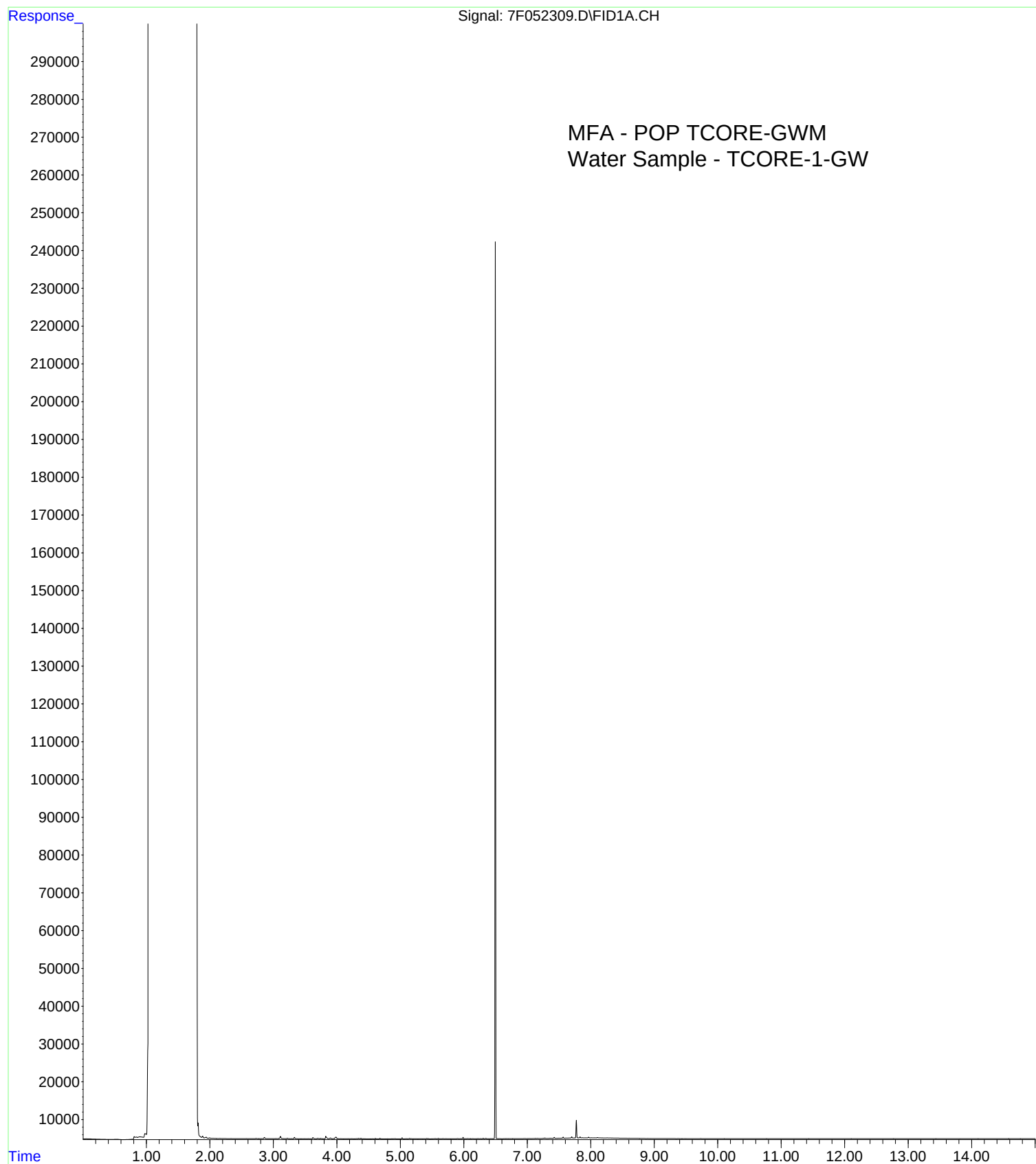
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Instrument : HP G1530A
Sample Name: 4F05074-CCV1
Misc Info :
Vial Number: 2



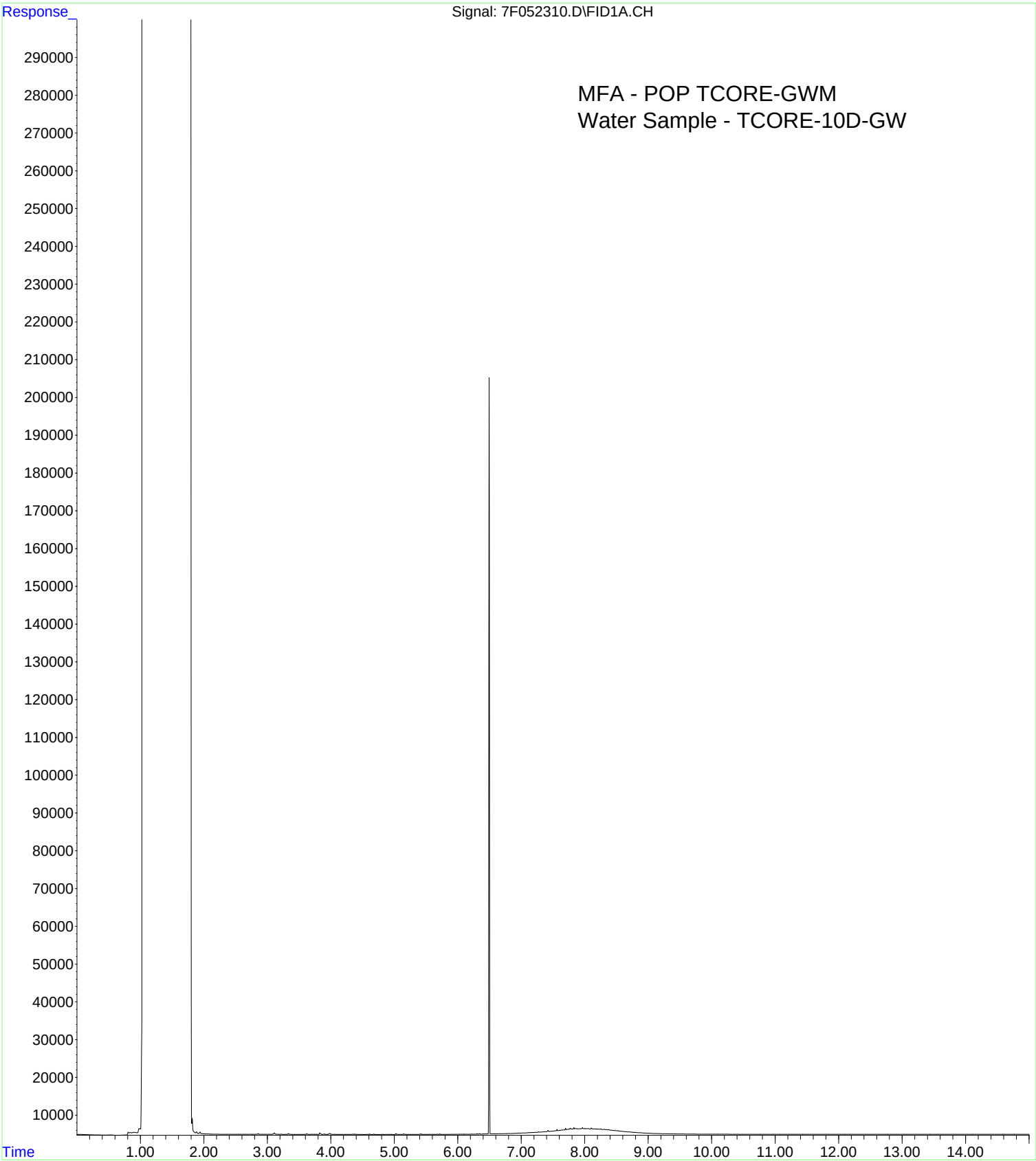
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Operator : BLL/BJY
Acquired : 05 Jun 2024 3:33 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 4F05074-RES1
Misc Info :
Vial Number: 95



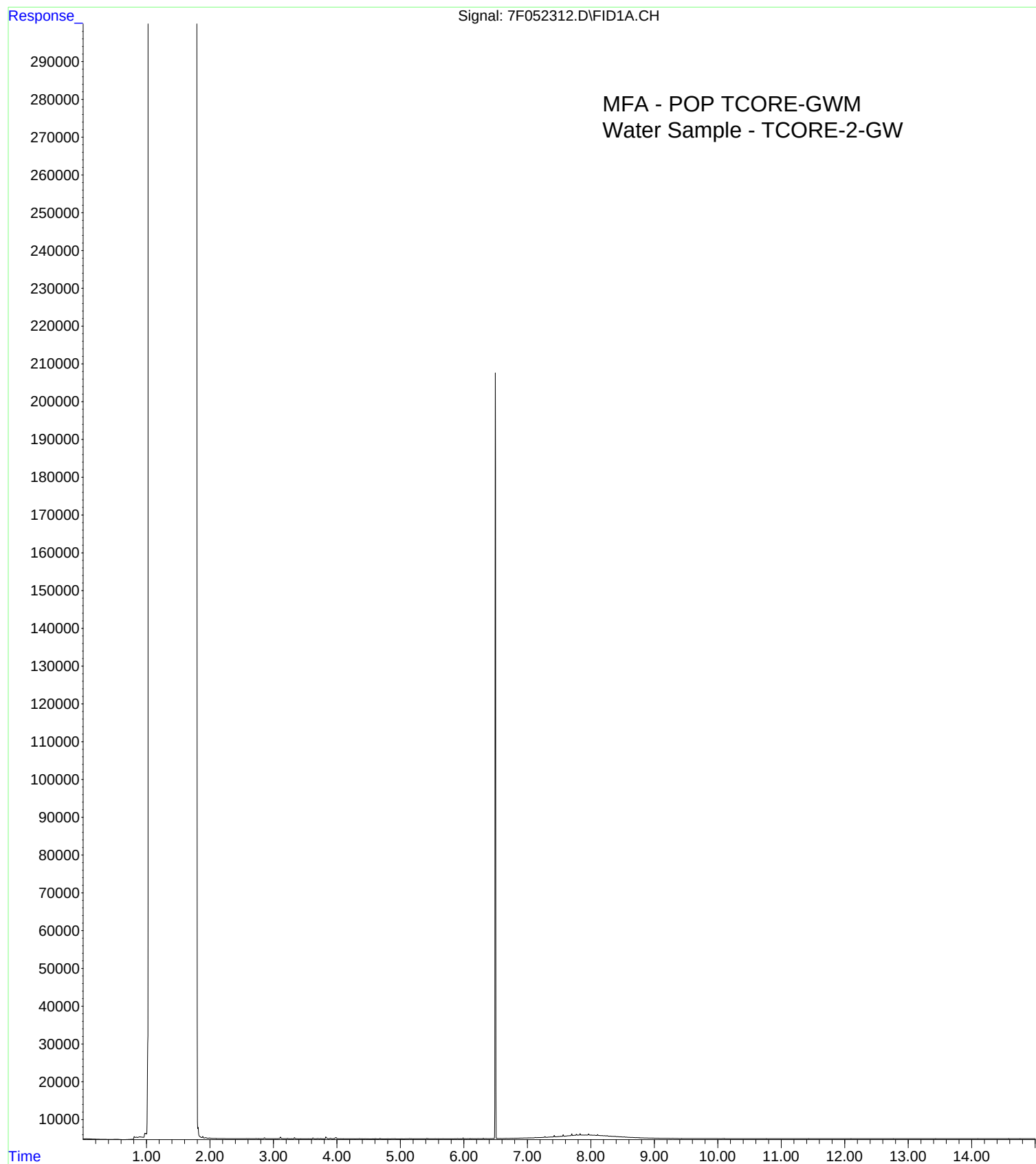
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Operator : BLL/BJY
Acquired : 23 May 2025 8:40 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-01
Misc Info :
Vial Number: 6



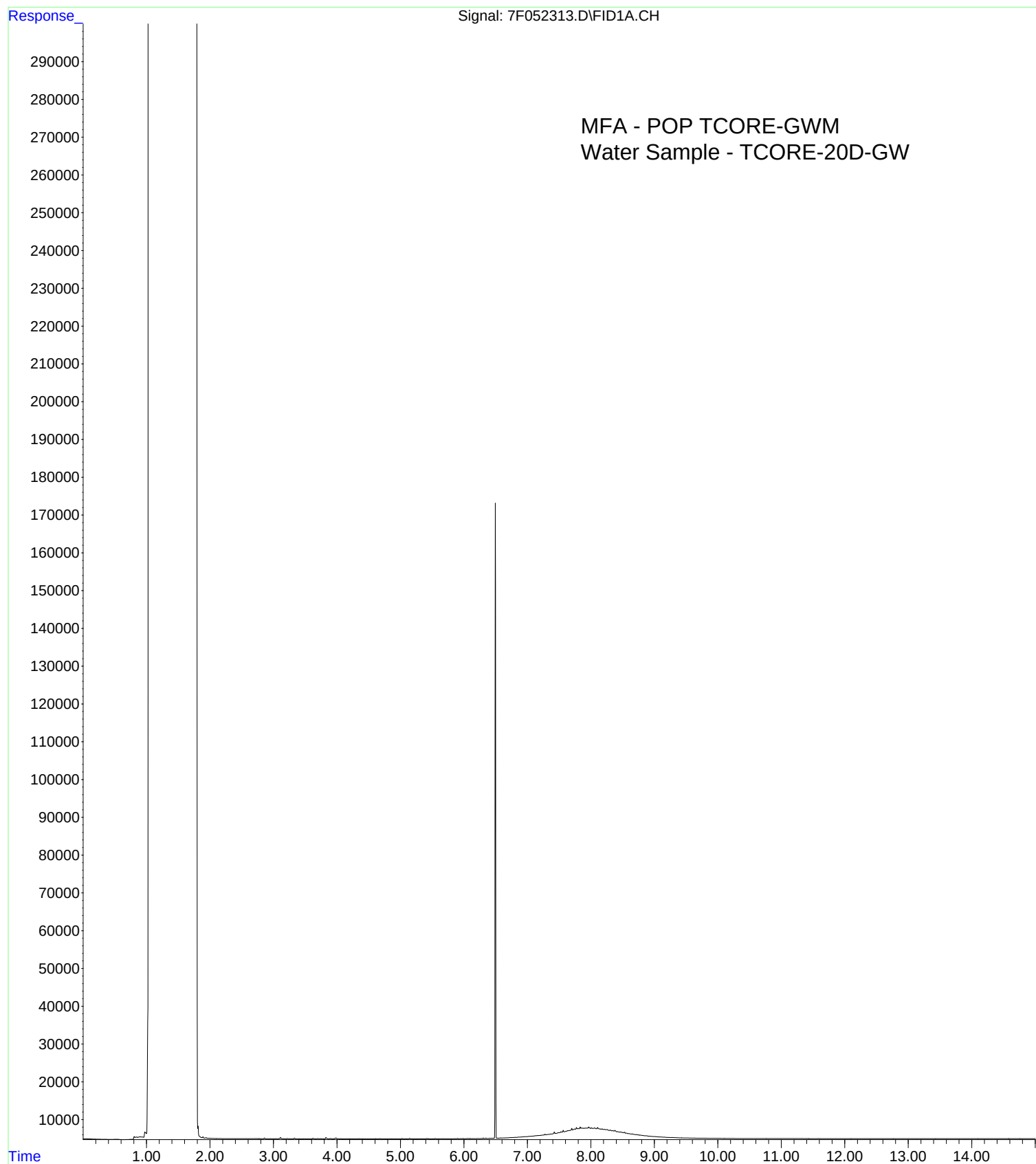
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Instrument : HP G1530A
Sample Name: A5E1360-02
Misc Info :
Vial Number: 7



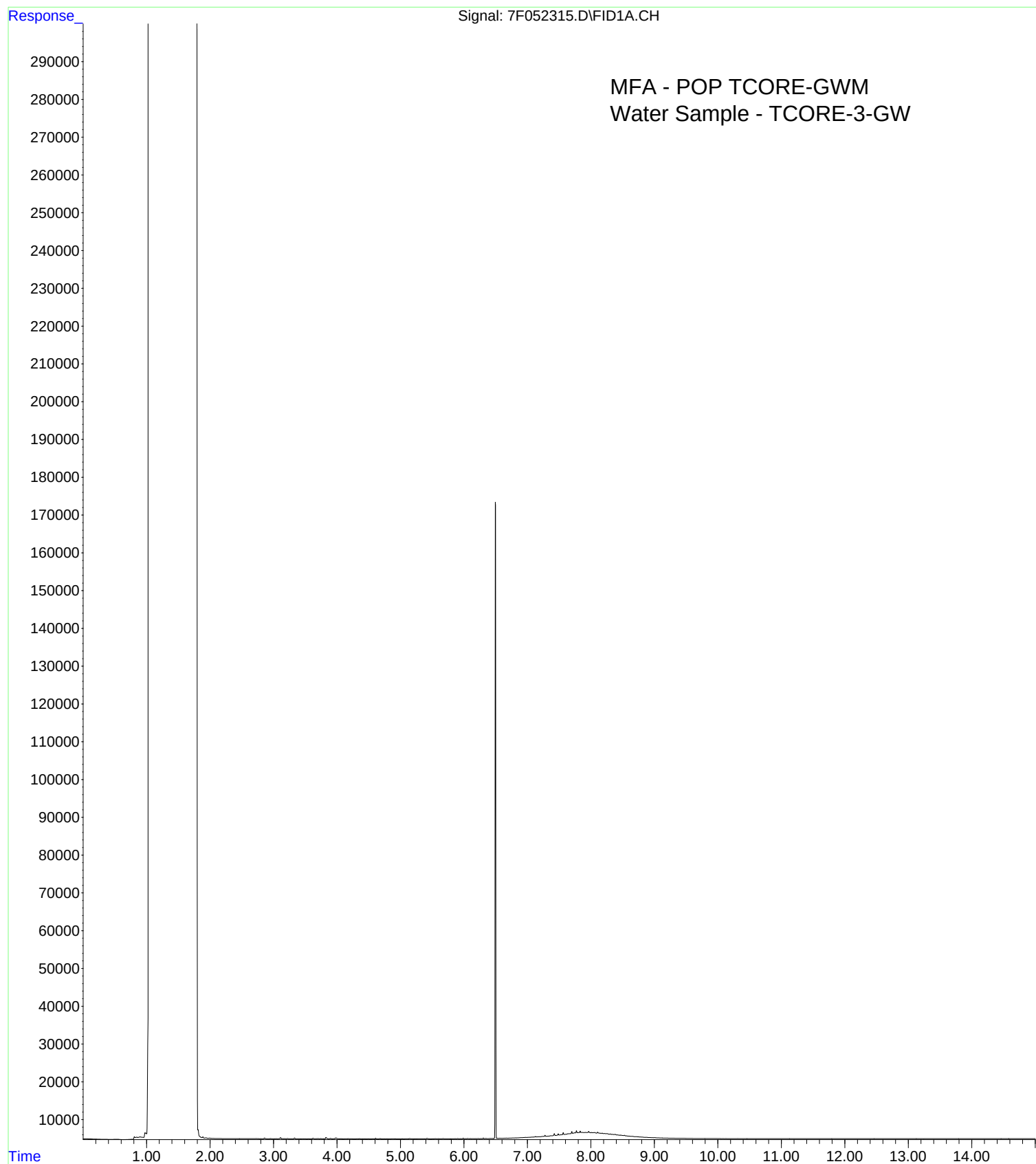
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Operator : BLL/BJY
Acquired : 23 May 2025 9:42 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-03
Misc Info :
Vial Number: 8



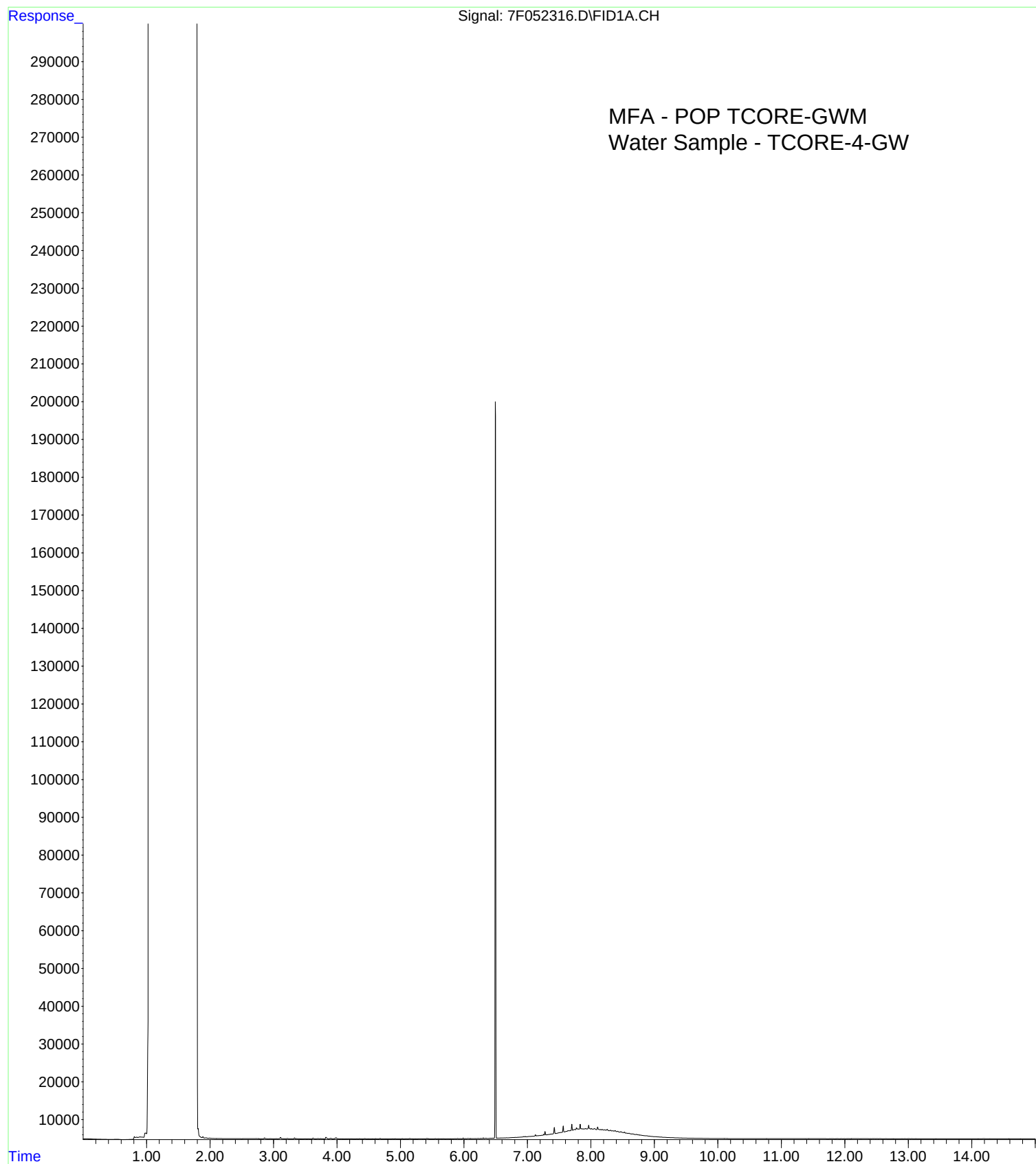
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Operator : BLL/BJY
Acquired : 23 May 2025 10:02 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-04
Misc Info :
Vial Number: 9



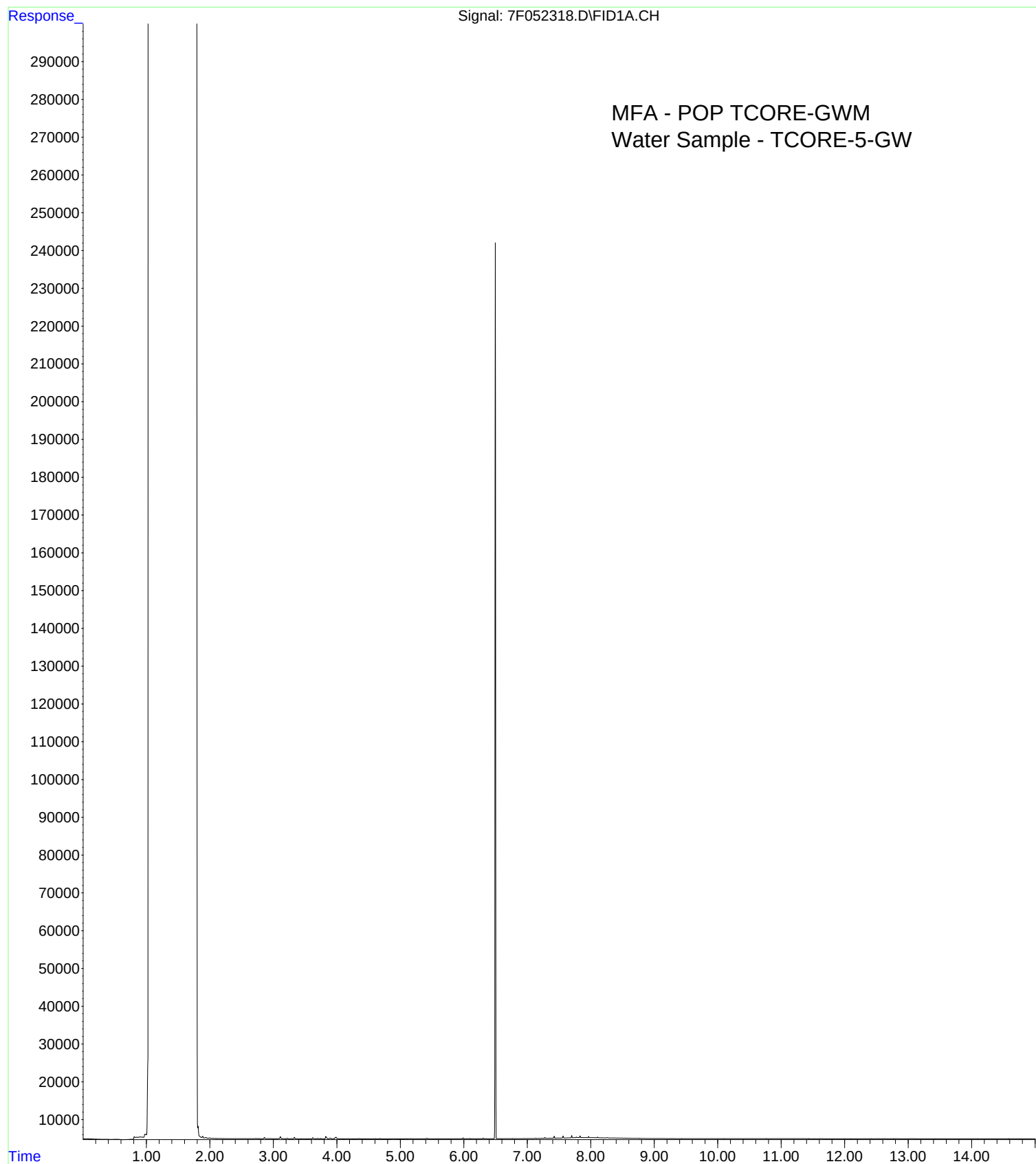
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Acquired : 23 May 2025 10:44 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-05
Misc Info :
Vial Number: 10



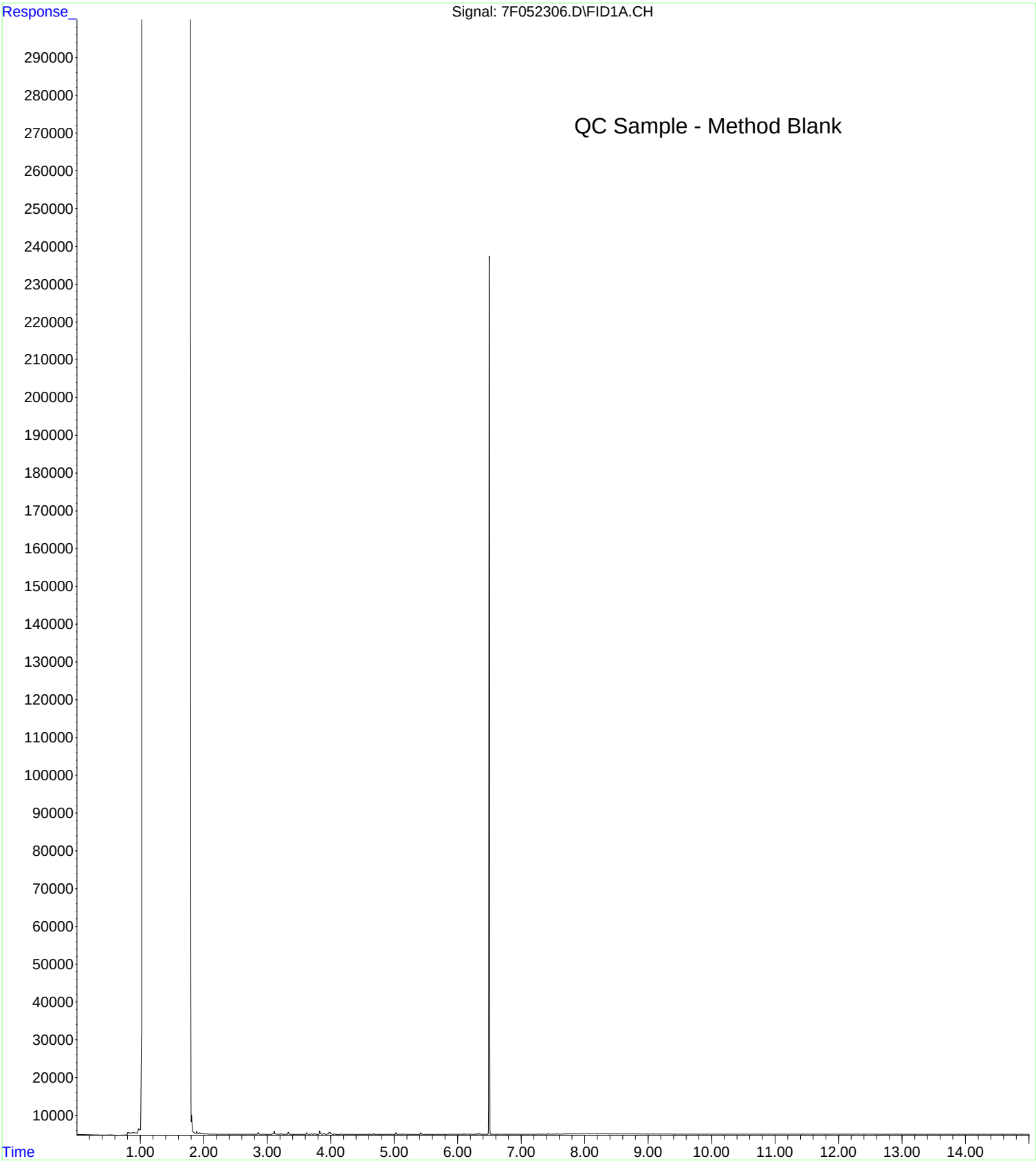
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Operator : BLL/BJY
Acquired : 23 May 2025 11:04 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-06
Misc Info :
Vial Number: 11



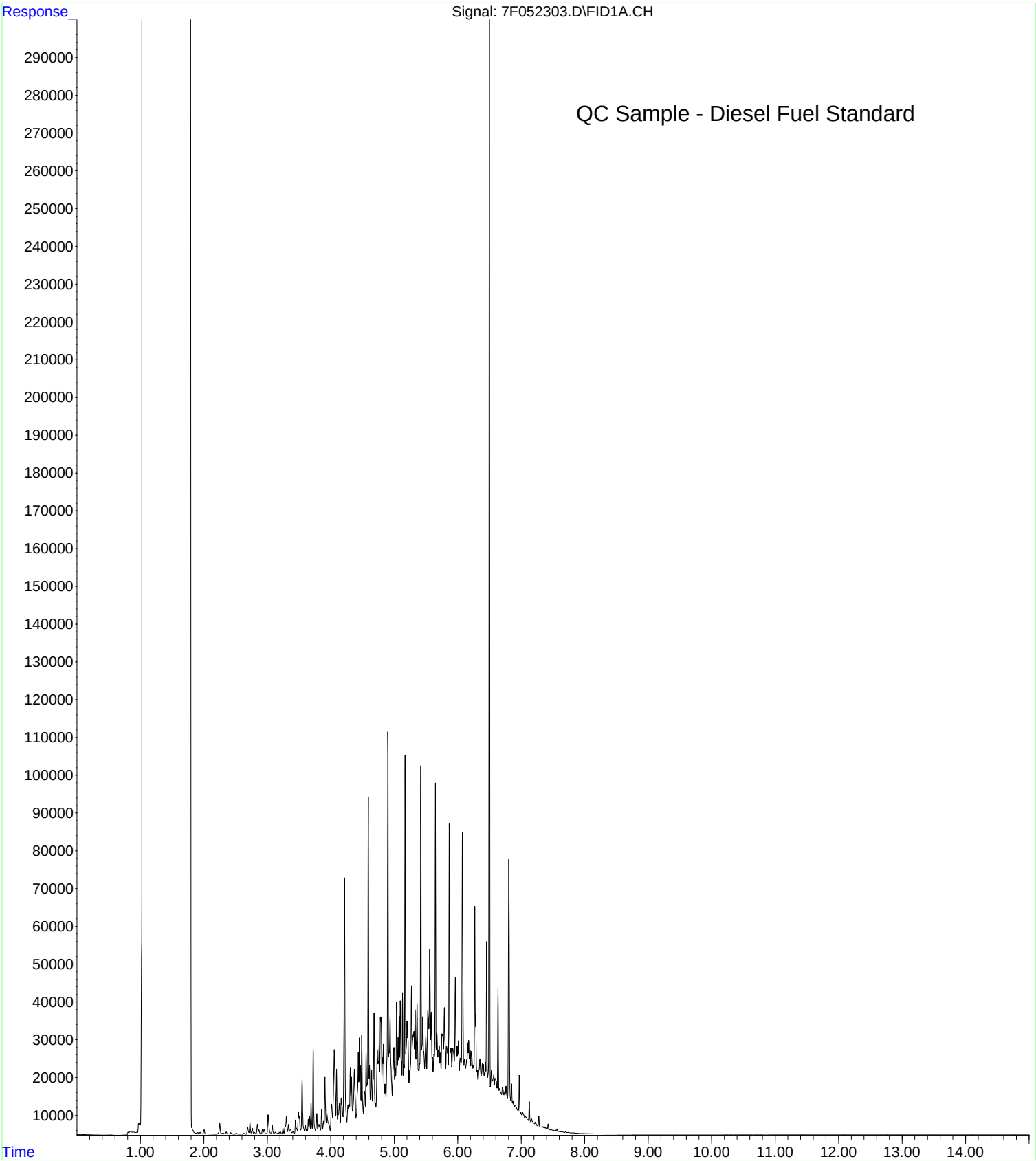
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Operator : BLL/BJY
Acquired : 23 May 2025 11:46 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: A5E1360-07
Misc Info :
Vial Number: 12



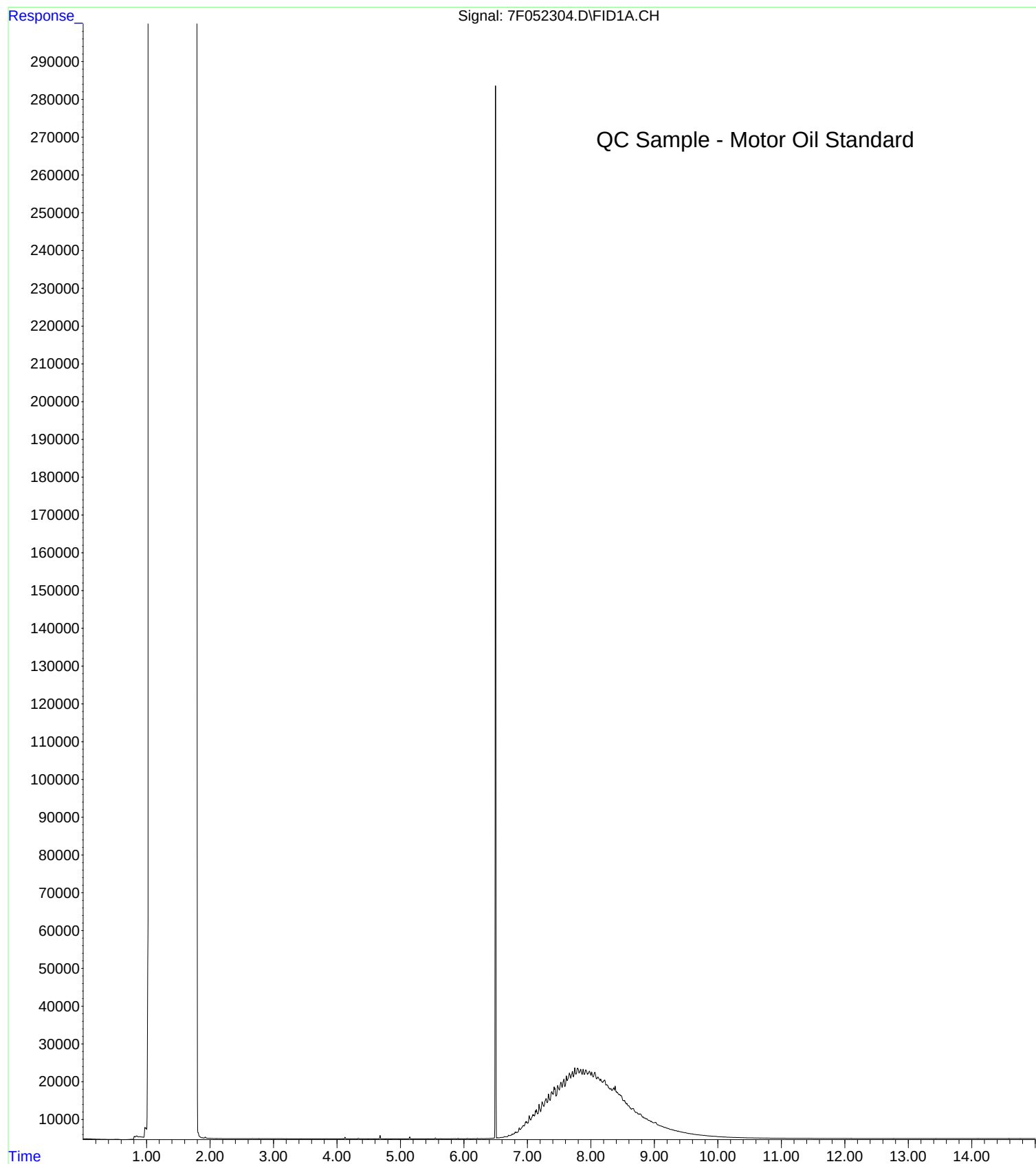
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Operator : BLL/BJY
Acquired : 23 May 2025 7:38 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 25E0812-BLK1
Misc Info :
Vial Number: 3



File :C:\msdchem\1\data\5E23040\7F052303.D
Operator : BLL/BJY
Acquired : 23 May 2025 5:37 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 5E23040-CCV1
Misc Info :
Vial Number: 1



File :C:\msdchem\1\data\5E23040\7F052304.D
Operator : BLL/BJY
Acquired : 23 May 2025 5:58 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 5E23040-CCV2
Misc Info :
Vial Number: 2



File :C:\msdchem\1\data\5E23040\7F052302.D
Operator : BLL/BJY
Acquired : 23 May 2025 5:16 pm using AcqMethod FID7ACQ.M
Instrument : HP G1530A
Sample Name: 5E23040-RES1
Misc Info :
Vial Number: 94

