

GROUNDWATER COMPLIANCE MONITORING PLAN

Grand Street Commons Site
1750 22nd Avenue South
Seattle, Washington

PPCD Nos. 18-2-14708-5 SEA and 18-2-147414-0
Facility Site ID #97763114, Cleanup Site ID #3018

Prepared for: Grand Street Commons, LLC

Project No. AS170304D • September 19, 2024 • Final



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Acronyms

ACMR	Annual Compliance Monitoring Report
Aspect	Aspect Consulting, a Geosyntec company
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Cleanup Action Plan
CCR	Cleanup Completion Report
cDCE	cis-1,2-dichloroethene
CDF	control density fill
COC	contaminant of concern
Ecology	Washington Department of Ecology
EDR	Engineering Design Report
GCMP	Groundwater Compliance Monitoring Plan
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams/kilograms
mg/L	milligrams per liter
µg/L	micrograms per liter
MNA	monitored natural attenuation
MTCA	Model Toxics Control Act
PCE	perchloroethylene
QAPP	Quality Assurance Project Plan
RI/FS	Remedial Investigation/Feasibility Study
ROW	right of way
SAP	Sampling Analysis Plan
TCE	trichloroethene
TOC	total organic carbon
TPH (d;g;o)	total petroleum hydrocarbons (diesel-range; gasoline-range; oil-range)
TPH-Dx	diesel- plus oil-range TPH

UST	underground storage tank
VC	vinyl chloride
VOC / cVOC	volatile organic compound / chlorinated volatile organic compound

1 Introduction

Aspect Consulting, a Geosyntec company (Aspect) has prepared this Groundwater Compliance Monitoring Report (GCMP) on behalf of Grand Street Commons, LLC (GSC) for the Grand Street Commons Site (Site) located at 1750 22nd Avenue South in Seattle, Washington (Figure 1). The Site is listed in Washington State Department of Ecology's (Ecology) database as Facility/Site ID #97763114 and Cleanup Site ID #3018.

This GCMP report was prepared to comply with the requirements of a Prospective Purchaser Consent Decree (PPCD) between Ecology and GSC, (PPCD No. 18-2-14708-5 SEA) and a PPCD between Ecology and Mt. Baker Housing Association (MBHA) (PPCD No. 18-2-14714-0 SEA). The two PPCDs outline the roles and responsibilities of GSC and MBHA for the cleanup of the Site. For the purposes of this report, GSC and MBHA will be referred to collectively as GSC.

The project is composed of 17 King County tax parcels totaling approximately 3.3 acres (herein collectively referred to as the Subject Property) located across three city blocks (herein referred to as the East, West, and South Blocks) that are situated within the Site.¹ The Subject Property is being redeveloped with three buildings: a transit-oriented mix of affordable and market-rate housing with retail space and underground parking. The project is located near the planned Judkins Park Light Link Rail Station generally near the intersection of the Central District, Mount Baker, and North Beacon Hill neighborhoods of Seattle.

The Subject Property and the Site are defined as follows:

- **Subject Property** – The Subject Property is located between Rainier Ave S to the west and 23rd Avenue S to the east; and S State Street to the north and S Holgate Street to the south. The Subject Property consists of the following 17 parcels that are classified into three Blocks:
 - ♦ West Block. King County Parcels 1822300005, 1822300020, 1822300025, 7548301095, 7548301100, 7548301115, 7548301120, 7548301125, and 7548301150, and 7548301155
 - ♦ East Block. King County Parcels 1822300175, 1822300180, and 0924049007
 - ♦ South Block. King County Parcels 3881900515, 3881900540, 3881900550, and 3881900560.
- **Site** – The Site is defined as areas where contamination has come to be located as a result of release(s) from the Subject Property. The Site comprises the Subject

¹ Please refer to Figure 2, which depicts Subject Property parcels, the East, West, and South blocks, and current features.

Property (East, West, and South Blocks) and adjacent rights-of-way (ROWS; 22nd Avenue South, and South Grand Street).

The releases of contamination at the Site originated from two distinct historical uses:

- Penthouse Drapery Cleaners & Manufacturers, Inc. (Penthouse), a commercial drycleaner, operated within a building historically located on the northwest portion of the West Block from approximately 1980 through the mid-1990s. Tetrachloroethene (PCE) was used by the drycleaner for dry-cleaning operations. PCE-contaminated soil and shallow groundwater were confirmed in the northwest portion and west half of the West Block.
- Belshaw Brothers, Inc. (Belshaw), manufactured bakery and restaurant equipment from approximately the 1920s through 2004 and used several underground storage tanks (UST) for storing gasoline/diesel fuel. They also used other hazardous chemicals including solvents, which may have contained 1,4-dioxane. The Belshaw manufacturing operations occurred on the West and East Blocks. Additionally, Belshaw regraded the South Block and used it for parking, and the imported fill material placed at this block was of unknown origin and contained low-level metals contamination.

The characterization of the Grand Street Commons Site is presented in the Remedial Investigation and Feasibility Study (RI/FS) report (Aspect, 2021a). Based on the evaluation of cleanup alternatives relative to Model Toxics Control Act (MTCA) criteria outlined in the RI/FS report, a final cleanup action consisting of remedial excavation and *in situ* groundwater treatment was selected by Ecology in the final Cleanup Action Plan (CAP; Ecology, 2021). This remedy was selected after earlier interim remedial actions, such as electrical resistance heating at the former Penthouse Dry Cleaners area, was completed by others.

The cleanup action layout is shown on Figure 3. In the 2021 CAP, *in situ* chemical groundwater treatment on the West and East Blocks was selected to reduce contaminant of concern (COC) concentrations (solvents and petroleum) in groundwater and enhance the natural attenuation of groundwater. Groundwater treatment was conducted prior to remedial excavations and redevelopment construction to target cleanup level exceedances in shallow groundwater at the Site not addressed by excavation and dewatering. Shallow groundwater is defined as the groundwater observed down to 40 feet below ground surface (bgs). A silt layer present at depths below 40 feet bgs limits contaminant migration, which is described further in the RI/FS (Aspect, 2021a).

This GCMP services two purposes: (1) Present a summary of cleanup actions for this complex cleanup project because supplementary actions were completed during and after remedial excavation/treatment, and (2) outline the purpose of this GCMP so that long-term groundwater monitoring and groundwater cleanup goals can be achieved.

The Cleanup Summary section (Section 2):

- Describes the selected cleanup action as planned in the CAP, plus any deviations or additional actions discovered, and completed, during construction.

- Summarizes *in situ* groundwater treatment and groundwater performance monitoring conducted before and after remedial excavation and redevelopment construction.
- Summarizes changes to the conceptual site model (CSM) and understanding of the nature and extents of contamination based on soil performance and confirmation monitoring completed during the remedial excavations.

The Groundwater Compliance Monitoring section (Section 3):

- Establishes the framework for long-term groundwater compliance monitoring.

2 Cleanup Summary

This section summarizes the COCs and cleanup levels established for the Site in the CAP (Ecology, 2021), cleanup actions performed to date at the Site, and performance monitoring for soil and groundwater conducted throughout various stages of the cleanup action.

2.1 COCs and Cleanup Levels

The RI/FS (Aspect, 2021a) established the Site COCs, and the CAP (Ecology, 2021) established the Site cleanup levels and cleanup action for those COCs. COCs and cleanup levels are summarized in Table A.

Since the time the RI/FS was published, Ecology established a MTCA Method B cleanup level for cis-1,2-dichloroethene (cDCE). Because cDCE is part of the degradation chain of PCE to trichloroethene (TCE) to DCE to vinyl chloride (VC), and because it has been detected in Site groundwater at concentrations exceeding the Method B cleanup level, it has been included in this GCMP.

Table A. Site Cleanup Levels

COC	Soil Cleanup Level (mg/kg)	Groundwater Cleanup Level (µg/l)
Gasoline-range TPH (TPHg)	30	800
Diesel- and oil-range TPH (TPHd + TPHo; TPH-Dx)	2,000	500
Benzene	0.03	5
1,4-Dioxane	10	0.44
PCE	0.05	5
TCE	0.03	5
cDCE	160	1.6
VC	0.67	0.2
Cadmium	2	Not a Site groundwater COC
Lead	250	N/A

Notes: TPH = total petroleum hydrocarbons; mg/kg = milligrams per kilogram; µg/l = micrograms per liter

2.2 Cleanup Actions

The cleanup action, as described in the CAP (Ecology, 2021), consists of the following elements, shown on Figure 3:

1. ***In situ* Groundwater Treatment – Complete.** Prior to soil removal and redevelopment, chemical injections using chemical oxidation and chemical reduction techniques were completed at the Site between January and October 2021 to remediate the petroleum hydrocarbon and chlorinated solvents contamination in shallow groundwater.
2. **Petroleum Hydrocarbon-Contaminated Soil Removal – Complete.** To efficiently complete this part of the cleanup action, the remedial excavations were completed in concert with redevelopment and building construction. Petroleum-hydrocarbon-contaminated soil was excavated at two areas on the West Block and four areas on the East Block and disposed off-Site at a permitted landfill (Figure 3). Initially, only one area on the West Block was identified for remedial excavation in the CAP, but additional petroleum-contaminated areas were discovered during construction. Likewise, additional areas of petroleum-impacted and -contaminated soil were discovered on the East Block, and the limits of the planned remedial excavation areas expanded. Additional unanticipated USTs were also discovered on both the West and East Blocks. The final remedial excavation extents and USTs that were removed are shown on Figure 3.
3. **PCE-Contaminated Soil Removal – Complete.** PCE-contaminated soil sourced from the historic Penthouse dry cleaning operation was removed from two locations on the West Block and disposed of at a permitted landfill. The final limits of the PCE-contaminated soil excavation are shown on Figure 3.
4. **Groundwater Monitored Natural Attenuation (MNA) – Started.** The CAP prescribes monitored natural attenuation (MNA) of groundwater to be conducted after the *in situ* groundwater treatment and remedial excavations are completed. This GCMP reports the results of post treatment and remedial excavation groundwater monitoring (Section 2) and establishes the procedures for MNA of groundwater moving into the future (Section 3).
5. **Institutional Controls.** Institutional controls will include recording an environmental covenant(s) on properties within the Site. The covenants are likely to include restrictions to prevent groundwater use during MNA and until cleanup standards are met.

Subsections 2.1.1 through 2.1.3 summarize the cleanup actions completed to date (numbers 1 through 3 above).

2.2.1 *In Situ* Groundwater Treatment Summary

Groundwater treatment on the West and East Blocks was conducted between January and October 2021, prior to remedial excavations and Site redevelopment. The groundwater treatment layout is shown on Figure 3. A large portion of the contaminated soil on the West and East Blocks was removed for both redevelopment and remediation; therefore,

the pre-construction groundwater treatment was designed to target depths greater than those addressed by remedial excavations and redevelopment excavations.

The CAP-required groundwater treatment was conducted in two phases, with Phase I completed from January through April 2021 and Phase II between May and October 2021. The completed scopes of both phases are summarized in *In Situ* Groundwater Treatment Pilot Test Work Plan (Groundwater Treatment Work Plan; Aspect, 2021b), the *In Situ* Groundwater Treatment Pilot Test Work Plan Addendum (Groundwater Treatment Addendum; Aspect, 2021c) and the Engineering Design Report (EDR; Aspect 2022a).

Four treatment areas were established based on location and COC:

- 1) West Block TPH;
- 2) West Block PCE;
- 3) East Block TPH; and
- 4) East Block and West Block 1,4-dioxane.

These areas are defined by the monitoring wells on each block with concentrations of each COC exceeding cleanup levels during at least one monitoring event in 2021. 1,4-dioxane treatment was similar between both blocks, so both East and West Block 1,4-dioxane performance monitoring data (Section 2.3.4) have been evaluated together. Table B, below, provides an overview of the *in situ* groundwater treatment conducted in each remedial area.

Table B. Groundwater Treatment Areas and Monitoring Wells

Block	COC	Historical Monitoring Wells	<i>In situ</i> Treatment Technology	Reagent
West Block	PCE	AC-MW-22, AC-MW-29 PC-SCC-1, PC-SCC-3 PC-MW-33I, PC-MW-31I AC-MW-32, URS-MW-27I AC-MW-27	Chemical Reduction	EHC, EHC-L
	TPH	AC-MW-10, AC-MW-16 AC-MW-18, AC-MW-20 AC-MW-31	Chemical Oxidation	KSP
	1,4-dioxane	URS-MW-28I	Chemical Oxidation	KSP
East Block	TPH	AC-SB-13	Chemical Oxidation, Sorption	KSP, PetroFix
	1,4-dioxane	AC-MW-12	Chemical Oxidation	KSP

Notes:

EHC – Peroxychem, Inc EHC® chemical reduction reagent from Peroxychem-Evonik Inc

EHC-L – EHC-Liquid from Peroxychem-Evonik Inc

KSP – Klozur® sodium persulfate from Peroxychem-Evonik Inc

PetroFix – Petrofix® injectable activated carbon from Regenesys Inc

TPH – total petroleum hydrocarbons

2.2.2 Remedial Excavations

As described in the CAP (Ecology, 2021), remedial excavations were only planned for the West and East Blocks; metals-contaminated soil on the South Block was partially removed due to construction, with the remainder capped in place by the redevelopment building.

Prior to remedial and redevelopment excavations in October 2021, a total of 49 groundwater monitoring wells on the West, East, and South Blocks were decommissioned by a licensed driller in accordance with WAC 173-160-460 by filling the casing from bottom to ground surface with bentonite (Table 1), leaving 17 shallow groundwater monitoring wells in the surrounding ROWs.

The sections below provide a high-level overview of the remedial excavations and performance soil sampling conducted prior to redevelopment on the West and East Blocks. A more detailed summary of remedial excavation activities was provided to Ecology with a request on GSC's behalf for authorization to proceed with redevelopment for both the West Block (Aspect, 2022c) and the East Block (Aspect, 2022b). Likewise, a detailed summary will be included in the forthcoming Cleanup Completion Report (CCR) for the Site (Section 4.1).

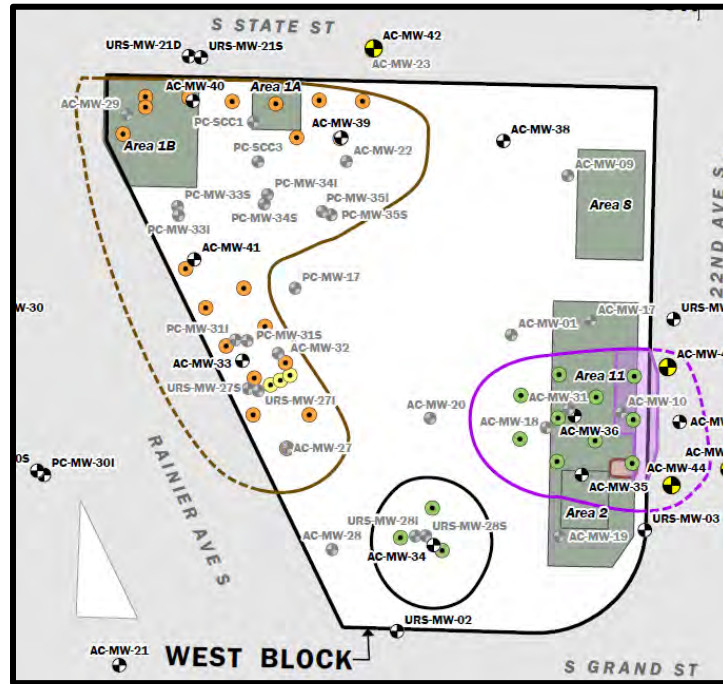
2.2.2.1 West Block Remedial Excavations

Three planned and two unplanned remedial excavations on the West Block were completed between January 20, 2022, and June 30, 2022, and chlorinated solvent- and petroleum-contaminated soil was stockpiled on the Subject Property. Export of petroleum-contaminated soil continued through July 21, 2022, and export of chlorinated solvent-contaminated soil continued through September 20, 2022. During remedial excavation activities, petroleum-impacted (less than Site cleanup levels) and -contaminated soil (greater than the Site cleanup levels) sourced from the former Belshaw operations and chlorinated solvent-contaminated soil sourced from the former Penthouse operations was excavated and transported off-site for permitted disposal. During the remedial excavations, contaminated soil was excavated and transported to three disposal facilities:

- A total of 1,567 tons of petroleum-impacted² and -contaminated soil was excavated and transported to Iron Mountain Quarry's (IMQ) disposal facility in Granite Falls, Washington between January 20, 2022, and June 14, 2022. IMQ is an approved disposal facility operating under Snohomish Health District Solid Waste Facility Permit #SW-502 for landfilling of petroleum-impacted soil (500 tons) and Permit #SW-501 for thermal treatment of petroleum-contaminated soil (1,067 tons treated prior to landfilling).
- A total of 2,725 tons of petroleum-contaminated soil was excavated and transported to Cadman Everett's (Cadman) disposal facility in Everett, Washington between July 15 and July 21, 2022. Cadman is an approved treatment and disposal facility operating under Snohomish Health District Solid Waste Facility Permit #SW-204 for landfilling petroleum-impacted soil and Permit #SW-017 for thermal treatment of petroleum-contaminated soil (prior to landfilling).
- A total of 5,009 tons of soil from the chlorinated-solvent contaminated areas (Area 1a and Area 1b) was excavated and transported to Waste Management's Columbia Ridge Landfill (CRL) in Arlington, Oregon between March 19 and September 20, 2022. CRL is an approved Subtitle D disposal facility operating under Oregon Department of Environmental Quality Solid Waste Permit #391.

As part of the CAP for the Site, three remedial excavations were identified in areas exceeding the Site cleanup levels prior to the start of construction – Areas 1a, 1b, and 2 on the attached Figure 3 and as described in the CAP and EDR (Aspect, 2022a). ***Two additional remedial areas, identified as Areas 8 and 11, were discovered during construction on the West Block, as described and shown in the clip below.***

² Approximately 500 tons of petroleum-impacted soil (soil containing petroleum hydrocarbons less than the Site cleanup levels) was removed from the West Block to allow for excavation to the redevelopment grade.



West Block Remediation Areas. Clip from Figure 3.

- **Areas 1a and 1b:** In the northwest portion of the West Block, remedial excavations were completed to the planned grades as identified in the EDR: Area 1a was excavated to elevation³ 51 and Area 1b was excavated to elevation 40. The initial grade of this area of the West Block prior to excavation varied between elevation 73 to 70. Performance soil sampling conducted at the base of the remedial excavation areas confirmed that soil containing chlorinated solvents above the Site cleanup levels had been successfully removed.
- **Area 2:** In the southeast portion of the West Block, an approximately 500-gallon UST was encountered during the remedial excavation. While petroleum-contaminated soil had been documented in Area 2 as part of the RI, the presence and location of this UST was unknown prior to the start of excavation. The UST was decommissioned by TankWise, LLC (TankWise) and removed from the Site for disposal. The remedial excavation in Area 2 was planned to extend to at least elevation 62 based on RI data, and the contaminant of concern identified for Area 2 was diesel-range total petroleum hydrocarbons (TPHd). The actual remedial excavation extended deeper to elevation 54 (the initial grade in this portion of the West Block prior to excavation varied between elevation 73 and 71). The petroleum contamination was also more laterally extensive in this Area. At elevation 54 (approximately 17-19 feet below the pre-excavation grade), bottom soil confirmation samples indicated that soil contaminated with TPHd above the Site cleanup levels had been successfully removed; however, as additional excavation continued to reach the redevelopment grade at elevation 50, gasoline-

³ All elevations described in this report are based on the North American Vertical Datum of 1988 (NAVD88).

range total petroleum contamination (TPHg) was uncovered – see more detail in Area 11 below.

- **Area 8:** Area 8, located at the northeast property boundary was not identified during the RI, nor accounted for in the EDR but rather was discovered during excavation for redevelopment. The TPHd contamination located here is likely attributable to westerly migration from a release from the UST uncovered in Area 3 of the East Block (Section 2.2.2.2). Diesel impacts were detected in a single soil sample above the Site cleanup level and over-excavated. Bottom soil samples collected at elevation 59 (approximately 16 to 18 feet below the pre-excavation grade) indicated that the diesel-impacted and diesel-contaminated soil had been fully removed prior to reaching the redevelopment grade of elevation 50.
- **Area 11:** As discussed in the Area 2 summary above, additional remedial excavation was necessary at depths deeper and more extensive beneath and around the Area 2 diesel-contaminated soil excavation area. As the deeper redevelopment grade was approached (at elevation 50) in the southeast corner of the West Block, petroleum odors and staining were noted. Construction excavation was halted so that test pits could be conducted in this area to evaluate this unanticipated deeper source of petroleum contamination. Soil samples obtained from the test pits confirmed that the petroleum contamination was gasoline (TPHg), which extended at least 8 feet vertically below the planned redevelopment grade (elevation 50). Aspect's geotechnical engineer worked with the shoring engineer for solutions to allow over-excavation of the deeper gasoline-contaminated soil beyond the vertical limits of the designed shoring system. The shoring engineer approved a slot cutting solution – wherein 5-foot wide (north-south) and 10-foot long (east-west) slots could be excavated to a maximum 8 feet below the shoring wall (elevation 42) and backfilled with controlled density fill (CDF). Every third slot was completed, and the CDF was allowed to cure before excavating and backfilling the next set of slots. Aspect collected base soil samples at the bottom of slots prior to backfilling with CDF. Once all the slots were completed, a CDF block that is approximately 100 feet long (north-south), 10 feet wide (east-west), and 8 feet deep is now in place against the eastern shoring wall. This facilitated additional over-excavation of gasoline-contaminated soil to the west of the CDF block, down to elevation 38 (approximately 33 to 36 feet below the pre-excavation grade). All gasoline-contaminated soil was removed from Area 11 except for a limited area underneath the CDF block that is approximately 25 feet long (north-south) and 10 feet wide (east-west) and 2 to 4 feet thick (from elevation 42 to elevation 38), as shown in the purple polygon on Figure 3. This limited amount of gasoline-contaminated soil cannot be excavated beneath the existing CDF block based on the opinion of the shoring engineer and because of logistics, cost, and safety. This approach for over-excavation beyond the designed shoring limits and the inability to further over-excavate beneath the CDF slot cuts immediately adjacent to the shoring wall was discussed with Ecology during construction. This limited area is now capped by the CDF block and bounded by clean soil to the west. The approach and limits of contamination remaining in-place were summarized in an email to Ecology on July 7, 2022. A shoring redesign and re-permitting effort would have required significant delay and cost and thus was

disproportionate to the limited amount of contamination remaining on-Property, and Ecology acknowledged that further excavation was not practicable due to the limits of the shoring system.

All chlorinated solvent-contaminated soil within the northwest portion of the West Block parcels' boundary was successfully removed. Except for the limited gasoline-range contaminated soil now capped with CDF near the east-Property boundary of the West Block, all petroleum-contaminated soil was successfully removed from within the West Block parcels' boundary, to the extents practicable, thus satisfying the CAP elements necessary to be completed prior to redevelopment. The remaining lateral extents of the petroleum-contaminated soil in the southeast portion of the West Block are shown in the purple polygon on Figure 3. Additional monitoring wells were installed on- and off-Property in this area as part of long-term performance monitoring (Section 2.2.3).

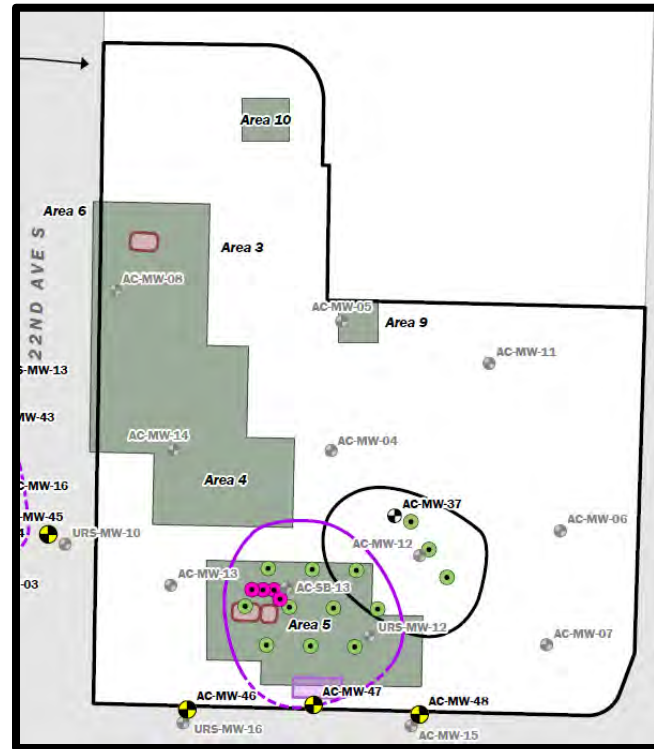
2.2.2.2 East Block Remedial Excavations

Three planned and two unplanned remedial excavations on the East Block were completed between January 25, 2022, and June 10, 2022. During remedial excavation activities, petroleum-impacted and -contaminated soil sourced from the former Belshaw operations was excavated and transported off-site for permitted disposal. During the remedial excavations, a total of 5,859 tons of soil, including 348 tons of petroleum-impacted⁴ soil and 5,511 tons of petroleum-contaminated soil, was excavated and transported to IMQ.

As part of the CAP for the Site, three remedial excavations were identified in areas exceeding the Site cleanup levels prior to the start of construction—Areas 3, 4, and 5 as described in the EDR (Aspect, 2022a) and shown on Figure 3. Compliance sampling consisted of collecting both sidewall and base soil samples from each remedial excavation area. Sidewall soil samples were obtained along the perimeter of the remedial excavation areas prior to the installation of shoring. Likewise, during excavation of the petroleum-contaminated soil, base performance samples were obtained at the vertical limit of the remedial excavations at the frequency prescribed in the EDR. Soil samples were submitted to Fremont Analytical's laboratory in Seattle, Washington for analysis of petroleum-related Site COCs.

Based on the chemical analytical results of the final base performance samples, soils contaminated with petroleum hydrocarbons above the Site cleanup levels were removed from each of the remedial excavation areas described in the EDR as well as ***two unanticipated areas where field evidence of contamination was identified: Areas 9 and 10 as shown on Figure 3 are described and shown in the clip below*** (note that Area 6 is located off-Property, Area 7 is located on the South Block, and Area 8 is located on the West Block).

⁴ Approximately 348 tons of petroleum-impacted soil (soil containing petroleum hydrocarbons less than the Site cleanup levels) was removed from the East Block to allow for excavation of deeper soil which was contaminated with petroleum hydrocarbons above the Site cleanup levels.



East Block Remediation Areas. Clip from Figure 3.

A brief description of the remedial activities conducted in each remedial excavation area at the East Block is included below:

- Area 3:** In the west-central portion of the East Block, an approximately 500-gallon UST was encountered during the remedial excavation. While petroleum-contaminated soil had been documented in Area 3 as part of the RI, the presence and location of this UST was unknown prior to the start of excavation. The UST was decommissioned by TankWise and removed from the Site for disposal. The planned remedial excavation in Area 3 extended to elevation 67 as described in the EDR. The actual remedial excavation extended deeper and farther laterally than the planned remedial excavation as identified in the EDR. During the remedial excavation, petroleum-impacted and -contaminated soil was noted to be primarily confined to sandier layers of the glacial recessional geologic unit between elevations approximately 67 and 60. These sandier layers allowed more extensive migration of petroleum contamination than identified in the EDR, and the lateral extents of remedial excavation Area 3 were expanded to the south and east as shown on Figure 3 and the vertical extents of the Area 3 were extended to elevations between 60 and 62. All petroleum-contaminated soil from Area 3 and within the East Block parcels' boundary was removed.
- Area 4:** In the central portion of the East Block, remedial excavation was conducted in Area 4 to an elevation of 62 as summarized in the EDR. The final base performance soil samples collected at elevation 62 indicated that no petroleum hydrocarbon impacts remained at the base of the remedial excavation.

- **Area 5:** In the south-central portion of the East Block, two USTs (approximately 1,000-gallons and 500-gallons) were removed during the remedial excavation. These USTs were decommissioned by TankWise and removed from the Site for disposal. The planned remedial excavation in Area 5 extended to elevation 70 as described in the EDR. The actual remedial excavation extended deeper and farther laterally than the planned remedial excavation as identified in the EDR. During the remedial excavation, petroleum-contaminated soil was noted to have migrated from the base of the USTs at approximate elevation 67 to the east along the top of a clay-rich layer in the glacial recessional geologic unit before migrating vertically through sandier layers of the glacial recessional and glacial till geologic units. These sand stringers allowed petroleum hydrocarbons to vertically migrate to an elevation of 58 in the main area of the remedial excavation and to an elevation of 52 in two sand stringers which were discontinuous and limited in lateral extents. These sandier layers allowed more extensive migration of petroleum contamination than identified in the EDR, and the lateral extents of remedial excavation of Area 5 were expanded to the south and east as shown on Figure 3.

All petroleum-contaminated soil within the shoring system boundary was removed; however, the shoring system along the south side of the East Block was inset from the East Block parcels' property boundary. Sidewall sampling conducted prior to the installation of the shoring system indicated that soil with concentrations of TPH-Dx above the Site cleanup levels remains in the area along the southern extents of remedial Area 5 but within the Property boundary, as shown on Figure 3. These impacts appear to be limited to the vadose zone based on the results of bottom soil performance sampling conducted within the remedial excavation and a soil boring conducted during implementation of the CAP to delineate these impacts. Laterally, petroleum-contaminated soil was bounded within a 20-foot zone extending east-west between adjacent sidewall sample locations as shown on Figure 3; vertically, petroleum-contaminated soil was bounded between elevations 62 and 58 based on field screening observations and soil performance sampling conducted within the remedial excavation. As discussed with Ecology during implementation of the CAP, compliance monitoring of these impacts which remain on-Property will be assessed through a combination of soil and groundwater performance and confirmation monitoring as part of the long-term compliance monitoring for the Site. Specifically, an additional monitoring well was installed in the right-of-way to the south of these impacts to assess soil and groundwater quality (Section 2.2.3).

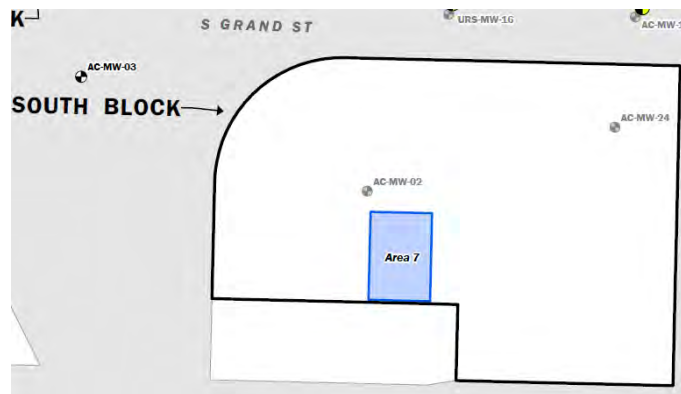
- **Area 9:** In the north-central portion of the East Block, adjacent and to the east of the former alley, petroleum-contaminated soil was encountered during grading work as part of the redevelopment. Visible staining and a petroleum-like odor was observed in an approximately 40-square-foot area at elevation 74 (immediately below the historical grade in this area of the East Block) during site preparation work to install footings for the building. Analytical results indicated this soil was contaminated with TPHo. This area was over-excavated by two feet from elevation 74 to 72, and a confirmation sample at elevation 72 indicated that soil contaminated with TPHo above the Site cleanup levels had been removed.

- **Area 10:** In the northwest portion of the East Block, adjacent and to the west of the former alley, a slight petroleum-like odor was encountered during site preparation work to install footings for the buildings at elevation 72. Sampling indicated this area was impacted by TPHd but at a concentration below the Site cleanup levels. The soil excavated from Area 10 was managed and disposed of as petroleum-impacted soil and confirmation sampling conducted at the redevelopment grade indicated that TPHd concentrations in the soil left in place are below Site cleanup levels.

With the exception of limited TPHd impacts which remain on the Property at the south end of remedial Area 5, all petroleum-contaminated soil was successfully removed from within the East Block parcels' boundary, to the extents practicable, thus satisfying the CAP elements necessary to be completed prior to redevelopment.

2.2.2.3 South Block Excavation

No remedial excavations were planned for the South Block. The CAP (Ecology, 2021) identified the cleanup remedy for the South Block as capping of the limited, shallow metals-contaminated soil; however, during the redevelopment of the South Block, some of the metals-contaminated and metals-impacted soil had to be excavated for construction of the South Block building. The metals-contaminated and metals-impacted soil was transported to Waste Management's Columbia Ridge Landfill in Arlington, Oregon, an approved Subtitle D disposal facility operating under Oregon Department of Environmental Quality Solid Waste Permit #391. Soil sampling conducted at the limits of the excavation for the South Block redevelopment confirmed the final limits of soil contaminated with metals above the Site cleanup levels that remained in place. This contaminated soil is now capped by the building. The new limits of metals-contaminated soil on the South Block are shown as Area 7 on Figure and in the clip below.



South Block Limits of Metals-Contaminated Soil. Clip from Figure 3.

2.2.3 Additional Monitoring Well Decommissioning and Removals

Following remedial excavations, 7 of the 17 remaining monitoring wells in the ROWs were decommissioned or removed: four monitoring wells were decommissioned as part of redevelopment, and an additional three monitoring wells removed by the other parties as described below (leaving 10 of the original RI monitoring wells in place at the Site in the ROWs).

The four monitoring wells (AC-MW-15, AC-MW-23, URS-MW-10, and URS-MW-16) decommissioned to facilitate infrastructure improvements to the ROWs surrounding the West and East Blocks in November 2023 (Table 1) were decommissioned by a licensed driller. These monitoring wells were replaced as described in the section below.

Three off-Property monitoring wells have been removed by other parties; no decommissioning records for these monitoring wells were located in Ecology's well database, but they are no longer present:

- URS-MW-22 and URS-MW-23, to the north of the West Block (Figure 3) were removed at some point between June and December 2023. They were presumably removed for the redevelopment that is occurring at the property to the north of the West Block.
- AC-MW-21, located to the west of Rainier Avenue (Figure 3), were removed at some point between the last time it was sampled in March 2020 and the June 2023 performance monitoring event, described in Section 2.3.2 below.

These three monitoring wells did not historically contain concentrations of Site COCs above the cleanup levels, and they are located upgradient and cross-gradient to the pre-cleanup action groundwater plumes; therefore, the removal of these monitoring wells by other parties is not an issue for long-term groundwater compliance monitoring (further described in Section 3 below).

2.2.4 Replacement Monitoring Wells

As discussed with Ecology throughout implementation of the CAP, replacement monitoring wells were installed throughout the Site to monitor groundwater quality in the areas where pre-cleanup action groundwater plumes existed. The pre-cleanup action groundwater plumes are shown on Figure 3. Following the remedial and redevelopment excavations, 16 new groundwater monitoring wells were installed in two phases between 2022 and 2023 (Figure 3), resulting in a total of 26 monitoring wells at the Site:

- Nine new monitoring wells (AC-MW-33 through AC-MW-41) were installed on the West and East Blocks to replace monitoring wells decommissioned to facilitate remedial and redevelopment excavations.
- One monitoring well (AC-MW-42) was installed within South State Street north of the West Block and two monitoring wells (AC-MW-46 and AC-MW-48) were installed in South Grand Street south of the East Block to replace monitoring wells that were decommissioned for infrastructure improvements.
- Three monitoring wells (AC-MW-43 through AC-MW-45) were installed in 22nd Avenue South between the East and West Blocks to further delineate soil contamination and assess groundwater quality near the bottom and sidewall soil samples that exceeded the Site cleanup levels in remedial excavation Area 11.
- One monitoring well (AC-MW-47) was installed in South Grand Street, south of the East Block, to further delineate soil contamination and assess groundwater quality near the sidewall soil samples that exceeded Site cleanup levels in remedial excavation Area 5.

Replacement monitoring wells for each of the pre-remediation RI wells, as organized by Site location and contaminant are shown below in Table C.

Table C. Replacement Monitoring Wells

Location	Contaminant (Remedial Area)	Remedial Investigation Monitoring Wells (Decommissioned for Remediation/Redevelopment)	Replacement Monitoring Well(s) (Post Remediation)
West Block	Upgradient/ Background	AC-MW-23	AC-MW-42
		AC-MW-09	AC-MW-38
	PCE (Area 1)	AC-MW-22	AC-MW-33, AC-MW-39, AC-MW-40, AC-MW-41
		AC-MW-27	
		AC-MW-29	
		PC-MW31S/I	
		PC-MW33S/I	
		PC-MW34S/I	
		PC-MW35S/I	
		PC-SCC1	
		PC-SCC3	
		URS-MW27S/I	
	1,4-Dioxane	URS-MW28S/I	AC-MW-34
	TPH (Areas 2 and 11)	AC-MW-01	AC-MW-35, AC-MW-36
		AC-MW-10	
		AC-MW-16	
		AC-MW-17	
		AC-MW-19	
		AC-MW-20	
		URS-MW-10	AC-MW-45
		--	AC-MW-43, AC-MW-44
East Block	TPH (Area 5)	URS-MW-16	AC-MW-46
		AC-SB-13	AC-MW-47 (downgradient)
		URS-MW-12	
		AC-MW-15	AC-MW-48
	1,4-Dioxane	AC-MW-12	AC-MW-37

Note: Blue text indicates monitoring wells in the ROWs surrounding the West and East Blocks.

2.2.4.1 On-Property Replacement Monitoring Wells

On-Property replacement monitoring wells (AC-MW-33 through AC-MW-41) were installed over two mobilizations by Cascade Drilling, Inc. (Cascade) of Woodinville, Washington on September 20 and 21, 2022, and by Andersen Environmental Contracting, LLC (AEC) of Kelso, Washington on October 18, 2022, both of whom are Washington-

state licensed drillers. Soil samples were not collected during the on-Property replacement well installations because soil confirmation samples at the bottom of the remedial excavations had already been collected and because of the limitations of the drill rig.

During soil boring advancement, an Aspect field geologist performed field screening using a photoionization detector (PID) to measure volatile organic vapors of soil cuttings, and the geology was logged using the drill cuttings (which are by nature highly disturbed). Borings were advanced to the elevations where historical monitoring wells were screened, to the elevations where soil performance sampling during the remedial excavations indicated potential groundwater impacts may occur, or to drilling refusal. Boring logs are included in Appendix A. Monitoring wells were constructed using 2-inch-diameter Schedule 40 PVC casings and 0.010-inch (10-slot) pre-packed screens. Monitoring well construction details are included in Table 2. Each monitoring well was installed so that screen elevation would be similar to pre-remediation monitoring wells in that area, as allowed by boring refusal (Table 2; Appendix A). Following installation, wells were developed to improve hydraulic connectivity between the well and surrounding formation. Development consisted of surging and purging each well using a single- or double-stage pump with a flow controller until at least 10 casing volumes were removed and/or water was visibly clear.

2.2.4.2 ROWs Replacement Monitoring Wells

Replacement monitoring wells in the ROWs surrounding the West and East Blocks (AC-MW-42 through AC-MW-48) were installed by Cascade between November 28 and December 1, 2023. The soil borings were advanced by a CMT 75 drill rig using 8.5-inch outer diameter hollow stem augers. During boring advancement, soil samples were collected using 1.5-inch diameter split spoons at 2.5- to 5-foot intervals beginning at 10 feet bgs and extending to the terminal depth of each boring location. An Aspect geologist conducted field screening of soil samples, collected soil samples for laboratory analysis, and logged the soil in general accordance with the ASTM International (ASTM) standard D2488 for visual classification of soils using the Unified Soil Classification System (USCS). Field screening of soil samples included water sheen testing, measuring headspace volatiles with a PID, and visual observations.

After the soil borings were completed, the monitoring wells were constructed with 2-inch-diameter Schedule 40 PVC casings and 0.010-inch (10-slot) screens set either at the same elevation as the historical monitoring well they were replacing (AC-MW-42, AC-MW-46, and AC-MW-48) or across the water table observed at the time of drilling. Following installation, wells were developed to improve hydraulic connectivity between the well and surrounding formation. Development consisted of surging and purging each well using a single- or double-stage pump with a flow controller until at least 10 casing volumes were removed and/or water was visibly clear. Soil types, fill thicknesses, results of field screening, and well construction details can be found on the boring logs in Appendix A.

Soil samples collected during advancement of the soil borings in the ROWs were submitted to Friedman and Bruya, Inc. of Seattle, Washington for the following analyses:

- TPHg and TPHd/TPHo using Northwest Methods NWTPH-Gx and NWTPH-Dx
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency (EPA) Method 8260E
- Chlorinated VOCs (cVOCs) using EPA Method 8260E

Laboratory analytical reports are included in Appendix B. Soil analytical results from the replacement monitoring well installations are summarized in Table 3. No analytes were detected above laboratory reporting limits with one exception: TPHd detected at a concentration of 97 mg/kg in AC-MW-46 at 15 ft bgs, which is below the Site cleanup level of 2,000 mg/kg. These results from soil sampling conducted during monitoring well replacement further delineated the limited exceedances of Site cleanups in sidewall performance samples from Area 11 on the West Block and Area 5 on the East Block; the refined lateral extents of soil exceeding the Site cleanup levels for each area is shown on Figure 3.

2.3 Groundwater Performance Monitoring

Throughout the implementation of the CAP, groundwater performance monitoring has been conducted to evaluate the effectiveness of *in situ* groundwater treatment and remedial excavations. This section summarizes performance monitoring results over two distinct phases of the cleanup action (during/after *in situ* groundwater treatment and after the remedial excavations):

- **Phase 1 (Pre-Excavation) – January to August 2021:** Groundwater performance monitoring was conducted at select monitoring wells on the West and East Blocks to evaluate *in situ* groundwater treatment prior to the remedial excavations. Sampling events were conducted prior to groundwater treatment, within 1 week of treatment, and approximately monthly following treatment between January 20 and August 11, 2021.
- **Phase 2 (Post-Excavation) – June 2023 to June 2024:** Groundwater performance monitoring was conducted Site-wide to evaluate improvements in groundwater quality as a result of the source removal completed during remedial excavations. Sampling events were conducted on a semiannual basis in June 2023, December 2023, and June 2024.

Monitoring to date has consisted of groundwater sampling and water level measurement to evaluate geochemical effects and changes in COC concentrations resulting from treatment. All 2021 sampling was conducted prior to remedial excavations and mass excavations for redevelopment, and results for these monitoring events were reported in the Groundwater Treatment Work Plan, Groundwater Treatment Addendum, and the EDR. PCE wells on the north side of the West Block were the only wells that were not sampled after injections and before excavation. Many monitoring wells were decommissioned prior to redevelopment (Section 2.2.2). Following redevelopment, replacement monitoring wells were installed (Section 2.2.4), and site-wide sampling events were conducted in June 2023, December 2023, and June 2024.

Groundwater analytical results referenced throughout this section include:

- Appendix B contains laboratory analytical reports for all sampling events.

- Appendix C presents time-series graphs of the groundwater analytical data throughout treatment.
- Tables 4 and 5 summarize groundwater analytical results for TPH/1,4-dioxane and cVOCs, respectively.
- Figure 4 presents a summary of concentrations of COCs in groundwater before implementation of the CAP, which began in March, April, and October 2021 in different areas of the Site.
- Figure 5 presents a summary of concentrations of COCs in groundwater in August 2021, mid-remediation, following *in situ* groundwater treatment but before remedial excavations (except for the West Block PCE North area, which was not sampled following *in situ* groundwater treatment and before remedial excavation).
- Figures 6, 7, and 8 present a summary of concentrations of COCs in groundwater in June 2023, December 2023, and June 2024 (respectively), post-remedial excavation.

The subsections below summarize changes in groundwater quality within the four distinct groundwater areas of the Site:

- The West Block TPH groundwater plume includes the groundwater impacts of both TPH-Dx sourced from Area 2 and TPHg/benzene sourced from Area 11, including the 22nd Avenue South ROW to the east of the West Block.
- The West Block PCE groundwater plume includes the groundwater impacts of cVOCs sourced from Area 1 in the northwest corner of the West Block. The discussion is further subdivided into the West Block PCE North area and West Block PCE South area, as the nature of the plume and *in situ* groundwater strategy for each differed. The West Block PCE North area was thermally treated before the RI, and the West Block PCE South area contains lower concentrations of PCE and more of the degradation byproducts.
- East Block TPH includes the groundwater impacts of TPH-Dx downgradient of Area 5.
- East and West Block 1,4-Dioxane includes the small 1,4-dioxane groundwater plumes on both blocks, as treatment technologies and effectiveness was similar between the two.

2.3.1 West Block PCE Groundwater Plume (Soil Excavation Areas 1A/B, NW Portion of West Block)

Groundwater analytical data collected from the West Block and analyzed for cVOCs are summarized in Table 5. Groundwater time-series graphs are provided in Appendix C.

Wells in the West Block PCE area are divided into two groups:

- “West Block PCE North” - Wells within or north of the *in situ* thermal treatment area: AC-MW-22, AC-MW-29, PC-SCC1, PC-SCC3, PC-MW-33I, AC-MW-39, AC-MW-40, and AC-MW-41)

- “West Block PCE South” - Wells south and downgradient of the *in situ* thermal treatment area: AC-MW-27, AC-MW-32, URS-MW-27I, PC-MW-31I, and AC-MW-33.

Pre-injection groundwater results are shown on Figure 4. Figure 5 contains groundwater analytical results from August 2021, which include post-injection results for the West Block PCE South wells and pre-injection results for West Block PCE North wells. Figures 6, 7, and 8 contain results for the June 2023, December 2023, and June 2024 sampling events, all conducted after the remedial excavation for the remaining soil source area (Areas 1a and 1b, Figure 3).

Performance monitoring analytes included COCs (PCE, TCE, cDCE, and VC), dissolved iron, total organic carbon (TOC), sulfate, methane, ethane and ethene. TCE, cDCE, VC, ethene and ethane are degradation byproducts of PCE and indicate treatment. Iron and TOC are active components of the treatment solution and are used to assess distribution of treatment solution and the potential for ongoing treatment. Depletion of sulfate and presence of methane indicate favorable conditions for chemical and biological degradation of PCE and its degradation byproducts.

West Block PCE North

In 2021, cVOC concentrations at wells in this area (prior to treatment) were generally consistent with concentrations measured in 2019 and 2020 during the RI for the Site. In wells closest to thermal treatment, PC-SCC3 and PC-MW-33I, elevated PCE degradation byproduct concentrations indicate biodegradation of PCE, which may have been enhanced by elevated temperatures from nearby thermal treatment. TOC concentrations in these wells were low (<15 mg/L) but not depleted and methane was present, indicating methanogenic conditions and the potential for continued biodegradation.

West Block PCE North wells on the periphery or outside of thermal influence (AC-MW-29, AC-MW-22 and PC-SCC1) showed stable PCE concentrations, minimal degradation byproducts, and low or non-detect methane concentrations prior to treatment, indicating that while conditions were reducing, natural attenuation was limited (Table 5). TOC concentrations less than 5 mg/L and non-detect methane indicated that insufficient concentrations of organic carbon were a limiting factor for ongoing biological attenuation. Based on these conditions, the *in situ* chemical reduction (ISCR) injections conducted in this area prior to the remedial excavation in 2021 were designed to enhance MNA.

Following injections and remedial excavation, sample results from replacement wells AC-MW-40 and AC-MW-39 indicated those wells were in compliance with cleanup levels. PCE degradation byproduct VC was the only COC detected at either well (0.049 µg/L at AC-MW-40), indicating that remedial excavation and the ISCR injections likely contributed to the overall concentration decreases given that VC was not detected in either of the adjacent wells PC-SCC1 and AC-MW-29 prior to treatment.



**Concentrations of cVOCs over time at AC-MW-22 / replacement well AC-MW-39.
Clip from Appendix C.**

Following remedial excavation, substantial decreases in groundwater concentrations of PCE in the West Block PCE North area have been observed and remain stable, indicating that soil source removal performed during remedial excavations has resulted in a substantial improvement to groundwater. Concentrations of PCE in groundwater have decreased from approximately 270 µg/L at the northern edge of the area (AC-MW-29) to below the Site cleanup level of 5 µg/L (AC-MW-40) over the three post-excavation performance monitoring events (Table 5; Figures 4 through 8).

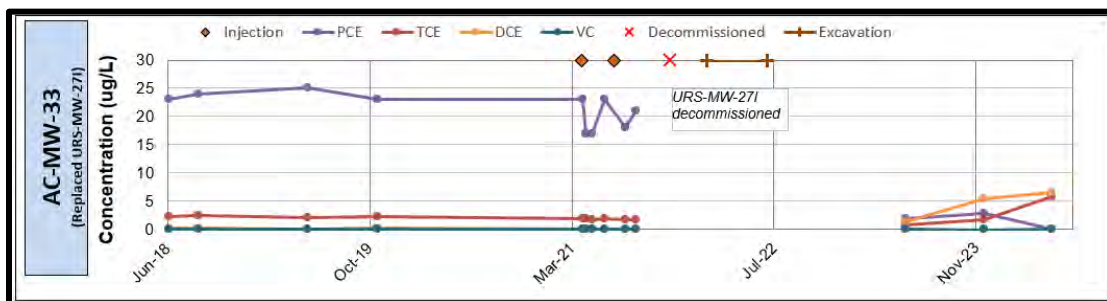
South of the remedial excavation areas (Areas 1a and 1b, Figure 3), PCE concentrations in groundwater have been detected between 35 and 22 µg/L at AC-MW-41 (Figures 6 through 8; Table 5). This monitoring well was not directly collocated with a historical monitoring well in the West Block PCE area, but these concentrations are consistent with historical concentrations downgradient of the thermal treatment area, such as those measured at AC-MW-32 (Figure 4; Table 5). At AC-MW-41, the concentrations of PCE have remained stable to slightly declining over the three post-remedial excavation performance monitoring events, and concentrations of TCE and VC are slightly increasing. These trends indicate that natural attenuation (through either biogenic or chemical reduction) are ongoing in this portion of the West Block PCE plume.

West Block PCE South

ISCR injections were conducted prior to August 2021 performance monitoring, and therefore the August 2021 through June 2024 results, which included geochemical analytes, can be used to evaluate reagent distribution and the potential for ongoing natural attenuation.

After the *in situ* groundwater treatment and prior to the remedial excavations, decreased PCE and increased degradation byproduct concentrations indicate treatment occurred at AC-MW-27 (Figure 5). COC concentrations at URS-MW-27I, AC-MW-32, and PC-MW-31I did not change notably by the August 2021 monitoring event, which occurred approximately 2 months after completing injections. Delayed response is common in bioremediation implementation, which often takes up to 6 months for geochemically reducing conditions to develop and biodegradation to occur and took approximately 3 months at AC-MW-27. Following the remedial excavation, AC-MW-33 was installed between these wells. In June and December 2023, cVOC concentrations at AC-MW-33 were below cleanup levels, but the TCE concentration measured during the June 2024 event was 5.9 ug/L, which is above the Site cleanup level of 5 ug/L (Table 5, Figures 6

through 8). The prevalence of degradation byproducts over these three sampling events indicates that degradation occurred in this area and helped reduce PCE concentrations to less than cleanup levels. The increasing concentrations of TCE, cDCE, and VC at this location indicate that continued degradation and/or groundwater transport from the upgradient West Block PCE North area is occurring, and conditions are favorable for natural attenuation.



**Concentrations of cVOCs over time at URS-MW-271 / replacement well AC-MW-33.
Clip from Appendix C.**

Depletion of sulfate, increased methane, and increased dissolved iron indicate injections enhanced reducing conditions necessary for natural attenuation where reagent was distributed. Excavation dewatering likely caused groundwater flow that continued to distribute reagent. Concentrations of Site COCs in groundwater in this area are expected to continue to improve under MNA and will be evaluated as part of short-term and long-term performance monitoring (Sections 3.2 and 3.3, respectively).

2.3.2 West Block TPH Groundwater Plume (Areas 2 and 11, East Side of West Block and 22nd Ave ROW)

Groundwater analytical results for wells within the West Block TPH Area prior to, during, and following implementation of the CAP are presented in Table 4.

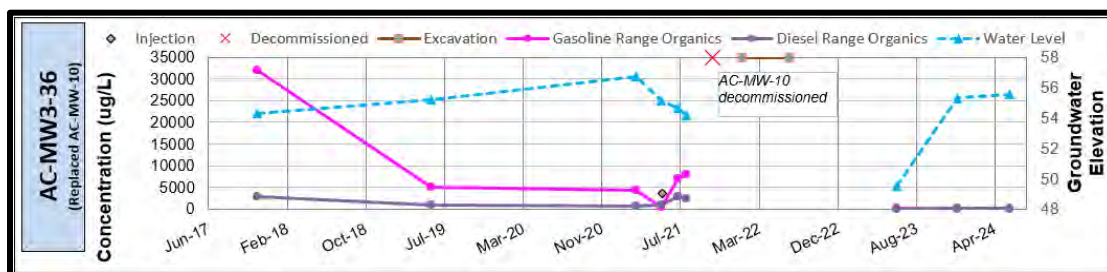
TPHg and TPHd concentrations fluctuated during performance monitoring, generally increasing between March and August 2021 (following *in situ* groundwater treatment), then generally decreasing from June 2023 to June 2024 (following remedial excavations). The initial increase following *in situ* groundwater treatment was likely caused by injections and water level fluctuations where residual light non-aqueous phase liquid (LNAPL) was present, as described below. There appears to be seasonal fluctuations of these COCs, with the highest concentrations measured in Spring and Summer, and the lowest concentrations measured in Fall and Winter due to water level fluctuations (Appendix C).

Due to the combined effects of injection hydraulics and chemical reactions, ISCO often results in a transfer of contaminant mass from the sorbed and LNAPL phases into the groundwater phase. This transfer can increase groundwater concentrations, but it also depletes source mass that sustains groundwater concentrations in the long-term and facilitates natural attenuation by enhancing contact with oxidant reagents and availability to microbes. The increases in TPHg and TPHd concentrations during the *in situ* groundwater treatment period indicate this process was occurring.

Seasonal water level changes that occurred during the monitoring period may also have increased TPHg and TPHd concentrations in groundwater. When LNAPL is present, TPHg and TPHd concentrations often increase as water levels decrease because LNAPL becomes mobile as water saturation decreases, which causes the LNAPL to dissolve into groundwater. This correlation can be seen on the graphs in Appendix C. Like injection-caused dissolution, this process depletes source mass and advances natural attenuation. (More importantly though, a substantial portion of any remaining residual LNAPL trapped within the pore spaces of the soil matrix was removed as part of the remedial excavation of Area 11, as described below).

At AC-MW-20, a similar trend of increasing TPHd concentration following water level decrease was observed. AC-MW-20 was outside the injection influence, which indicates that concentration changes in the West Block TPH area were likely affected by seasonal water level changes, and not just injections. Additionally, historical concentration fluctuations correlated with water level changes at AC-MW-16. A soil TPHg concentration of 2,900 mg/kg at AC-MW-16 and LNAPL observed during remedial excavation indicate residually trapped LNAPL was present in the pore spaces at the elevations where injections and monitoring occurred.

Remedial excavations conducted during redevelopment removed substantial quantities of soil containing sorbed TPH, LNAPL, and TPH-contaminated groundwater via dewatering. All LNAPL and petroleum-contaminated soil within the West Block Property boundary was removed, with the exception of one small area on the east side of the Area 11 remedial excavation below the CDF block that was installed to facilitate over-excavation below the original design limits of the shoring wall. The effects of this removal are demonstrated by the June and December 2023 results for AC-MW-36 (Table 4), where TPHg concentrations decreased to below detection limits and benzene concentrations decreased from 13 µg/L to 1.2 µg/L, below the Site cleanup level. Prior to cleanup actions, TPHg concentrations at AC-MW-18 and AC-MW-31 routinely exceeded 10,000 µg/L in 2021 (Figure 4; Table 4). The TPHg concentration at co-located replacement monitoring well AC-MW-36 was 300 µg/L in June 2023 and below laboratory reporting limits in December 2023 and June 2024, the lowest concentration ever detected among these three wells and within the presumable source area of the TPH releases on the West Block.



Concentrations of TPHg and TPHd over time at AC-MW-10 / replacement well AC-MW-36. Clip from Appendix C.

Following the *in situ* groundwater treatment and remedial excavations, groundwater quality has improved markedly as demonstrated by the results of groundwater

performance monitoring in June 2023 (Figure 6), December 2023 (Figure 7), and June 2024 (Figure 8). In the latest two performance monitoring events, no petroleum hydrocarbon-related COCs have been detected in this area of the Site above the cleanup levels.

2.3.3 East Block TPH Groundwater Plume (Soil Excavation Area 5, South Portion of East Block)

Groundwater analytical data collected from the East Block TPH area wells, AC-SB-13, AC-MW-46, AC-MW-47, and AC-MW-48 are summarized in Table 4. The AC-SB-13 TPHd concentration decreased concurrently as a result of remedial excavation and with injection of both PetroFix and sodium persulfate injections and was below the Site cleanup level prior to decommissioning in November 2021. Decreased dissolved iron and increased sulfate indicate sodium persulfate reagent was distributed and that it enhanced oxidizing conditions and generated sulfate, which promote anaerobic oxidative biodegradation of TPHd.

Three new wells, AC-MW-46, AC-MW-47, and AC-MW-48 were installed in the South Grand Street ROW in November 2023 and were sampled in the December 2023 and June 2024 events. AC-MW-48 did not contain any TPH at concentrations above laboratory detection limits in either the December 2023 or June 2024 event (Figures 7 and 8; Table 4).

However, AC-MW-46 and AC-MW-47 contained concentrations of TPH-Dx above the Site cleanup level of 500 ug/L in both events. At both wells, concentrations increased substantially (2 to 3 times the concentration) between the December 2023 and June 2024 events (Table 4). This increase is likely the result of decreasing groundwater elevations at both wells, which results in increased groundwater flow through the elevations where soil impacts above the Site cleanup levels were observed on the south sidewall of remedial excavation Area 5. Increasing TPH-Dx concentrations during the dry months where groundwater elevations are lower is consistent with historical trends at the Site (Appendix C).

Based on these analytical results, additional *in situ* groundwater treatment is proposed for the East Block TPH groundwater plume to limit migration downgradient, enhance natural attenuation, and reduce the restoration timeframe until groundwater in this area of the Site reaches compliance with the Site cleanup levels. Based on the results of performance monitoring conducted after *in situ* groundwater treatment on-Property and before the remedial excavations, both injectable activated carbon (PetroFix) and sodium persulfate have been demonstrated to be injectable and potentially effective treatments. The ability to implement treatment in this area of the Site may be limited by infrastructure in the sidewalk and roadway of South Grand Street. The forthcoming *Post-Excavation Groundwater Treatment Work Plan* is being prepared and will be submitted to Ecology for review and approval.

2.3.4 East and West Block 1,4-Dioxane Groundwater Plumes (On-Property, South Portion of Each Block)

Groundwater analytical data for 1,4-dioxane wells AC-MW-03, AC-MW-34, URS-MW-2, and URS-MW-28I (West Block), and AC-MW-12 and AC-MW-37 (East Block) are summarized in Table 4.

On the West Block, stable sulfate and dissolved iron concentrations indicate that treatment solution did not reach URS-MW-28I, and therefore did not influence geochemical makeup of groundwater at URS-MW-28I. Accordingly, 1,4-dioxane concentrations after injections remained within the historical range (Table 4; Figures 4 and 5). Following the remedial excavation, 1,4-dioxane in groundwater has either been not detected or detected slightly above the reporting limit (0.4 ug/L) at the replacement monitoring well AC-MW-34. During the one event in December 2023 where it was detected, the concentration was 0.46 ug/L compared to the Site cleanup level of 0.44 ug/L (Table 4). 1,4-dioxane was once again not detected above the reporting limit during the latest performance monitoring event in June 2024. Excavation dewatering and treatment during construction of the West Block building is suspected to have improved groundwater quality associated with the West Block 1,4-dioxane plume.

On the East Block, decreased dissolved iron and elevated sulfate indicate delivery of sodium persulfate reagent and transition to oxidizing conditions at AC-MW-12, prior to the redevelopment excavations; however, 1,4-dioxane concentrations remained within the historical range, indicating limited treatment efficacy (Table 4; Figures 4 and 5). Accordingly, the 1,4-dioxane concentrations at replacement well AC-MW-37 in June 2023, December 2023, and June 2024 performance monitoring events were consistent with historical results (Table 4; Figures 6 through 8). This area was not dewatered for the remedial or redevelopment excavations.

Ineffective treatment by *in situ* treatment in both the West Block and East Block areas may have been a result of the treatability of low 1,4-dioxane concentrations. At the low 1,4-dioxane concentrations observed on Site, chemical oxidants have low reactivity with 1,4-dioxane, and therefore are often not an effective treatment approach. As a result, additional *in situ* treatment of 1,4-dioxane is not recommended.

3 Groundwater Compliance Monitoring

Excavation of PCE- and petroleum-contaminated soil has removed a substantial portion of the sources of contamination to groundwater, while in-situ groundwater treatments also proved to be useful at this site in certain remedial areas. Both remedial methods taken together should result in accelerating natural attenuation of the groundwater plumes. The selected cleanup action includes MNA of the groundwater plumes, consisting of groundwater compliance monitoring until cleanup levels are reached.

The following subsections describe the elements of groundwater compliance monitoring, including:

- Groundwater compliance monitoring procedures and methods
- Short-term performance monitoring to assess groundwater quality improvements after the remaining *in situ* groundwater treatment is performed
- Long-term performance monitoring to assess MNA
- Confirmation monitoring once cleanup levels are achieved
- Monitoring well decommissioning

3.1 Compliance Monitoring Procedures and Methods

Groundwater sampling and analysis procedures for the groundwater compliance monitoring program are presented in the Sampling and Analysis Plan / Quality Assurance Project Plan (SAP/QAPP; Appendix D). Twenty-six existing monitoring wells comprise the groundwater monitoring network, as shown on Figure 8 and in Table 6.

All monitoring wells will be gauged during each sampling event to assess groundwater elevation, gradient, and flow direction. Following Site-wide gauging, monitoring wells will be sampled using low-flow techniques as described in the SAP/QAPP (Appendix D). The planned laboratory analysis for each monitoring well is based on historical data and its position relative to each of the five groundwater plumes; the planned analyses for each monitoring well is shown on Table 6.

3.2 Short-Term Performance Monitoring

Two additional performance monitoring events are proposed for December 2024 and June 2025. Data collected during these two events will be used to further evaluate the natural attenuation of groundwater COC concentrations following source removal (remedial excavations) and following the forthcoming *in situ* treatment to be completed in the East Block TPH groundwater plume. The *Post-Excavation Groundwater Treatment Work Plan* is being prepared separately and will describe the *in situ* groundwater treatment design; the work plan will be submitted for Ecology review and approval prior to implementation.

During each of the short-term performance monitoring events, all twenty-six Site monitoring wells will be sampled and analyzed for the COCs shown in Table 6. Additionally, the following Site monitoring wells will be submitted for geochemical

analyses to assess *in situ* treatment performance, further described in the forthcoming work plan:

- West Block PCE - Sampling for TOC, alkalinity, chloride, nitrate, nitrite, sulfate, dissolved iron, ethane, ethene, and methane will be conducted AC-MW-33, AC-MW-34, AC-MW-39, AC-MW-40, AC-MW-41, and URS-MW-21S.
- East Block TPH – Sampling for TOC, sulfate, nitrate, dissolved iron, and methane will be conducted at AC-MW-46, AC-MW-47, and AC-MW-48.

The laboratory analytical results for both Site COCs and the geochemical parameters will be used to evaluate long-term MNA potential and will inform continued long-term performance monitoring as described in the Section below. Recommendations for long-term performance monitoring beginning with the December 2025 event will be included in the CCR following the second performance monitoring event (Section 4.1).

3.3 Long-Term Performance Monitoring

Groundwater quality has already substantially improved following *in situ* groundwater treatment conducted in 2021 and the soil source removal via remedial excavations in 2022. The proposed long-term performance monitoring plan detailed below is designed to be adaptable, as each of the groundwater plumes for the Site is unique.

For at least the first two years of the long-term performance monitoring period, groundwater sampling is proposed to continue semiannual sampling for COCs at all wells included in Short-Term Performance Monitoring (all twenty-six Site monitoring wells). This schedule would include sampling events in December 2025, June 2026, December 2026, and June 2027. However, select Site monitoring wells may achieve cleanup levels within the short-term performance monitoring period (the next year). Any proposed changes to the Long-Term Performance Monitoring will be included in the CCR (Section 4.1).

Following the first two years of long-term performance monitoring, it is expected that the groundwater plumes in each area will be reasonably stable and we expect to propose reducing performance monitoring frequency to annually. Any changes to the monitoring wells selected for analysis and the frequency of performance monitoring will be submitted to Ecology for review and approval in Annual Compliance Monitoring Reports (ACMRs; Section 4.2).

During each year of long-term performance monitoring, groundwater analytical results will be summarized and recommendations for the long-term performance monitoring program will be submitted to Ecology in an ACMR. The first ACMR is tentatively scheduled to be completed following the June 2026 monitoring event (Section 4.3).

3.4 Groundwater Confirmation Monitoring

We expect the different groundwater plumes associated with the Site to achieve cleanup levels at different times throughout the short-term and long-term performance monitoring periods. A monitoring well will be defined as having met cleanup levels when four consecutive rounds (on at least a semiannual basis) of samples indicate concentrations of

Site COCs being monitored have achieved cleanup levels. Once this confirmation monitoring has been achieved, Ecology approval will be sought to discontinue monitoring at that well in either the CCR (Section 4.1) or an ACMR (Section 4.2). At any point during the performance monitoring, more frequent sampling could be conducted to expedite confirmation monitoring and determination for four consecutive “clean” samples; however, samples can be collected no more frequently than quarterly for this purpose.

3.5 Monitoring Well Decommissioning

All monitoring wells that are not being monitored under this GCMP will be decommissioned by a licensed driller in accordance with the requirements of WAC 173-160-460. This includes wells in the monitoring program that, in the future, are determined by Ecology to comply with cleanup levels and therefore are removed from the monitoring program.

4 Reporting

This section discusses the reporting requirements for the components of the GCMP.

4.1 Cleanup Completion Report (CCR)

Aspect will prepare a CCR documenting the constructed elements of CAP implementation after completion of forthcoming *in situ* groundwater treatment to be completed for the East Block TPH groundwater plume and the subsequent two short-term performance groundwater monitoring events. The CCR will provide documentation of the activities for Ecology review in accordance with Amendment No. 2 of the PPCDs. At a minimum, the report will include the following:

- A description of cleanup activities conducted, including deviations from the CAP and EDR
- Maps illustrating the as-built excavation area and other pertinent information, including detailed geologic cross sections
- Detailed performance and confirmation monitoring information, including sample locations, analytical methods, data quality review, and results
- In areas where the soil cleanup levels could not be achieved due to practical limitations (e.g., could not be over-excavated without compromising the shoring design), discussion of why it was not achieved, and how it was addressed in consultation with Ecology
- Documentation of contaminated soil disposal, including quantities of soil removed and disposed, and landfill certificates of disposal
- Documentation of the *in situ* groundwater treatment conducted post-excavation for the East Block TPH groundwater plume
- Documentation of groundwater performance sampling conducted during and following implementation of the CAP (i.e., through June 2024).

The CCR will also include recommendations for the long-term performance groundwater monitoring, including the locations, frequency, and laboratory analyses planned for each of the groundwater plume areas. The CCR will be submitted to Ecology as a draft for review. Ecology comments will be incorporated, and a final CCR prepared. A proposed schedule for submission of the draft CCR is included in Section 4.3.

4.2 Annual Compliance Monitoring Reports

Each year after the CCR has been submitted and long-term performance monitoring has commenced, an ACMR will be prepared for Ecology review and approval. The ACMR will summarize the collective data from groundwater performance monitoring and make recommendations for future groundwater monitoring. The annual report will include:

- **Description of Field Activities.** A brief summary of the activities completed during the monitoring events. Justification will be given for any procedures that deviate from this GCMP.

- **A Site Map.** The site map will illustrate relevant features and sampling locations.
- **Data Quality Review.** The reported results and the associated quality assurance results will be reviewed with respect to data usability, as described in the SAP/QAPP (Appendix D).
- **Analytical Results.** The analytical results will be tabulated and compared relative to respective screening and/or cleanup levels.

The ACMR will also include recommendations for the next year of compliance monitoring. These could include a change to monitoring frequency, adding additional monitoring wells, increasing the sampling frequency based on analytical results, and/or removing a monitoring well(s) from the GCMP because it complies with cleanup levels. The proposed schedule in Section 4.3 below includes submission of the first ACMR.

4.3 Schedule

Based on the recommendations for additional treatment and monitoring recommended above (Sections 2.3.3 and 3.2, respectively), a preliminary schedule for forthcoming activities and deliverables is included in Table D, below:

Table D. Tentative Schedule

Activity or Deliverable	Date
Submission and approval of the Groundwater Compliance Monitoring Plan	August 2024
Submission and approval of the Post-Excavation Groundwater Treatment Work Plan	August 2024
Implementation of the Post-Excavation Groundwater Treatment Work Plan	September to October 2024
First Short-Term Performance Monitoring Event	December 2024
Second Short-Term Performance Monitoring Event	June 2025
Submission and approval of the CCR	August 2025
Long-Term Performance Monitoring ⁽¹⁾	December 2025 and June 2026
First ACMR	August 2026

Notes: (1) Long-Term Performance Monitoring will continue past June 2026; the frequency and scope will be updated in the first ACMR.

References

- Aspect Consulting, LLC (Aspect), 2021a, Remedial Investigation and Feasibility Study (RI/FS), Grand Street Commons Site, 1750 22nd Avenue South, Seattle, Washington dated June 17, 2021.
- Aspect Consulting, LLC (Aspect), 2021b, *In Situ* Groundwater Treatment Pilot Test Work Plan, Grand Street Commons Site, 1750 22nd Avenue South, Seattle, Washington, dated April 16, 2021.
- Aspect Consulting, LLC (Aspect), 2021c, *In Situ* Groundwater Treatment Pilot Test Work Plan Addendum, Grand Street Commons Site, 1750 22nd Avenue South, Seattle, Washington, DRAFT, dated June 29, 2021.
- Aspect Consulting, LLC (Aspect), 2022a, Engineering Design Report, Grand Street Commons Site, 1750 22nd Avenue South, Seattle, Washington, dated May 18, 2022.
- Aspect Consulting, LLC (Aspect), 2022b, Request for Authorization to Proceed with Redevelopment – Grand Street Commons Site, East Block Parcels, 1765 22nd Avenue South, Seattle, Washington, dated July 5, 2022.
- Aspect Consulting, LLC (Aspect), 2022c, Request for Authorization to Proceed with Redevelopment – Grand Street Commons Site, West Block Parcels, 1765 22nd Avenue South, Seattle, Washington, dated December 20, 2022.
- Washington State Department of Ecology (Ecology), 2021, Cleanup Action Plan (CAP), Grand Street Commons Site, 1750 22nd Avenue South, Seattle, Washington, Facility Site ID #97763114, Cleanup Site ID #3018, dated June 17, 2021.

Limitations

Work for this project was performed for Grand Street Commons, LLC (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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Please refer to Appendix E titled “Report Limitations and Guidelines for Use” for additional information governing the use of this report.

TABLES

Table 1. Decomissioned and Removed Monitoring Wells
Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Location	Monitoring Well	Status and Event
East Block	AC-MW-04	Decomissioned prior to remedial excavations - October 2021
	AC-MW-05	
	AC-MW-06	
	AC-MW-07	
	AC-MW-08	
	AC-MW-11	
	AC-MW-12	
	AC-MW-13	
	AC-MW-14	
	AC-MW-15	Decomissioned prior to redevelopment - November 2023
	AC-SB-13	Decomissioned prior to remedial excavations - October 2021
	URS-MW-12	
	URS-MW-16	Decomissioned prior to redevelopment - November 2023
West Block	AC-DMW-1	Decomissioned prior to remedial excavations - October 2021
	AC-DMW-2	
	AC-MW-01	
	AC-MW-09	
	AC-MW-10	
	AC-MW-17	
	AC-MW-18	
	AC-MW-19	
	AC-MW-20	
	AC-MW-21	Removed - Exact Date Unknown - Between March 2020 and June 2023
	AC-MW-22	Decomissioned prior to remedial excavations - October 2021
	AC-MW-23	Decomissioned prior to redevelopment - November 2023
	AC-MW-27	Decomissioned prior to remedial excavations - October 2021
	AC-MW-28	
	AC-MW-29	
	AC-MW-31	
	AC-MW-32	
	PC-MW-17	
	PC-MW-31D	
	PC-MW-31I	
	PC-MW-31S	
	PC-MW-33D	
	PC-MW-33I	
	PC-MW-33S	
	PC-MW-34D	
	PC-MW-34I	
	PC-MW-34S	
	PC-MW-35D	
	PC-MW-35I	
	PC-MW-35S	
	PC-SCC1	
	PC-SCC3	
	URS-MW-10	Decomissioned prior to redevelopment - November 2023
	URS-MW-22	Removed - Exact Date Unknown - Between June and December 2023
	URS-MW-23	
	URS-MW-28D	Decomissioned prior to remedial excavations - October 2021
	URS-MW-27I	
	URS-MW-27S	
	URS-MW-28D	
	URS-MW-28I	
	URS-MW-28S	
South Block	AC-MW-2	Decomissioned prior to redevelopment - October 2021
	AC-MW-24	

Table 2. Replacement Monitoring Well Construction Details

Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Location	Monitoring Well Identification	Total Well Depth Feet bgs	Depth to Top of Screen Feet bgs	Depth to Bottom of Screen Feet bgs	Top of Well Monument Elevation Feet	Elevation of Top of Screen Feet bgs	Elevation of Bottom of Screen Feet bgs	Top of Well Casing Elevation Feet	Northing	Easting
West Block	AC-MW-33	22	11	22	50.99	40	29	51.13 ^a	217699.2	1277334.2
	AC-MW-34	23	11	21	50.97	40	30	50.58 ^a	217614.38	1277422.26
	AC-MW-35	23	5	10	50.99	46	41	51.09 ^a	217646.74	1277490.43
	AC-MW-36	13	5	10	50.95	46	41	51.08 ^a	217673.82	1277487.23
	AC-MW-38	20	15	20	50.99	36	31	51.14 ^a	217800.15	1277454.43
	AC-MW-39	16	11	16	51.01	40	35	51.14 ^a	217801.63	1277379.79
	AC-MW-40	13	8	13	51.03	43	38	51.17 ^a	217818.57	1277311.39
	AC-MW-41	14	9	14	51.01	42	37	51.16 ^a	217745.67	1277312.06
	AC-MW-42	25	15	25	74.22	59	49	73.81	217842.61	1277394.64
	AC-MW-43	30	20	30	73.93	54	44	73.19	217696.11	1277530.03
	AC-MW-44	35	15	35	72.10	57	37	71.71	217641.84	1277531.78
	AC-MW-45	30	20	30	72.37	52	42	71.94	217649.16	1277558.38
East Block	AC-MW-37	23	13	23	74.74	62	52	74.41	217657.61	1277715.29
	AC-MW-46	25	10	25	72.70	63	48	72.26	217569.85	1277621.34
	AC-MW-47	25	15	25	75.47	60	50	75.21	217571.97	1277678.52
	AC-MW-48	35	25	35	77.91	53	43	77.57	217567.65	1277726.50

Notes:

a. Monitoring well under artesian conditions and installed with pressurage gauge. Elevation measured at top cap of pressure gauge arm

bgs - below ground surface

Table 3. Summary of Soil Analytical Data - Replacement Monitoring Wells

Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

	Analyte Group			Petroleum Hydrocarbons								Chlorinated Volatile Organic Compounds						
	Analyte			Gasoline Range Organics	Diesel Range Organics	Motor Oil Range Organics	Diesel and Oil Extended Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	trans-1,2-Dichloroethene	Vinyl Chloride	
				Unit			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Site Cleanup Level			100				2000	2000	2000	0.03	7	6	9	5	0.05	0.03	160	1600
Area	Location	Date	Depth (bgs)															
West Block - PCE	AC-MW-42	11/30/2023	15 ft	--	--	--	--	--	--	--	--	--	< 0.025 U	< 0.02 U	< 0.05 U	< 0.05 U	< 0.05 U	
			20 ft	--	--	--	--	--	--	--	--	--	--	< 0.025 U	< 0.02 U	< 0.05 U	< 0.05 U	< 0.05 U
			25 ft	--	--	--	--	--	--	--	--	--	--	< 0.025 U	< 0.02 U	< 0.05 U	< 0.05 U	< 0.05 U
West Block - TPH	AC-MW-43	12/01/2023	20 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			25 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			27.5 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			35 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			35 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			40 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			45 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
	AC-MW-44	11/29/2023	22.5 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			25 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			27.5 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			30 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			35 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			40 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
	AC-MW-45	12/01/2023	20 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			25 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			30 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			35 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			40 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			42.5 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
East Block- TPH	AC-MW-46	11/29/2023	10 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			15 ft	< 5 U	97	< 250 U	97	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			20 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			30 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
	AC-MW-47	11/28/2023	15 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			20 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			25 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
	AC-MW-48	11/28/2023	15 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			20 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	
			25 ft	< 5 U	< 50 U	< 250 U	< 250 U	< 0.03 U	< 0.05 U	< 0.05 U	< 0.1 U	< 0.05 U	--	--	--	--	--	

Notes:

Bold - detected

U - Analyte not detected at or above Reporting Limit (RL) shown

"--" - not sampled for subject analyte

mg/kg = milligram per kilogram

bgs = below ground sruface

Table 4. Summary of Groundwater Analytical Data - TPH and 1,4-dioxane Wells

Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Area	Analyte Group		Petroleum Hydrocarbons								1,4-dioxane
	Analyte		Gasoline-Range Organics	Diesel-Range Organics	Oil-Range Organics	Diesel- and Oil-Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,4-Dioxane
	Unit Site Cleanup Level		ug/L 800	ug/L 500	ug/L 500	ug/L 500	ug/L 5	ug/L 1000	ug/L 700	ug/L 1000	ug/L 0.44
Area	Location	Date									
West Block TPH	AC-MW-10	11/15/2017	32000	2800 X	< 250 U	2800 X	460	370	190	4200	< 0.4 U
		05/21/2019	5000	990 X	< 250 U	990 X	78	29	170	340	< 0.4 U
		03/05/2021	4300	730 X	< 250 U	730 X	51	25	75	260	--
		05/24/2021	500	980 X	410 X	1390 X	6.3	4.6	15	48	--
		07/15/2021	7100	3000 X	< 250 U	3000 X	46	44	140	790	--
		08/11/2021	8000	2400 X	290 X	2690 X	34	33	170	890	--
	AC-MW-16	05/21/2019	9300	3200 X	< 250 U	3200 X	< 0.35 U	< 1 U	4.2	80	--
		01/20/2021	< 100 U	< 50 U	< 250 U	< 250 U	< 1 U	< 1 U	< 1 U	< 3 U	--
		04/23/2021	< 100 U	< 50 U	< 250 U	< 250 U	< 1 U	< 1 U	< 1 U	< 3 U	--
		05/24/2021	< 100 U	69 X	< 250 U	69 X	< 1 U	< 1 U	< 1 U	< 3 U	--
		07/15/2021	1000	280 X	< 250 U	280 X	< 1 U	4.6	1.4	7.2	--
		08/11/2021	2400	450 X	< 250 U	450 X	< 1 U	5.9	4.9	19	--
		06/08/2023	1700	630 X	< 250 U	630 X	< 0.35 U	< 1 U	3.1	6.5	--
		12/20/2023	< 100 U	71 X	< 250 U	71 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	AC-MW-18	05/20/2019	13000	1900 X	< 250 U	1900 X	160	46	430	1710	< 0.4 U
		01/20/2021	18000	2600 X	< 250 U	2600 X	150	68	800	2000	--
		03/05/2021	3600	1100 X	310	1410 X	25	12	73	220	--
		05/24/2021	470	990 X	< 250 U	990 X	3.6	2.5	2.2	37	--
		07/15/2021	7900	4100 X	410 X	4510 X	120	64	220	940	--
		08/11/2021	6900	2800 X	420 X	3220 X	74	33	240	810	--
	AC-MW-20	05/20/2019	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		01/20/2021	< 100 U	< 50 U	< 250 U	< 250 U	< 1 U	< 1 U	< 1 U	< 3 U	--
		05/24/2021	< 100 U	130 X	< 250 U	130 X	< 1 U	< 1 U	< 1 U	< 3 U	--
		07/16/2021	< 100 U	< 50 U	< 250 U	< 250 U	< 1 U	< 1 U	< 1 U	< 3 U	--
		08/11/2021	< 100 U	< 50 U	< 250 U	< 250 U	< 1 U	< 1 U	< 1 U	< 3 U	--
	AC-MW-31	04/05/2021	4200	530 X	< 310 U	530 X	270	77	49	320	--
		05/24/2021	960	1000 X	350 X	1350 X	80	70	23	130	--
		07/15/2021	14000	1300 X	< 250 U	1300 X	760	1100	400	1700	--
		08/11/2021	13000	1100 X	340 X	1440 X	1000	560	490	1500	--
	AC-MW-35	06/09/2023	130	83 X	< 250 U	83 X	9	< 1 U	< 1 U	< 2 U	--
		12/19/2023	< 100 U	130 X	< 250 U	130 X	0.43	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	130 X	< 250 U	130 X	1.3	< 1 U	< 1 U	1	--
	AC-MW-36	06/09/2023	300	95 X	< 250 U	95 X	13	1.8	3.4	2.2	--
		12/19/2023	< 100 U	150 X	< 250 U	150 X	1.2	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	98 X	< 250 U	98 X	1.2	< 1 U	< 1 U	< 2 U	--
	AC-MW-43	12/19/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	AC-MW-44	12/19/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	AC-MW-45	12/19/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	URS-MW-3	07/24/2012	< 50 U	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	--
		09/01/2017	< 100 U	240 X	320 X	560 X	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		05/17/2019	< 100 U	240 X	< 250 U	240 X	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		06/08/2023	< 100 U	64 X	< 250 U	64 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		12/19/2023	< 100 U	59 X	< 250 U	59 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/04/2024	< 100 U	65 X	< 250 U	65 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	URS-MW-10	05/17/2019	< 100 U	53 X	< 250 U	53 X	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		06/07/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	URS-MW-13	07/24/2012	< 50 U	--	--	--	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 0.40 U
		09/01/2017	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		05/21/2019	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/08/2023	< 100 U	55 X	< 250 U	55 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		12/20/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/04/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
East Block TPH	AC-MW-46	12/18/2023	< 100 U	520 X	< 250 U	520 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	690 X	310 X	1000 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	AC-MW-47	12/18/2023	< 100 U	590 X	330 X	920 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	2100 X	680 X	2780 X	< 0.35 U	< 1 U	< 1 U	< 2 U	--
	AC-MW-48	12/19/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	--
		05/15/2019	< 100 U	780 X	< 250 U	780 X	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		01/21/2021	--	1600 X	280 X	1880 X	--	--	--	--	--
		04/08/2021	< 100 U	990	< 250 U	990	< 1 U	< 1 U	< 1 U	< 3 U	--
		04/23/2021	< 100 U	790	< 250 U	790	< 1 U	< 1 U	< 1 U	< 3 U	--
		05/24/2021	< 100 U	500 X	< 250 U	500 X	< 1 U	< 1 U	< 1 U	< 3 U	--
		07/16/2021	< 100 U	850 X	< 250 U	850 X	< 1 U	< 1 U	< 1 U	< 3 U	--
		08/11/2021	< 100 U	460 X	< 250 U	460 X	< 1 U	< 1 U	< 1 U	< 3 U	--
East Block 1,4-dioxane	AC-MW-12	05/16/2019	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	3.3
		01/21/2021	--	--	--	--	--	--	--	--	2.9
		04/08/2021	--	--	--	--	--	--	--	--	1.7
		05/24/2021	--	--	--	--	--	--	--	--	--
		07/16/2021	--	--	--	--	--	--	--	--	1.8
		08/11/2021	--	--	--	--	--	--	--	--	1.5
	AC-MW-37	06/07/2023	< 100 U	57 X	< 250 U	57 X	< 0.35 U	< 1 U	< 1 U	< 2 U	2.1
		12/20/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	4.1
West Block 1,4-dioxane	AC-MW-03	06/08/2023	--	--	--	--	--	--	--	--	< 0.4 U
		12/18/2023	--	--	--	--	--	--	--	--	< 0.4 U
		06/04/2024	--	--	--	--	--	--	--	--	< 0.4 U
	AC-MW-34	06/08/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		12/19/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	0.46
		06/03/2024	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
	URS-MW-2	12/20/2023	< 100 U	< 50 U	< 250 U	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
		06/04/2024	< 100 U	260 X	< 250 U	260 X	< 0.35 U	< 1 U	< 1 U	< 2 U	< 0.4 U
	URS-MW-28	08/07/2012	--	--	--	--	--	--	--	--	< 0.4000 U
		09/01/2017	< 100 U	78 X	< 250 U	78 X	< 0.35 U	< 1 U	< 1 U	< 2 U	0.69
		05/20/2019	--	--	--	--	< 0.35 U	< 1 U	< 1 U	< 2 U	0.93
		01/21/2021	--	--	--	--	--	--	--	--	< 0.4 U
		04/08/2021	--	--	--	--	--	--	--	--	0.62
		05/24/2021	--	--	--	--	--	--	--	--	0.53
		07/16/2021	--	--	--	--	--	--	--	--	0.72
		08/11/2021	--	--	--	--	--	--	--	--	0.66

Notes:

Grey Shaded - Monitoring well has been decomissioned.

Bold - detected

Blue Shaded - Detected result or non-detected RL exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation

"--" - not sampled for subject analyte

Table 4. Summary of Groundwater Analytical Data - TPH and 1,4-dioxane Wells
Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Area	Analyte Group		Geochemistry						
	Analyte		Alkalinity, Total	Chloride	Sulfate	Total Organic Carbon	Methane	Iron, Ferrous, Fe+2	Dissolved Iron
	Unit Site Cleanup Level		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L 11000
Area	Location	Date							
West Block TPH	AC-MW-10	11/15/2017	--	--	--	--	--	--	--
		05/21/2019	--	--	--	--	--	--	--
		03/05/2021	--	--	--	--	--	--	--
		05/24/2021	--	--	19.8	--	--	--	690
		07/15/2021	--	--	492	--	--	--	350
		08/11/2021	--	--	622	--	--	--	328
	AC-MW-16	05/21/2019	--	--	--	--	--	--	--
		01/20/2021	134	--	25.6	--	< 0.00863 U	< 0.100 UJ	--
		04/23/2021	--	--	18.2	--	--	--	66.3
		05/24/2021	--	--	18.1	--	--	--	63.3
		07/15/2021	--	--	13.9	--	--	--	125
		08/11/2021	--	--	10.8	--	--	--	1470
		06/08/2023	--	--	--	--	--	--	--
		12/20/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	AC-MW-18	05/20/2019	--	--	--	--	--	--	--
		01/20/2021	294	--	13.1	--	< 0.00863 U	0.182 J	--
		03/05/2021	--	--	--	--	--	--	--
		05/24/2021	--	--	70.9	--	--	--	755
		07/15/2021	--	--	1,490	--	--	--	937
	AC-MW-20	08/11/2021	--	--	1,340	--	--	--	917
		05/20/2019	--	--	--	--	--	--	--
		01/20/2021	186	--	55.5	--	< 0.00863 U	< 0.100 UJ	--
		05/24/2021	--	--	37.1	--	--	--	125
		07/16/2021	--	--	31.9	--	--	--	144
	AC-MW-31	08/11/2021	--	--	30.2	--	--	--	127
		04/05/2021	--	--	19.9	--	--	--	136
		05/24/2021	--	--	15.7	--	--	--	567
		07/15/2021	--	--	12.1	--	--	--	1050
		08/11/2021	--	--	30.3	--	--	--	1180
	AC-MW-35	06/09/2023	--	--	--	--	--	--	--
		12/19/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	AC-MW-36	06/09/2023	--	--	--	--	--	--	--
		12/19/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	AC-MW-43	12/19/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	AC-MW-44	12/19/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	AC-MW-45	12/19/2023	--	--	--	--	--	--	--
		06/03/2024	--	--	--	--	--	--	--
	URS-MW-3	07/24/2012	--	--	--	--	--	--	--
		09/01/2017	--	--	--	--	--	--	--
		05/17/2019	--	--	--	--	--	--	--
		06/08/2023	--	--	--	--	--	--	--
		12/19/2023	--	--	--	--	--	--	--
	URS-MW-10	06/04/2024	--	--	--	--	--	--	--
		05/17/2019	--	--	--	--	--	--	--
		06/07/2023	--	--	--	--	--	--	--
	URS-MW-13	07/24/2012	--	--	--	--	--	--	--
		09/01/2017	--	--	--	--	--	--	--
		05/21/2019	--	--	--	--	--	--	--
		06/08/2023	--	--	--	--	--	--	--
		12/20/2023	--	--	--	--	--	--	--
East Block TPH	AC-MW-46	06/04/2024	--	--	--	--	--	--	--
		12/18/2023	--	--	--	--	--	--	--
	AC-MW-47	06/03/2024	--	--	--	--	--	--	--
		12/18/2023	--	--	--	--	--	--	--
	AC-MW-48	06/03/2024	--	--	--	--	--	--	--
		12/19/2023	--	--	--	--	--	--	--
	AC-SB-13	06/03/2024	--	--	--	--	--	--	--
		05/15/2019	--	--	--	--	--	--	--
		01/21/2021	191	--	107	--	0.155	0.329	--
		04/08/2021	--	--	102	--	--	--	2910
		04/23/2021	--	--	90.9	--	--	--	2540
		05/24/2021	--	--	82.3	--	--	--	2480
		07/16/2021	--	--	392	--	--	--	340
		08/11/2021	--	--	306	--	--	--	308
East Block 1,4-dioxane	AC-MW-12	05/16/2019	--	--	--	--	--	--	--
		01/21/2021	154	--	40.0	--	< 0.00863 U	< 0.100 U	--
		04/08/2021	--	--	33.9	1.62	--	--	192
		05/24/2021	--	--	2910	--	--	--	< 50 U
		07/16/2021	--	--	1620	--	--	--	196
		08/11/2021	--	--	836	--	--	--	255
	AC-MW-37	06/07/2023	--	--	--	--	--	--	--
		12/20/2023	--	--	--	--	--	--	--
West Block 1,4-dioxane	AC-MW-03	06/04/2024			--	--	--	--	--
		06/08/2023			--	--	--	--	--
		12/19/2023			--	--	--	--	--
	AC-MW-34	06/03/2024	--	--	--	--	--	--	--
		12/20/2023	--	--	--	--	--	--	--
		06/04/2024	--	--	--	--	--	--	--
	URS-MW-28	08/07/2012	--	--	--	--	--	--	--
		09/01/2017	--	--	--	--	--	--	--
		05/20/2019	--	--	--	--	--	--	--
		01/21/2021	142	--	31.1	--	< 0.00863 U	< 0.100 U	--
		04/08/2021	--	--	42.5	3.38	--	--	66.9
		05/24/2021	--	--	42.9	--	--	--	61.4
		07/16/2021	--	--	39.1	--	--	--	68.4
		08/11/2021	--	--	55.8	--	--	--	73.2

Notes:

Grey Shaded - Monitoring well has been decomissioned.

Bold - detected

Blue Shaded - Detected result or non-detected RL exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

X - Chromatographic pattern does not match fuel standard used for quantitation

"--" - not sampled for subject analyte

Table 5. Summary of Groundwater Analytical Data - PCE Wells
Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Analyte Group			Chlorinated Volatile Organic Compounds (CVOCs)				Geochemistry								
			Analyte Tetrachloroethene (PCE)	Analyte Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	Vinyl Chloride	Ethane	Ethene	Methane	Alkalinity, Total	Chloride	Sulfate	Total Organic Carbon	Iron, Ferrous, Fe+2	Iron
Unit			ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
Site Cleanup Levels			5	5	16	0.2									11000
Area	Location	Date													
West Block PCE North	AC-MW-22	05/22/2019	12	4	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		01/20/2021	9.8	2	< 1 U	< 0.2 U	< 0.0162 U	< 0.0151 U	0.00934	176	--	26.5	1.29	< 0.100 UJ	--
		05/26/2021	7.5	1.2	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	10.3	22.8	1.03	--	73.9
		07/14/2021	7.5	1.4	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	0.00952	--	11.0	22.7	1.17	--	97.1
		08/10/2021	7.8	1.4	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	0.0118	--	10.9	20.0	1.22	--	107
	AC-MW-29	03/03/2020	190	14	2.3	< 0.2 U	--	--	--	--	--	--	--	--	--
		04/01/2021	260	11	3	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	17.4	49.2	3.42	--	97.2
		05/26/2021	270	8.7	2.5	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	15.9	47.5	2.87	--	94.5
		07/14/2021	270	9.5	2.9	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	15.6	47.8	2.60	--	98.5
		08/10/2021	260	9.3	2.8	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	16.1	50.4	2.48	--	114
	AC-MW-27	05/20/2019	8	< 1 U	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		01/20/2021	11	< 1 U	< 1 U	< 0.2 U	< 0.0162 U	< 0.0151 U	< 0.00863 U	88.2	--	42.7	1.41	< 0.100 UJ	--
		04/08/2021	2.9	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	4.97	13.4	130	--	1800
		04/23/2021	5.4	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	11.1	25.8	34.8	--	878
		05/26/2021	7.4	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	11.2	1.44	30	--	9740
		07/14/2021	2.6	< 1 U	9	< 0.2 U	< 0.0151 U	< 0.0146 U	0.921	--	15.6	1.84	13.6	--	8930
		08/10/2021	< 1 U	< 1 U	14	< 0.2 U	< 0.0151 U	< 0.0146 U	2.50	--	17.1	1.86	6.98	--	11600
	AC-MW-39	06/08/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		12/19/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		06/04/2024	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	AC-MW-40	06/08/2023	< 1 U	< 0.5 U	< 1 U	0.049	--	--	--	--	--	--	--	--	--
		12/19/2023	< 1 U	< 0.5 U	< 1 U	0.055	--	--	--	--	--	--	--	--	--
		06/04/2024	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	AC-MW-41	06/09/2023	35	2	5.5	< 0.02 U	--	--	--	--	--	--	--	--	--
		12/19/2023	22	1.8	3.4	0.021	--	--	--	--	--	--	--	--	--
		06/04/2024	25	3.4	5.1	0.036	--	--	--	--	--	--	--	--	--
	PC-MW-33I	06/12/2018	360	17	4.4	< 2	--	--	--	--	--	--	--	--	--
		07/13/2018	1200	280	40	< 10	--	--	--	--	--	--	--	--	--
		08/08/2018	8.5	2.6	1.2	< 1	--	--	--	--	--	--	--	--	--
		08/24/2018	5.7	2.2	0.82	< 0.2	--	--	--	--	--	--	--	--	--
		09/26/2018	1.3	0.67	0.21	< 0.2	--	--	--	--	--	--	--	--	--
		11/08/2018	26	23	15	< 0.20 U	--	--	--	--	--	--	--	--	--
		03/20/2019	15	23	13	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/20/2019	3.7	9.5	9	< 0.2 U	--	--	--	--	--	--	--	--	--
		11/11/2019	3.60	11.00	10.00	0.31	--	--	--	--	--	--	--	--	--
		01/20/2021	< 1 U	1.5	4.4	< 0.2 U	< 0.0162 U	< 0.0151 U	1.91	392	--	0.306	13.1	1.12 J	--
		05/26/2021	< 1 U	< 1 U	1.9	< 0.2 U	< 0.0151 U	< 0.0146 U	2.43	--	26.1	1.15	13.4	--	12200
		07/14/2021	< 1 U	1.2	1.9	< 0.2 U	< 0.0151 U	< 0.0146 U	1.39	--	26.9	2.24	11.2	--	9910
		08/10/2021	< 1 U	1.2	1.9	< 0.2 U	< 0.0151 U	< 0.0146 U	1.55	--	27.5	7.00	9.69	--	14300
	PC-SCC1	08/07/2012	27	< 0.20 U	< 0.20 U	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/11/2018	41	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		07/12/2018	81	1.3	< 0.4	< 0.4	--	--	--	--	--	--	--	--	--
		08/08/2018	49	1.6	< 0.4	< 0.4	--	--	--	--	--	--	--	--	--
		08/22/2018	92	2.9	< 1	< 1	--	--	--	--	--	--	--	--	--
		09/26/2018	110	3.6	< 1	< 1	--	--	--	--	--	--	--	--	--
		11/08/2018	63	2.6	0.32	< 0.20 U	--	--	--	--	--	--	--	--	--
		03/20/2019	68	2.1	< 0.20 U	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/18/2019	54	1.6	< 0.40	< 0.40	--	--	--	--	--	--	--	--	--
		11/12/2019	34.00	1.10	< 0.20	< 0.20	--	--	--	--	--	--	--	--	--
		03/03/2020	45	1	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		04/23/2021	23	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	28.2	15.9	0.946	--	69.6
		05/26/2021	30	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	28.6	16.2	0.777	--	59.5
		07/14/2021	30	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	29.5	15.9	0.820	--	70.2
		08/10/2021	30	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	29.5	18.4	0.808	--	64.8
	PC-SCC3	06/12/2018	52	3.6	< 0.4	< 0.4	--	--	--	--	--	--	--	--	--
		07/12/2018	5.2	0.61	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		08/08/2018	1100	400	28	< 10	--	--	--	--	--	--	--	--	--
		08/22/2018	830	390	39	< 4	--	--	--	--	--	--	--	--	--
		09/26/2018	450	340	46	< 4	--	--	--	--	--	--	--	--	--
		11/08/2018	12	6.5	9.8	< 0.20 U	--	--	--	--	--	--	--	--	--
		03/20/2019	14	14	3.1	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/18/2019	5.4	12	3.7	0.39	--	--	--	--	--	--	--	--	--
		11/12/2019	1.40	14.00	5.60	0.57	--	--	--	--	--	--	--	--	--
		03/03/2020	2.7	9	2.5	0.21	--	--	--	--	--	--	--	--	--
		04/23/2021	2.4	5.3	1.3	< 0.2 U	< 0.0151 U	< 0.0146 U	0.00868	--	14.0	124	9.66	--	177
		05/26/2021	2.5	4.9	1.3	< 0.2 U	< 0.0151 U	< 0.0146 U	0.0101	--	14.7	118	9.52	--	179
		07/14/2021	2.9	6.2	1.7	< 0.2 U	< 0.0151 U	< 0.0146 U	0.00770	--	15.4	122	9.98	--	108
		08/10/2021	3.3	6.8	2	< 0.2 U	< 0.0151 U	< 0.0146 U	0.00940	--	16.0	123	9.83	--	121
West Block PCE South	AC-MW-30	03/03/2020	< 1 U	< 1 U	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		06/07/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		12/19/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		06/03/2024	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	AC-MW-32	04/01/2021	33	5.7	1.3	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	23.0	17.0	1.32	--	73.8
		04/08/2021	16	6.1	1.2	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	21.5	20.9	1.56	--	76.5
		04/23/2021	17	6.5	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	16.0	39.1	1.54	--	92
		05/26/2021	20	6.9	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	12.8	33.6	1.24	--	82.4
		07/14/2021	< 1 U	< 1 U	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	7.56	30.2	2.30	--	607
		08/10/2021	21	7.5	1	< 0.2 U	< 0.0151 U	< 0.0146 U	0.0109	--	15.3	5.38	11.4	--	3190
	AC-MW-3														

Table 5. Summary of Groundwater Analytical Data - PCE Wells
Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Analyte Group			Chlorinated Volatile Organic Compounds (CVOCs)				Geochemistry								
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	Vinyl Chloride	Ethane	Ethene	Methane	Alkalinity, Total	Chloride	Sulfate	Total Organic Carbon	Iron, Ferrous, Fe+2	Iron
Area	Location	Unit Date	ug/L 5	ug/L 5	ug/L 16	ug/L 0.2	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L 11000
West Block PCE South	URS-MW-21D	08/07/2012	< 1.0 U	< 0.20 U	< 0.20 U	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/11/2018	< 0.2	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		08/22/2018	< 0.2	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		05/22/2019	< 1 U	< 1 U	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		06/07/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		12/18/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		06/03/2024	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		URS-MW-21S	08/07/2012	7.8	< 0.20 U	< 0.20 U	< 0.20 U	--	--	--	--	--	--	--	--
	06/11/2018		3.3	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
	08/22/2018		2.8	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
	05/22/2019		2.1	< 1 U	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
	06/07/2023		< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	12/18/2023		2.5	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	06/03/2024		2.4	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	URS-MW-22		08/07/2012	< 1.0 U	< 0.20 U	< 0.20 U	< 0.20 U	--	--	--	--	--	--	--	--
		06/11/2018	< 0.2	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		08/22/2018	< 0.2	< 0.2	< 0.2	< 0.2	--	--	--	--	--	--	--	--	--
		05/22/2019	< 1 U	< 1 U	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
		06/07/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
		12/19/2023	< 1 U	< 0.5 U	< 1 U	< 0.02 U	--	--	--	--	--	--	--	--	--
	URS-MW-27I	08/07/2012	43	3.4	0.74	< 0.20 U	--	--	--	--	--	--	--	--	--
		06/11/2018	23	2.3	0.34	< 0.2	--	--	--	--	--	--	--	--	--
		08/23/2018	24	2.4	0.34	< 0.2	--	--	--	--	--	--	--	--	--
		05/20/2019	25	2.1	< 1 U	< 0.2 U	--	--	--	--	--	--	--	--	--
11/11/2019		23	2.30	0.33	< 0.20	--	--	--	--	--	--	--	--	--	
04/01/2021		23	2	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	25.3	15.4	0.883	--	63.1	
04/08/2021		17	1.9	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	25.2	16.4	1.02	--	54.1	
04/23/2021		17	1.8	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	24.4	16.2	1.05	--	62.9	
05/26/2021		23	1.9	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	22	17.1	1.02	--	50.5	
07/15/2021		18	1.8	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	< 0.00675 U	--	16.4	15.5	52.9	--	4450	
08/10/2021	21	1.7	< 1 U	< 0.2 U	< 0.0151 U	< 0.0146 U	0.0961	--	17.5	1.23	20.1	--	4340		

Notes:

Light Grey Shaded - Monitoring well has been decomissioned as part of the Cleanup Action Plan implementation.

Dark Grey Shaded - Monitoring well was removed by other parties.

Bold - detected

Blue Shaded - Detected result or non-detected RL exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

µg/L - microgram per liter

mg/L - milligram per liter

"--" - not sampled for subject analyte

Table 6. Monitoring Well Network and Analyses

Project No. AS170304D, Grand Street Commons Site, Seattle, Washington

Monitoring Well	Site Area	Analyses		
		cVOCs	TPH	1,4-Dioxane
URS-MW-02	West Block, downgradient	X		X
URS-MW-03	West Block, TPH		X	
URS-MW-13	West Block, TPH		X	
URS-MW-21S	West Block, PCE	X		
URS-MW-21D	West Block, PCE	X		
PC-MW-30S	West Block, sidegradient	X		
PC-MW-30I	West Block, sidegradient	X		
AC-MW-03	West Block, downgradient	X		
AC-MW-16	West Block, TPH		X	
AC-MW-30	West Block, sidegradient	X		
AC-MW-33	West Block, PCE	X		
AC-MW-34	West Block, 1,4-D			X
AC-MW-35	West Block, TPH		X	
AC-MW-36	West Block, TPH		X	
AC-MW-37	East Block, 1,4-D		X	X
AC-MW-38	West Block, upgradient	X	X	
AC-MW-39	West Block, PCE	X		
AC-MW-40	West Block, PCE	X		
AC-MW-41	West Block, PCE	X		
AC-MW-42	West Block, upgradient	X	X	
AC-MW-43	West Block, TPH		X	
AC-MW-44	West Block, TPH		X	
AC-MW-45	West Block, TPH		X	
AC-MW-46	East Block, TPH		X	
AC-MW-47	East Block, TPH		X	
AC-MW-48	East Block, TPH		X	

Notes:

cVOCs = chlorinated volatile organic compounds (PCE and breakdown products)

TPH = total petroleum hydrocarbons: BTEX and gasoline-, diesel-, and oil-range TPH

PCE = tetrachloroethene

BTEX = benzene, toluene, ethylbenzene, and total xylenes

Table 6

Aspect Consulting

Groundwater Compliance Monitoring Plan

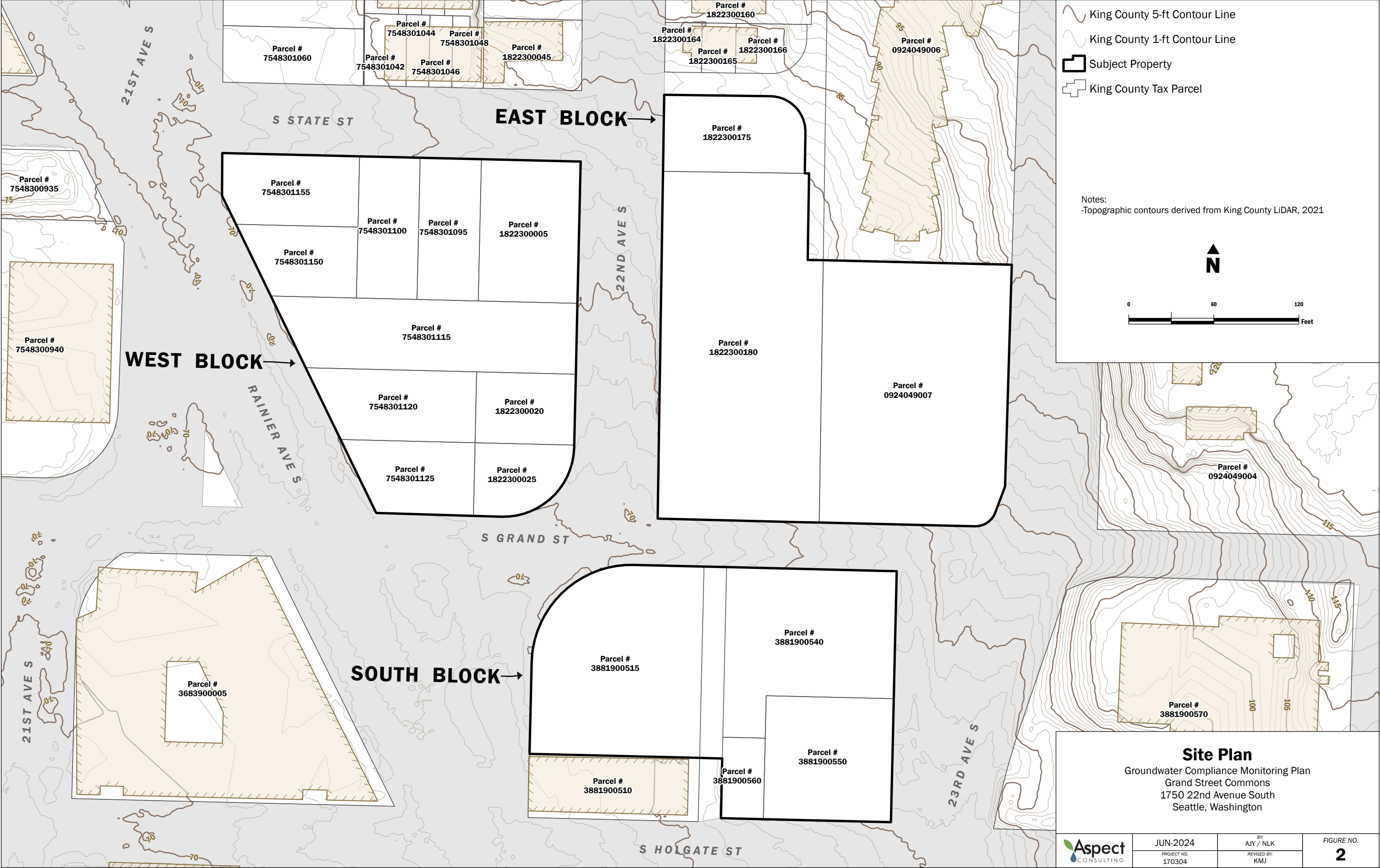
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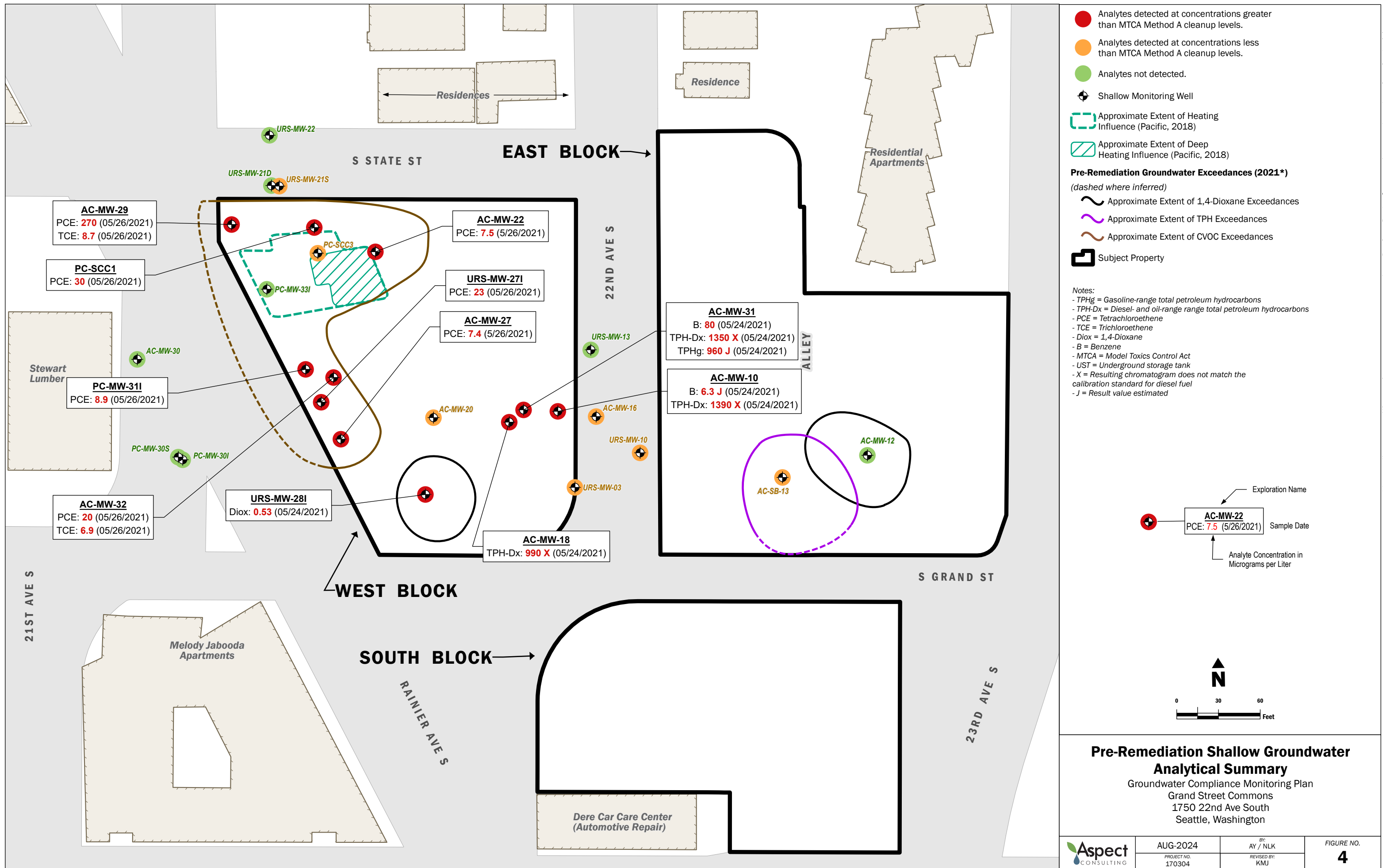
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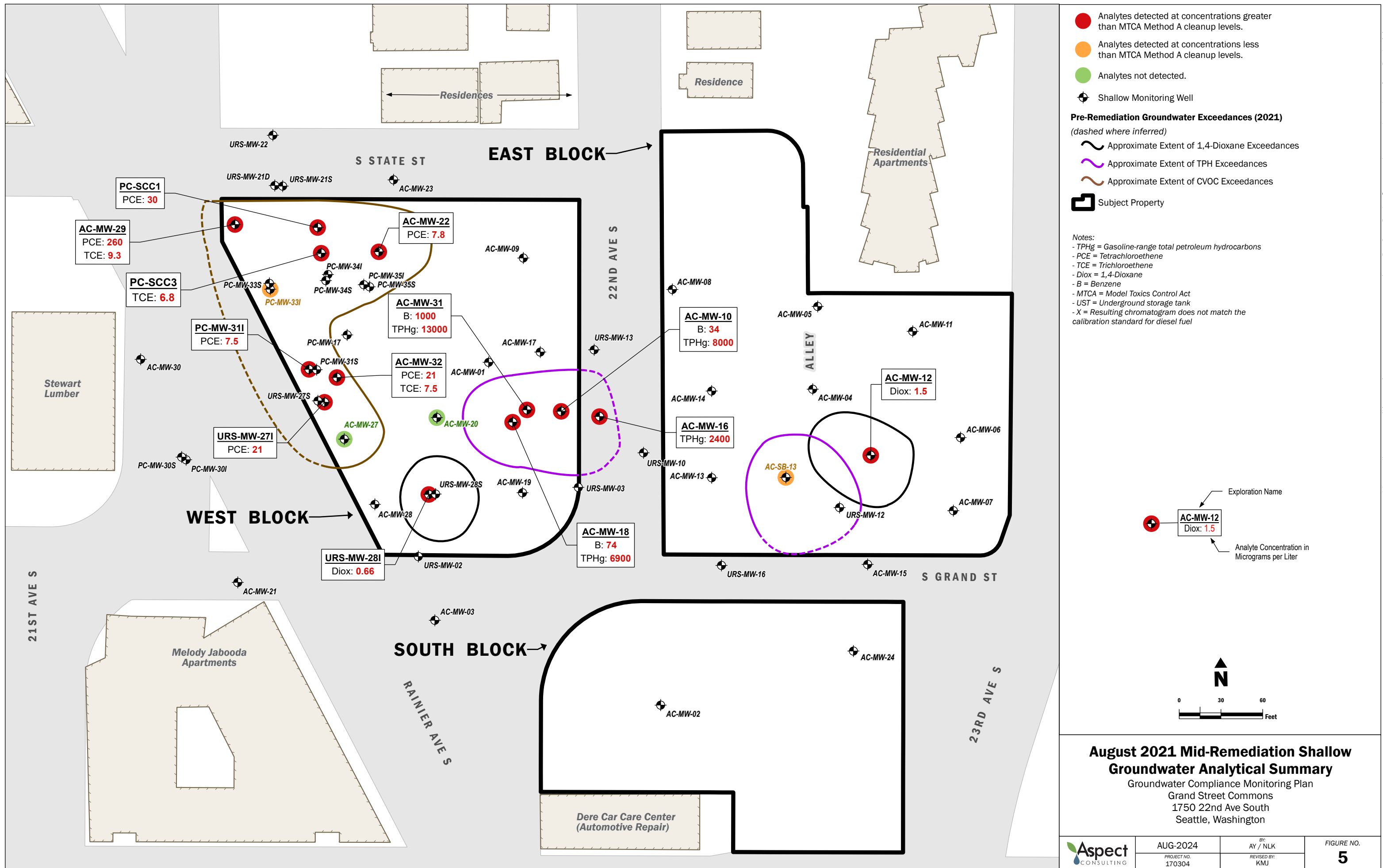
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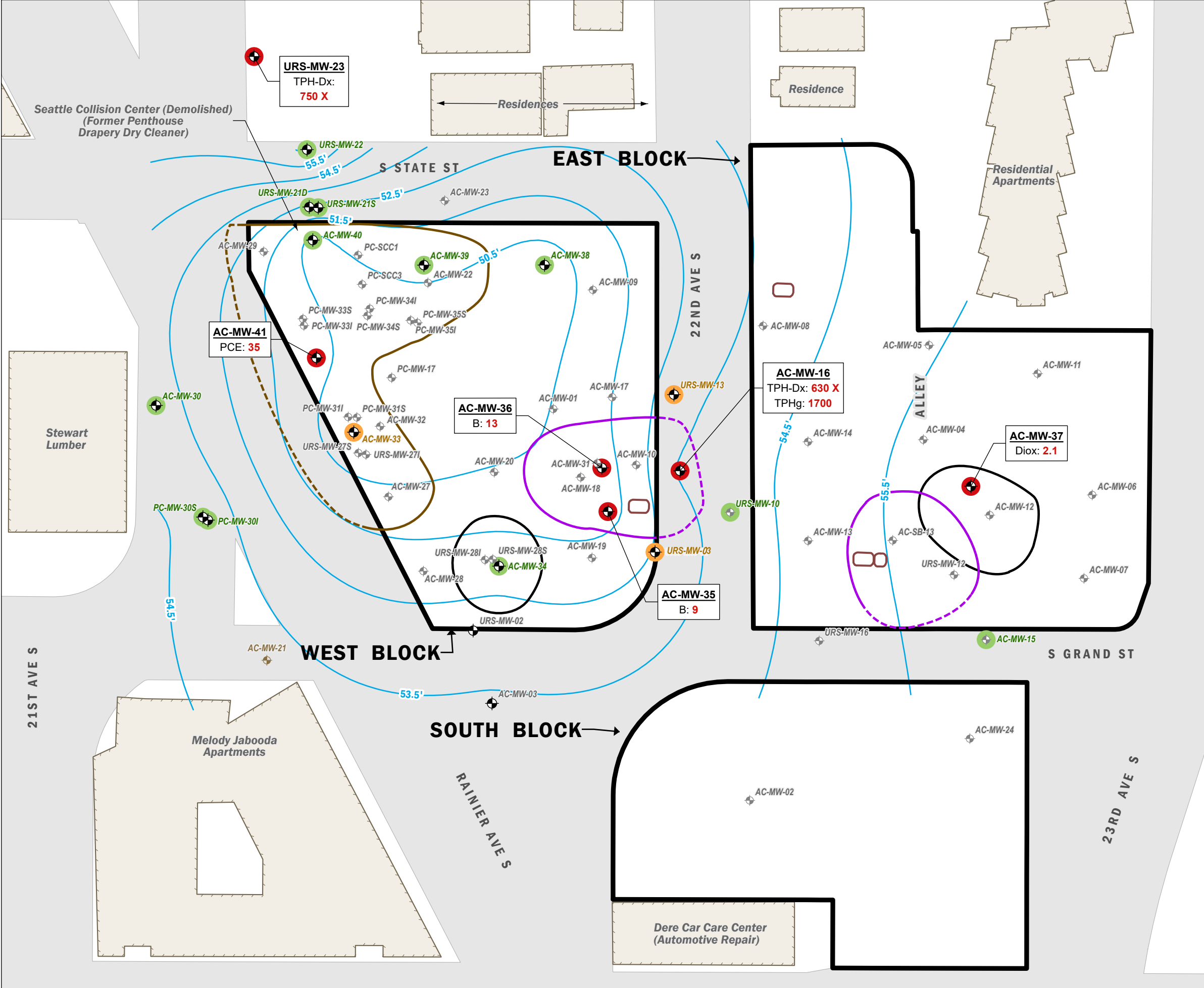




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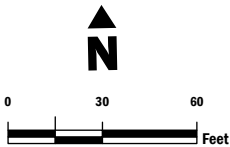
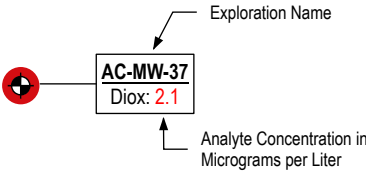




- Analytes detected at concentrations greater than MTCA Method A cleanup levels.
 - Analytes detected at concentrations less than MTCA Method A cleanup levels.
 - Analytes not detected.
 - Shallow Well
 - Shallow Well Decommissioned During Construction
 - Shallow Well Removed by Other Parties
 - Location of Underground Storage Tanks Removed During Remedial Excavations
 - Existing Building Footprint
 - Subject Property
- Pre-Remediation Groundwater Exceedances (2021)**
(dashed where inferred)
- Approximate Extent of 1,4-Dioxane Exceedances
 - Approximate Extent of TPH Exceedances
 - Approximate Extent of CVOC Exceedances
 - Groundwater Elevation Contour Line (ft)

Notes:

- TPHg = Gasoline-range total petroleum hydrocarbons
- TPH-Dx = Diesel- and oil-range range total petroleum hydrocarbons
- PCE = Tetrachloroethene
- Diox = 1,4-Dioxane
- B = Benzene
- MTCA = Model Toxics Control Act
- UST = Underground storage tank
- X = Resulting chromatogram does not match the calibration standard for diesel fuel



June 2023 Post-Remediation Shallow Groundwater Analytical Summary

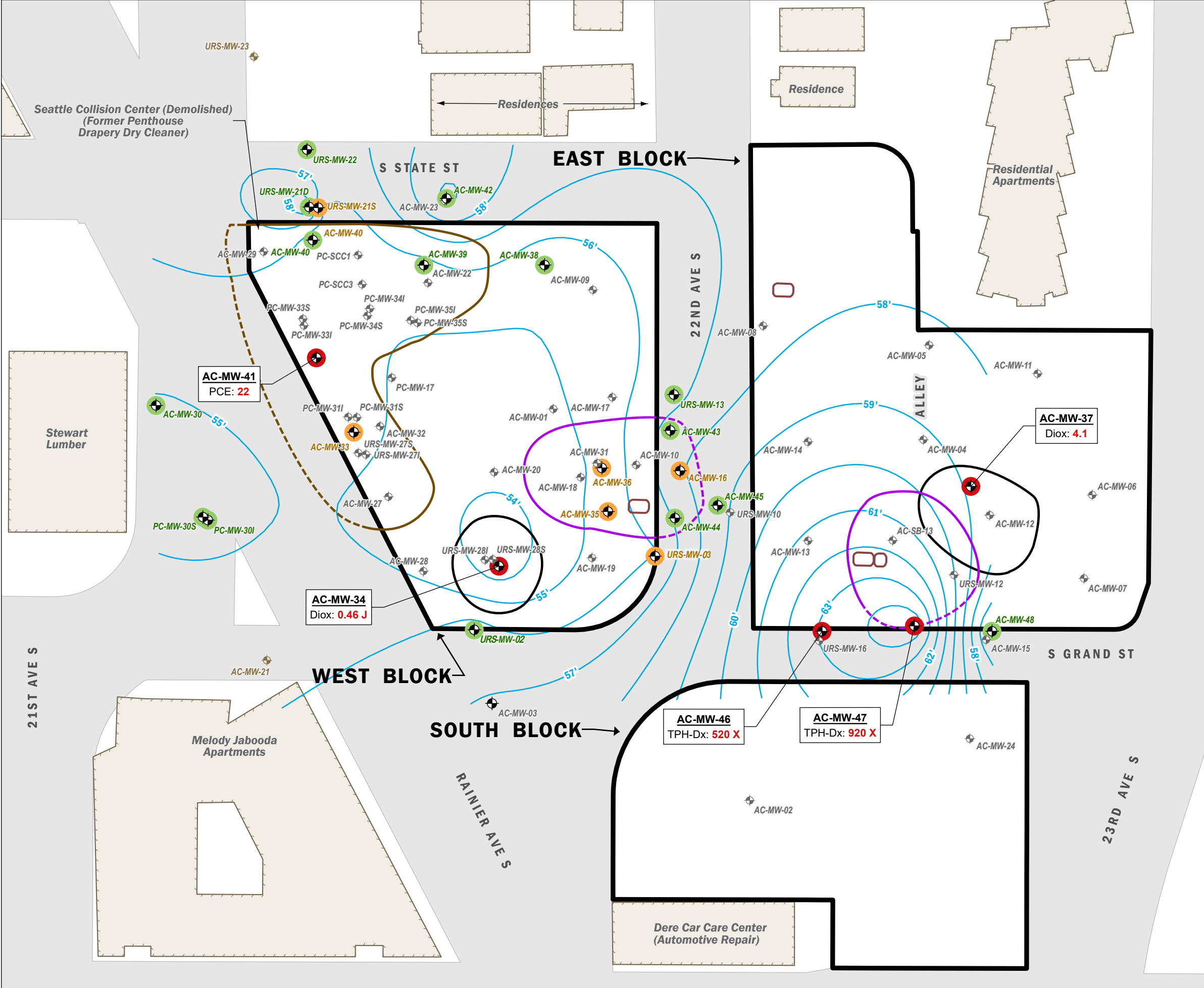
Groundwater Compliance Monitoring Plan
Grand Street Commons
1750 22nd Ave South
Seattle, Washington



AUG-2024
PROJECT NO.
170304

BY:
AY / NLK
REVISED BY:
KMJ

FIGURE NO.
6



Analytes detected at concentrations greater than MTCA Method A cleanup levels.

Analytes detected at concentrations less than MTCA Method A cleanup levels.

Analytes not detected.

Shallow Well

Shallow Well Decommissioned During Construction

Shallow Well Removed by Other Parties

Location of Underground Storage Tanks Removed During Remedial Excavations

Subject Property

Pre-Remediation Groundwater Exceedances (2021)
(dashed where inferred)

Approximate Extent of 1,4-Dioxane Exceedances

Approximate Extent of TPH Exceedances

Approximate Extent of CVOC Exceedances

Groundwater Elevation Contour Line (ft)

Notes:

- TPH-Dx = Diesel- and oil-range range total petroleum hydrocarbons

- PCE = Tetrachloroethene

- Diox = 1,4-Dioxane

- MTCA = Model Toxics Control Act

- UST = Underground storage tank

- X = Resulting chromatogram does not match the calibration standard for diesel fuel

- J = Result value estimated

Exploration Name

AC-MW-47

TPH-Dx: 920 X

Analyte Concentration in Micrograms per Liter

N

03060

Feet

December 2023 Post-Remediation Shallow Groundwater Analytical Summary

Groundwater Compliance Monitoring Plan

Grand Street Commons

1750 22nd Ave South

Seattle, Washington

Aspect

CONSULTING

AUG-2024

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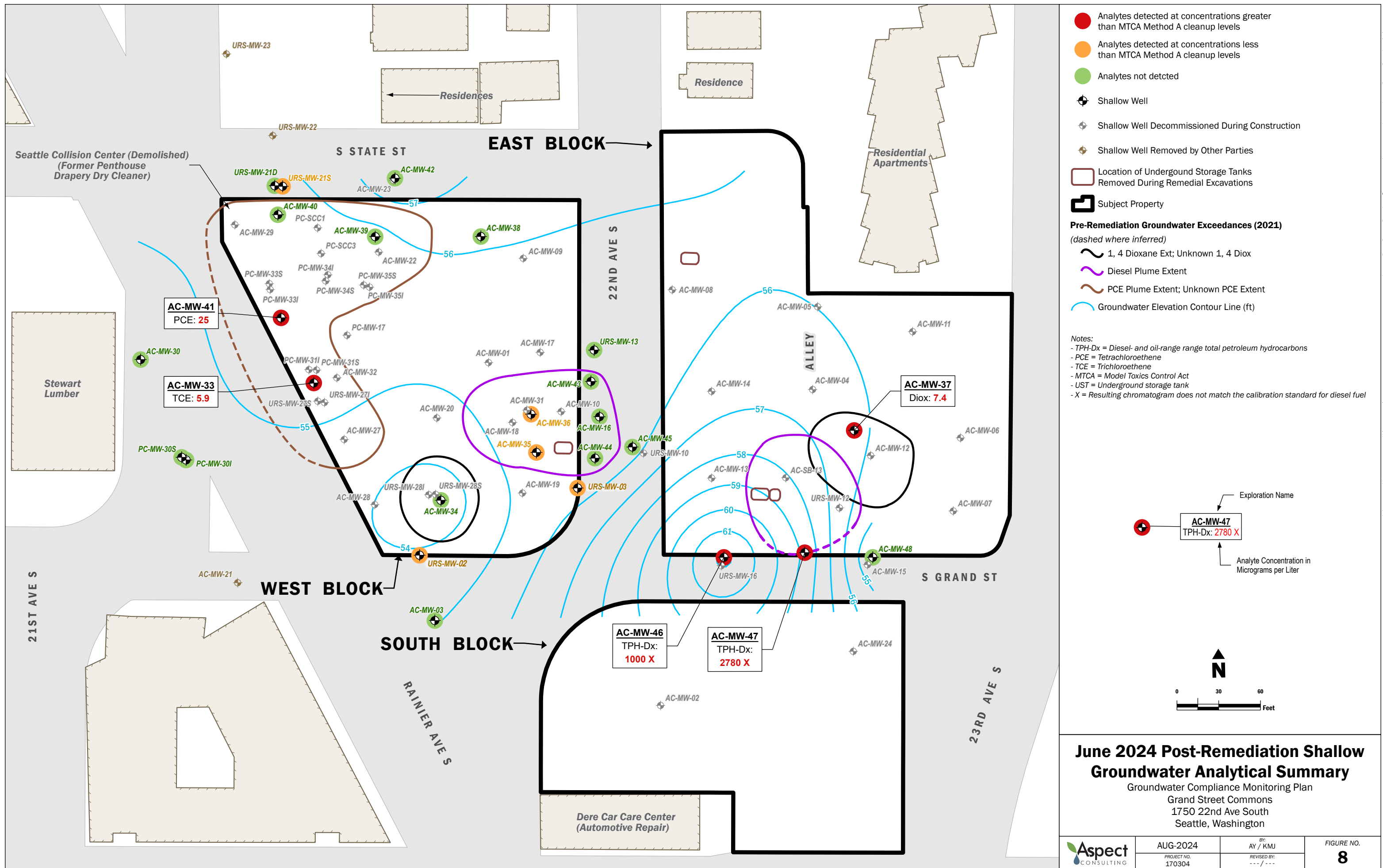
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KMJ

FIGURE NO.

7

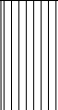
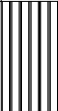
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APPENDIX A

Boring Logs for Replacement Monitoring Wells

Coarse-Grained Soils - More than 50% ¹ Retained on No. 200 Sieve					
	Sands - 50% ¹ or More of Coarse Fraction Passes No. 4 Sieve	Gravels - More than 50% ¹ of Coarse Fraction Retained on No. 4 Sieve			
		≤5% Fines	≥15% Fines		
Fine-Grained Soils - 50% ¹ or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50%		ML	SILT SANDY or GRAVELLY SILT SILT WITH SAND SILT WITH GRAVEL	
			CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL	
			OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL	
			MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL	
			CH	FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL	
	Silts and Clays Liquid Limit 50% or More		OH	ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL	
			PT	PEAT and other mostly organic soils	
	Highly Organic Soils				

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

MC	=	Natural Moisture Content	GEOTECHNICAL LAB TESTS		
PS	=	Particle Size Distribution			
FC	=	Fines Content (% < 0.075 mm)			
GH	=	Hydrometer Test			
AL	=	Atterberg Limits			
C	=	Consolidation Test			
Str	=	Strength Test			
OC	=	Organic Content (% Loss by Ignition)			
Comp	=	Proctor Test			
K	=	Hydraulic Conductivity Test			
SG	=	Specific Gravity Test			
<u>Organic Chemicals</u>			CHEMICAL LAB TESTS		
BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes			
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons			
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons			
VOCs	=	Volatile Organic Compounds			
SVOCs	=	Semi-Volatile Organic Compounds			
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds			
PCBs	=	Polychlorinated Biphenyls			
<u>Metals</u>					
RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)			
MTCAs	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)			
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)			
<u>PID</u>			FIELD TESTS		
Sheen	=	Oil Sheen Test			
SPT ²	=	Standard Penetration Test			
NSPT	=	Non-Standard Penetration Test			
DCPT	=	Dynamic Cone Penetration Test			
<u>Descriptive Term</u>			COMPONENT DEFINITIONS		
<u>Size Range and Sieve Number</u>					
Boulders	=	Larger than 12 inches			
Cobbles	=	3 inches to 12 inches			
Coarse Gravel	=	3 inches to 3/4 inches			
Fine Gravel	=	3/4 inches to No. 4 (4.75 mm)			
Coarse Sand	=	No. 4 (4.75 mm) to No. 10 (2.00 mm)			
Medium Sand	=	No. 10 (2.00 mm) to No. 40 (0.425 mm)			
Fine Sand	=	No. 40 (0.425 mm) to No. 200 (0.075 mm)			
Silt and Clay	=	Smaller than No. 200 (0.075 mm)			
<u>% by Weight</u>				ESTIMATED ¹ PERCENTAGE	
<u>Modifier</u>					
<u>% by Weight</u>					
<u>Modifier</u>					
<1	=	Subtrace	15 to 25	=	Little
1 to <5	=	Trace	30 to 45	=	Some
5 to 10	=	Few	>50	=	Mostly
<u>Dry</u>			MOISTURE CONTENT		
<u>Slightly Moist</u>					
<u>Moist</u>					
<u>Very Moist</u>					
<u>Wet</u>					
<u>Non-Cohesive or Coarse-Grained Soils</u>			RELATIVE DENSITY		
<u>Density³</u>					
<u>SPT² Blows/Foot</u>					
<u>Penetration with 1/2" Diameter Rod</u>					
Very Loose	=	0 to 4		≥ 2'	
Loose	=	5 to 10		1' to 2'	
Medium Dense	=	11 to 30		3" to 1'	
Dense	=	31 to 50	1" to 3"		
Very Dense	=	> 50	< 1"		
<u>Cohesive or Fine-Grained Soils</u>			CONSISTENCY		
<u>Consistency³</u>					
<u>SPT² Blows/Foot</u>					
<u>Manual Test</u>					
Very Soft	=	0 to 1		Penetrated >1" easily by thumb. Extrudes between thumb & fingers.	
Soft	=	2 to 4		Penetrated 1/4" to 1" easily by thumb. Easily molded.	
Medium Stiff	=	5 to 8		Penetrated >1/4" with effort by thumb. Molded with strong pressure.	
Stiff	=	9 to 15		Indented ~1/4" with effort by thumb.	
Very Stiff	=	16 to 30		Indented easily by thumbnail.	
Hard	=	> 30		Indented with difficulty by thumbnail.	
<u>Observed and Distinct</u>				GEOLOGIC CONTACTS	
<u>Observed and Gradual</u>					
<u>Inferred</u>					
			Exploration Log Key		

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

Aspect CONSULTING			Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log								
Contractor Cascade Drilling			Equipment Geoprobe 7822DT with Auger attachment			Sampling Method Continuous Core			Coordinates (SPN NAD83 ft) E: 1277422.26 N: 217614.38			Exploration Number AC-MW-34		
Operator Kyle and Darrius			Exploration Method(s) Direct push			Work Start/Completion Dates 9/20/2022			Ground Surface Elev. (NAVD88) 50.97'			Ecology Well Tag No. BNF 178		
									Top of Casing Elev. (NAVD88) 50.68'			Depth to Water (Below GS) 3.02' (ATD)		
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		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location Grand Street Commons, South wall of West Block			Coordinates (SPN NAD83 ft) E:1277490.43 N:217646.74		Exploration Number AC-MW-35	
Contractor Cascade Drilling		Equipment Geoprobe 7822DT with Auger attachment	Sampling Method Continuous Core		Ground Surface Elev. (NAVD88) 50.99'		Ecology Well Tag No. BNF 177	
Operator Kyle and Darrius		Exploration Method(s) Direct push	Work Start/Completion Dates 9/21/2022		Top of Casing Elev. (NAVD88) 51.09'		Depth to Water (Below GS) 3.12' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
50		8" Flush mount, traffic-rated monument in concrete					No sampling was performed.; anular 4 inch quarry spalls; sandy silt with gravel	
		Concrete Mix (No. 1004)						
		Hydrated bentonite chips (NSF/ANSI/CAN 60)						
		▽ 9/21/2022						
		2" Schedule 40 PVC						
5								5
45								
10								10
40		0.010" (10-slot) 2" Schedule 40 PVC screen						
15		12/20 Silica sand						15
35								
20								20
30								
		End Cap					Bottom of exploration at 23 ft. bgs.	
Legend								
Sample Type		Water Level		▽ Water Level ATD		See Exploration Log Key for explanation of symbols		Exploration Log AC-MW-35 Sheet 1 of 1
						Logged by: KPW Approved by: HRC		

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

Aspect CONSULTING			Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log								
Contractor Cascade Drilling			Equipment Geoprobe 7822DT with Auger attachment			Project Address & Site Specific Location Grand Street Commons, East block- Concrete slab			Coordinates (SPN NAD83 ft) E:1277715.29 N:217657.61			Exploration Number AC-MW-37		
						Sampling Method Continuous Core			Ground Surface Elev. (NAVD88) 74.74'			Ecology Well Tag No. BNR 180		
Operator Kyle and Darrius			Exploration Method(s) Direct push			Work Start/Completion Dates 9/21/2022			Top of Casing Elev. (NAVD88) 74.41'			Depth to Water (Below GS) 1.1' (ATD)		
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details		Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description					Depth (ft)	
		8" Flush mount, traffic-rated monument In 9/21/2022						CONCRETE; Concrete slab						
		Concrete Mix (No. 1004)				PID=1.2 Sheen=none		FILL SILTY SAND (SM); moist, brown; fine silt; trace gravel						
5	70	2" Schedule 40 PVC				PID=0.3 Sheen=none		GLACIALLY CONSOLIDATED SOILS SILTY SAND WITH GRAVEL (SM); slightly moist, brown; fine sand with silt; few subrounded gravel					5	
10	65	Hydrated bentonite chips (NSF/ANSI/CAN 60)				PID=1.9 Sheen=none							10	
15	60	0.010" (10-slot) 2" Schedule 40 PVC screen				PID=3.2 Sheen=none		SAND WITH SILT AND GRAVEL (SP-SM); moist, gray brown; fine sand; silt with subrounded gravel					15	
		12/20 Silica sand				PID=1.9 Sheen=none								
20	55	End Cap											20	
								Bottom of exploration at 23 ft. bgs.						
Legend														
Sample Type		Continuous core 1.85" ID												
Water Level		Water Level ATD												
See Exploration Log Key for explanation of symbols														
Logged by: KPW Approved by: HRC														
Exploration Log AC-MW-37 Sheet 1 of 1														

	Grand Street Commons - 170304-B-002-2.2.B				Monitoring Well Log			
	Project Address & Site Specific Location				Coordinates (SPN NAD83 ft)		Exploration Number	
	Grand Street Commons, Northern, central area of West Block				E:1277379.79 N:217801.63		AC-MW-39	
	Contractor Anderson Environmental Contracting (AEC)		Equipment Geoprobe 7822DT		Sampling Method Grab		Ground Surface Elev. (NAVD88) 51.01'	
Operator Blake and Jose		Exploration Method(s) Direct push		Work Start/Completion Dates 10/28/2022		Top of Casing Elev. (NAVD88) 51.14'		
						Ecology Well Tag No. BNM 674		
						Depth to Water (Below GS) No Water Encountered		
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
							CONCRETE; Concrete slab; 0.5" concrete	
							FILL GRAVEL (GP); Gravel; 3/8" minus crushed pit run	
50		Flush mount wellbox in concrete						
5		3/8" bentonite chips from 4.1' to 9.8'					GLACIALLY CONSOLIDATED SOILS SILTY SAND WITH GRAVEL (SM); wet, brown; fine to medium sand; some silt; non-plastic; fine rounded to subrounded gravel.	5
45								
							Drill action suggests very dense materials from 3.5' to 9'	
		2" Sch 40 PVC riser						
10							SILTY SAND WITH GRAVEL (SM); Becomes gray; fine to medium sand; some silt; non-plastic; fine rounded to subrounded gravel.	10
40		10x20 silica sand						
		2" sch pre-packed screen					SILTY SAND WITH GRAVEL (SM); wet, gray; fine to medium sand; some silt; non-plastic; increasing content of fine rounded to subrounded gravel.	
15							Drillers report difficulty in spinning augers at 16.25'	15
35		Threaded cap						
							Bottom of exploration at 16.25 ft. bgs.	
							Note: Logged from cuttings; no samples collected ATD.	
Legend								
Sample Type							See Exploration Log Key for explanation of symbols	Exploration Log AC-MW-39 Sheet 1 of 1
	No Water Encountered							
Water Level							Logged by: AY Approved by: HRC	

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NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

Aspect CONSULTING		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location			Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, North sidewalk of West block					E:1277394.64 N:217842.61		AC-MW-42	
Contractor		Equipment		Sampling Method	Ground Surface Elev. (NAVD88)			
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		74.22'	Ecology Well Tag No. BPR706	
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)	
James Goble		8.5" OD X 4.25" ID Hollow-Stem Auger		11/30/2023		73.81'	15' (ATD) 18.76' (Static)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete					CONCRETE	
		Concrete Mix (No. 1004)					CONCRETE; 1 ft. concrete slab.	
		2" Schedule 40 PVC			Blows (non-SPT)=25, 50/6 PID=0.0 Sheen=None		FILL	5
		Hydrated bentonite chips (NSF/ANSI/CAN 60)					SILTY SAND (SM); dense, slightly moist, brown to gray brown; nonplastic; fine to medium sand; subtrace fine subangular gravel; trace organic debris.	
70								
5								
					</			

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NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location Grand Street Commons, North sidewalk of West block			Coordinates (SPN NAD83 ft) E:1277394.64 N:217842.61		Exploration Number AC-MW-42	
Contractor Cascade Drilling		Equipment CME-75	Sampling Method Manually Activated Downhole Hammer		Ground Surface Elev. (NAVD88) 74.22'		Ecology Well Tag No. BPR706	
Operator James Goble		Exploration Method(s) 8.5" OD X 4.25" ID Hollow-Stem Auger	Work Start/Completion Dates 11/30/2023		Top of Casing Elev. (NAVD88) 73.81'		Depth to Water (Below GS) 15' (ATD) 18.76' (Static)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
				AC-MW-42-25 cVOCs EPA 8260	Blows (non-SPT)=47, 50/6 PID=0.0 Sheen=None		SILT WITH SAND (ML); dense, very moist to wet, gray to blue gray; low plasticity; fine to medium sand; subtrace fine subangular gravel.	
45								
30		Borehole was backfilled with medium bentonite chips (NSF/ANSI/CAN 60)		AC-MW-42-30 cVOCs EPA 8260	Blows (non-SPT)=49, 50/6 PID=0.0 Sheen=None		Becomes with trace fine subangular gravel.	30
40								
35				AC-MW-42-35 cVOCs EPA 8260	Blows (non-SPT)=16, 13, 14 PID=0.0 Sheen=None		SANDY SILT (ML); medium dense, wet, gray to gray brown; nonplastic; fine to coarse sand; subtrace fine subangular gravel.	35
							Bottom of exploration at 36.5 ft. bgs.	
							Note: No petroleum/chemical-like odor observed at any depth.	
35								
40								
30								
45								
25								
Legend ■ Split Barrel 3.25" X 2.375" ▼ Static Water Level ▽ Water Level ATD See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC								Exploration Log AC-MW-42 Sheet 2 of 2

Aspect CONSULTING		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location			Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, East central sidewalk of West block					E:1277530.03 N:217696.11		AC-MW-43	
Contractor		Equipment		Sampling Method		Ground Surface Elev. (NAVD88)		
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		73.93'	Ecology Well Tag No. BPR708	
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	Depth to Water (Below GS)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		12/1/2023		73.19'	17.6' (Static) 20' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete Concrete Mix (No. 1004)					FILL SILTY SAND (SM); slightly moist, brown to gray brown; nonplastic; fine to medium sand; subtrace fine subangular gravel; subtrace organic debris.	
5		2" Schedule 40 PVC Hydrated bentonite chips (NSF/ANSI/CAN 60)			Blows (non-SPT)=4, 8, 11 PID=0.0 Sheen=None			5
							RECESSIONAL DEPOSITS SILT (ML); very stiff, moist, brown to yellow brown; low to medium plasticity; subtrace to trace fine sand.	
65					Blows (non-SPT)=50/4 PID=0.0 Sheen=None		0.2 ft. layer of silty sand lense with fine to coarse sand.	10
10							Drill action suggests a very rigid material between 10 to 15 ft.	
60		12/20 Silica sand			Blows (non-SPT)=36, 50/6 PID=0.0 Sheen=None		SANDY SILT (ML); dense, moist, brown to gray brown; nonplastic; fine to medium sand; trace to few fine subangular gravel.	15
15								
		▼ 12/1/2023						
55								
20		▽ 12/1/2023		AC-MW-43-20 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=38, 50/6 PID=0.0 Sheen=None		Becomes very moist to wet.	20
		0.010" (10-slot) 2" Schedule 40 PVC screen			Blows (non-SPT)=49, 50/6 PID=0.0 Sheen=None			
50								
Legend ○ No Soil Sample Recovery ■ Split Barrel 3.25" X 2.375" ▼ Static Water Level ▽ Water Level ATD See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC								Exploration Log AC-MW-43 Sheet 1 of 2

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Aspect CONSULTING				Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
				Project Address & Site Specific Location			Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, East central sidewalk of West block							E: 1277530.03 N: 217696.11		AC-MW-43	
Contractor		Equipment		Sampling Method			Ground Surface Elev. (NAVD88)		Ecology Well Tag No.	
Cascade Drilling		CME-75		Manually Activated Downhole Hammer			73.93'		BPR708	
Operator		Exploration Method(s)		Work Start/Completion Dates			Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		12/1/2023			73.19'		17.6' (Static) 20' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description			Depth (ft)
				AC-MW-43-25 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=49, 50/6 PID=0.0 Sheen=None		SANDY SILT (ML); dense, moist, brown to gray brown; nonplastic; fine to medium sand; trace to few fine subangular gravel. (continued) Becomes with fine to coarse sand from 25 to 27.5 ft.			
				AC-MW-43-27.5 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=50/6 PID=0.0 Sheen=None					
45										
30					Blows (non-SPT)=50/6 PID=0.0 Sheen=None		SILT (ML); hard, moist, gray to blue gray; low plasticity; trace to few fine to medium sand; subtrace fine subangular gravel.			30
40										
35				AC-MW-43-35 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=49/6 PID=0.0 Sheen=None		SANDY SILT (ML); dense, very moist to wet, gray to gray brown; nonplastic silt; fine to medium sand; subtrace to trace fine subangular gravel.			35
35										
40		Borehole was backfilled with medium bentonite chips (NSF/ANSI/CAN 60)		AC-MW-43-40 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=42, 50/6 PID=0.0 Sheen=None		Becomes with fine to coarse sand lense at 40.8 ft.			40
30										
45				AC-MW-DUP AC-MW-43-45 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=21, 26, 30 PID=0.0 Sheen=None					45
							Bottom of exploration at 46.5 ft. bgs.			
							Note: No petroleum/chemical-like odor observed at any depth.			
25										
No Soil Sample Recovery Split Barrel 3.25" X 2.375" Static Water Level Water Level ATD See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC Exploration Log AC-MW-43 Sheet 2 of 2										

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Aspect CONSULTING		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location			Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, Southeast corner of West block		E: 1277531.78 N: 217641.84		AC-MW-44				
Contractor	Equipment	Sampling Method		Ground Surface Elev. (NAVD88)		Ecology Well Tag No.		
Cascade Drilling	CME-75	Manually Activated Downhole Hammer		72.1'		BPR705		
Operator	Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)		
Wesley Kennedy	8.5" OD X 4.25" ID Hollow-Stem Auger	11/29/2023		71.71'		27.75' (Static) 30' (ATD)		
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete					FILL	
		Concrete Mix (No. 1004)					SILTY SAND (SM); dry to slightly moist, brown to gray brown; nonplastic; fine to medium sand; subtrace fine subangular gravel; trace organic debris.	
70								
		2" Schedule 40 PVC			Blows (non-SPT)=8, 11, 12 PID=0.0 Sheen=Slight		RECESSIONAL DEPOSITS	5
5							SANDY SILT (ML); medium dense, slightly moist, gray to gray brown; nonplastic; fine to medium sand; few to little fine subangular gravel.	
65								
		Hydrated bentonite chips (NSF/ANSI/CAN 60)			Blows (non-SPT)=50/6 PID=0.0 Sheen=Slight		Becomes with fine to coarse sand lense from 10.8 to 11 ft.	10
10								
60								
15					Blows (non-SPT)=50/6 PID=0.0 Sheen=None			15
55								
20					Blows (non-SPT)=50/6 PID=0.0 Sheen=None		Becomes dense.	20
50		0.010" (10-slot) 2" Schedule 40 PVC screen		AC-MW-44-22.5 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=27, 50/6 PID=0.0 Sheen=Slight		SILT WITH SAND (ML); dense, slightly moist to moist, gray to gray brown; nonplastic; fine sand; few to little fine subangular gravel.	

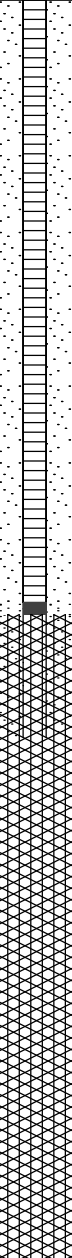
NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

Aspect CONSULTING		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log					
Contractor		Equipment		Sampling Method		Coordinates (SPN NAD83 ft)		Exploration Number		
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		E: 1277531.78 N: 217641.84		AC-MW-44		
Operator		Exploration Method(s)		Work Start/Completion Dates		Ground Surface Elev. (NAVD88)		Ecology Well Tag No. BPR705		
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		11/29/2023		72.1'		Depth to Water (Below GS) 27.75' (Static) 30' (ATD)		
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details		Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description		Depth (ft)
		12/20 Silica sand			AC-MW-44-25 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=31, 50/6 PID=0.1 Sheen=None		SILT WITH SAND (ML); dense, slightly moist to moist, gray to gray brown; nonplastic; fine sand; few to little fine subangular gravel. (continued)		
45		▼ 12/29/2023			AC-MW-44-27.5 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=50/6 PID=0.6 Sheen=Slight				
30		▽ 11/29/2023			AC-MW-44-30 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=50/6 PID=0.1 Sheen=Slight		SANDY SILT (ML); dense, wet, gray to gray brown; nonplastic; fine to coarse sand; few fine subangular gravel. Becomes wet.		30
40						Blows (non-SPT)=31, 50/6 PID=0.0 Sheen=Slight		Becomes with few to little fine subangular gravel.		
35					AC-MW-44-35 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=25, 30, 30 PID=0.0 Sheen=None		1 ft. layer of silt with sand. Becomes very dense at 36 ft.		35
35						Blows (non-SPT)=50/6 PID=0.0 Sheen=None		Becomes gray to blue gray.		
40		Borehole was backfilled with medium bentonite chips (NSF/ANSI/CAN 60)			AC-MW-44-40 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=50/6 PID=0.0 Sheen=None				40
30						Blows (non-SPT)=41, 50/6 PID=0.0 Sheen=None		PRE-FRASER TILL SILT (ML); hard, slightly moist to moist, gray to blue gray; low to medium plasticity; subtrace fine sand.		
45						Blows (non-SPT)=39, 50/6 PID=0.0 Sheen=None				45
								Bottom of exploration at 46 ft. bgs.		
25								Note: No petroleum/chemical-like odor observed at any depth.		
Legend ○ No Soil Sample Recovery ■ Split Barrel 3.25" X 2.375" ▼ Static Water Level ▽ Water Level ATD See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC Exploration Log AC-MW-44 Sheet 2 of 2										

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Aspect CONSULTING				Grand Street Commons - 170304-B-002-2.2.B		Monitoring Well Log			
				Project Address & Site Specific Location		Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, West central sidewalk of East block				E: 1277558.38 N: 217649.16				AC-MW-45	
Contractor		Equipment		Sampling Method		Ground Surface Elev. (NAVD88)		Ecology Well Tag No. BPR707	
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		72.37'			
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		12/1/2023		71.94'		17.25' (Static) 30' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description		Depth (ft)
70		8" Flush mount, traffic-rated monument in concrete Concrete Mix (No. 1004)					FILL SAND WITH GRAVEL (SP); dry to slightly moist, gray to dark gray; fine to coarse sand; fine subangular to subrounded gravel. SILTY SAND (SM); dry to slightly moist, brown to gray brown; nonplastic; fine to medium sand; subtrace fine subangular gravel; trace organic debris.		
5		2" Schedule 40 PVC			Blows (non-SPT)=11, 15, 19 PID=0.0 Sheen=Slight				5
65									
10		Hydrated bentonite chips (NSF/ANSI/CAN 60)			Blows (non-SPT)=50/6 PID=0.0 Sheen=Slight				10
60									
15					Blows (non-SPT)=22, 50/6 PID=0.0 Sheen=None		RECESSIONAL DEPOSITS SILT (ML); hard, moist, gray to dark gray; low to medium plasticity; subtrace fine to medium sand. Becomes with fine to coarse sand lense from 15.8 to 16 ft.		15
55		12/1/2023							
20		12/20 Silica sand		AC-MW-45-20 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=28, 50/6 PID=0.0 Sheen=None		SANDY SILT (ML); dense, moist, gray to gray brown; nonplastic; fine to medium sand; subtrace fine subangular gravel. Becomes dense.		20
50		0.010" (10-slot) 2" Schedule 40 PVC screen			Blows (non-SPT)=27, 50/6 PID=0.0 Sheen=None		Becomes with little to some silt.		
No Soil Sample Recovery Split Barrel 3.25" X 2.375" Static Water Level Water Level ATD See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC Exploration Log AC-MW-45 Sheet 1 of 2									

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

Grand Street Commons - 170304-B-002-2.2.B				Monitoring Well Log					
		Project Address & Site Specific Location		Coordinates (SPN NAD83 ft)		Exploration Number			
		Grand Street Commons, West central sidewalk of East block		E:1277558.38 N:217649.16		AC-MW-45			
Contractor		Equipment	Sampling Method		Ground Surface Elev. (NAVD88)		Ecology Well Tag No. BPR707		
Cascade Drilling		CME-75	Manually Activated Downhole Hammer		72.37'		Depth to Water (Below GS) 17.25' (Static) 30' (ATD)		
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		12/1/2023		71.94'		30' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description		Depth (ft)
45		 12/1/2023 <							

Grand Street Commons - 170304-B-002-2.2.B				Monitoring Well Log			
Project Address & Site Specific Location				Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, Southwest corner of East block				E:1277909.86 N:218055.45		AC-MW-46	
Contractor		Equipment		Sampling Method		Ground Surface Elev. (NAVD88)	
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		72.7'	
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		11/29/2023		72.26'	
Depth (feet)		Elev. (feet)		Exploration Notes and Completion Details		Sample Type/ID	
				Analytical Sample Number & Lab Test(s)		Field Tests	
				Material Type		Description	
						CONCRETE	
						CONCRETE; 0.5 ft. concrete slab.	
						FILL	
						SILTY SAND (SM); dry to slightly moist, brown to gray brown; nonplastic; fine to medium sand; few to little fine subangular gravel; trace organic debris.	
70							
5							
65							
10							
60							
15							
55							
20							
50							

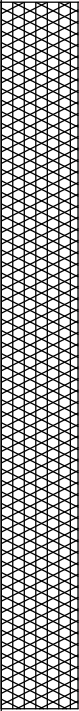
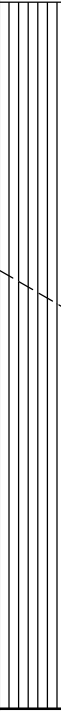
NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

See Exploration Log Key for explanation of symbols

Logged by: RWN
Approved by: HRC

Grand Street Commons - 170304-B-002-2.2.B				Monitoring Well Log			
Project Address & Site Specific Location				Coordinates (SPN NAD83 ft)		Exploration Number	
Grand Street Commons, South central sidewall of East block				E:1277678.52 N:217571.97		AC-MW-47	
Contractor		Equipment		Sampling Method		Ground Surface Elev. (NAVD88)	
Cascade Drilling		CME-75		Manually Activated Downhole Hammer		75.47'	
Operator		Exploration Method(s)		Work Start/Completion Dates		Top of Casing Elev. (NAVD88)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger		11/28/2023		75.21'	
Depth (feet)		Elev. (feet)		Exploration Notes and Completion Details		Sample Type/ID	
75		8" Flush mount, traffic-rated monument in concrete		Concrete Mix (No. 1004)		Analytical Sample Number & Lab Test(s)	
5		2" Schedule 40 PVC		Hydrated bentonite chips (NSF/ANSI/CAN 60)		Field Tests	
70						Material Type	
10						Description	
65						CONCRETE	
						CONCRETE; 0.5 ft. concrete slab.	
						FILL	
						SILTY SAND (SM); slightly moist to moist, brown to gray brown; nonplastic; fine to medium sand; few fine subangular gravel.	

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

		Grand Street Commons - 170304-B-002-2.2.B			Monitoring Well Log			
		Project Address & Site Specific Location Grand Street Commons, South central sidewall of East block			Coordinates (SPN NAD83 ft) E:1277678.52 N:217571.97		Exploration Number AC-MW-47	
Contractor Cascade Drilling		Equipment CME-75	Sampling Method Manually Activated Downhole Hammer		Ground Surface Elev. (NAVD88) 75.47'		Ecology Well Tag No. BPR703	
Operator Wesley Kennedy		Exploration Method(s) 8.5" OD X 4.25" ID Hollow-Stem Auger	Work Start/Completion Dates 11/28/2023		Top of Casing Elev. (NAVD88) 75.21'		Depth to Water (Below GS) 19.73' (Static) 20' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
50		 Borehole was backfilled with medium bentonite chips (NSF/ANSI/CAN 60)		AC-MW-47-25 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=18, 20, 23 PID=0.0 Sheen=None		RECESSIONAL DEPOSITS SANDY SILT (ML); dense, slightly moist to moist, gray brown; nonplastic; fine to medium sand; few fine subangular gravel. (continued) Becomes with trace fine subangular gravel. 0.3 ft. lense of coarse sand.	
30	45				Blows (non-SPT)=20, 21, 20 PID=0.0 Sheen=None		SILT WITH SAND (ML); hard, wet, gray brown; nonplastic to low plasticity; fine to medium sand; subtrace to trace fine subangular gravel.	30
35	40				Blows (non-SPT)=14, 17, 18 PID=0.0 Sheen=None			35
40	35							
45	30							45
Legend								
Sample Type	 Split Barrel 3.25" X 2.375"		Water Level	 Static Water Level		See Exploration Log Key for explanation of symbols Logged by: RWN Approved by: HRC		Exploration Log AC-MW-47 Sheet 2 of 2
				 Water Level ATD				

Grand Street Commons - 170304-B-002-2.2.B				Monitoring Well Log				
Project Address & Site Specific Location				Coordinates (SPN NAD83 ft)		Exploration Number		
Grand Street Commons, Southwest corner of East block				E:1277726.50 N:217567.65		AC-MW-48		
Contractor		Equipment	Sampling Method		Ground Surface Elev. (NAVD88)		Ecology Well Tag No. BPR702	
Cascade Drilling		CME-75	Manually Activated Downhole Hammer		77.91'			
Operator		Exploration Method(s)	Work Start/Completion Dates		Top of Casing Elev. (NAVD88)		Depth to Water (Below GS)	
Wesley Kennedy		8.5" OD X 4.25" ID Hollow-Stem Auger	11/28/2023		77.57'		29.5' (Static) 30' (ATD)	
Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8" Flush mount, traffic-rated monument in concrete					CONCRETE	
		Concrete Mix (No. 1004)					CONCRETE; 0.5 ft. concrete slab.	
							FILL	
							SILTY SAND (SM); slightly moist to moist, brown to gray brown; nonplastic; fine to medium sand; few fine subangular gravel.	
75								
5		2" Schedule 40 PVC						5
		Hydrated bentonite chips (NSF/ANSI/CAN 60)						
70								
10					Blows (non-SPT)=50/4 PID=0.0 Sheen=Slight		RECESSIONAL DEPOSITS	10
							SANDY SILT (ML); dense, slightly moist to moist, brown to gray brown; nonplastic; fine to medium sand; trace to few fine subangular gravel; subtrace organic debris.	
65								
15				AC-MW-48-15 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=33, 50/6 PID=0.0 Sheen=None		Becomes with few to little fine subangular gravel.	15
60								
20				AC-MW-48-20 NWTPH-Dx, -Gx, BTEXN	Blows (non-SPT)=8, 20, 27 PID=0.0 Sheen=None		Becomes with little to some silt from 20 to 26 ft.	20
55		0.010" (10-slot) 2" Schedule 40 PVC screen						
		12/20 Silica sand						
Legend								
Sample Type	Split Barrel 3.25" X 2.375"			Static Water Level		See Exploration Log Key for explanation of symbols		Exploration Log AC-MW-48 Sheet 1 of 2
				Water Level ATD		Logged by: RWN Approved by: HRC		

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\170304 - GSC WEST-EAST BLOCK.GPJ August 1, 2024

APPENDIX B

Laboratory Analytical Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
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fbi@isomedia.com
www.friedmanandbruya.com

June 20, 2023

Andrew Yonkofski, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Yonkofski:

Included are the results from the testing of material submitted on June 9, 2023 from the GSC Site-Wide GW Sampling 170304, F&BI 306173 project. There are 37 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0620R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 9, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC GSC Site-Wide GW Sampling 170304, F&BI 306173 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
306173 -01	AC-MW-03-230608
306173 -02	AC-MW-15-230607
306173 -03	AC-MW-16-230608
306173 -04	AC-MW-30-230607
306173 -05	AC-MW-33-230608
306173 -06	AC-MW-34-230608
306173 -07	AC-MW-35-230609
306173 -08	AC-MW-36-230609
306173 -09	AC-MW-37-230607
306173 -10	AC-MW-38-230608
306173 -11	AC-MW-39-230608
306173 -12	AC-MW-40-230608
306173 -13	PC-MW-30I-230608
306173 -14	PC-MW-30S-230608
306173 -15	URS-MW-03-230608
306173 -16	URS-MW-10-230607
306173 -17	URS-MW-13-230608
306173 -18	URS-MW-21D-230607
306173 -19	URS-MW-21S-230607
306173 -20	URS-MW-22-230607
306173 -21	URS-MW-23-230607
306173 -22	AC-MW-41-230609
306173 -23	TB-01
306173 -24	TB-02

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

Date Extracted: 06/13/23

Date Analyzed: 06/14/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-15-230607 306173-02	<100	106
AC-MW-16-230608 306173-03	1,700	115
AC-MW-34-230608 306173-06	<100	107
AC-MW-35-230609 306173-07	130	120
AC-MW-36-230609 306173-08	300	114
AC-MW-37-230607 306173-09	<100	110
AC-MW-38-230608 306173-10	<100	116
URS-MW-03-230608 306173-15	<100	115
URS-MW-10-230607 306173-16	<100	109
URS-MW-13-230608 306173-17	<100	117
URS-MW-23-230607 306173-21	<100	112
Method Blank 03-1224 MB	<100	114

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

Date Extracted: 06/13/23

Date Analyzed: 06/13/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS**

**DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 41-152)
AC-MW-15-230607 306173-02	<50	<250	120
AC-MW-16-230608 306173-03	630 x	<250	123
AC-MW-34-230608 306173-06	<50	<250	127
AC-MW-35-230609 306173-07	83 x	<250	124
AC-MW-36-230609 306173-08	95 x	<250	134
AC-MW-37-230607 306173-09	57 x	<250	128
AC-MW-38-230608 306173-10	<50	<250	130
URS-MW-03-230608 306173-15	64 x	<250	126
URS-MW-10-230607 306173-16	<50	<250	117
URS-MW-13-230608 306173-17	55 x	<250	107
URS-MW-23-230607 306173-21	470 x	280 x	128
Method Blank 03-1428 MB	<50	<250	120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-03-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/14/23	Lab ID:	306173-01
Date Analyzed:	06/14/23	Data File:	061410.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-34-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/14/23	Lab ID:	306173-06
Date Analyzed:	06/14/23	Data File:	061411.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-37-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/14/23	Lab ID:	306173-09
Date Analyzed:	06/14/23	Data File:	061412.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	2.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	170304, F&BI 306173
Date Extracted:	06/14/23	Lab ID:	03-1437 mb
Date Analyzed:	06/14/23	Data File:	061409.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-03-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-01
Date Analyzed:	06/15/23	Data File:	061515.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	106	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-15-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-02
Date Analyzed:	06/15/23	Data File:	061516.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-16-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-03
Date Analyzed:	06/15/23	Data File:	061517.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	78	126
Toluene-d8	105	84	115
4-Bromofluorobenzene	109	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	3.1
m,p-Xylene	6.0
o-Xylene	<1
Naphthalene	4.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-30-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-04
Date Analyzed:	06/15/23	Data File:	061518.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	106	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-33-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-05
Date Analyzed:	06/15/23	Data File:	061519.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	109	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	1.3
Trichloroethene	0.79
Tetrachloroethene	1.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-34-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-06
Date Analyzed:	06/15/23	Data File:	061520.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	118	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-35-230609	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-07
Date Analyzed:	06/15/23	Data File:	061521.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	9.0
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-36-230609	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-08
Date Analyzed:	06/15/23	Data File:	061522.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	95	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	13
Toluene	1.8
Ethylbenzene	3.4
m,p-Xylene	<2
o-Xylene	1.2
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-37-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-09
Date Analyzed:	06/15/23	Data File:	061523.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	113	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-38-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-10
Date Analyzed:	06/15/23	Data File:	061524.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-39-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-11
Date Analyzed:	06/15/23	Data File:	061525.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-40-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-12
Date Analyzed:	06/15/23	Data File:	061526.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	111	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.049
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30I-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-13
Date Analyzed:	06/15/23	Data File:	061527.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30S-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-14
Date Analyzed:	06/15/23	Data File:	061528.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	114	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-03-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-15
Date Analyzed:	06/15/23	Data File:	061529.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	92	84	115
4-Bromofluorobenzene	108	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-10-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-16
Date Analyzed:	06/15/23	Data File:	061530.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	92	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-13-230608	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-17
Date Analyzed:	06/15/23	Data File:	061531.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21D-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-18
Date Analyzed:	06/15/23	Data File:	061532.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	90	84	115
4-Bromofluorobenzene	96	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21S-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	306173-19
Date Analyzed:	06/15/23	Data File:	061533.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-22-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/16/23	Lab ID:	306173-20
Date Analyzed:	06/16/23	Data File:	061614.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	108	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-23-230607	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/16/23	Lab ID:	306173-21
Date Analyzed:	06/16/23	Data File:	061615.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-41-230609	Client:	Aspect Consulting, LLC
Date Received:	06/09/23	Project:	170304, F&BI 306173
Date Extracted:	06/16/23	Lab ID:	306173-22
Date Analyzed:	06/16/23	Data File:	061616.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	5.5
Trichloroethene	2.0
Tetrachloroethene	35

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	170304, F&BI 306173
Date Extracted:	06/16/23	Lab ID:	03-1446 mb
Date Analyzed:	06/16/23	Data File:	061607.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	108	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	170304, F&BI 306173
Date Extracted:	06/15/23	Lab ID:	03-1440 mb
Date Analyzed:	06/15/23	Data File:	061507.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
trans-1,2-Dichloroethene	<1
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TPH AS GASOLINE
USING METHOD NWTPH-G_x**

Laboratory Code: 306168-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	110	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	104	72-139	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	94	96	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 306257-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	100	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	97	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	101	10-211
Trichloroethene	ug/L (ppb)	10	<0.5	99	35-149
Tetrachloroethene	ug/L (ppb)	10	<1	96	50-150
Benzene	ug/L (ppb)	10	<0.35	96	50-150
Toluene	ug/L (ppb)	10	<1	97	50-150
Ethylbenzene	ug/L (ppb)	10	<1	96	50-150
m,p-Xylene	ug/L (ppb)	20	<2	96	50-150
o-Xylene	ug/L (ppb)	10	<1	92	50-150
Naphthalene	ug/L (ppb)	10	1.8	94	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	101	103	64-142	2
trans-1,2-Dichloroethene	ug/L (ppb)	10	100	99	70-130	1
cis-1,2-Dichloroethene	ug/L (ppb)	10	101	101	70-130	0
Trichloroethene	ug/L (ppb)	10	101	103	70-130	2
Tetrachloroethene	ug/L (ppb)	10	96	97	70-130	1
Benzene	ug/L (ppb)	10	99	98	70-130	1
Toluene	ug/L (ppb)	10	97	98	70-130	1
Ethylbenzene	ug/L (ppb)	10	96	98	70-130	2
m,p-Xylene	ug/L (ppb)	20	95	97	70-130	2
o-Xylene	ug/L (ppb)	10	93	95	70-130	2
Naphthalene	ug/L (ppb)	10	98	103	70-130	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/20/23

Date Received: 06/09/23

Project: GSC Site-Wide GW Sampling 170304, F&BI 306173

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 306173-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	106	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	100	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	103	10-211
Trichloroethene	ug/L (ppb)	10	<0.5	100	35-149
Tetrachloroethene	ug/L (ppb)	10	<1	102	50-150
Benzene	ug/L (ppb)	10	<0.35	97	50-150
Toluene	ug/L (ppb)	10	<1	102	50-150
Ethylbenzene	ug/L (ppb)	10	<1	101	50-150
m,p-Xylene	ug/L (ppb)	20	<2	101	50-150
o-Xylene	ug/L (ppb)	10	<1	98	50-150
Naphthalene	ug/L (ppb)	10	<1	89	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	104	108	64-142	4
trans-1,2-Dichloroethene	ug/L (ppb)	10	96	99	70-130	3
cis-1,2-Dichloroethene	ug/L (ppb)	10	100	104	70-130	4
Trichloroethene	ug/L (ppb)	10	98	102	70-130	4
Tetrachloroethene	ug/L (ppb)	10	95	97	70-130	2
Benzene	ug/L (ppb)	10	96	99	70-130	3
Toluene	ug/L (ppb)	10	97	99	70-130	2
Ethylbenzene	ug/L (ppb)	10	96	98	70-130	2
m,p-Xylene	ug/L (ppb)	20	95	97	70-130	2
o-Xylene	ug/L (ppb)	10	93	94	70-130	1
Naphthalene	ug/L (ppb)	10	81	90	70-130	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

306173

SAMPLE CHAIN OF CUSTODY

06/04/23

14/VW5

Report To Andrew TonkotskiCompany Aspect Consulting, LLCAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA, 98104Phone (206) 272-3488 Email aytonkotski@aspectconsulting.com

Hing. Com

SAMPLERS (signature) [Signature]Page # 1 of 3

PROJECT NAME

GSC Site-wide Gw Sampling

PO #

170304

REMARKS

Project specific RLS? - Yes / No

INVOICE TO

Aspect Consulting

TURNAROUND TIME

☒ Standard turnaround☐ RUSH

Rush charges authorized by:

☐ Archive samples☐ Other

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	Notes
AC-MW-03-230608	01A-F	06/08/23	0822	Gw	6									8260
AC-MW-15-230604	02A-D	06/07/23	1538	Gw	4									8260
AC-MW-16-230608	03A-C	06/08/23	1240	Gw	4									8260
AC-MW-30-230607	04A-C	06/07/23	1540	Gw	3									8260
AC-MW-33-230608	05A-C	06/08/23	1304	Gw	3									8260
AC-MW-34-230608	06A-C	06/08/23	1335	Gw	10									8260
AC-MW-35-230609	07A-D	06/09/23	1046	Gw	4									8260
AC-MW-36-230609	08A-C	06/09/23	1000	Gw	4									8260
AC-MW-37-230607	09A-C	06/07/23	1209	Gw	10									8260
AC-MW-38-230608	10A-C	06/08/23	1125	Gw	7									8260

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Friedman & Bruya, Inc.

Ph. (206) 285-8282

Relinquished by: [Signature]

Risi Nava

Aspect Consulting

06/09/23

1540

Received by:

Relinquished by:

VINNY

EBI

6-9-23

1540

Received by:

Samples received at

400

306173

SAMPLE CHAIN OF CUSTODY

06/09/23

14/VMS

Report To Andrew Yonkofski

Company Aspect Consulting, LLC

Address 710 2nd Ave Suite #550

City, State, ZIP Seattle, WA, 98104

Phone (404)272-3488 Email ayonkofski@aspectconsulting.com

SAMPLERS (signature) [Signature]

PROJECT NAME
GSC Site-wide Gw Sampling

PO #
170304

REMARKS

INVOICE TO
Aspect Consulting

Project specific RI's? - Yes / No

Page # 2 of 3

TURNAROUND TIME

☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	
AC-MW-39-230608	11A-C	06/08/23	1050	GW	3				X				STEAM + VOCs
AC-MW-40-230608	12		0954		3				X				by 8260
PC-MW-301-230608	13		0835		3				X				
PC-MW-305-230608	14		0758		3				X				4/6/9
URS-MW-03-230608	15A-D		1055		4	X	X	X					
URS-MW-10-230607	16	06/07/23	1315		4	X	X	X					
URS-MW-13-230608	17	06/08/23	1350		4	X	X	X					
URS-MW-210-230607	18A-C	06/07/23	1255		3				X				
URS-MW-215-230607	19		1353		3				X				
URS-MW-22-230607	20		1445		3				X				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by:	<u>[Signature]</u>	Rsi	na	Aspect Consulting		06/09/23	1540
Received by:	<u>[Signature]</u>	VIN	th	EBI		6-9-23	1540
Relinquished by:							
Received by:				Samples received at	4		00

Eq/VMS

Report To Andrew Jonkaski

Company Aspect Consulting, LLC

Address 710 2nd Ave Suite #550

City, State, ZIP Seattle, WA, 98104

Phone (404) 272-3488 Email ayoungski@aspectcon
swining.com

SAMPLERS (signature)		
PROJECT NAME	GSC Site wide Env Sampling	PO # 170304
REMARKS	INVOICE TO Aspect Consulting	
Project specific RLS? - Yes / No		

TURNAROUND TIME

☒ Standard turnaround

☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples

☐ Other _____

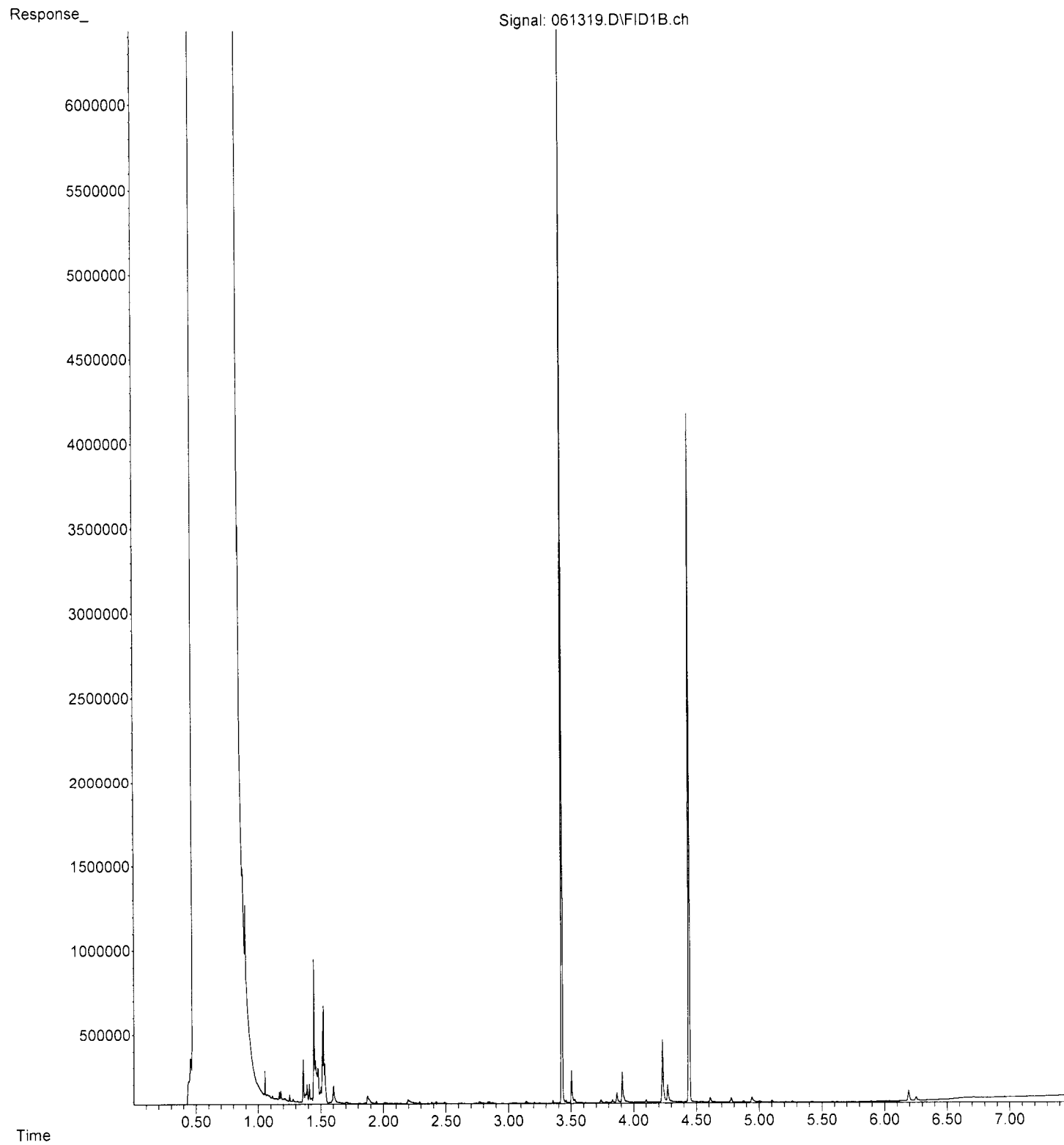
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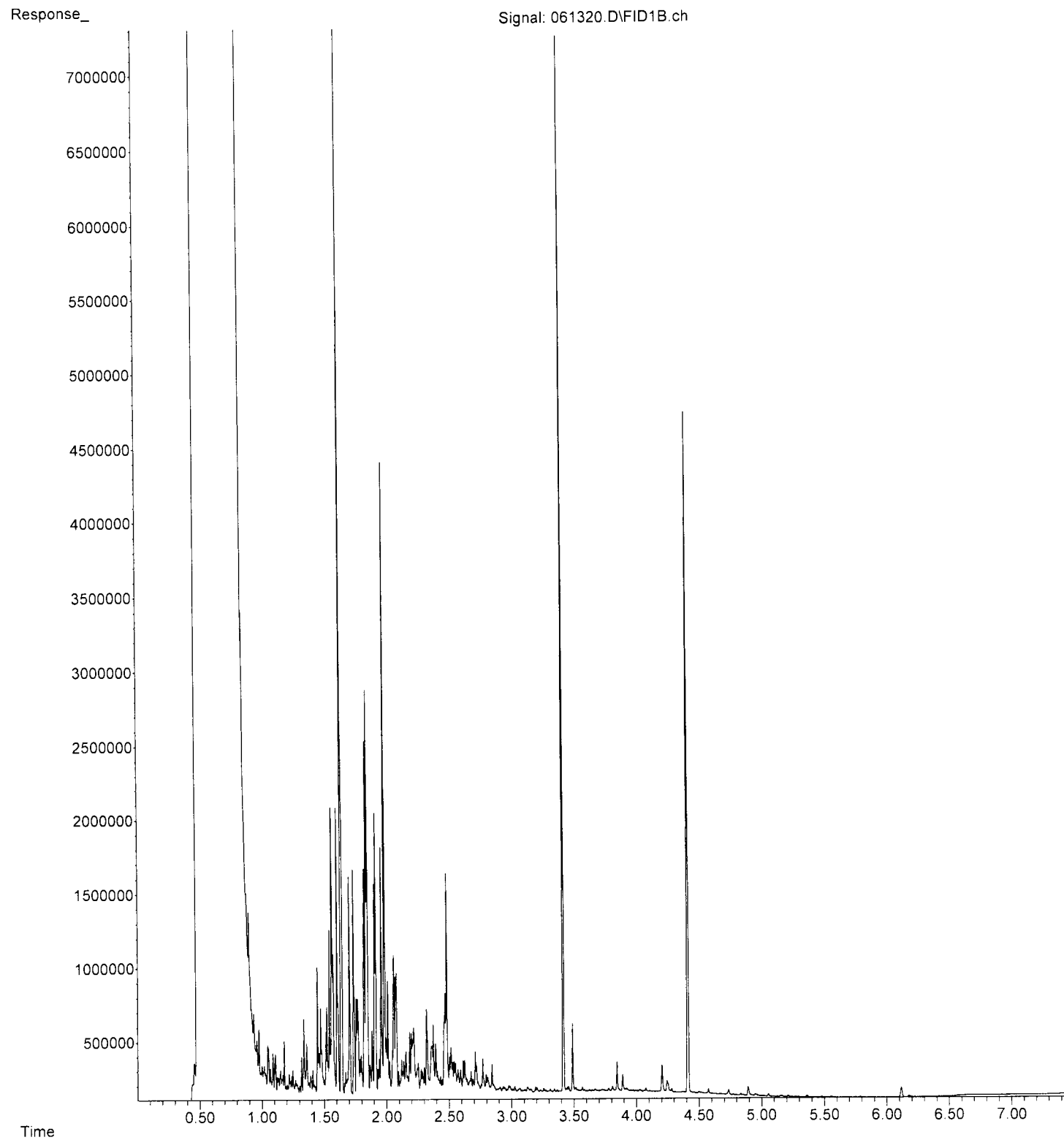
Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Reinquished by: 	Rishi Naga	Aspect Consulting	06/09/23	1540
Received by: 	V. N. G.	FB1	09-2	
Reinquished by:				
Received by:		Samples received at	4	00

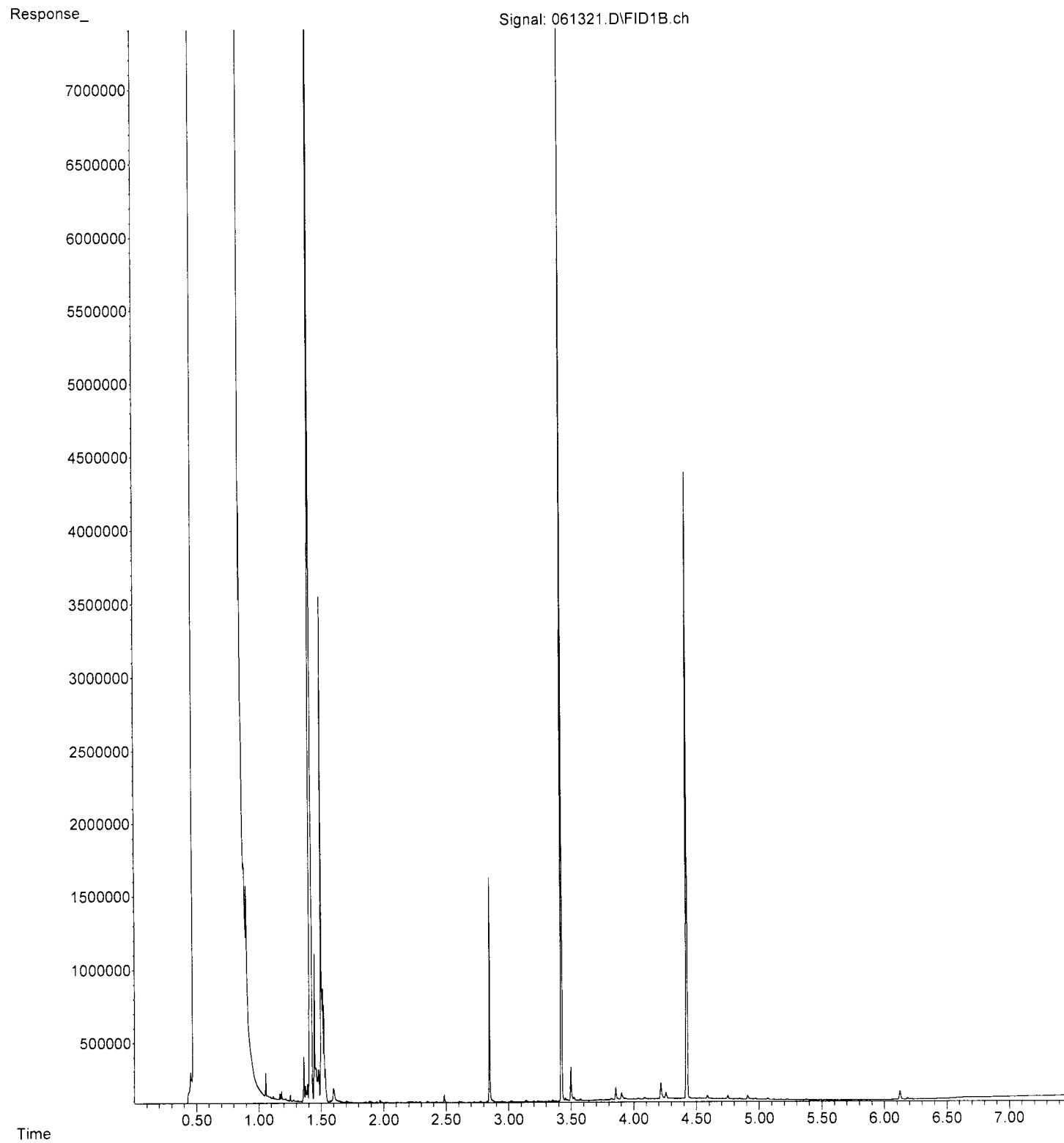
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Instrument : GC10
Sample Name: 306173-02
Misc Info :
Vial Number: 14



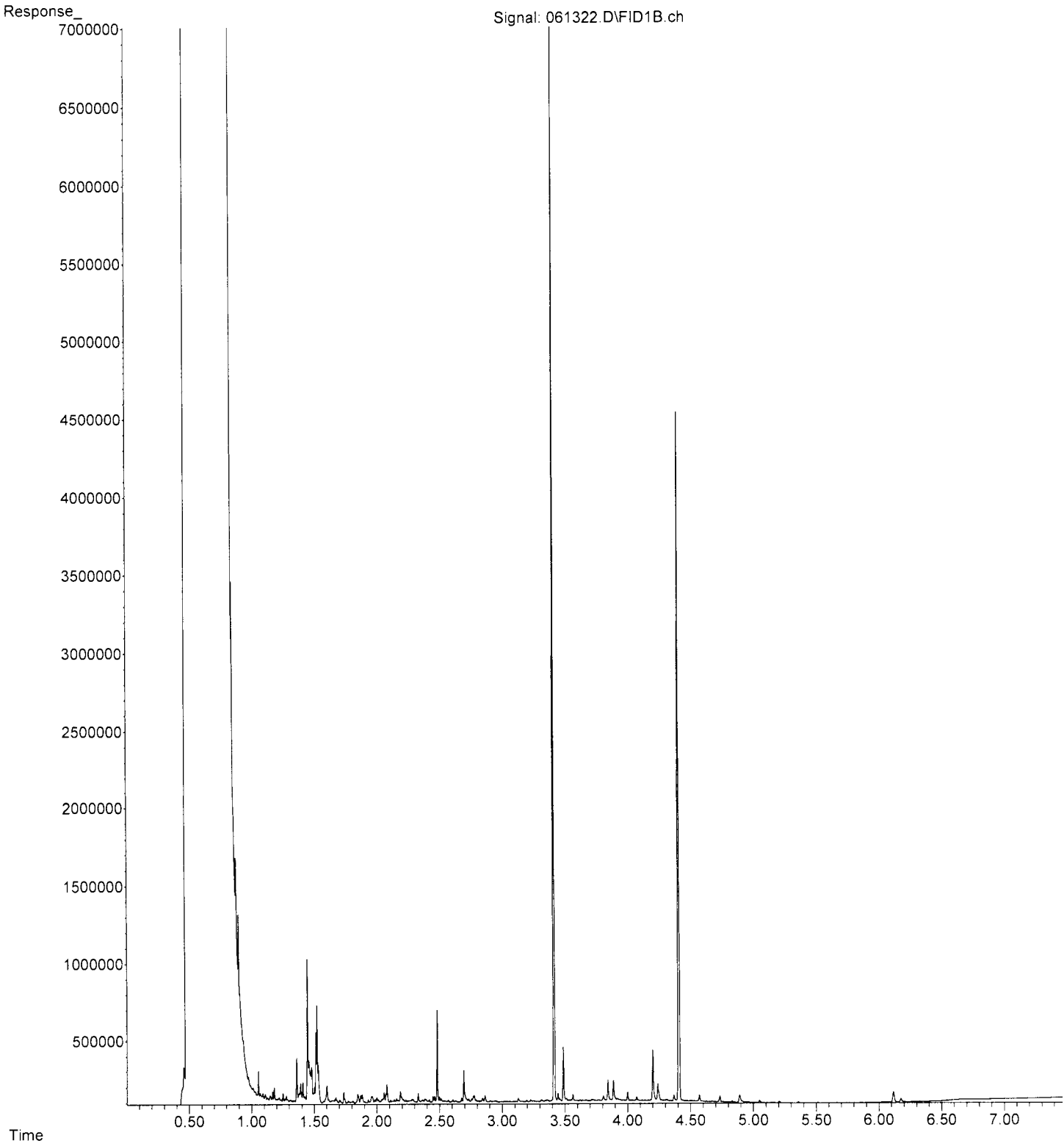
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Instrument : GC10
Sample Name: 306173-03
Misc Info :
Vial Number: 15



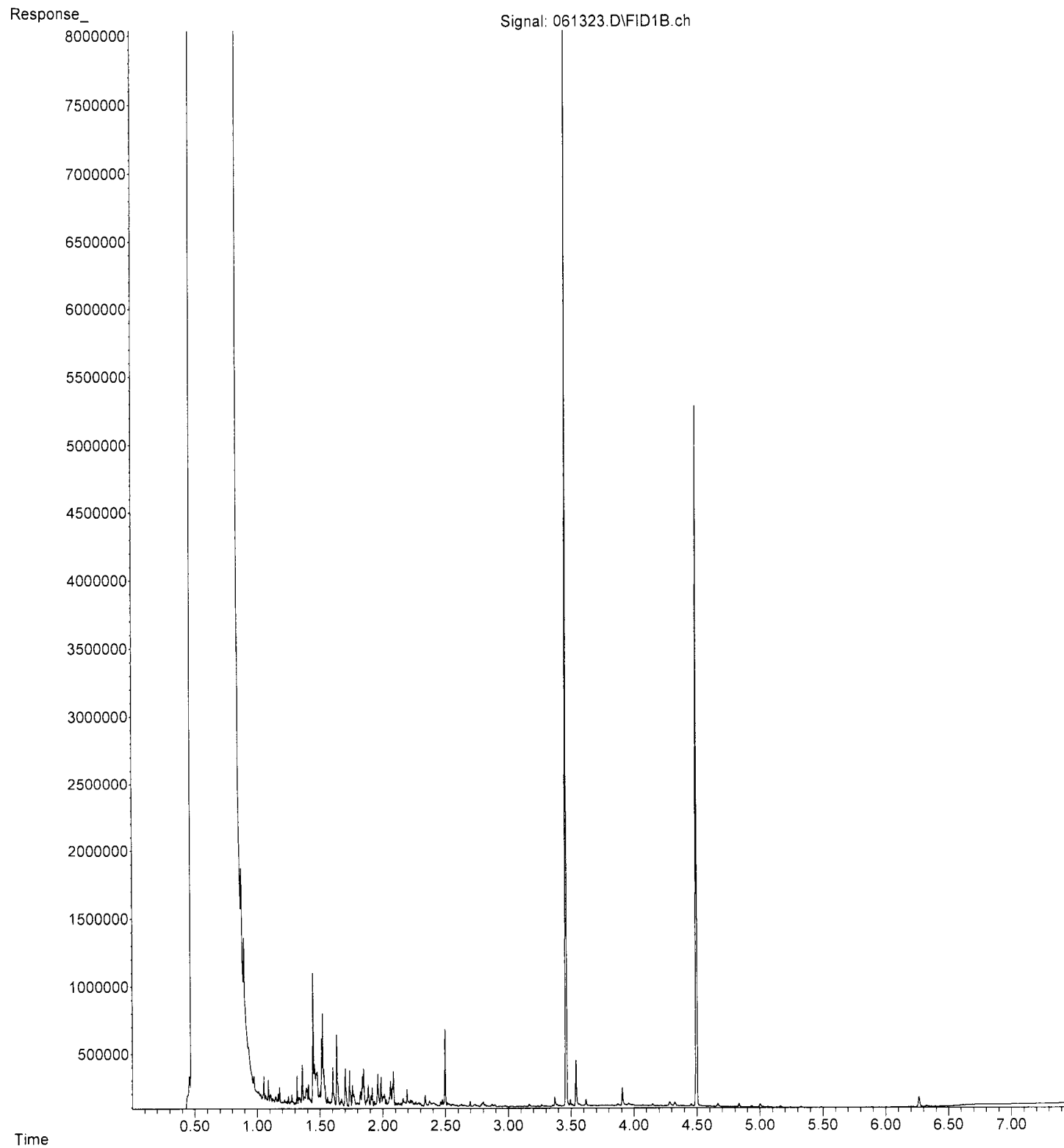
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Acquired : 13 Jun 2023 01:13 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 306173-06
Misc Info :
Vial Number: 16



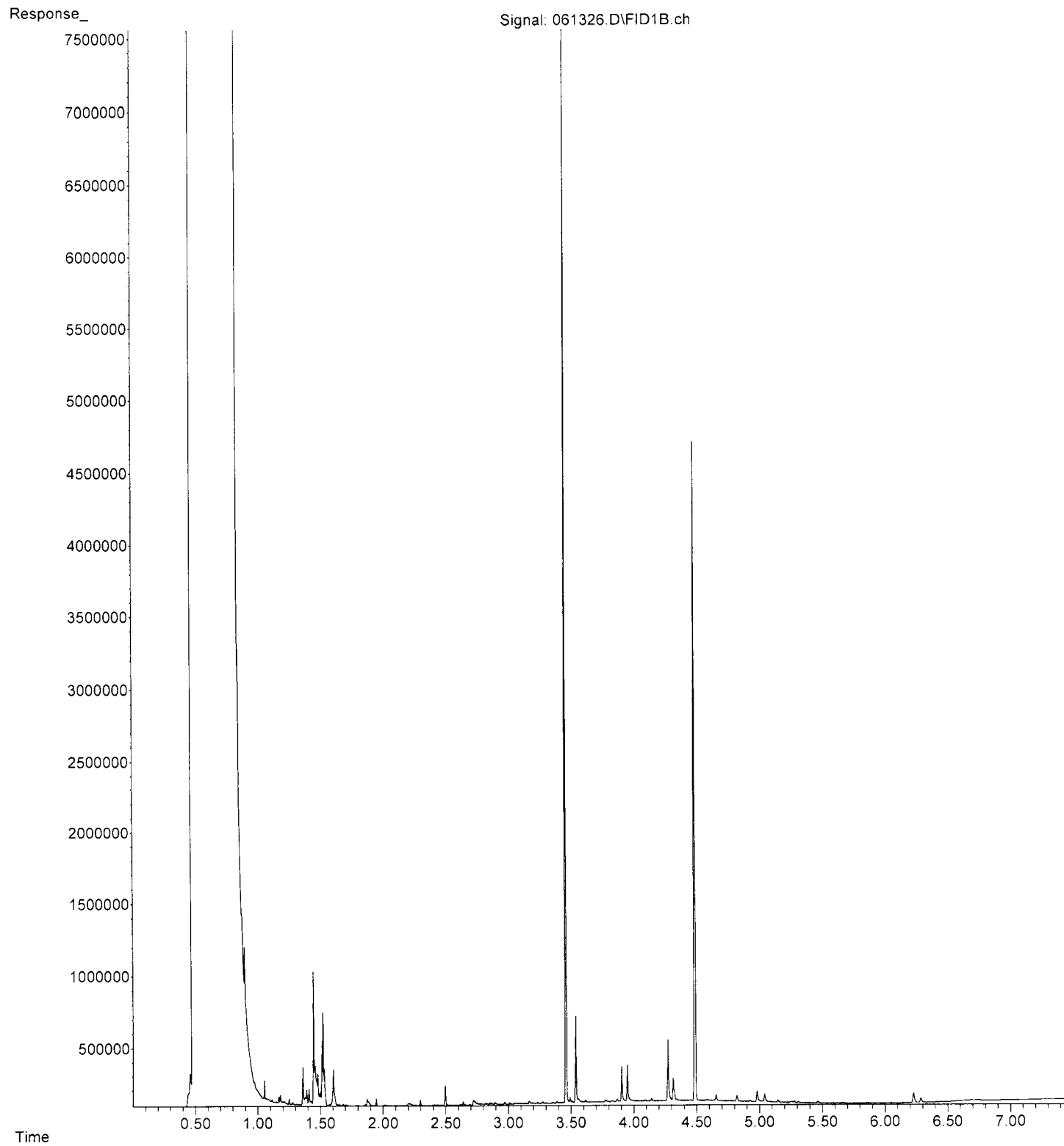
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Instrument : GC10
Sample Name: 306173-07
Misc Info :
Vial Number: 17



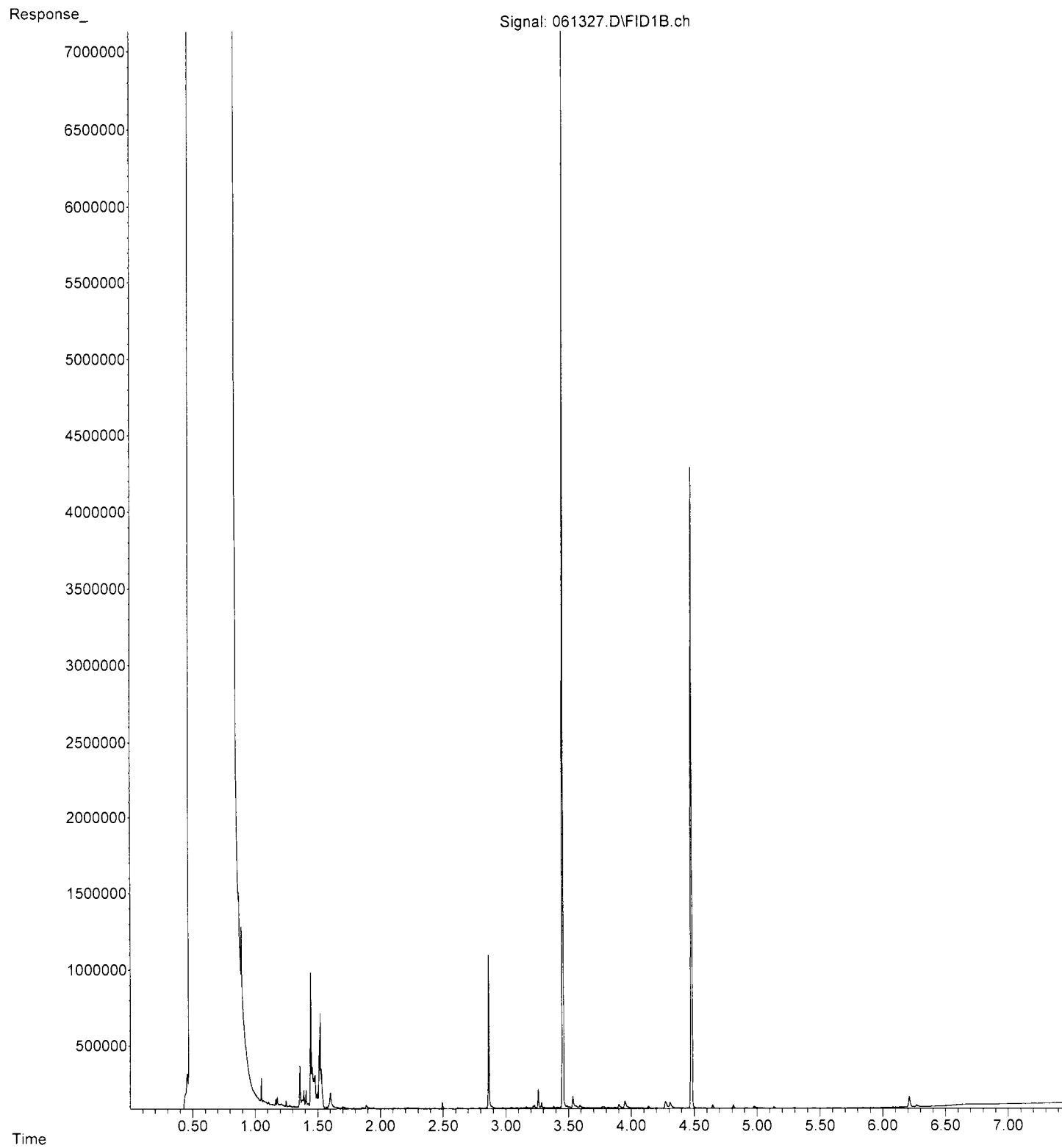
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Acquired : 13 Jun 2023 01:37 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 306173-08
Misc Info :
Vial Number: 18



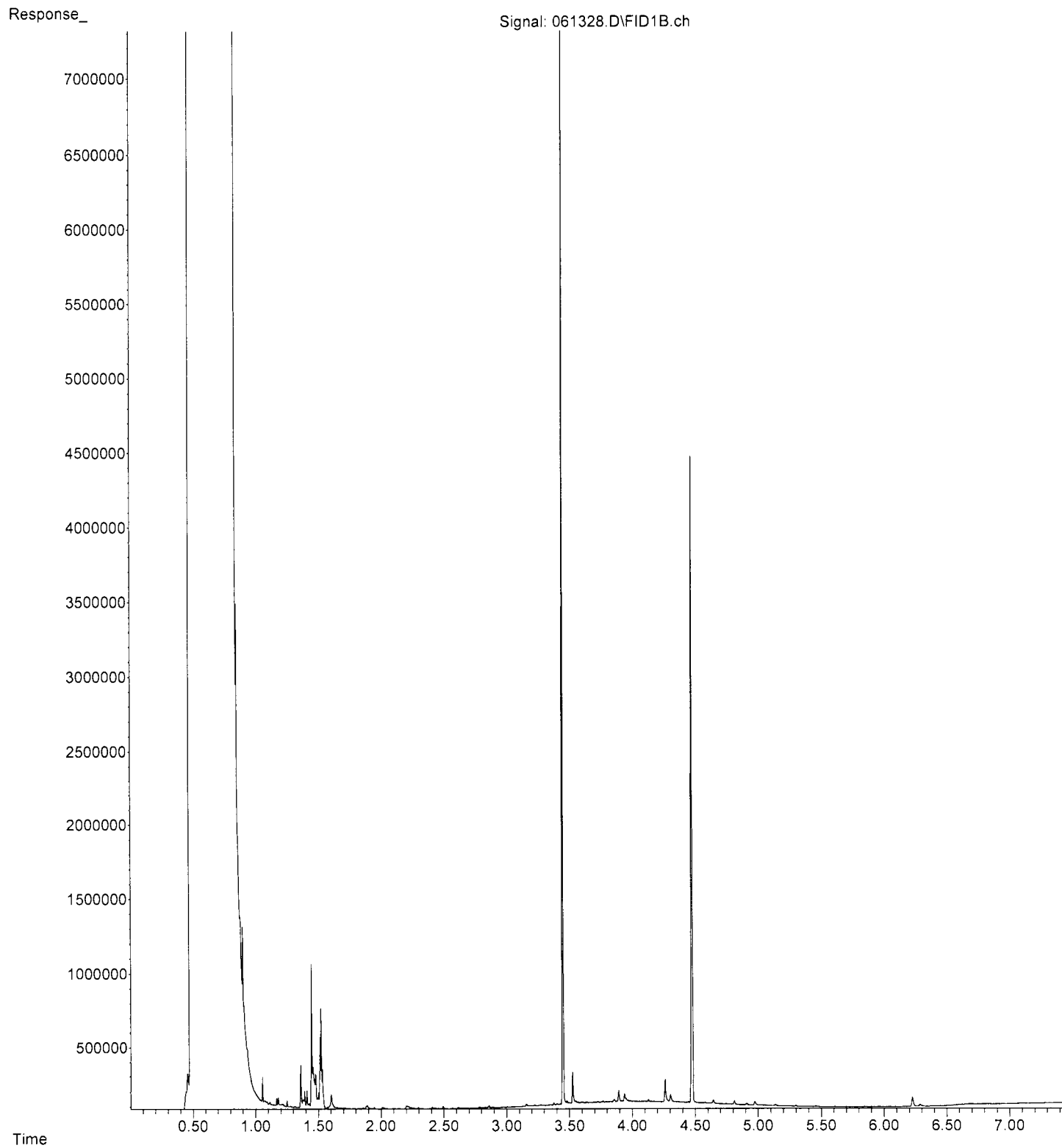
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Instrument : GC10
Sample Name: 306173-09
Misc Info :
Vial Number: 19



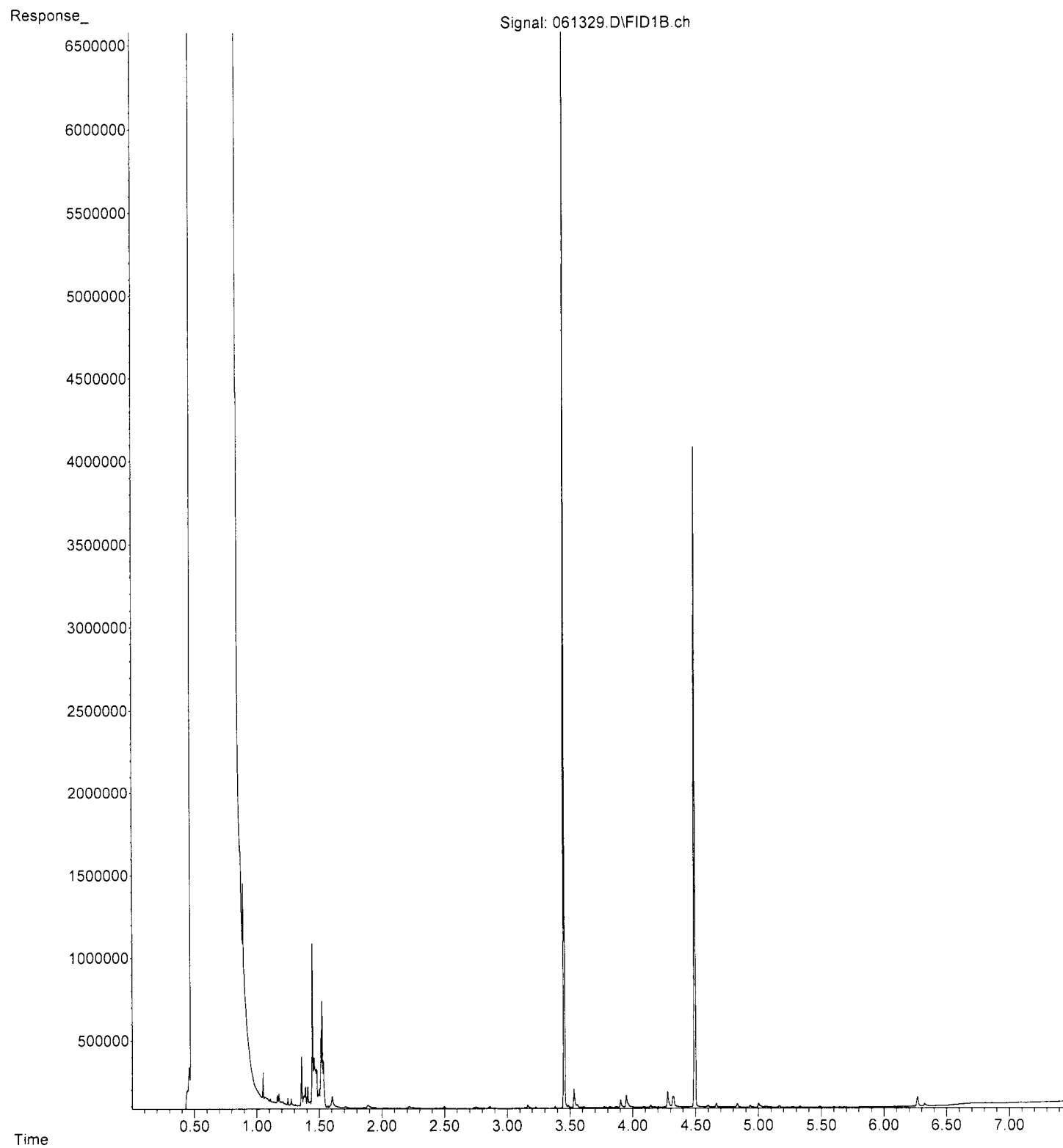
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Instrument : GC10
Sample Name: 306173-10
Misc Info :
Vial Number: 20



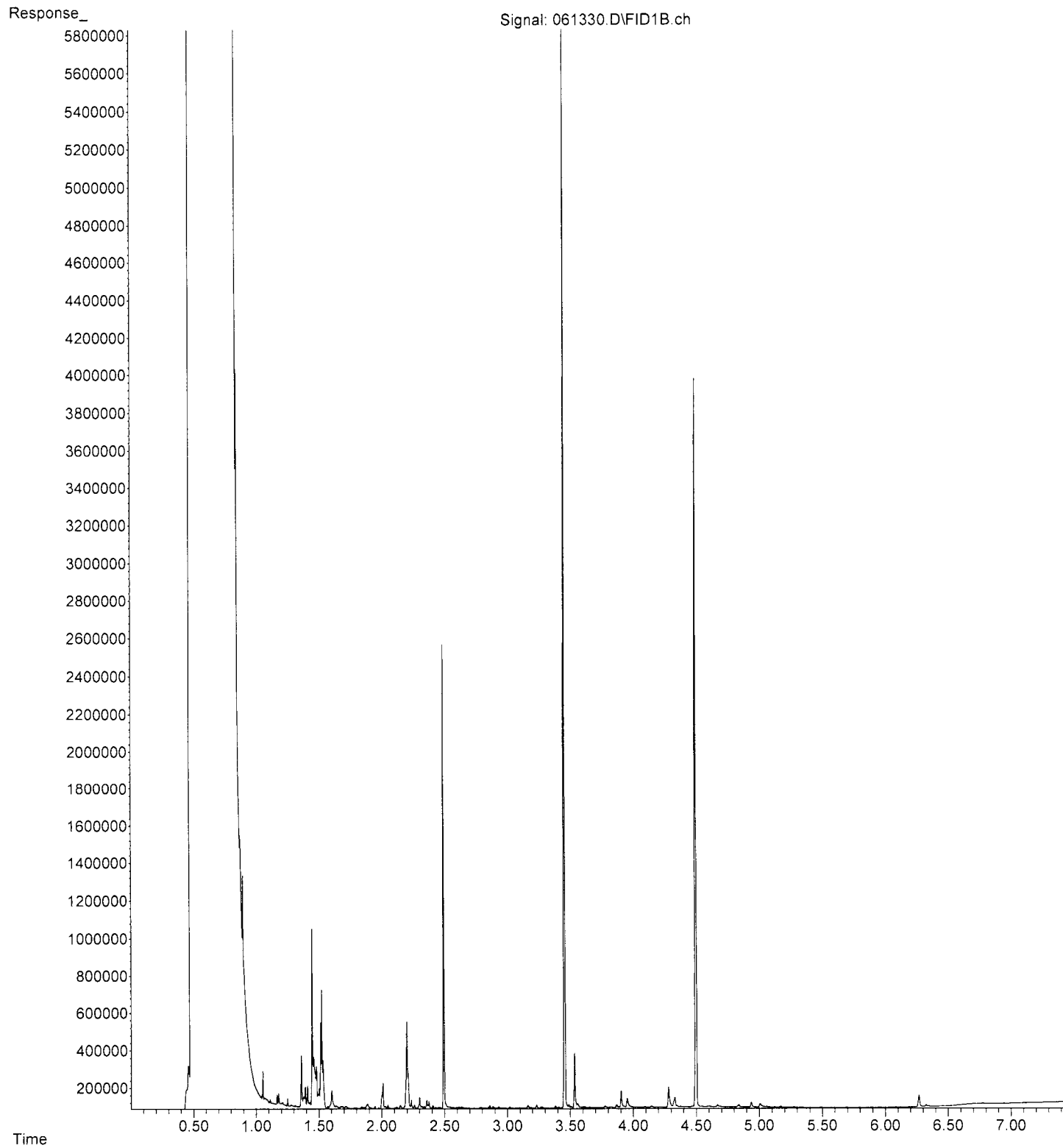
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Instrument : GC10
Sample Name: 306173-15
Misc Info :
Vial Number: 21



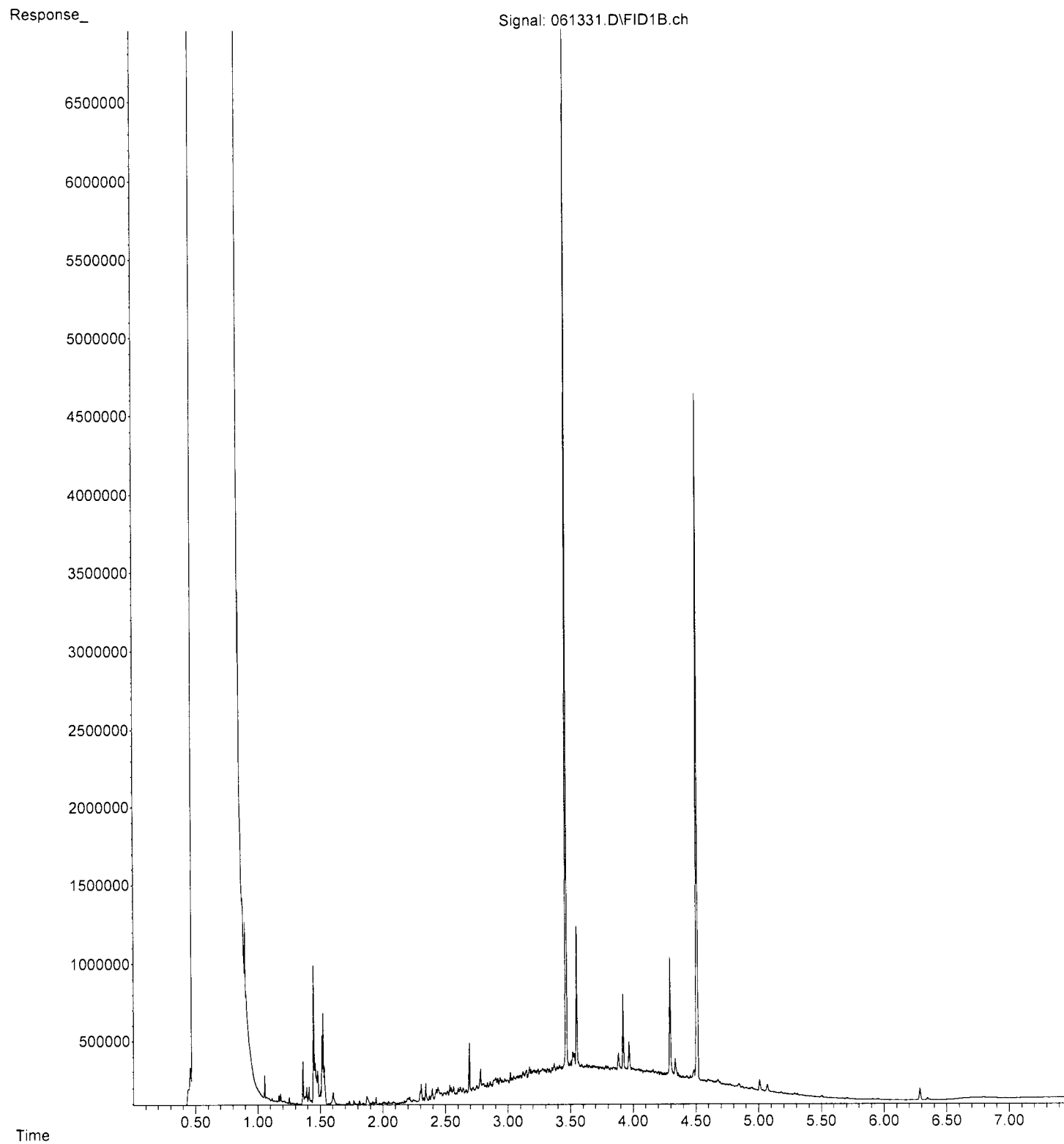
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Instrument : GC10
Sample Name: 306173-16
Misc Info :
Vial Number: 22



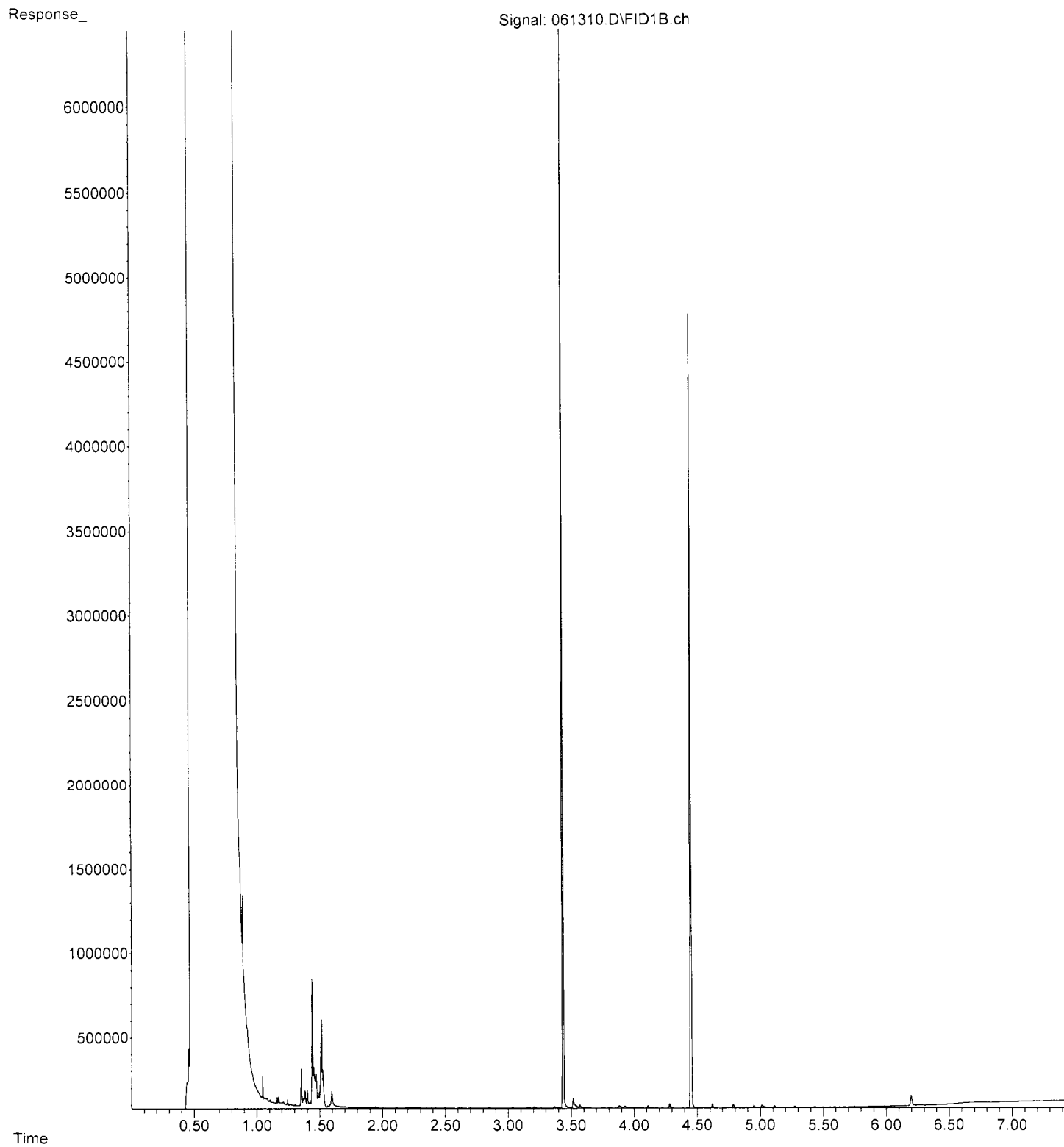
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Operator : TL
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Instrument : GC10
Sample Name: 306173-17
Misc Info :
Vial Number: 23



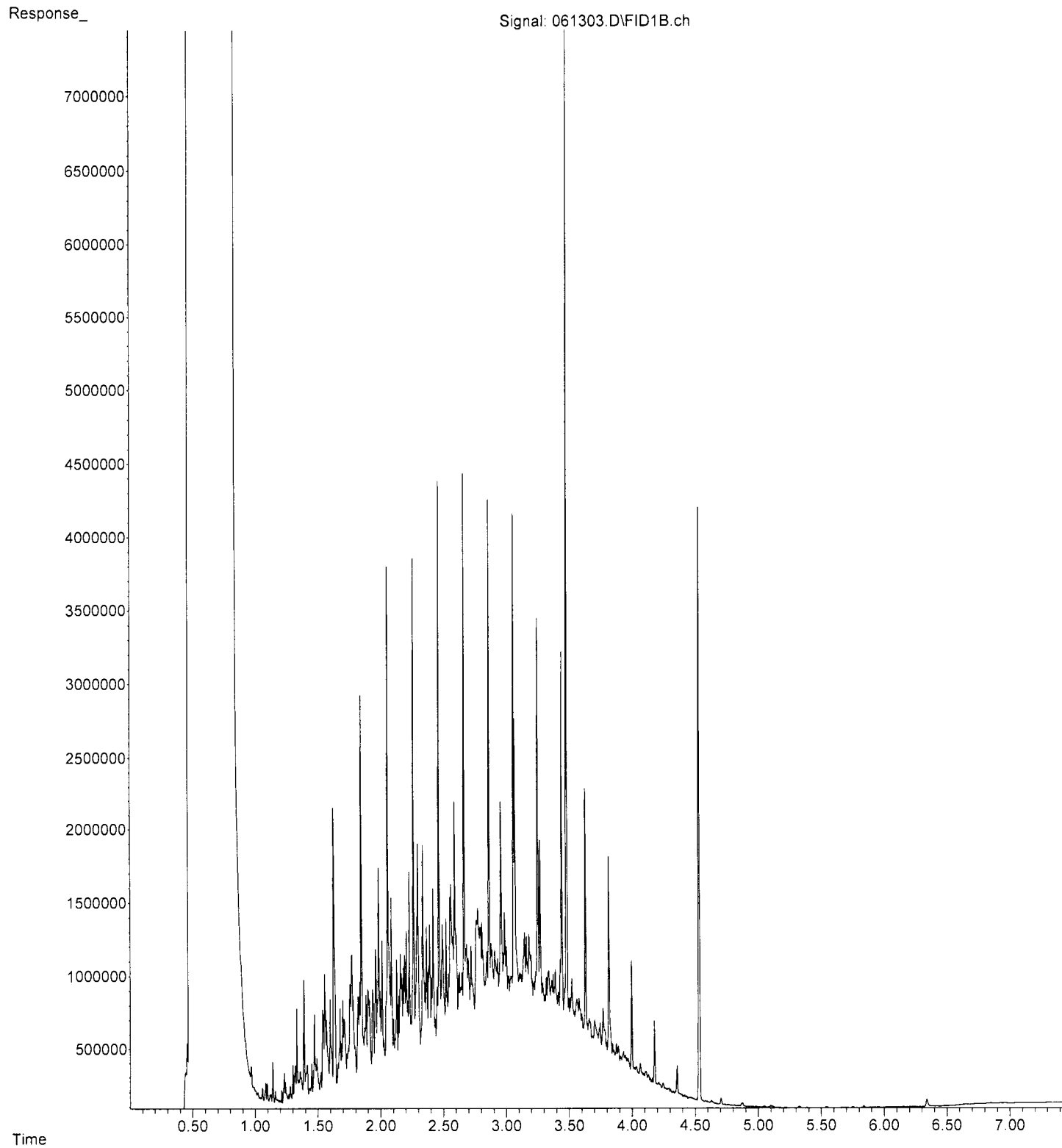
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Operator : TL
Acquired : 13 Jun 2023 03:10 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 306173-21
Misc Info :
Vial Number: 24



File : P:\Proc_GC10\06-13-23\061310.D
Operator : TL
Acquired : 13 Jun 2023 11:05 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 03-1428 mb
Misc Info :
Vial Number: 12



File :P:\Proc_GC10\06-13-23\061303.D
Operator : TL
Acquired : 13 Jun 2023 09:25 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 500 DX 68-66F
Misc Info :
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 5, 2023

Andrew Yonkofski, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Yonkofski:

Included are the results from the testing of material submitted on November 29, 2023 from the GSC Well Replacement AS170304D, F&BI 311397 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Aspect Data, Hannah Cohen
ASP1205R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 29, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC GSC Well Replacement AS170304D, F&BI 311397 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
311397 -01	AC-MW-44-5
311397 -02	AC-MW-44-10
311397 -03	AC-MW-44-20
311397 -04	AC-MW-44-22.5
311397 -05	AC-MW-44-25
311397 -06	AC-MW-44-27.5
311397 -07	AC-MW-44-30
311397 -08	AC-MW-44-32.5
311397 -09	AC-MW-44-35
311397 -10	AC-MW-44-37.5
311397 -11	AC-MW-44-40
311397 -12	AC-MW-44-42.5
311397 -13	AC-MW-44-45
311397 -14	AC-MW-46-10
311397 -15	AC-MW-46-15
311397 -16	AC-MW-46-20
311397 -17	AC-MW-46-25
311397 -18	AC-MW-46-30
311397 -19	AC-MW-46-35
311397 -20	AC-MW-47-10
311397 -21	AC-MW-47-15
311397 -22	AC-MW-47-20
311397 -23	AC-MW-47-25
311397 -24	AC-MW-47-30
311397 -25	AC-MW-47-35
311397 -26	AC-MW-48-10
311397 -27	AC-MW-48-15
311397 -28	AC-MW-48-20
311397 -29	AC-MW-48-25
311397 -30	AC-MW-48-30
311397 -31	AC-MW-48-35

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

Date Extracted: 11/30/23

Date Analyzed: 12/01/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-44-22.5 311397-04	<5	100
AC-MW-44-25 311397-05	<5	99
AC-MW-44-27.5 311397-06	<5	116
AC-MW-44-30 311397-07	<5	97
AC-MW-44-35 311397-09	<5	92
AC-MW-44-40 311397-11	<5	101
AC-MW-46-10 311397-14	<5	103
AC-MW-46-15 311397-15	<5	103
AC-MW-46-20 311397-16	<5	103
AC-MW-46-30 311397-18	<5	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

Date Extracted: 11/30/23

Date Analyzed: 12/01/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-47-15 311397-21	<5	99
AC-MW-47-20 311397-22	<5	97
AC-MW-47-25 311397-23	<5	101
AC-MW-48-15 311397-27	<5	103
AC-MW-48-20 311397-28	<5	102
AC-MW-48-25 311397-29	<5	97
Method Blank 03-2517 MB	<5	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

Date Extracted: 11/30/23

Date Analyzed: 11/30/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
AC-MW-44-22.5 311397-04	<50	<250	86
AC-MW-44-25 311397-05	<50	<250	86
AC-MW-44-27.5 311397-06	<50	<250	89
AC-MW-44-30 311397-07	<50	<250	86
AC-MW-44-35 311397-09	<50	<250	85
AC-MW-44-40 311397-11	<50	<250	87
AC-MW-46-10 311397-14	<50	<250	85
AC-MW-46-15 311397-15	97	<250	87
AC-MW-46-20 311397-16	<50	<250	85
AC-MW-46-30 311397-18	<50	<250	87
AC-MW-47-15 311397-21	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

Date Extracted: 11/30/23

Date Analyzed: 11/30/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u> <u>(% Recovery)</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(Limit 50-150)
AC-MW-47-20 311397-22	<50	<250	84
AC-MW-47-25 311397-23	<50	<250	84
AC-MW-48-15 311397-27	<50	<250	84
AC-MW-48-20 311397-28	<50	<250	84
AC-MW-48-25 311397-29	<50	<250	85
Method Blank 03-2770 MB	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-22.5	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-04
Date Analyzed:	11/30/23	Data File:	113018a.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-25	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-05
Date Analyzed:	11/30/23	Data File:	113024.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	97	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-27.5	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-06
Date Analyzed:	11/30/23	Data File:	113025.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	105	73	128
4-Bromofluorobenzene	93	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-30	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-07
Date Analyzed:	11/30/23	Data File:	113026.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-35	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-09
Date Analyzed:	11/30/23	Data File:	113027.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	84	120
Toluene-d8	98	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-40	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-11
Date Analyzed:	11/30/23	Data File:	113028.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	96	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-10	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-14
Date Analyzed:	11/30/23	Data File:	113029.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	92	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-15	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-15
Date Analyzed:	11/30/23	Data File:	113038.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	84	120
Toluene-d8	91	73	128
4-Bromofluorobenzene	96	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-20	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-16
Date Analyzed:	11/30/23	Data File:	113030.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-30	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-18
Date Analyzed:	11/30/23	Data File:	113031.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	94	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-47-15	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-21
Date Analyzed:	11/30/23	Data File:	113032.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-47-20	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-22
Date Analyzed:	11/30/23	Data File:	113033.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	99	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-47-25	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-23
Date Analyzed:	11/30/23	Data File:	113034.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	84	120
Toluene-d8	98	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-48-15	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-27
Date Analyzed:	11/30/23	Data File:	113035.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	98	73	128
4-Bromofluorobenzene	96	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-48-20	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-28
Date Analyzed:	11/30/23	Data File:	113036.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	104	73	128
4-Bromofluorobenzene	91	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-48-25	Client:	Aspect Consulting, LLC
Date Received:	11/29/23	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	311397-29
Date Analyzed:	11/30/23	Data File:	113037.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	120
Toluene-d8	99	73	128
4-Bromofluorobenzene	98	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	GSC Well Replacement
Date Extracted:	11/30/23	Lab ID:	03-2750 mb
Date Analyzed:	11/30/23	Data File:	113015.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR TPH AS GASOLINE
USING METHOD NWTPH-G_x**

Laboratory Code: 311347-69 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	95	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: 311397-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	108	106	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	96	77-123

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/05/23

Date Received: 11/29/23

Project: GSC Well Replacement AS170304D, F&BI 311397

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 311397-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2	<0.03	102	102	15-129	0
Toluene	mg/kg (ppm)	2	<0.05	103	102	15-129	1
Ethylbenzene	mg/kg (ppm)	2	<0.05	107	106	23-133	1
m,p-Xylene	mg/kg (ppm)	4	<0.1	108	106	19-134	2
o-Xylene	mg/kg (ppm)	2	<0.05	106	105	20-132	1
Naphthalene	mg/kg (ppm)	2	<0.05	105	104	30-138	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2	100	70-130
Toluene	mg/kg (ppm)	2	98	63-127
Ethylbenzene	mg/kg (ppm)	2	103	60-140
m,p-Xylene	mg/kg (ppm)	4	103	56-145
o-Xylene	mg/kg (ppm)	2	101	61-137
Naphthalene	mg/kg (ppm)	2	102	67-143

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

311397
Report To Andrew Yonetski, Hannah Cohen

Company Aspect Consulting

Address 710 2nd Ave Suite #550

City, State, ZIP Seattle, WA 98104

Phone (404) 222-3488 Email ayonetski@aspectconsulting.com
Email hannah.cohen@aspectconsulting.com

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature) [Signature]

Page # 1 of 4

PROJECT NAME

GSC Well Replacement

PO #

AS170304D

REMARKS

BTEX + Naphthalene

INVOICE TO

Aspect Consulting

Project specific RI's? - Yes / No

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by: _____
SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____
Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
AC-MW-44-5	01A-E	11/29/23	1050	Soil	5								Hold pending analysis
AC-MW-44-10	02		1100										↓
AC-MW-44-20	03		1155										
AC-MW-44-22.5	04		1200										
AC-MW-44-25	05		1205										
AC-MW-44-27.5	06		1220										
AC-MW-44-30	07		1235										
AC-MW-44-32.5	08		1250										Hold pending analysis
AC-MW-44-35	09		1300										
AC-MW-44-37.5	10		1310										Hold pending analysis

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
Relinquished by: <u>[Signature]</u>		Kasi Nava		Aspect Consulting		11/29/23		1805	
Received by: <u>[Signature]</u>		Joe Mohammed		FAL		11/29/23		1805	
Relinquished by:				Samples received at <u>4</u> °C					
Received by:									

311397

SAMPLE CHAIN OF CUSTODY

11-29-23

VS 04/E2

Report To Andrew Yonetski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite H550City, State, ZIP Seattle, WA 98104Phone (404) 232-3488 Email Andrew.Yonetski@aspectconsulting.com

SAMPLERS (signature) <u>[Signature]</u>		PO # <u>AS170304D</u>
PROJECT NAME <u>GSC Well Replacement</u>	INVOICE TO <u>Aspect Consulting</u>	
REMARKS <u>BTEX + Naphthalene</u>	Project specific RLS? - Yes / No	

TURNAROUND TIME ☒ Standard turnaround ☐ RUSH Rush charges authorized by: _____	SAMPLE DISPOSAL ☐ Archive samples ☐ Other _____
Default: Dispose after 30 days	

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	
AC-MW-44-40	11 A-E	11/29/23	1315	Soil	5	X	X	X					
AC-MW-44-42.5	12		1335										Hold Pending analysis
AC-MW-44-45	13		1340										Hold Pending analysis
AC-MW-46-10	14		0800			X	X	X	X	X	X	X	
AC-MW-46-15	15		0810			X	X	X	X	X	X	X	
AC-MW-46-20	16		0830			X	X	X	X	X	X	X	
AC-MW-46-25	17		0835										Hold Pending analysis
AC-MW-46-30	18		0845			X	X	X	X	X	X	X	
AC-MW-46-35	19		0850										
AC-MW-47-10	20	11/28/23	1240										Hold Pending analysis

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	Risi Nara	Aspect Consulting	11/29/23	1805
Relinquished by:	Joe Naranjo	* FBI	11/29/23	1805
Received by:		Samples received at 4 °C		

311397

Report To Andrew Yonkoffski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (206) 232-3488 Email Andrew.Yonkoffski@aspectconsulting.com

PROJECT NAME <u>GSC Well Replacement</u>	PO # <u>AS170304D</u>
REMARKS <u>BTEX + Naphthalene</u>	INVOICE TO <u>Aspect Consulting</u>
Project specific RLS? - Yes / No	

TURNAROUND TIME ☒ Standard turnaround ☐ RUSH Rush charges authorized by: _____	SAMPLE DISPOSAL ☐ Archive samples ☐ Other _____ Default: Dispose after 30 days
--	---

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature) Andrew Yonkoffski11-29-23 vs 11/29/23 of 4

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
AC-WW-47-15	21 A.E.	11/28/23	1255	Soil	5	X	X	X					
AC-WW-47-20	22		1305			X	X	X					
AC-WW-47-25	23		1315			X	X	X					
AC-WW-47-30	24		1320										Hold pending analysis
AC-WW-47-35	25		1330										Hold pending analysis
AC-WW-48-10	24		0820										Hold pending analysis
AC-WW-48-15	27		0830			X	X	X					
AC-WW-48-20	25		0835			X	X	X					
AC-WW-48-25	29		0845			X	X	X					
AC-WW-48-30	30		0900										Hold pending analysis

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE <u>[Signature]</u>	PRINT NAME <u>Psi Nua</u>	COMPANY <u>Aspect Consulting</u>	DATE <u>11/29/23</u>	TIME <u>1805</u>
Relinquished by:				
Received by:	<u>Joe Matthews</u>		<u>11/29/23</u>	<u>1805</u>
Relinquished by:				
Received by:		Samples received at <u>4</u> °C		

311397

Report To Andrew Yonetski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (404) 272-3488 Email Andrew.Yonetski@aspectconsulting.com; Hannah.Cohen@aspectconsulting.com

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature) [Signature]

11-29-23

4 of 4

PROJECT NAME

GSC Well Replacement

PO #

AS170304D

REMARKS

BTEX + Naphthalene

INVOICE TO

Aspect Consulting

TURNAROUND TIME

☒ Standard turnaround☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples☐ Other _____

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID

Lab ID

Date Sampled

Time Sampled

Sample Type

of Jars

NWTPH-Dx

NWTPH-Gx

BTEX/EPA 8021

NWTPH-HCID

VOCs EPA 8260

PAHs EPA 8270

PCBs EPA 8082

Notes

AC-WW-48-35

3/ A5

11/28/23

0910

Soil

5

Hold Pending analysis

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: [Signature]

Kisi Naa

Aspect Consulting

11/29/23

1805

Received by: [Signature]

JOC Mohammed

FBI

11/29/23

1805

Relinquished by: _____

Samples received at 4 °C

Received by: _____

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 12, 2023

Andrew Yonkofski, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Yonkofski:

Included are the results from the testing of material submitted on December 1, 2023 from the GSC Well Replacement AS170304D, F&BI 312032 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Aspect Data, Hannah Cohen
ASP1212R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 1, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC GSC Well Replacement AS170304D, F&BI 312032 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
312032 -01	AC-MW-42-5
312032 -02	AC-MW-42-10
312032 -03	AC-MW-42-15
312032 -04	AC-MW-42-20
312032 -05	AC-MW-42-25
312032 -06	AC-MW-42-30
312032 -07	AC-MW-42-35
312032 -08	AC-MW-43-5
312032 -09	AC-MW-43-10
312032 -10	AC-MW-43-15
312032 -11	AC-MW-43-20
312032 -12	AC-MW-43-22.5
312032 -13	AC-MW-43-25
312032 -14	AC-MW-43-27.5
312032 -15	AC-MW-43-30
312032 -16	AC-MW-43-35
312032 -17	AC-MW-43-40
312032 -18	AC-MW-43-45
312032 -19	AC-MW-45-5
312032 -20	AC-MW-45-10
312032 -21	AC-MW-45-15
312032 -22	AC-MW-45-20
312032 -23	AC-MW-45-22.5
312032 -24	AC-MW-45-25
312032 -25	AC-MW-45-30
312032 -26	AC-MW-45-32.5
312032 -27	AC-MW-45-35
312032 -28	AC-MW-45-40
312032 -29	AC-MW-45-42.5
312032 -30	AC-MW-45-45
312032 -31	AC-MW-Dup

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

Date Extracted: 12/04/23

Date Analyzed: 12/05/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-43-20 312032-11	<5	104
AC-MW-43-25 312032-13	<5	104
AC-MW-43-27.5 312032-14	<5	107
AC-MW-43-35 312032-16	<5	105
AC-MW-43-40 312032-17	<5	106
AC-MW-43-45 312032-18	<5	104
AC-MW-45-20 312032-22	<5	109
AC-MW-45-25 312032-24	<5	108
AC-MW-45-30 312032-25	<5	102
AC-MW-45-35 312032-27	<5	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

Date Extracted: 12/04/23

Date Analyzed: 12/05/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-45-40 312032-28	<5	109
AC-MW-45-42.5 312032-29	<5	98
AC-MW-Dup 312032-31	<5	99
Method Blank 03-2521 MB	<5	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

Date Extracted: 12/06/23

Date Analyzed: 12/06/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
AC-MW-43-20 312032-11	<50	<250	93
AC-MW-43-25 312032-13	<50	<250	93
AC-MW-43-27.5 312032-14	<50	<250	94
AC-MW-43-35 312032-16	<50	<250	94
AC-MW-43-40 312032-17	<50	<250	94
AC-MW-43-45 312032-18	<50	<250	94
AC-MW-45-20 312032-22	<50	<250	95
AC-MW-45-25 312032-24	<50	<250	96
AC-MW-45-30 312032-25	<50	<250	97
AC-MW-45-35 312032-27	<50	<250	96
AC-MW-45-40 312032-28	<50	<250	98

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

Date Extracted: 12/06/23

Date Analyzed: 12/06/23

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
AC-MW-45-42.5 312032-29	<50	<250	95
AC-MW-Dup 312032-31	<50	<250	96
Method Blank 03-2814 MB	<50	<250	95

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-42-15	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-03
Date Analyzed:	12/04/23	Data File:	120414.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	86	114
Toluene-d8	99	86	115
4-Bromofluorobenzene	103	83	116

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-42-20	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-04
Date Analyzed:	12/04/23	Data File:	120415.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	86	114
Toluene-d8	98	86	115
4-Bromofluorobenzene	97	83	116

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-42-25	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-05
Date Analyzed:	12/04/23	Data File:	120416.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	86	114
Toluene-d8	100	86	115
4-Bromofluorobenzene	100	83	116

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Trichloroethene	<0.02
Tetrachloroethene	<0.025

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-20	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-11
Date Analyzed:	12/04/23	Data File:	120419.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	86	114
Toluene-d8	96	86	115
4-Bromofluorobenzene	106	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-25	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-13
Date Analyzed:	12/04/23	Data File:	120420.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	86	114
Toluene-d8	104	86	115
4-Bromofluorobenzene	99	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-27.5	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-14
Date Analyzed:	12/04/23	Data File:	120421.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	86	114
Toluene-d8	103	86	115
4-Bromofluorobenzene	104	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-35	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-16
Date Analyzed:	12/04/23	Data File:	120422.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	86	114
Toluene-d8	100	86	115
4-Bromofluorobenzene	102	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-40	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-17
Date Analyzed:	12/04/23	Data File:	120423.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	86	114
Toluene-d8	101	86	115
4-Bromofluorobenzene	101	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-43-45	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-18
Date Analyzed:	12/04/23	Data File:	120424.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	86	114
Toluene-d8	102	86	115
4-Bromofluorobenzene	101	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-20	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-22
Date Analyzed:	12/04/23	Data File:	120425.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	86	114
Toluene-d8	103	86	115
4-Bromofluorobenzene	104	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-25	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-24
Date Analyzed:	12/04/23	Data File:	120426.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	86	114
Toluene-d8	100	86	115
4-Bromofluorobenzene	100	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-30	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-25
Date Analyzed:	12/04/23	Data File:	120427.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	86	114
Toluene-d8	104	86	115
4-Bromofluorobenzene	100	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-35	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-27
Date Analyzed:	12/04/23	Data File:	120428.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	86	114
Toluene-d8	97	86	115
4-Bromofluorobenzene	98	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-40	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-28
Date Analyzed:	12/04/23	Data File:	120429.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	86	114
Toluene-d8	98	86	115
4-Bromofluorobenzene	104	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-45-42.5	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-29
Date Analyzed:	12/04/23	Data File:	120430.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	86	114
Toluene-d8	100	86	115
4-Bromofluorobenzene	107	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	AC-MW-Dup	Client:	Aspect Consulting, LLC
Date Received:	12/01/23	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	312032-31
Date Analyzed:	12/04/23	Data File:	120431.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	86	114
Toluene-d8	98	86	115
4-Bromofluorobenzene	100	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	GSC Well Replacement
Date Extracted:	12/04/23	Lab ID:	03-2759 mb
Date Analyzed:	12/04/23	Data File:	120406.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	86	114
Toluene-d8	97	86	115
4-Bromofluorobenzene	104	83	116

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.05
Chloroethane	<0.5
1,1-Dichloroethene	<0.05
Methylene chloride	<0.5
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
cis-1,2-Dichloroethene	<0.05
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
Benzene	<0.03
Trichloroethene	<0.02
Toluene	<0.05
Tetrachloroethene	<0.025
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR TPH AS GASOLINE
USING METHOD NWTPH-G_x**

Laboratory Code: 312002-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	90	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: 312032-11 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	84	86	53-141	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	88	71-126

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/12/23

Date Received: 12/01/23

Project: GSC Well Replacement AS170304D, F&BI 312032

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 312030-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	2	<0.05	66	67	10-138	2
Chloroethane	mg/kg (ppm)	2	<0.5	84	78	10-176	7
1,1-Dichloroethene	mg/kg (ppm)	2	<0.05	83	81	10-160	2
Methylene chloride	mg/kg (ppm)	2	<0.5	100	97	10-156	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2	<0.05	83	84	14-137	1
1,1-Dichloroethane	mg/kg (ppm)	2	<0.05	85	85	19-140	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2	<0.05	82	83	25-135	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	<0.05	87	87	12-160	0
1,1,1-Trichloroethane	mg/kg (ppm)	2	<0.05	92	92	10-156	0
Benzene	mg/kg (ppm)	2	<0.03	85	84	29-129	1
Trichloroethene	mg/kg (ppm)	2	<0.02	90	88	21-139	2
Toluene	mg/kg (ppm)	2	<0.05	90	87	35-130	3
Tetrachloroethene	mg/kg (ppm)	2	<0.025	91	90	20-133	1
Ethylbenzene	mg/kg (ppm)	2	<0.05	89	87	32-137	2
m,p-Xylene	mg/kg (ppm)	4	<0.1	91	87	34-136	4
o-Xylene	mg/kg (ppm)	2	<0.05	88	86	33-134	2
Naphthalene	mg/kg (ppm)	2	<0.05	96	92	14-157	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	mg/kg (ppm)	2	77	22-139
Chloroethane	mg/kg (ppm)	2	95	10-163
1,1-Dichloroethene	mg/kg (ppm)	2	87	47-128
Methylene chloride	mg/kg (ppm)	2	87	10-184
trans-1,2-Dichloroethene	mg/kg (ppm)	2	91	64-132
1,1-Dichloroethane	mg/kg (ppm)	2	91	64-135
cis-1,2-Dichloroethene	mg/kg (ppm)	2	88	64-135
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	93	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2	99	62-131
Benzene	mg/kg (ppm)	2	88	65-136
Trichloroethene	mg/kg (ppm)	2	94	63-139
Toluene	mg/kg (ppm)	2	93	66-126
Tetrachloroethene	mg/kg (ppm)	2	87	68-128
Ethylbenzene	mg/kg (ppm)	2	90	64-123
m,p-Xylene	mg/kg (ppm)	4	91	68-128
o-Xylene	mg/kg (ppm)	2	91	67-129
Naphthalene	mg/kg (ppm)	2	94	62-128

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Report To Andrew Yankowski Honored

12/03/23

US-D3/G-3

Company Aspect Consulting

Address 710 2nd Ave Suite #550

City, State, ZIP Seattle, WA 98104

Phone (404) 272-3488 Email Andrew.Yonkofski@a

PROJECT NAME	PO #
GSC Well Replacement	AS170304D
REMARKS	INVOICE TO
BTx + Naphthalene	Aspect Consulting
Project specific RLS? - Yes / No	
Consulting.com	

Page # 1 of 4

~~X~~ TURNAROUND TIME

☒ Standard turnaround

☐ RUSH _____

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples

☐ Other _____

Default: _____

[illegible]

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE

PRINT NAME _____

COMPANY

DATE	TIME
------	------

TIME

Relinquished

506 MONTHLY AMOUNT

Respect Consulting

12/01/23	1805
----------	------

Received by:

Samples received at 2 °C

312032

Report To Andrew Yonkotski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (404) 222-3488 Email Andrew.Yonkotski@aspectconsulting.com
Hannah.Cohen@aspectconsulting.com

SAMPLE CHAIN OF CUSTODY

12/02/23

US-D3/G3

SAMPLERS (signature) [Signature]

PROJECT NAME

GSC Well Replacement

PO #

AS170304D

REMARKS

BTEX + Naphthalene

INVOICE TO

Aspect Consulting

Project specific RIs? - Yes / No

ANALYSES REQUESTED

NWTPH-Dx

NWTPH-Gx

BTEX EPA 8021

NWTPH-HCID

VOCs EPA 8260

PAHs EPA 8270

PCBs EPA 8082

Notes

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
AC-MW-43-20	11	A-E 12/01/23	1230	Soil	5	X	X	X					HOLD Pending analysis
AC-MW-43-22.5	12		1235										
AC-MW-43-25	13		1240										
AC-MW-43-27.5	14		1245										
AC-MW-43-30	15		1415										
AC-MW-43-35	16		1420										HOLD Pending analysis
AC-MW-43-40	17		1425										
AC-MW-43-45	18		1435										
AC-MW-45-5	19		0800										
AC-MW-45-10	20		0805										HOLD Pending analysis

SIGNATURE

Relinquished by:

Received by:

Relinquished by:

Received by:

PRINT NAME

Risi Ngn

Joe Mohammed

Samples received at 2 °C

Page # 2 of 4

TURNAROUND TIME

☒ Standard turnaround☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples☐ Other

Default: Dispose after 30 days

Friedman & Bruya, Inc.
Ph. (206) 285-8282

312032

Report To Andrew Yankofski, Hannah Cohen

SAMPLE CHAIN OF CUSTODY

12/02/23

VS-D3/G3

Company Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (404) 232-3468 Email Andrew.Yankofski@aspectconsulting.com

Project specific RI's? - Yes / No

SAMPLERS (signature) [Signature]Page # 3 of 4

PROJECT NAME

GSC Well Replacement

PO #

AS1703-041D

REMARKS

BTX + Naphthalene

INVOICE TO

Aspect Consulting

TURNAROUND TIME

☒ Standard turnaround
☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Archive samples
☐ Other _____

Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Notes
AC-MW-45-15	21 A-E	12/01/23	0810	Soil	5								HOLD Pending analysis
AC-MW-45-20	22		0820										HOLD Pending analysis
AC-MW-45-22.5	23		0830										HOLD Pending analysis
AC-MW-45-25	24		0840										HOLD Pending analysis
AC-MW-45-30	25		0845										HOLD Pending analysis
AC-MW-45-32.5	26		0850										HOLD Pending analysis
AC-MW-45-35	27		0855										HOLD Pending analysis
AC-MW-45-40	28		0910										HOLD Pending analysis
AC-MW-45-42.5	29		0920										HOLD Pending analysis
AC-MW-45-45	30		0925										HOLD Pending analysis

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE

Relinquished by: [Signature]

PRINT NAME

Risi Naga

COMPANY

Aspect

DATE TIME

12/01/23 1805

Received by: [Signature]

GSC materials

F&E

12/01/23 1805

Received by: _____

Samples received at 2 °C

312032

Report To

Andrew Yonkofski, Hannah Cohen

Company

Aspect Consulting

Address

710 2nd Ave Suite #550

City, State, ZIP

Seattle, WA 98101

Phone (206) 285-8282

Email Andrew.Yonkofski@aspectconsulting.com

Hannah.Cohen@aspectconsulting.com

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature)

PROJECT NAME

GSC Well Replacement

PO #

AST 70301D

REMARKS

GTX + Naphthalene

Project specific RIs? - Yes / No

Aspect Consulting

INVOICE TO

Aspect Consulting

Page #

4 of 4

12/02/23 US-D3/G3

TURNAROUND TIME

Standard turnaround

RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Archive samples

Other

Default: Dispose after 30 days

ANALYSES REQUESTED

NWTPH-Dx
NWTPH-Gx
BTX EPA 8021
NWTPH-HCID
VOCs EPA 8260
PAHs EPA 8270
PCBs EPA 8082

Notes

Sample ID

Lab ID

Date Sampled

Time Sampled

Sample Type

of Jars

AC-MW-DUP

31 A-E 12/01/2023

1200

Soil

5

X X X

SIGNATURE

PRINT NAME

Krisi Vaa

COMPANY

Aspect

DATE

12/01/23

TIME

1805

Relinquished by:

Krisi Vaa

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Krisi Vaa

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Krisi Vaa

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Krisi Vaa

PRINT NAME

COMPANY

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 29, 2023

Andrew Yonkofski, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Yonkofski:

Included are the results from the testing of material submitted on December 20, 2023 from the GSC Groundwater Sampling, F&BI 312396 project. There are 45 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Aspect Data, Hannah Cohen
ASP1229R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 20, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC GSC Groundwater Sampling, F&BI 312396 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
312396 -01	AC-MW-03-231218
312396 -02	AC-MW-16-231220
312396 -03	AC-MW-30-231219
312396 -04	PC-MW-30I-231219
312396 -05	PC-MW-30S-231219
312396 -06	URS-MW-13-231220
312396 -07	URS-MW-21A-231218
312396 -08	URS-MW-21S-231218
312396 -09	AC-MW-33-231219
312396 -10	AC-MW-34-231219
312396 -11	AC-MW-35-231219
312396 -12	AC-MW-36-231219
312396 -13	AC-MW-37-231220
312396 -14	AC-MW-38-231219
312396 -15	AC-MW-39-231219
312396 -16	AC-MW-40-231219
312396 -17	AC-MW-41-231219
312396 -18	AC-MW-42-231218
312396 -19	AC-MW-43-231219
312396 -20	AC-MW-44-231219
312396 -21	AC-MW-45-231219
312396 -22	AC-MW-46-231218
312396 -23	AC-MW-47-231218
312396 -24	AC-MW-48-231219
312396 -25	URS-MW-03-231219
312396 -26	URS-MW-22-231219
312396 -27	URS-MW-02-231220
312396 -28	Trip Blank

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

Date Extracted: 12/26/23

Date Analyzed: 12/27/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-16-231220 312396-02	<100	97
URS-MW-13-231220 312396-06	<100	94
AC-MW-34-231219 312396-10	<100	97
AC-MW-35-231219 312396-11	<100	99
AC-MW-36-231219 312396-12	<100	95
AC-MW-37-231220 312396-13	<100	94
AC-MW-38-231219 312396-14	<100	95
AC-MW-43-231219 312396-19	<100	92
AC-MW-44-231219 312396-20	<100	98
AC-MW-45-231219 312396-21	<100	97
AC-MW-46-231218 312396-22	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

Date Extracted: 12/26/23

Date Analyzed: 12/27/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-47-231218 312396-23	<100	96
AC-MW-48-231219 312396-24	<100	89
URS-MW-03-231219 312396-25	<100	94
URS-MW-02-231220 312396-27	<100	96
Method Blank 03-2856 MB	<100	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

Date Extracted: 12/22/23

Date Analyzed: 12/22/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 50-150)
AC-MW-16-231220 312396-02	71 x	<250	115
URS-MW-13-231220 312396-06	<50	<250	77
AC-MW-34-231219 312396-10	<50	<250	104
AC-MW-35-231219 312396-11	130 x	<250	120
AC-MW-36-231219 312396-12	150 x	<250	117
AC-MW-37-231220 312396-13	<50	<250	117
AC-MW-38-231219 312396-14	<50	<250	114
AC-MW-43-231219 312396-19	<50	<250	125
AC-MW-44-231219 312396-20	<50	<250	102
AC-MW-45-231219 312396-21	<50	<250	108
AC-MW-46-231218 312396-22	520 x	<250	107

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

Date Extracted: 12/22/23

Date Analyzed: 12/22/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 50-150)
AC-MW-47-231218 312396-23	590 x	330 x	104
AC-MW-48-231219 312396-24	<50	<250	122
URS-MW-03-231219 312396-25	59 x	<250	116
URS-MW-02-231220 312396-27	<50	<250	120
Method Blank 03-2950 MB	<50	<250	113

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-03-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/27/23	Lab ID:	312396-01
Date Analyzed:	12/28/23	Data File:	122739.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-34-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/27/23	Lab ID:	312396-10
Date Analyzed:	12/28/23	Data File:	122740.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	0.46

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-37-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/27/23	Lab ID:	312396-13
Date Analyzed:	12/28/23	Data File:	122741.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	4.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	URS-MW-02-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/27/23	Lab ID:	312396-27
Date Analyzed:	12/28/23	Data File:	122742.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	GSC Groundwater Sampling
Date Extracted:	12/27/23	Lab ID:	03-2955 mb
Date Analyzed:	12/28/23	Data File:	122735.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-03-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-01
Date Analyzed:	12/22/23	Data File:	122215.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-16-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-02
Date Analyzed:	12/22/23	Data File:	122216.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-30-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-03
Date Analyzed:	12/22/23	Data File:	122217.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30I-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-04
Date Analyzed:	12/22/23	Data File:	122218.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30S-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-05
Date Analyzed:	12/22/23	Data File:	122219.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-13-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-06
Date Analyzed:	12/22/23	Data File:	122220.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21A-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-07
Date Analyzed:	12/22/23	Data File:	122221.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21S-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-08
Date Analyzed:	12/22/23	Data File:	122222.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	2.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-33-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-09
Date Analyzed:	12/22/23	Data File:	122223.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.020
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	5.4
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	1.8
Tetrachloroethene	2.8

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-34-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-10
Date Analyzed:	12/22/23	Data File:	122224.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	0.31
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-35-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-11
Date Analyzed:	12/22/23	Data File:	122225.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	0.43
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-36-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-12
Date Analyzed:	12/22/23	Data File:	122226.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	1.2
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-37-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-13
Date Analyzed:	12/22/23	Data File:	122227.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-38-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-14
Date Analyzed:	12/22/23	Data File:	122228.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-39-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-15
Date Analyzed:	12/22/23	Data File:	122229.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	106	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-40-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-16
Date Analyzed:	12/22/23	Data File:	122230.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.055
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-41-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-17
Date Analyzed:	12/22/23	Data File:	122231.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.021
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	3.4
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	1.8
Tetrachloroethene	22

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-42-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-18
Date Analyzed:	12/22/23	Data File:	122232.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-43-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-19
Date Analyzed:	12/22/23	Data File:	122233.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-20
Date Analyzed:	12/22/23	Data File:	122221.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-45-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-21
Date Analyzed:	12/22/23	Data File:	122222.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-22
Date Analyzed:	12/22/23	Data File:	122223.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-47-231218	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-23
Date Analyzed:	12/22/23	Data File:	122224.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-48-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-24
Date Analyzed:	12/22/23	Data File:	122225.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	71	132
Toluene-d8	104	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-03-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-25
Date Analyzed:	12/22/23	Data File:	122226.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	71	132
Toluene-d8	99	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-22-231219	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-26
Date Analyzed:	12/22/23	Data File:	122227.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-02-231220	Client:	Aspect Consulting, LLC
Date Received:	12/20/23	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	312396-27
Date Analyzed:	12/22/23	Data File:	122228.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	71	132
Toluene-d8	93	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	3.7
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	03-2954 mb
Date Analyzed:	12/22/23	Data File:	122208.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

	% Recovery:	Lower Limit:	Upper Limit:
Surrogates:			
1,2-Dichloroethane-d4	87	71	132
Toluene-d8	97	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	GSC Groundwater Sampling
Date Extracted:	12/22/23	Lab ID:	03-2957 mb
Date Analyzed:	12/22/23	Data File:	122214.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TPH AS GASOLINE
USING METHOD NWTPH-G_x**

Laboratory Code: 312390-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	110	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	92	72-139	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM**

Laboratory Code: 312396-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
1,4-Dioxane	ug/L (ppb)	2	<0.1	92	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
1,4-Dioxane	ug/L (ppb)	2	103	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 312396-26 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	73	16-176
Chloroethane	ug/L (ppb)	10	<1	77	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	85	50-150
Methylene chloride	ug/L (ppb)	10	<5	84	40-143
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	83	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	80	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	85	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	82	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	83	50-150
Benzene	ug/L (ppb)	10	<0.35	88	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	79	43-133
Toluene	ug/L (ppb)	10	<1	88	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	80	50-150
Ethylbenzene	ug/L (ppb)	10	<1	89	50-150
m,p-Xylene	ug/L (ppb)	20	<2	87	50-150
o-Xylene	ug/L (ppb)	10	<1	86	50-150
Naphthalene	ug/L (ppb)	10	<1	75	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	83	76	43-149	9
Chloroethane	ug/L (ppb)	10	92	83	59-157	10
1,1-Dichloroethene	ug/L (ppb)	10	105	95	67-138	10
Methylene chloride	ug/L (ppb)	10	108	93	29-192	15
trans-1,2-Dichloroethene	ug/L (ppb)	10	103	93	70-130	10
1,1-Dichloroethane	ug/L (ppb)	10	98	91	70-130	7
cis-1,2-Dichloroethene	ug/L (ppb)	10	104	95	70-130	9
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	100	92	70-130	8
1,1,1-Trichloroethane	ug/L (ppb)	10	105	96	70-130	9
Benzene	ug/L (ppb)	10	106	97	70-130	9
Trichloroethene	ug/L (ppb)	10	97	88	70-130	10
Toluene	ug/L (ppb)	10	105	103	70-130	2
Tetrachloroethene	ug/L (ppb)	10	98	96	70-130	2
Ethylbenzene	ug/L (ppb)	10	106	105	70-130	1
m,p-Xylene	ug/L (ppb)	20	104	102	70-130	2
o-Xylene	ug/L (ppb)	10	105	102	70-130	3
Naphthalene	ug/L (ppb)	10	98	98	61-133	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/29/23

Date Received: 12/20/23

Project: GSC Groundwater Sampling, F&BI 312396

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 312396-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	122	50-150
Chloroethane	ug/L (ppb)	10	<1	120	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	114	50-150
Methylene chloride	ug/L (ppb)	10	<5	115	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	114	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	116	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	115	10-211
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	109	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	115	50-150
Benzene	ug/L (ppb)	10	<0.35	112	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	107	35-149
Toluene	ug/L (ppb)	10	<1	107	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	109	50-150
Ethylbenzene	ug/L (ppb)	10	<1	114	50-150
m,p-Xylene	ug/L (ppb)	20	<2	109	50-150
o-Xylene	ug/L (ppb)	10	<1	109	50-150
Naphthalene	ug/L (ppb)	10	<1	106	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	112	113	64-142	1
Chloroethane	ug/L (ppb)	10	108	112	70-130	4
1,1-Dichloroethene	ug/L (ppb)	10	103	106	64-140	3
Methylene chloride	ug/L (ppb)	10	100	109	43-134	9
trans-1,2-Dichloroethene	ug/L (ppb)	10	103	105	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	104	108	70-130	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	102	107	70-130	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	105	102	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	105	107	70-130	2
Benzene	ug/L (ppb)	10	106	104	70-130	2
Trichloroethene	ug/L (ppb)	10	101	99	70-130	2
Toluene	ug/L (ppb)	10	102	101	70-130	1
Tetrachloroethene	ug/L (ppb)	10	104	102	70-130	2
Ethylbenzene	ug/L (ppb)	10	106	107	70-130	1
m,p-Xylene	ug/L (ppb)	20	103	102	70-130	1
o-Xylene	ug/L (ppb)	10	101	102	70-130	1
Naphthalene	ug/L (ppb)	10	99	101	70-130	2

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Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Page # 1 of 3

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED							Notes	
						NWTPH-Dx	NWTPH-Gx	BTEx EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082		1,4-Dioxane
AC-mw-03-231218	01 A-F	12/18/23	1300	Gw	6					X				
AC-mw-16-231220	02 A-D	12/20/23	1300		1	X	X	X						
AC-mw-30-231219	03 A-C	12/19/23	1020		3				X					
PC-mw-30J-231219	04	12/19/23	0915		3				X					
PC-mw-30S-231219	05	12/19/23	0830		3				X					
URS-mw-13-231220	06 A-D	12/20/23	1205		4	X	X	X						
URS-mw-21A-231215	07 A-C	12/18/23	1305		3				X					
URS-mw-21S-231218	08	12/18/23	1415		3				X					
AC-mw-33-231219	09	12/19/23	1400		3				X					Samples received at ϕ
AC-mw-34-231219	10 A-B	12/19/23	1220		10	X	X	X				X		

Report To Andrew Yonkowski + Hannah Cohen
~~Aspect Consulting~~

12/20/23

Is Lucy

Report To Aspet Consulting

Company Aspect Consulting

Address 710 2nd Ave, Suite #550

City, State, ZIP Seattle, WA 98104

Andrew Yonkojski +
Phone _____
Email Andrew.Yonkojski@gmail.com

or none _____ Email Hannah. Cohen Prospect
_____ considering.com

SAMPLERS (signature)		12/20
PROJECT NAME	GSC Groundwater Sampling	PO # AS170304
REMARKS		INVOICE TO Aspect Consulting

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH _____
 Rush charges authorized by: _____

SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____

12/20/23

Is Lucy

Report To Aspet Consulting

Company Aspect Consulting

Address 710 2nd Ave, Suite #550

City, State, ZIP Seattle, WA 98104

Andrew Yonkojski +
Phone _____
Email Andrew.Yonkojski@gmail.com

or none _____ Email Hannah. Cohen Prospect
_____ considering.com

SAMPLERS (signature)		12/20
PROJECT NAME	GSC Groundwater Sampling	PO # AS170304
REMARKS		INVOICE TO Aspect Consulting

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH _____
 Rush charges authorized by: _____

SAMPLE DISPOSAL
☐ Archive samples
☐ Other _____

12/20/23

Is Lucy

ANALYSES REQUESTED														
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	Notes
AC-MW-35-231219	11 A-D	12/19/23	1035	GW	4	X	X	X						
AC-MW-36-231219	12 A-D	12/19/23	0950	GW	4	X	X	X						
AC-MW-37-231220	13 A-J	12/20/23	1120	GW	10	X	X	X					X	
AC-MW-38-231219	14 A-G	12/19/23	0910	GW	7	X	X	X						
AC-MW-39-231219	15 A-C		1080	GW	3									
AC-MW-40-231219	16		1130	GW	3									
AC-MW-41-231219	17		1305	GW	3									
AC-MW-42-231218	18		1525	GW	3									
AC-MW-43-231219	19 A-D	12/19/23	1435	GW	4	X	X	X						
AC-MW-44-231219	20 A-D	12/19/23	1645	GW	4	X	X	X						
Samples received at 9 °C														

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE		PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Mary Ann Spung	Aspect	12/20/23	16:21
Received by:		Mac Golden	PRBZ	12/20/23	16:21
Relinquished by:					
Received by:					

3/2376

SAMPLE CHAIN OF CUSTODY

12/20/23

T5/1004

SAMPLERS (signature)

Page # 3 of 3

Report To Andrew Yonkowski + Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave, Suite #550

City, State, ZIP _____

Phone _____ Email Hannah Cohen @ aspectconsulting.com

PROJECT NAME <u>GSC Groundwater Sampling</u>	PO # <u>AS170304</u>
REMARKS	INVOICE TO <u>Aspect Consulting</u>
Project specific RLS? - Yes / No	

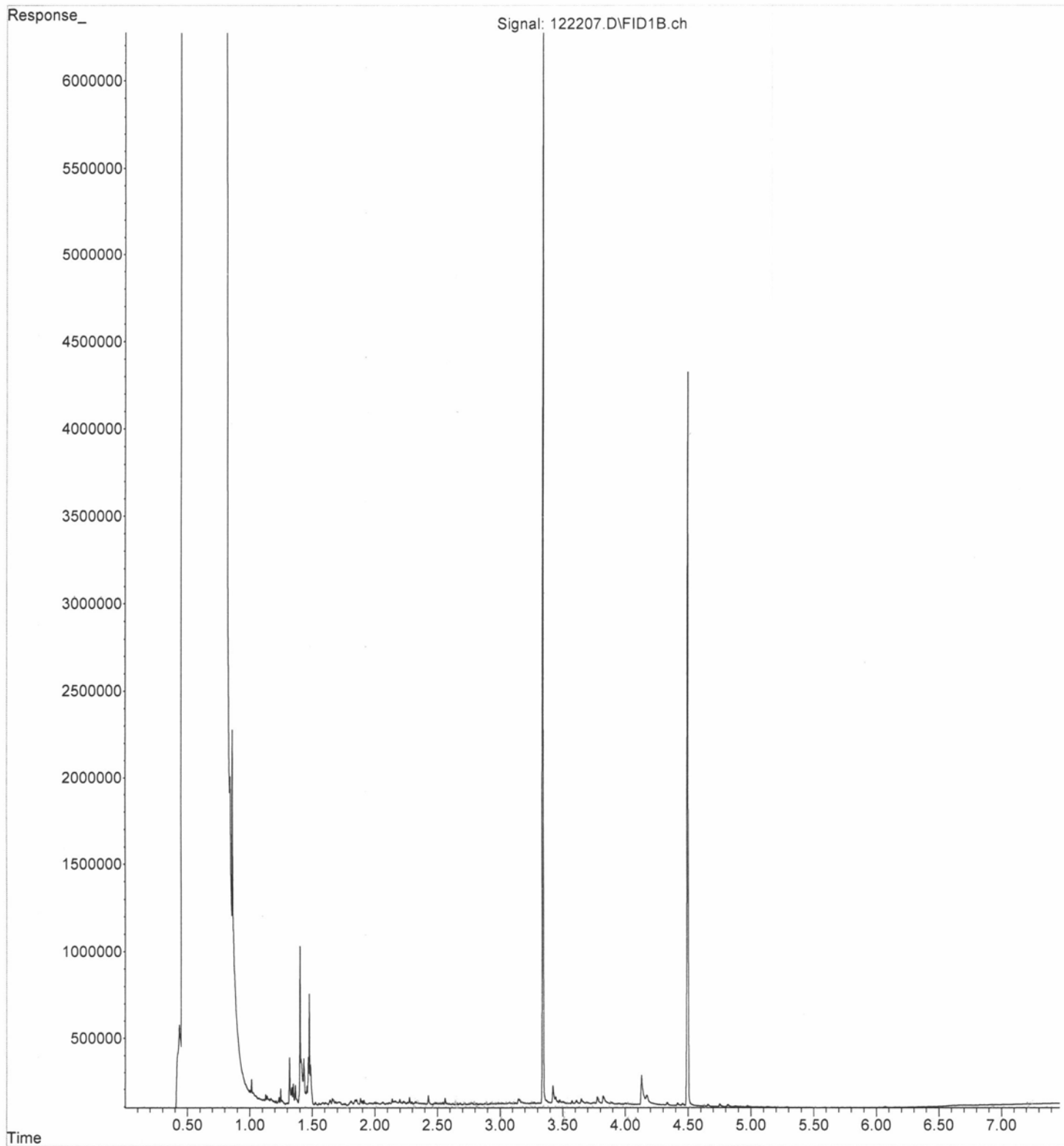
TURNAROUND TIME ☒ Standard turnaround ☐ RUSH Rush charges authorized by: _____	SAMPLE DISPOSAL ☐ Archive samples ☐ Other _____ Default: Dispose after 30 days
--	---

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED										Notes
						NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane			
AC-MW-45-231219	21 A-D	12/19/23	1535	GW	1	X	X	X								
AC-MW-46-231218	22	12/18/23	1340	GW	1	X	X	X								
AC-MW-47-231218	23	12/18/23	12435	GW	1	X	X	X								
AC-MW-48-231219	24	12/19/23	1535	GW	4	X	X	X								
URS-MW-03-231219	25	12/19/23	1450	GW	4	X	X	X								
URS-MW-02-231219	26 A-C	12/19/23	1150	GW	3				X							
URS-MW-02-231220	27 A-E	12/20/23	1425	GW	10	X	X	X		X						
Trip Blank	28 A-D	-	-	W	4											
Samples received at _____ °C																

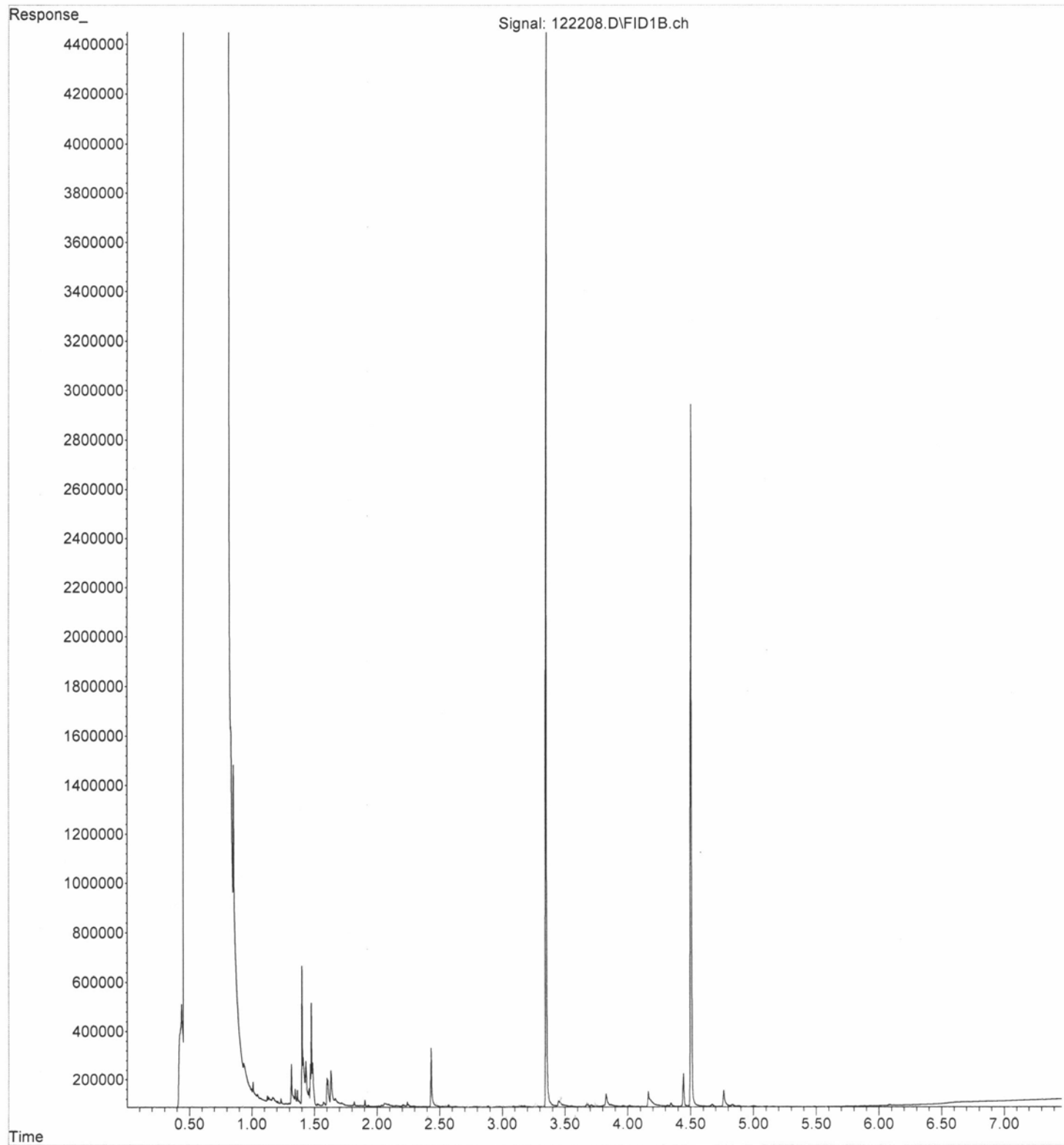
Friedman & Bruya, Inc.
Ph. (206) 285-8382

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: _____		Favour Emma		Aspect		12/20/23	1621
Received by: _____		Mar Goldman		FBZ		12/20/23	1624
Relinquished by: _____							
Received by: _____							

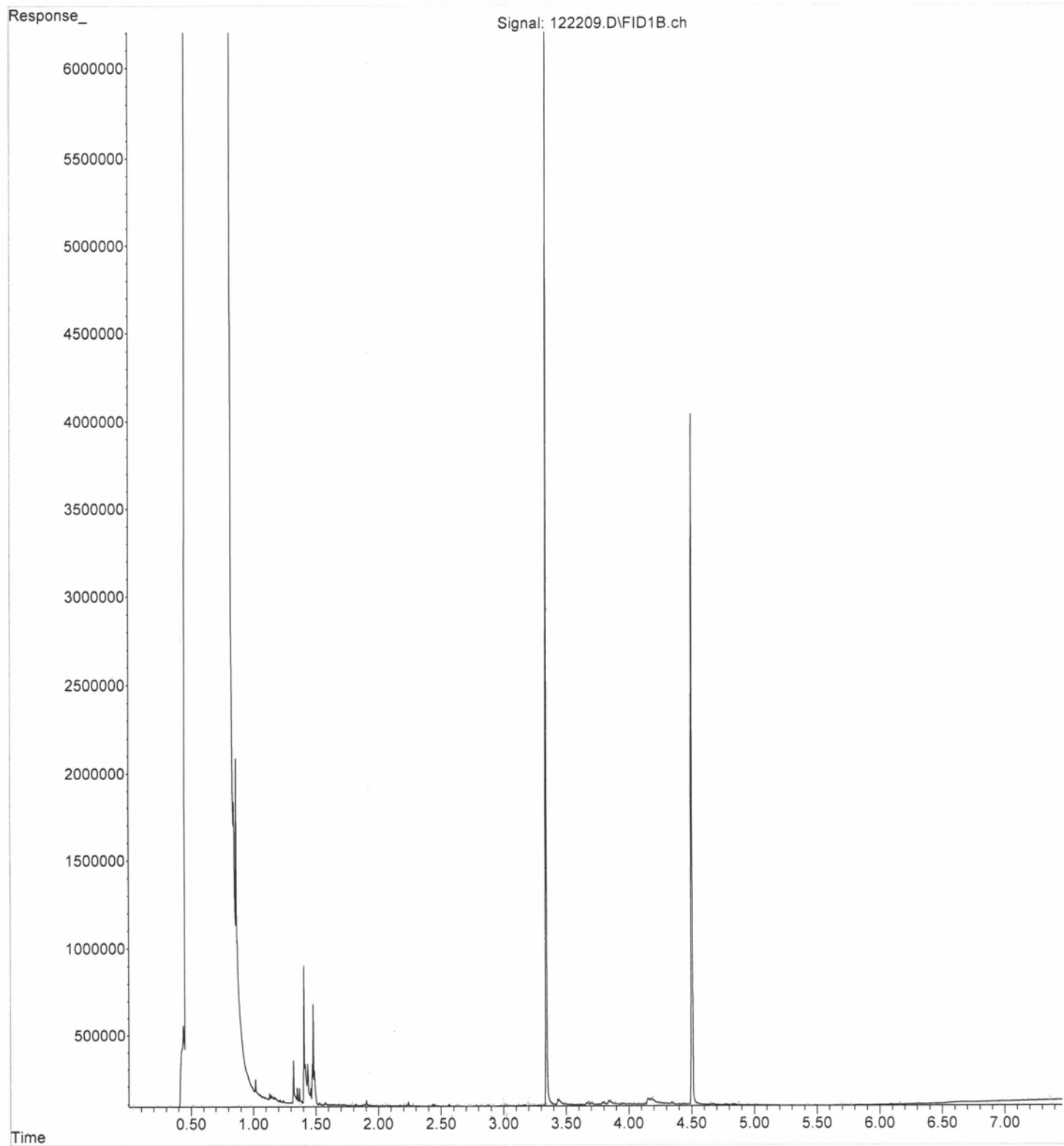
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Instrument : GC10
Sample Name: 312396-02
Misc Info :
Vial Number: 9



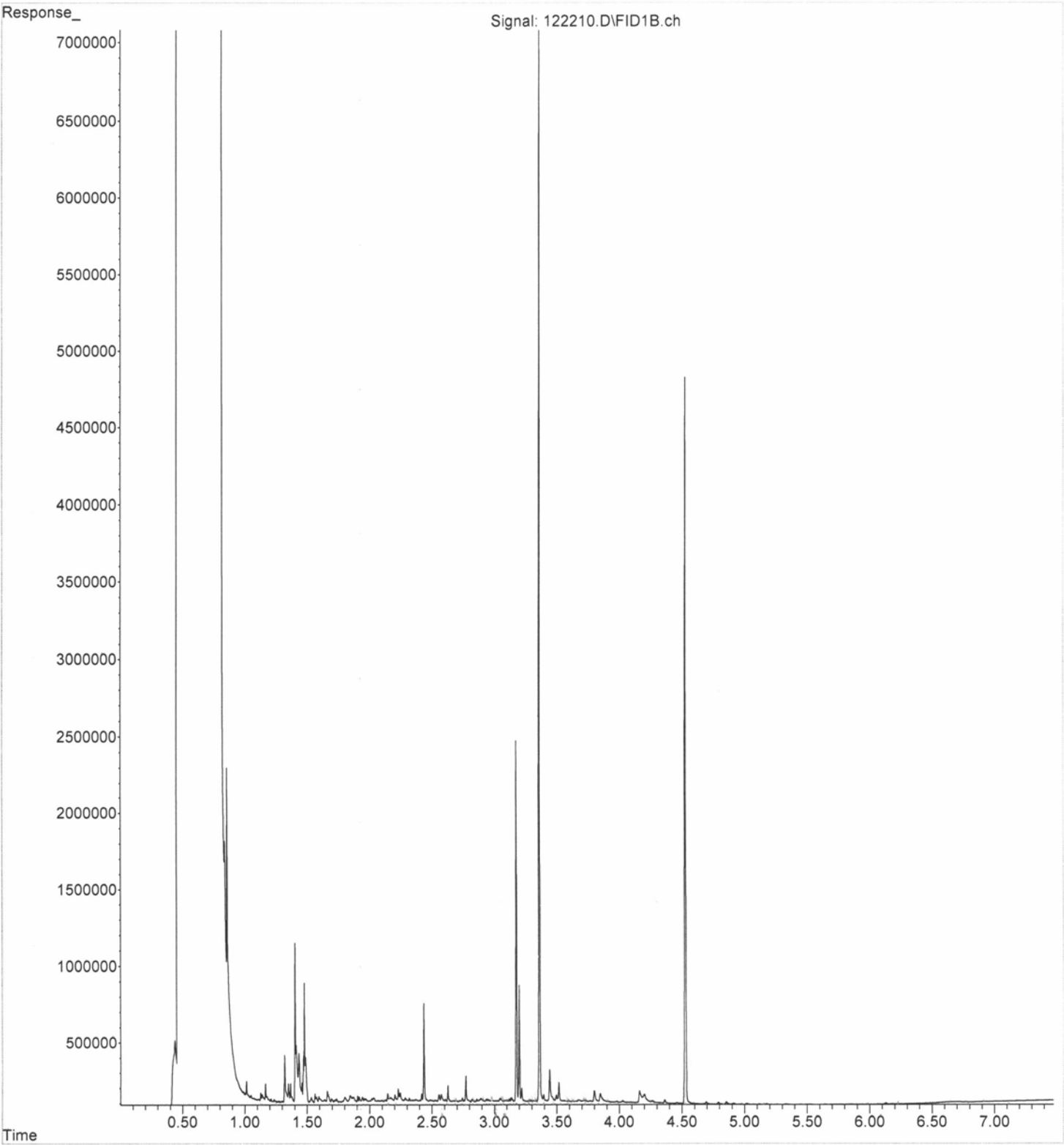
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Instrument : GC10
Sample Name: 312396-06
Misc Info :
Vial Number: 10



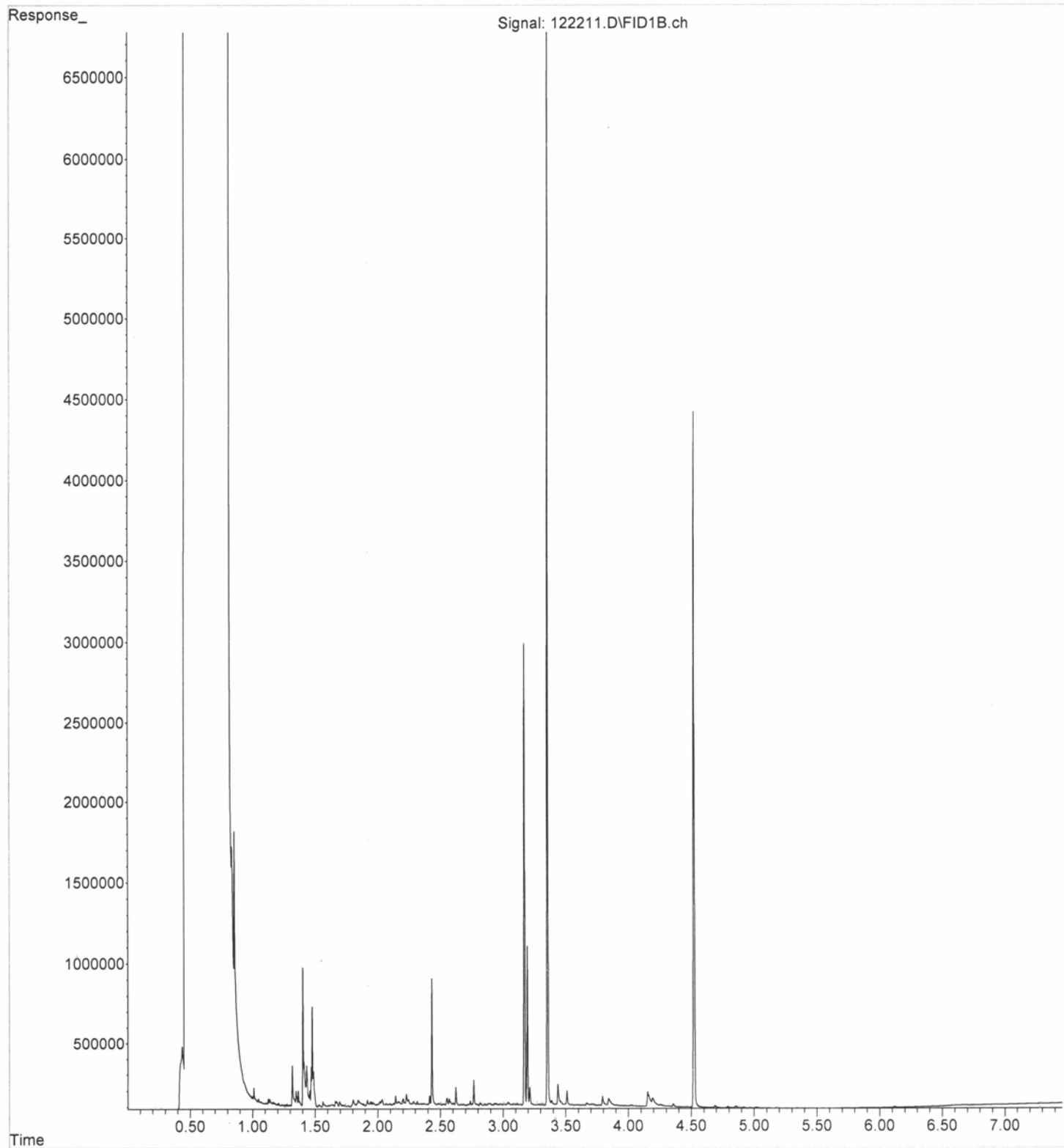
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Instrument : GC10
Sample Name: 312396-10
Misc Info :
Vial Number: 11



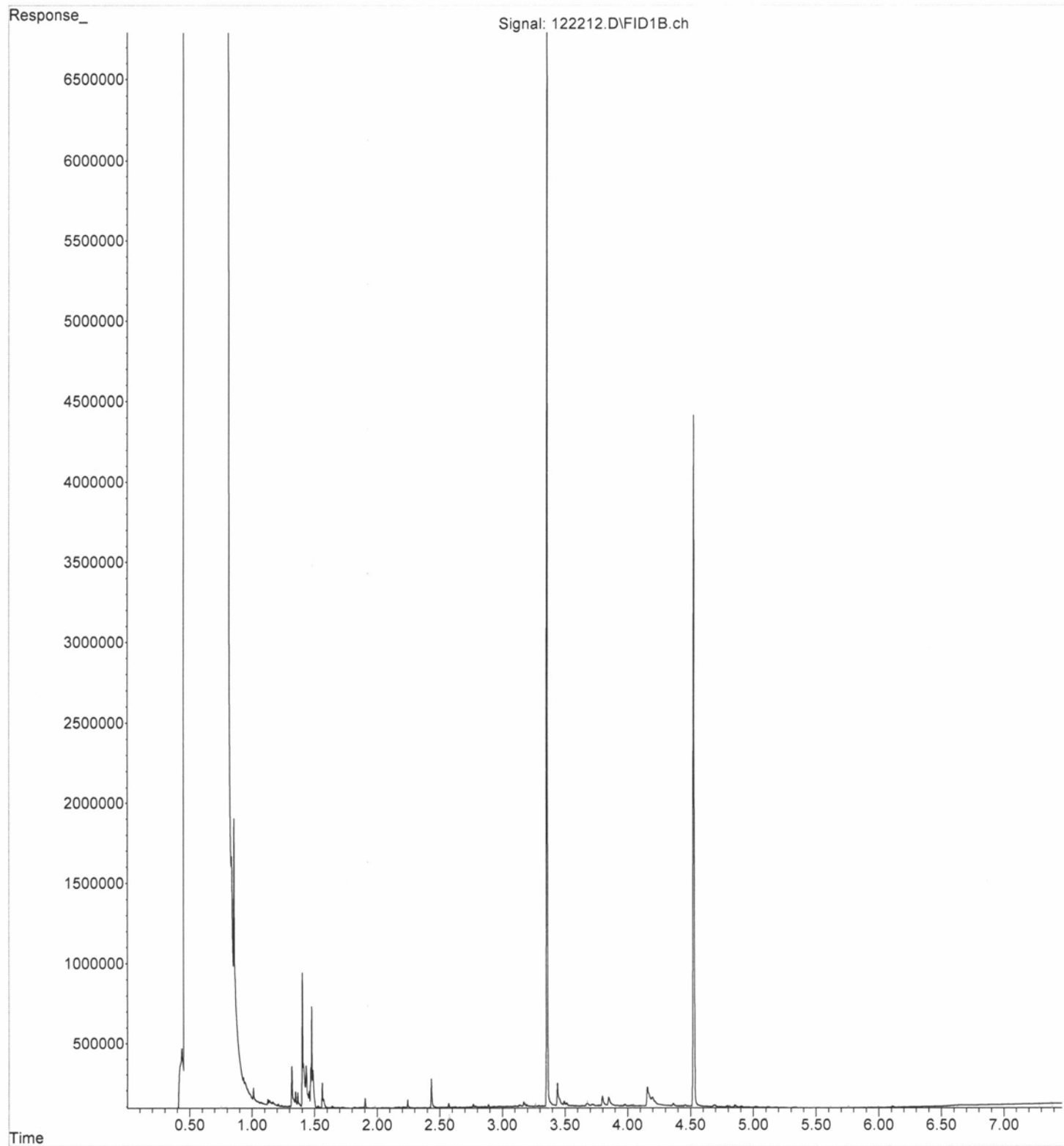
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Instrument : GC10
Sample Name: 312396-11
Misc Info :
Vial Number: 12



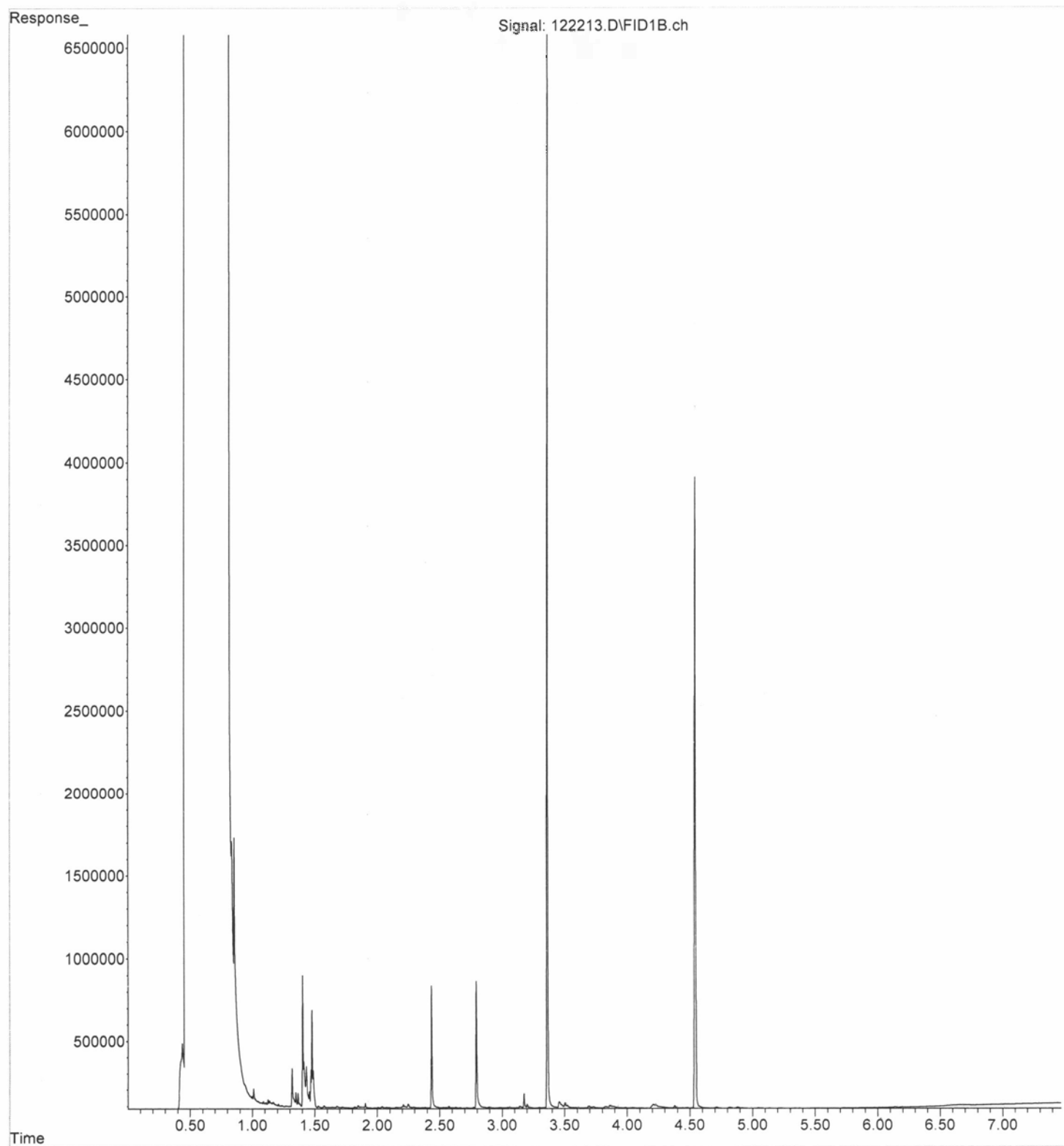
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Operator : IJL
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Instrument : GC10
Sample Name: 312396-12
Misc Info :
Vial Number: 13



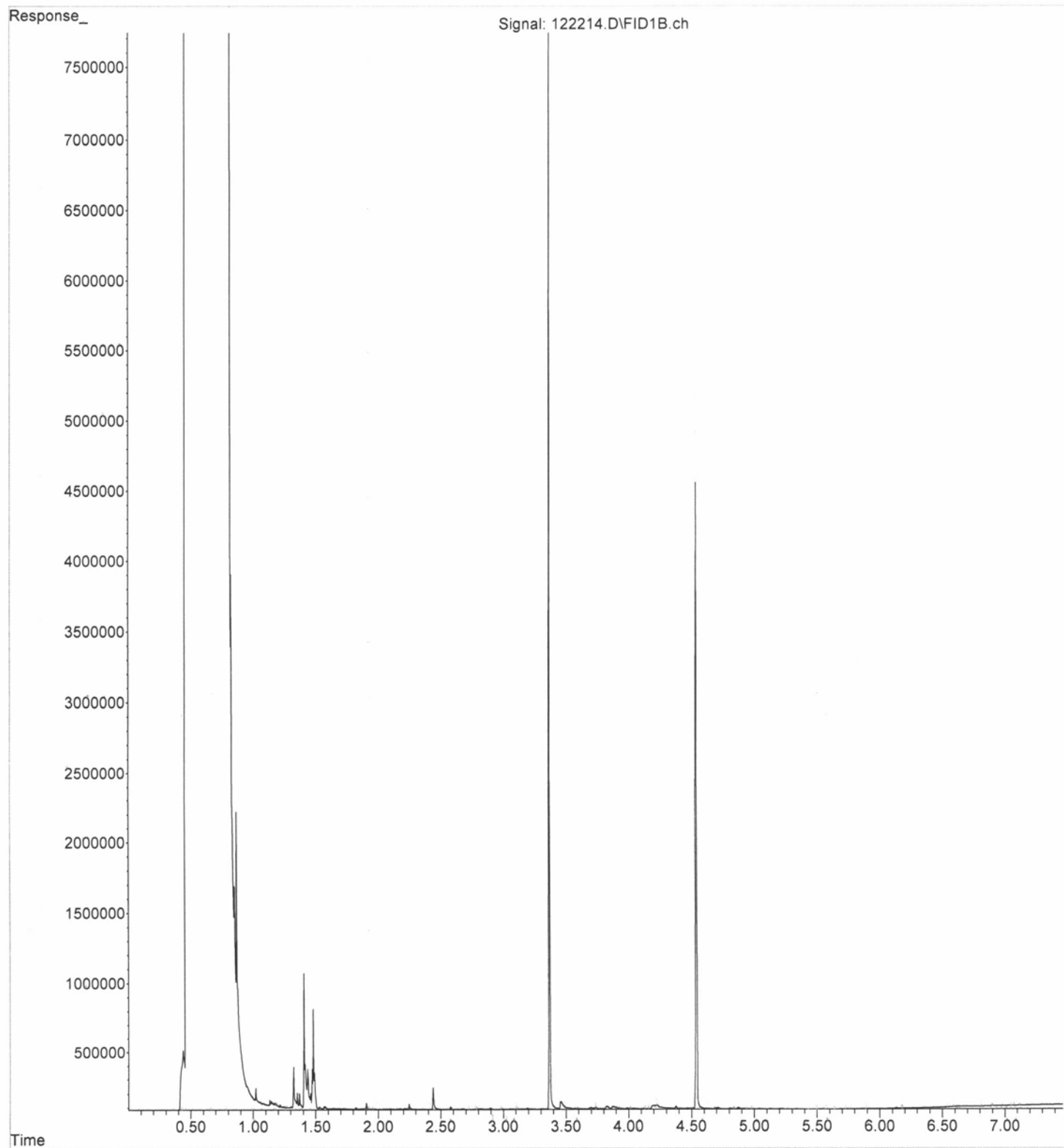
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Operator : IJL
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Instrument : GC10
Sample Name: 312396-13
Misc Info :
Vial Number: 14



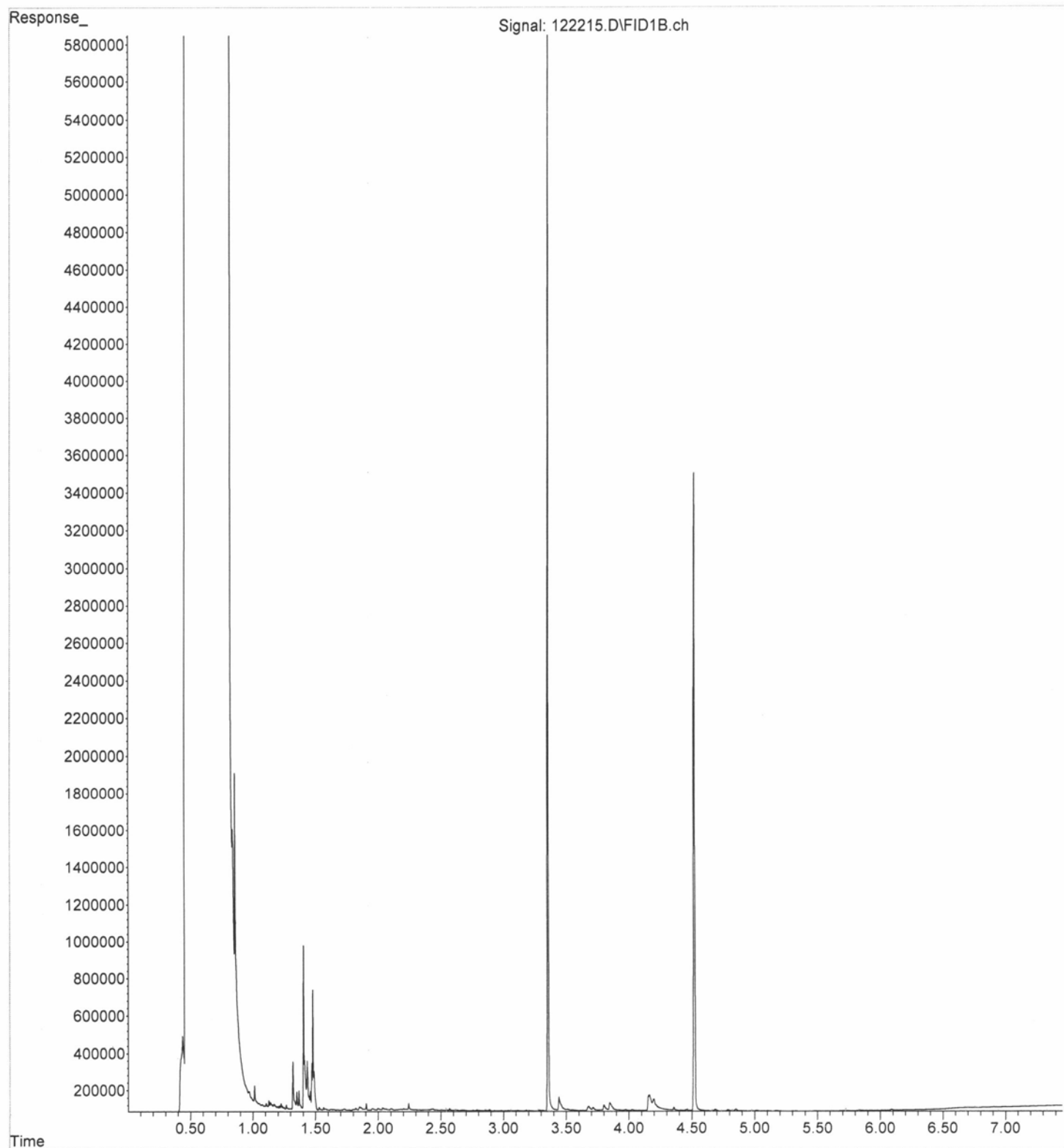
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Operator : IJL
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Instrument : GC10
Sample Name: 312396-14
Misc Info :
Vial Number: 15



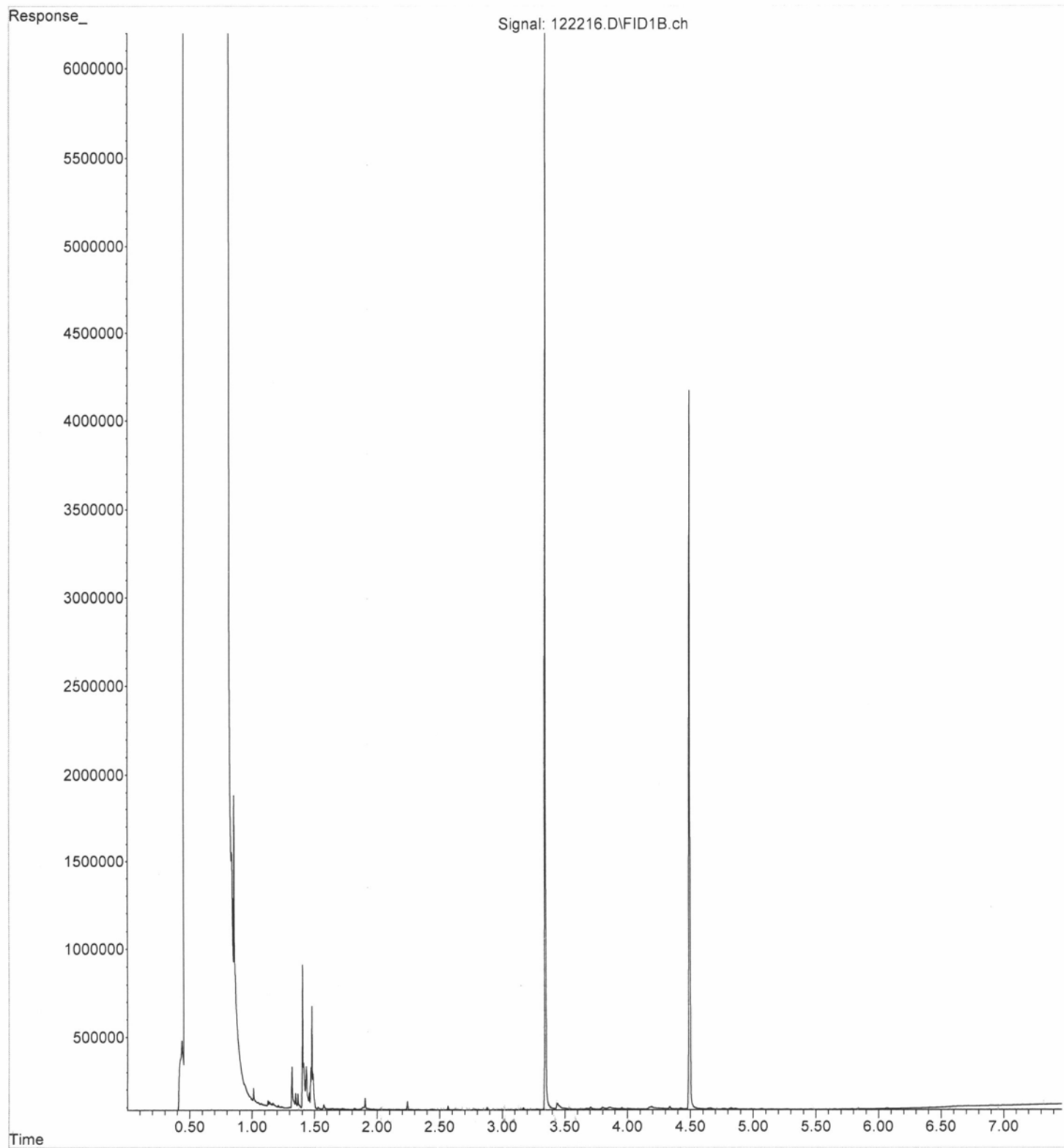
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Instrument : GC10
Sample Name: 312396-19
Misc Info :
Vial Number: 16



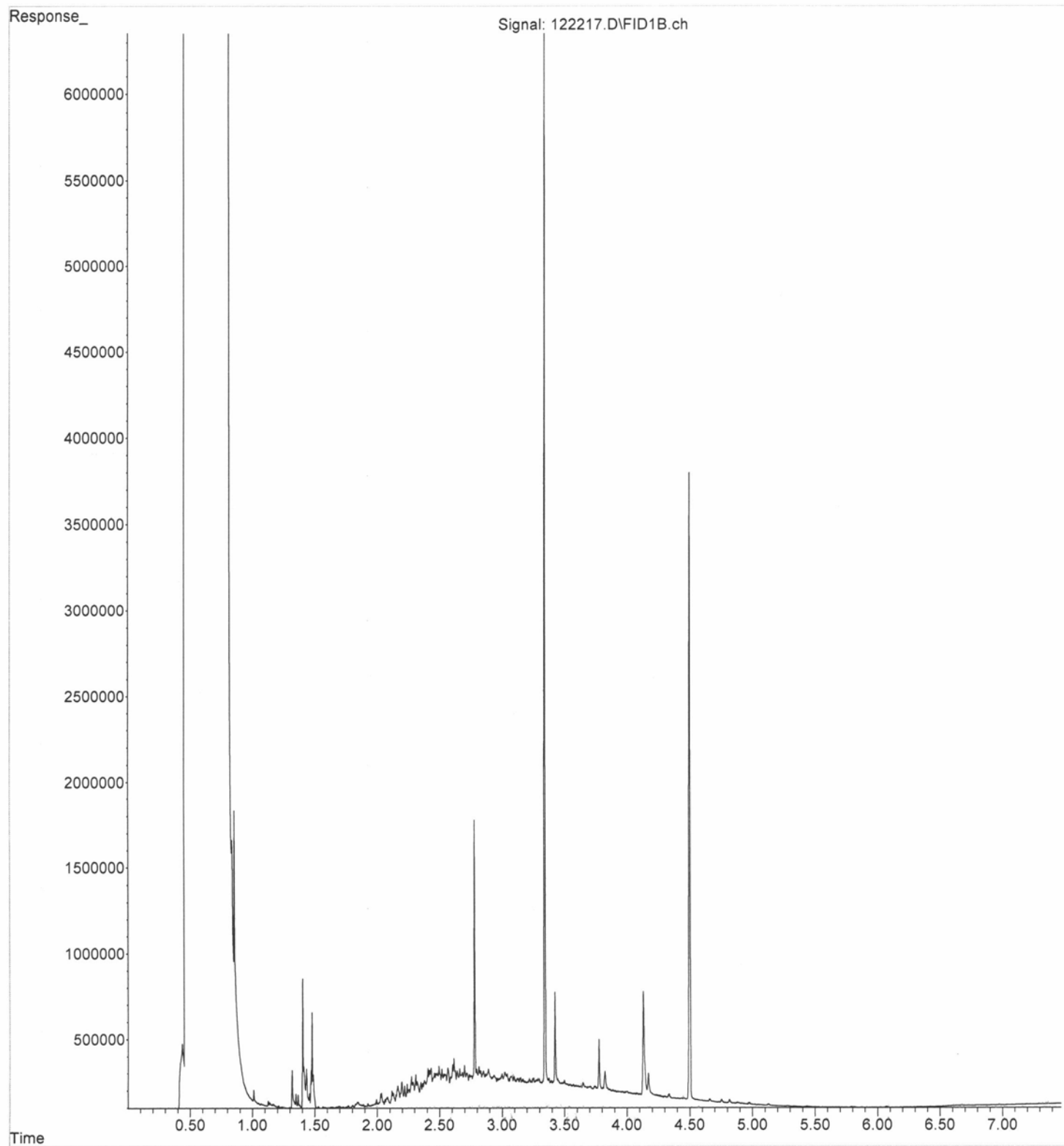
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Operator : IJL
Acquired : 22 Dec 2023 11:44 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 312396-20
Misc Info :
Vial Number: 17



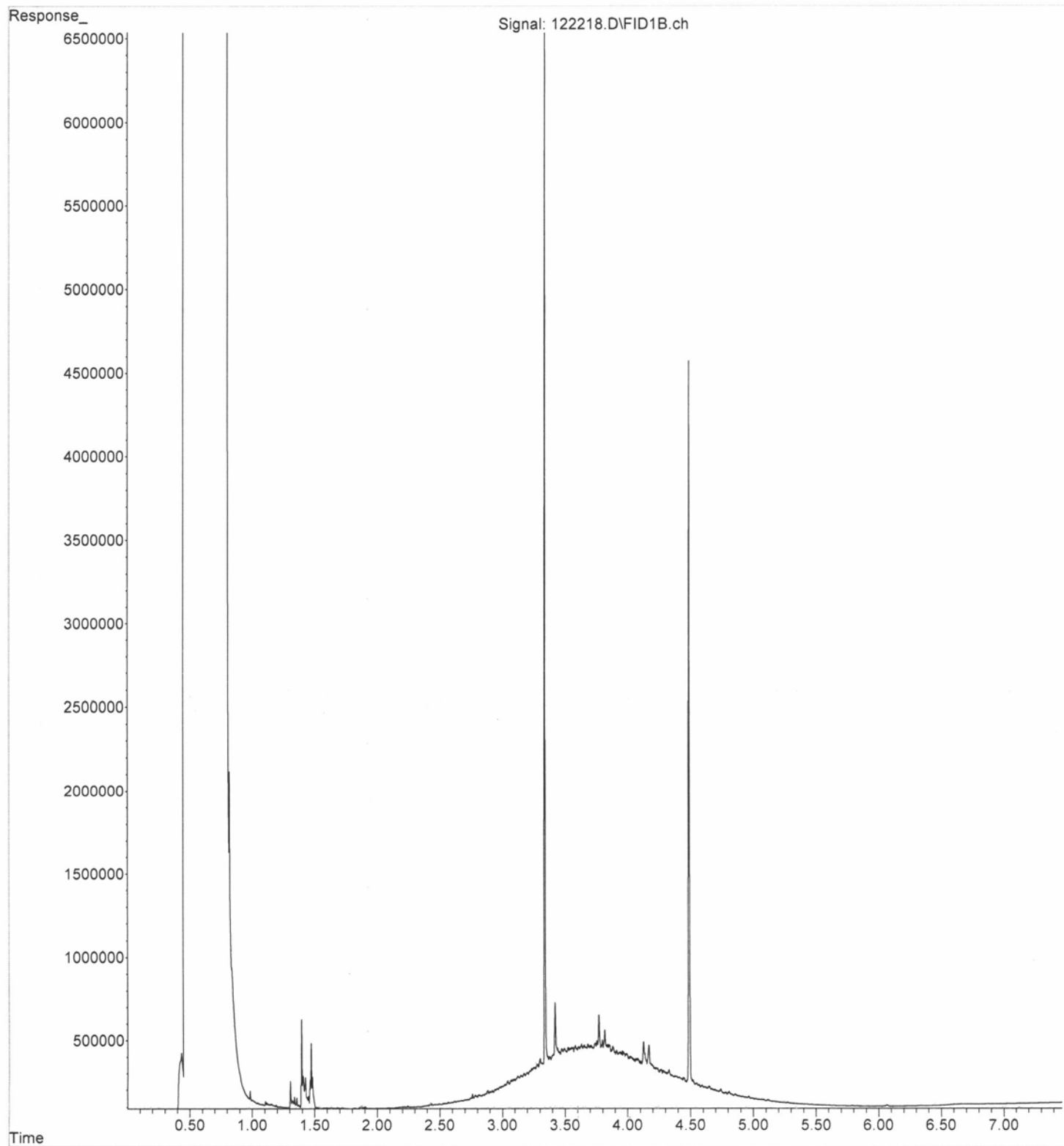
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Operator : IJL
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Instrument : GC10
Sample Name: 312396-21
Misc Info :
Vial Number: 18



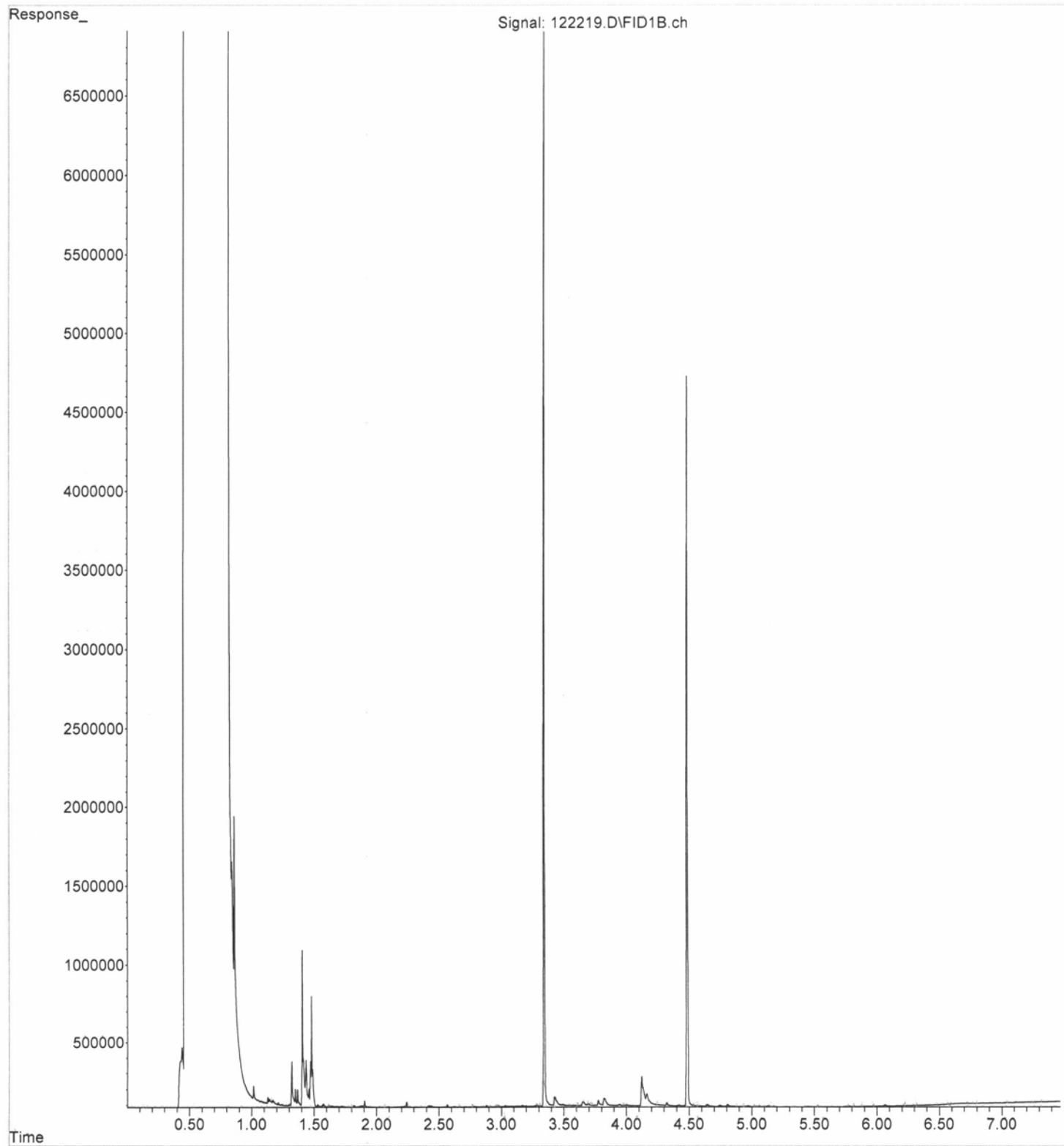
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Operator : IJL
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Instrument : GC10
Sample Name: 312396-22
Misc Info :
Vial Number: 19



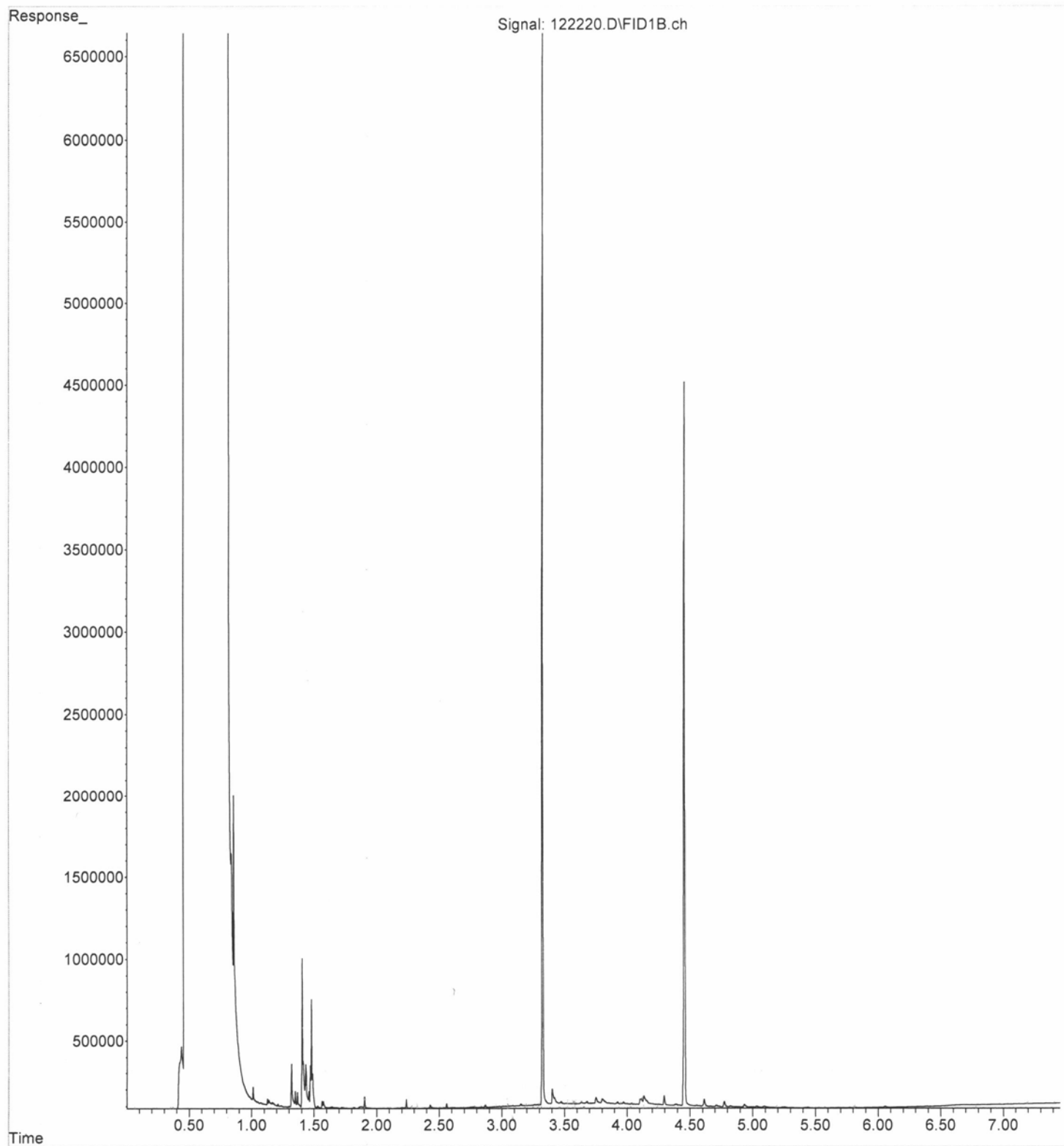
File :P:\Proc_GC10\12-22-23\122218.D
Operator : IJL
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Instrument : GC10
Sample Name: 312396-23
Misc Info :
Vial Number: 20



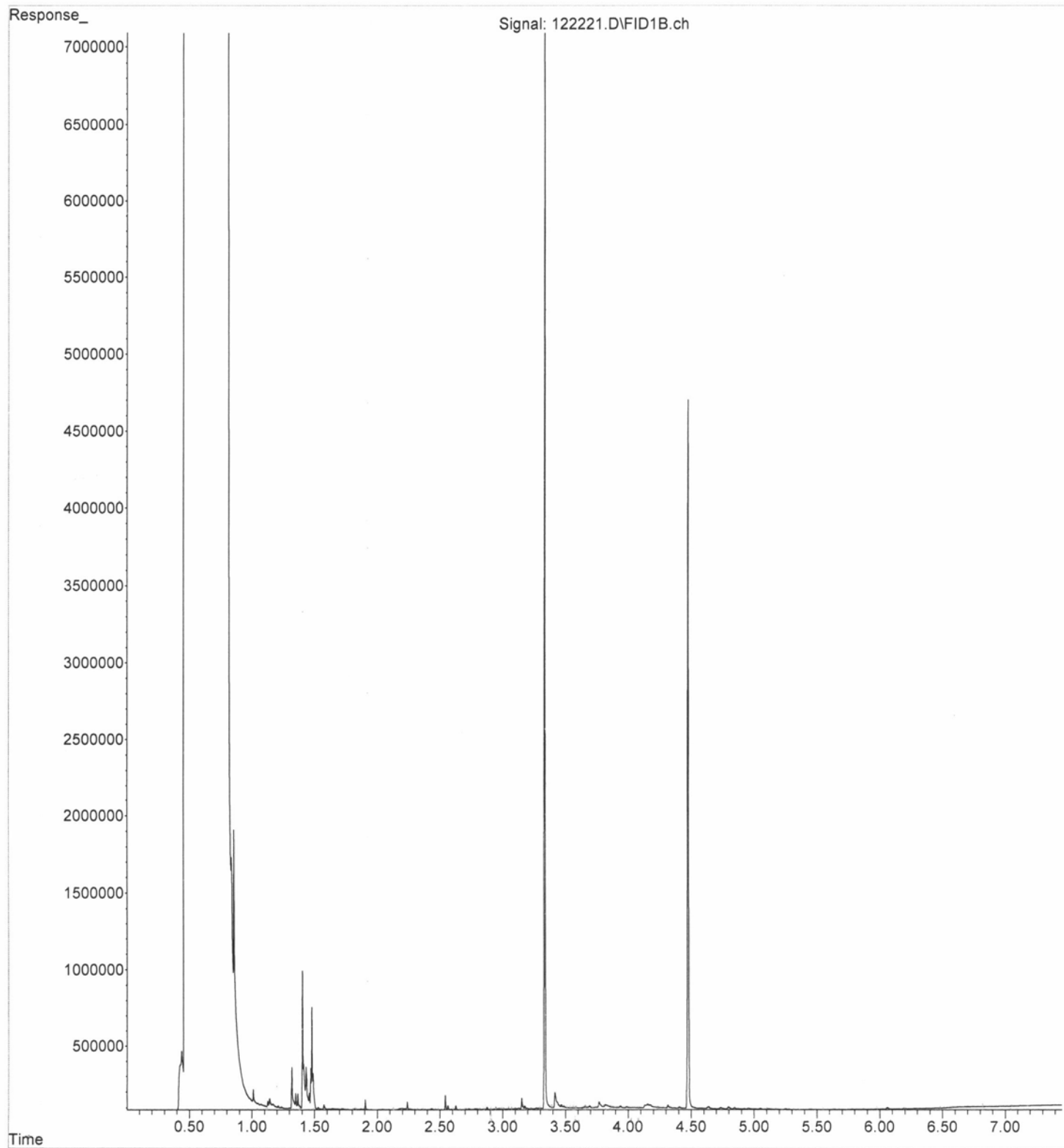
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Operator : IJL
Acquired : 22 Dec 2023 12:30 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 312396-24
Misc Info :
Vial Number: 21



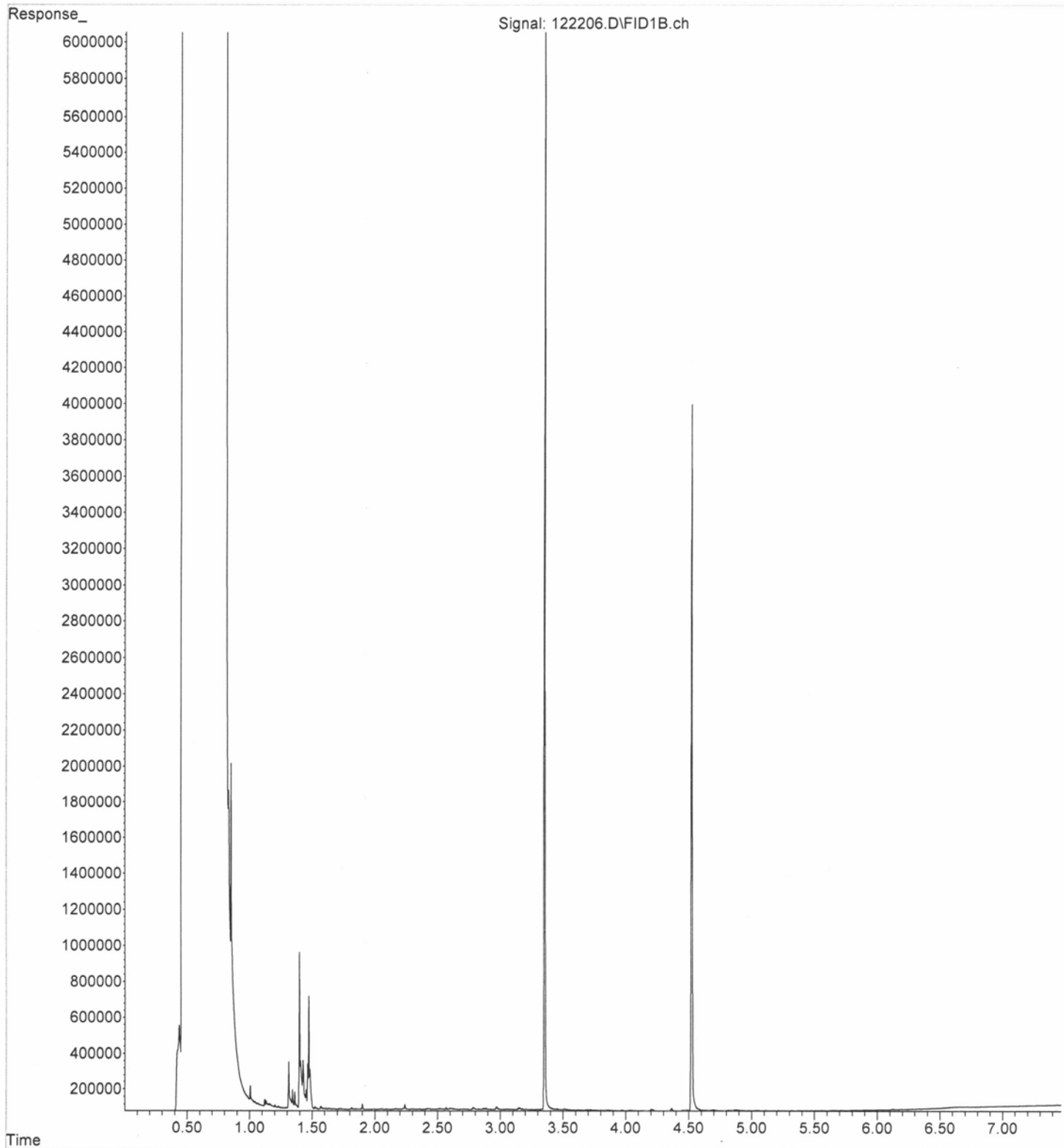
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Operator : IJL
Acquired : 22 Dec 2023 12:42 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 312396-25
Misc Info :
Vial Number: 22



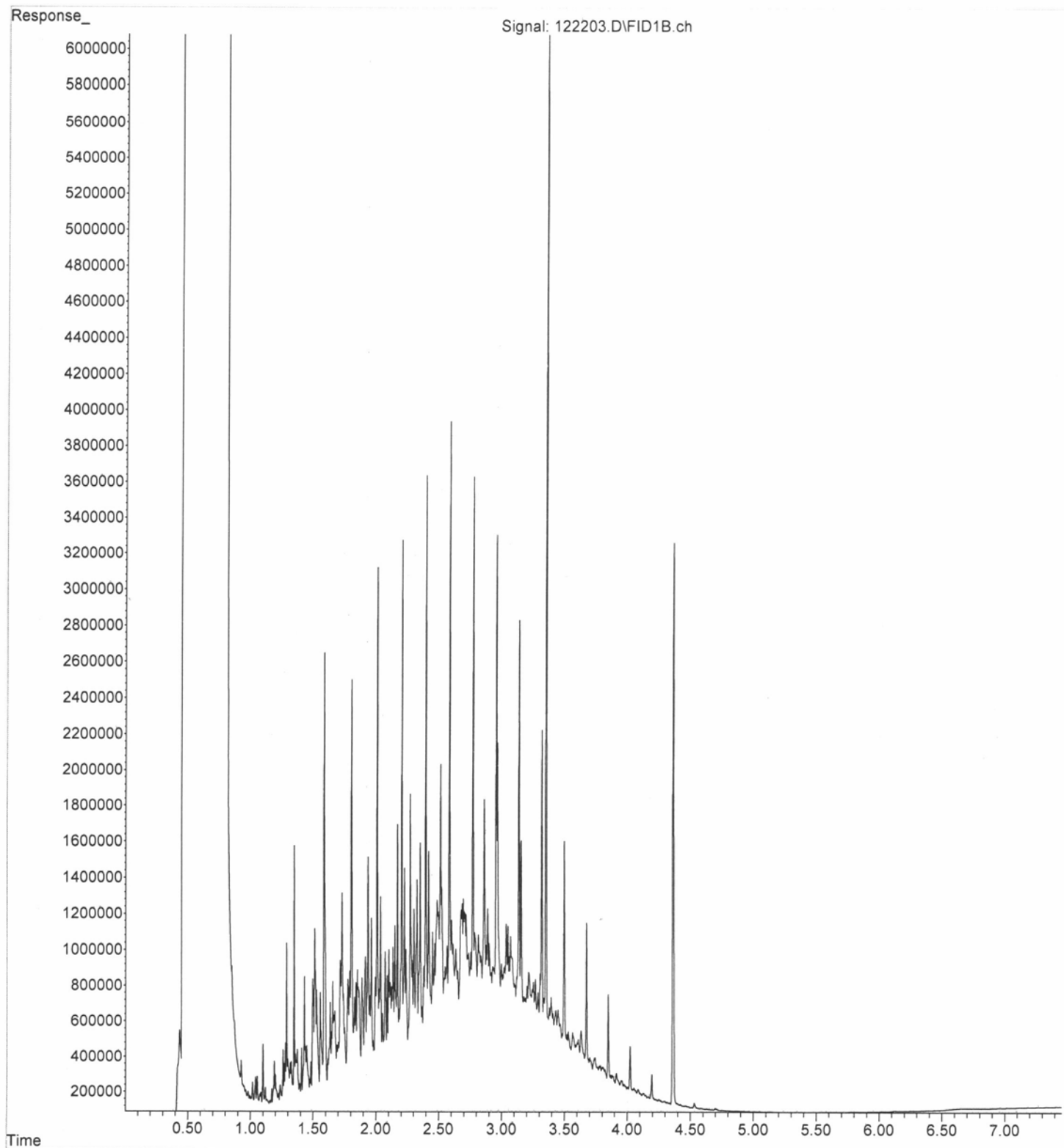
File :P:\Proc_GC10\12-22-23\122221.D
Operator : IJL
Acquired : 22 Dec 2023 12:53 pm using AcqMethod DX.M
Instrument : GC10
Sample Name: 312396-27
Misc Info :
Vial Number: 23



File :P:\Proc_GC10\12-22-23\122206.D
Operator : IJL
Acquired : 22 Dec 2023 10:00 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 03-2950 mb
Misc Info :
Vial Number: 8



File :P:\Proc_GC10\12-22-23\122203.D
Operator : IJL
Acquired : 22 Dec 2023 07:05 am using AcqMethod DX.M
Instrument : GC10
Sample Name: 500 DX 70-26F
Misc Info :
Vial Number: 3



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

June 12, 2024

Andrew Yonkofski, Project Manager
Aspect Consulting
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Yonkofski:

Included are the results from the testing of material submitted on June 5, 2024 from the Grand Street Commons AS170304, F&BI 406053 project. There are 44 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Aspect Data, Hannah Cohen
ASP0612R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 5, 2024 by Friedman & Bruya, Inc. from the Aspect Consulting Grand Street Commons AS170304, F&BI 406053 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
406053 -01	AC-MW-03-240604
406053 -02	AC-MW-16-240603
406053 -03	AC-MW-30-240603
406053 -04	PC-MW-30I-240603
406053 -05	PC-MW-30S-240603
406053 -06	URS-MW-02-240604
406053 -07	URS-MW-03-240604
406053 -08	URS-MW-13-240604
406053 -09	URS-MW-21D-240603
406053 -10	URS-MW-21S-240603
406053 -11	AC-MW-33-240604
406053 -12	AC-MW-34-240603
406053 -13	AC-MW-35-240603
406053 -14	AC-MW-36-240603
406053 -15	AC-MW-37-240604
406053 -16	AC-MW-38-240603
406053 -17	AC-MW-39-240604
406053 -18	AC-MW-40-240604
406053 -19	AC-MW-41-240604
406053 -20	AC-MW-42-240603
406053 -21	AC-MW-43-240603
406053 -22	AC-MW-44-240603
406053 -23	AC-MW-45-240603
406053 -24	AC-MW-46-240603
406053 -25	AC-MW-47-240603
406053 -26	AC-MW-48-240603
406053 -27	Trip Blank
406053 -28	Trip Blank

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

Date Extracted: 06/07/24

Date Analyzed: 06/07/24

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-16-240603 406053-02	<100	98
URS-MW-02-240604 406053-06	<100	106
URS-MW-03-240604 406053-07	<100	93
URS-MW-13-240604 406053-08	<100	107
AC-MW-34-240603 406053-12	<100	99
AC-MW-35-240603 406053-13	<100	100
AC-MW-36-240603 406053-14	<100	97
AC-MW-37-240604 406053-15	<100	101
AC-MW-38-240603 406053-16	<100	94
AC-MW-43-240603 406053-21	<100	94
AC-MW-44-240603 406053-22	<100	100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

Date Extracted: 06/07/24

Date Analyzed: 06/07/24

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 50-150)
AC-MW-45-240603 406053-23	<100	97
AC-MW-46-240603 406053-24	<100	96
AC-MW-47-240603 406053-25	<100	101
AC-MW-48-240603 406053-26	<100	98
Method Blank 04-924 MB	<100	69

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

Date Extracted: 06/06/24

Date Analyzed: 06/06/24

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 50-150)
AC-MW-16-240603 406053-02	<50	<250	91
URS-MW-02-240604 406053-06	260 x	<250	88
URS-MW-03-240604 406053-07	65 x	<250	90
URS-MW-13-240604 406053-08	<50	<250	83
AC-MW-34-240603 406053-12	<50	<250	84
AC-MW-35-240603 406053-13	130 x	<250	91
AC-MW-36-240603 406053-14	98 x	<250	84
AC-MW-37-240604 406053-15	76 x	<250	87
AC-MW-38-240603 406053-16	<50	<250	92
AC-MW-43-240603 406053-21	<50	<250	90
AC-MW-44-240603 406053-22	<50	<250	86
AC-MW-45-240603 406053-23	<50	<250	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

Date Extracted: 06/06/24

Date Analyzed: 06/06/24

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 50-150)
AC-MW-46-240603 406053-24	690 x	310 x	87
AC-MW-47-240603 406053-25	2,100 x	680 x	74
AC-MW-48-240603 406053-26	<50	<250	85
Method Blank 04-1290 MB	<50	<250	92

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-03-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/10/24	Lab ID:	406053-01
Date Analyzed:	06/11/24	Data File:	061031.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	URS-MW-02-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/10/24	Lab ID:	406053-06
Date Analyzed:	06/11/24	Data File:	061032.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-34-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/10/24	Lab ID:	406053-12
Date Analyzed:	06/11/24	Data File:	061033.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	AC-MW-37-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/10/24	Lab ID:	406053-15
Date Analyzed:	06/11/24	Data File:	061034.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	7.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Grand Street Commons
Date Extracted:	06/10/24	Lab ID:	04-1297 mb
Date Analyzed:	06/10/24	Data File:	061030.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-03-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-01
Date Analyzed:	06/06/24	Data File:	060610.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-16-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-02
Date Analyzed:	06/06/24	Data File:	060607.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-30-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-03
Date Analyzed:	06/06/24	Data File:	060611.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30I-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-04
Date Analyzed:	06/06/24	Data File:	060612.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	PC-MW-30S-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-05
Date Analyzed:	06/06/24	Data File:	060613.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-02-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-06
Date Analyzed:	06/06/24	Data File:	060628.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	1.6
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-03-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-07
Date Analyzed:	06/06/24	Data File:	060608.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-13-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-08
Date Analyzed:	06/06/24	Data File:	060609.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21D-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-09
Date Analyzed:	06/06/24	Data File:	060614.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	96	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	URS-MW-21S-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-10
Date Analyzed:	06/06/24	Data File:	060627.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	2.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-33-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-11
Date Analyzed:	06/06/24	Data File:	060631.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.025
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	6.6
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	5.9
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-34-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-12
Date Analyzed:	06/06/24	Data File:	060615.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	0.23
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-35-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-13
Date Analyzed:	06/06/24	Data File:	060617.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	1.3
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	1.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-36-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-14
Date Analyzed:	06/06/24	Data File:	060618.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	71	132
Toluene-d8	105	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	1.2
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-37-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-15
Date Analyzed:	06/06/24	Data File:	060610.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-38-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-16
Date Analyzed:	06/06/24	Data File:	060616.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-39-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-17
Date Analyzed:	06/06/24	Data File:	060617.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	91	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-40-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-18
Date Analyzed:	06/06/24	Data File:	060629.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-41-240604	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-19
Date Analyzed:	06/06/24	Data File:	060630.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	95	84	115
4-Bromofluorobenzene	91	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.036
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	5.1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	3.4
Tetrachloroethene	25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-42-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-20
Date Analyzed:	06/06/24	Data File:	060618.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	121	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-43-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-21
Date Analyzed:	06/06/24	Data File:	060611.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-44-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-22
Date Analyzed:	06/06/24	Data File:	060612.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-45-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-23
Date Analyzed:	06/06/24	Data File:	060613.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	71	132
Toluene-d8	96	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-46-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-24
Date Analyzed:	06/06/24	Data File:	060614.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-47-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-25
Date Analyzed:	06/06/24	Data File:	060615.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	71	132
Toluene-d8	97	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AC-MW-48-240603	Client:	Aspect Consulting
Date Received:	06/05/24	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	406053-26
Date Analyzed:	06/06/24	Data File:	060616.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	04-1241 mb
Date Analyzed:	06/06/24	Data File:	060609.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	93	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Grand Street Commons
Date Extracted:	06/06/24	Lab ID:	04-1247 mb
Date Analyzed:	06/06/24	Data File:	060626.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TPH AS GASOLINE
USING METHOD NWTPH-G_x**

Laboratory Code: 406053-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL EXTENDED USING METHOD NWTPH-D_x**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	88	92	65-151	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM**

Laboratory Code: 406053-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
1,4-Dioxane	ug/L (ppb)	2	<0.1	101	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	89	101	70-130	13

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 406053-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	101	50-150
Chloroethane	ug/L (ppb)	10	<1	102	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	97	50-150
Methylene chloride	ug/L (ppb)	10	<5	89	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	98	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	100	10-211
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	103	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	103	50-150
Benzene	ug/L (ppb)	10	<0.35	98	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	100	35-149
Toluene	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	106	50-150
Ethylbenzene	ug/L (ppb)	10	<1	102	50-150
m,p-Xylene	ug/L (ppb)	20	<2	101	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	98	95	64-142	3
Chloroethane	ug/L (ppb)	10	99	96	70-130	3
1,1-Dichloroethene	ug/L (ppb)	10	94	91	64-140	3
Methylene chloride	ug/L (ppb)	10	87	84	43-134	4
trans-1,2-Dichloroethene	ug/L (ppb)	10	93	93	70-130	0
1,1-Dichloroethane	ug/L (ppb)	10	94	92	70-130	2
cis-1,2-Dichloroethene	ug/L (ppb)	10	95	90	70-130	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	98	96	70-130	2
1,1,1-Trichloroethane	ug/L (ppb)	10	99	96	70-130	3
Benzene	ug/L (ppb)	10	94	92	70-130	2
Trichloroethene	ug/L (ppb)	10	94	92	70-130	2
Toluene	ug/L (ppb)	10	94	96	70-130	2
Tetrachloroethene	ug/L (ppb)	10	100	101	70-130	1
Ethylbenzene	ug/L (ppb)	10	97	98	70-130	1
m,p-Xylene	ug/L (ppb)	20	96	97	70-130	1
o-Xylene	ug/L (ppb)	10	96	97	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/12/24

Date Received: 06/05/24

Project: Grand Street Commons AS170304, F&BI 406053

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260D**

Laboratory Code: 406058-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Vinyl chloride	ug/L (ppb)	10	<0.02	99	50-150
Chloroethane	ug/L (ppb)	10	<1	102	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	96	50-150
Methylene chloride	ug/L (ppb)	10	<5	91	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	95	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	96	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	98	10-211
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	97	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	99	50-150
Benzene	ug/L (ppb)	10	<0.35	95	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	93	35-149
Toluene	ug/L (ppb)	10	<1	96	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	99	50-150
Ethylbenzene	ug/L (ppb)	10	<1	98	50-150
m,p-Xylene	ug/L (ppb)	20	<2	97	50-150
o-Xylene	ug/L (ppb)	10	<1	98	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Vinyl chloride	ug/L (ppb)	10	104	99	64-142	5
Chloroethane	ug/L (ppb)	10	105	103	70-130	2
1,1-Dichloroethene	ug/L (ppb)	10	98	97	64-140	1
Methylene chloride	ug/L (ppb)	10	98	96	43-134	2
trans-1,2-Dichloroethene	ug/L (ppb)	10	100	96	70-130	4
1,1-Dichloroethane	ug/L (ppb)	10	99	97	70-130	2
cis-1,2-Dichloroethene	ug/L (ppb)	10	97	95	70-130	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	106	104	70-130	2
1,1,1-Trichloroethane	ug/L (ppb)	10	103	101	70-130	2
Benzene	ug/L (ppb)	10	100	99	70-130	1
Trichloroethene	ug/L (ppb)	10	100	99	70-130	1
Toluene	ug/L (ppb)	10	100	98	70-130	2
Tetrachloroethene	ug/L (ppb)	10	105	104	70-130	1
Ethylbenzene	ug/L (ppb)	10	102	100	70-130	2
m,p-Xylene	ug/L (ppb)	20	101	99	70-130	2
o-Xylene	ug/L (ppb)	10	99	97	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

406053

SAMPLE CHAIN OF CUSTODY

06/05/24 15:14

Page # 1 of 3

Report To: Andrew Yonkowski, Hannah Cohen

Company: Aspect Consulting

Address: 710 2nd Ave Suite #550

City, State, ZIP: Seattle, WA 98104

Phone: (206) 285-8282 Email: Andrew.Yonkowski@aspectconsulting.com; Hannah.Cohen@aspectconsulting.com

PROJECT NAME
Grand Street Commons
(GSC)PO #
A5190304

REMARKS

INVOICE TO

Aspect Consulting

Project specific RLS? - Yes / No

TURNAROUND TIME

☒ Standard turnaround☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples☐ Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8260	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	Notes
AC-MW-03-240604	01A-F	06/04/24	1535	Ground Water	6									Cooler # 1
AC-MW-16-240603	02A-D	06/03/24	1300		4	X	X	X						
AC-MW-30-240603	03A-C	06/03/24	1100		3									
AC-MW-30I-240603	04	06/03/24	1020		3									
PC-MW-30S-240603	05	06/03/24	0945		3									
URS-MW-02-240604	06A-J	06/04/24	1440		10	X	X	X						
URS-MW-03-240604	07A-D	06/04/24	1350		4	X	X	X						
URS-MW-13-240604	08	06/04/24	1240		4	X	X	X						
URS-MW-21D-240603	09A-C	06/03/24	1220		3									only for clogs
URS-MW-21S-240603	10	06/03/24	1250		3									only for clogs

SIGNATURE

PRINT NAME

COMPANY

DATE TIME

Relinquished by:



Risi Nara

Aspect Consulting

06/05/24 1423

Received by:



ANH PHAN

F8B

06/05/24 14:23

Relinquished by:



ANH PHAN

Samples received at 0 AC

Received by:



ANH PHAN

Samples received at 0 AC

Friedman & Bruya, Inc.
Ph. (206) 285-8282

406053

SAMPLE CHAIN OF CUSTODY

06/05/24 15/11/24

Page # 2 of 3

Report To Andrew Yonkefski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (404)272-3188 Email Andrew.Yonkefski@aspectconsulting.com; Hannah.Cohen@aspectconsulting.comSAMPLERS (signature) [Signature]

PROJECT NAME

Grand Street Commons
(AS170304 - GSC)

PO #

AS170304

REMARKS

Aspect Consulting

Project specific RLS? - Yes / No

TURNAROUND TIME	
☒ Standard turnaround	
☐ RUSH	
Rush charges authorized by: _____	
SAMPLE DISPOSAL	
☐ Archive samples	
☐ Other _____	
Default: Dispose after 30 days	

uspect consulting. com; rainnath. com; uspect consulting. com						ANALYSES REQUESTED								
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8260	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	Notes
AC-MW-33-240604	11 A-C	06/04/24	1335	Ground water	3									Cooler # 1
AC-MW-34-240603	12 A-J	06/03/24	1235		10									↑
AC-MW-35-240603	13 A-D	06/03/24	1050		4									
AC-MW-36-240603	14 ↓	06/03/24	1150		4									
AC-MW-37-240604	15 A-J	06/04/24	1220		10									
AC-MW-38-240603	16 A-G	06/03/24	1400		7									Cooler # 2
AC-MW-39-240604	17 A-C	06/04/24	1115		3									
AC-MW-40-240604	18 ↓	06/04/24	1200		3									
AC-MW-41-240604	19 ↓	06/04/24	1300		3									
AC-MW-42-240603	20 ↓	06/03/24	1335		3									↓

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SIGNATURE

[Signature]

PRINT NAME

Rishi Naga

COMPANY

Aspect Consulting

DATE

06/05/24

TIME

1423

Received by:

[Signature]

Relinquished by:

ANHPHAN

Received by:

Samples received at 0 °C

406053

SAMPLE CHAIN OF CUSTODY

06/05/24 15/00/4

Page # 3 of 3

Report To Andrew Yonkofski, Hannah CohenCompany Aspect ConsultingAddress 710 2nd Ave Suite #550City, State, ZIP Seattle, WA 98104Phone (404) 272-3488 Email Andrew.Yonkofski@aaspectconsulting.com; Hannah.Cohen@aaspectconsulting.com

SAMPLERS (signature) <u>[Signature]</u>		PROJECT NAME <u>Grand Street Commons (CASC)</u>	PO # <u>AS170304</u>
REMARKS <u>Aspect Consulting</u>		INVOICE TO	

Project specific RLS? - Yes / No

TURNAROUND TIME	
☒ Standard turnaround	
☐ RUSH	
Rush charges authorized by:	
SAMPLE DISPOSAL	
☐ Archive samples	
☐ Other	
Default: Dispose after 30 days	

aspect consulting . com , Fairman . com or aspect consulting . com						ANALYSES REQUESTED									
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8260	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	1,4-Dioxane	Notes	
AC-MW-43-240603	21 A-D	06/03/24	1315	Ground Water	4	X	X	X						Coder # 2	
AC-MW-44-240603	22	06/03/24	1400		4	X	X	X							
AC-MW-45-240603	23	06/03/24	1130		4	X	X	X							
AC-MW-46-240603	24	06/03/24	1055		4	X	X	X							
AC-MW-47-240603	25	06/03/24	1120		4	X	X	X							
AC-MW-48-240603	26 ↓	06/03/24	1035	↓	4	X	X	X						↓	
Trip Blank	27 A-B			Water	2									Coder # 1	
Trip Blank	28 ↓			Water	2									Coder # 2	

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Risi Naa

Aspect Consulting

06/05/24 1423

Received by:

ANH PHAN

FAB

06/05/24 14:23

Relinquished by:

Samples received at 00

Received by:

Friedman & Bruya, Inc.
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 406053 CLIENT ASP INITIALS/ AP
DATE: 06/05/24

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 0 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☒ YES ☐ NO

How did samples arrive?
☒ Over the Counter ☐ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO Initials/ AP
*or other representative documents, letters, and/or shipping memos Date: 06/05/24

Number of days samples have been sitting prior to receipt at laboratory 1-2 days

Are the samples clearly identified? (explain "no" answer below) ☐ YES ☒ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☐ NA ☒ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

Sample ID's	☐ Yes ☒ No	<u>Label AC-MW-48-240603(25D)</u>	☐ Not on COC/label
Date Sampled	☒ Yes ☐ No		☐ Not on COC/label
Time Sampled	☒ Yes ☐ No		☐ Not on COC/label
# of Containers	☒ Yes ☐ No		
Relinquished	☒ Yes ☐ No		
Requested analysis	☒ Yes ☐ On Hold		

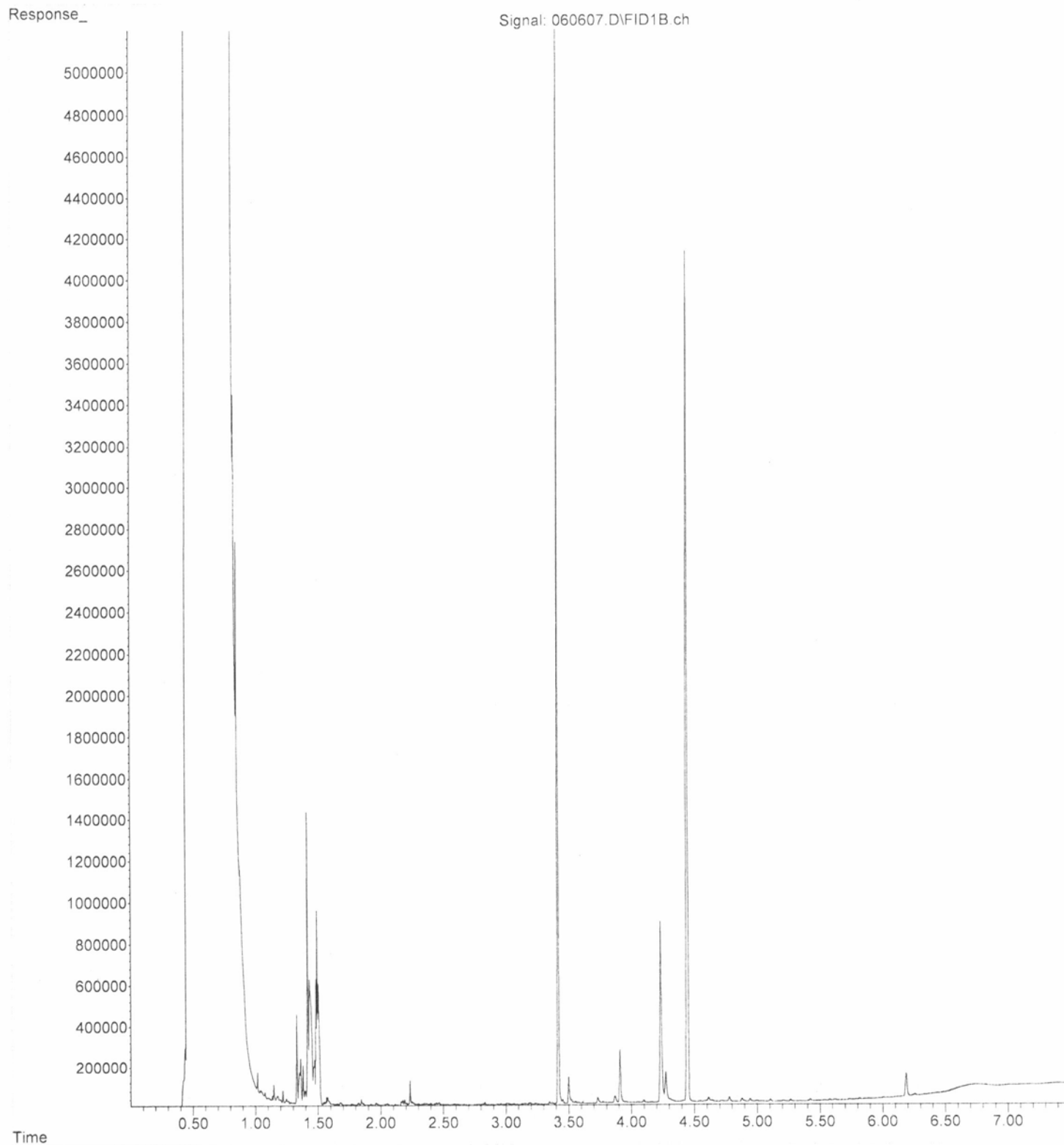
Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☒ NA ☐ YES ☐ NO

Number of unused TO15 canisters _____ Number of unused TO17 tubes _____

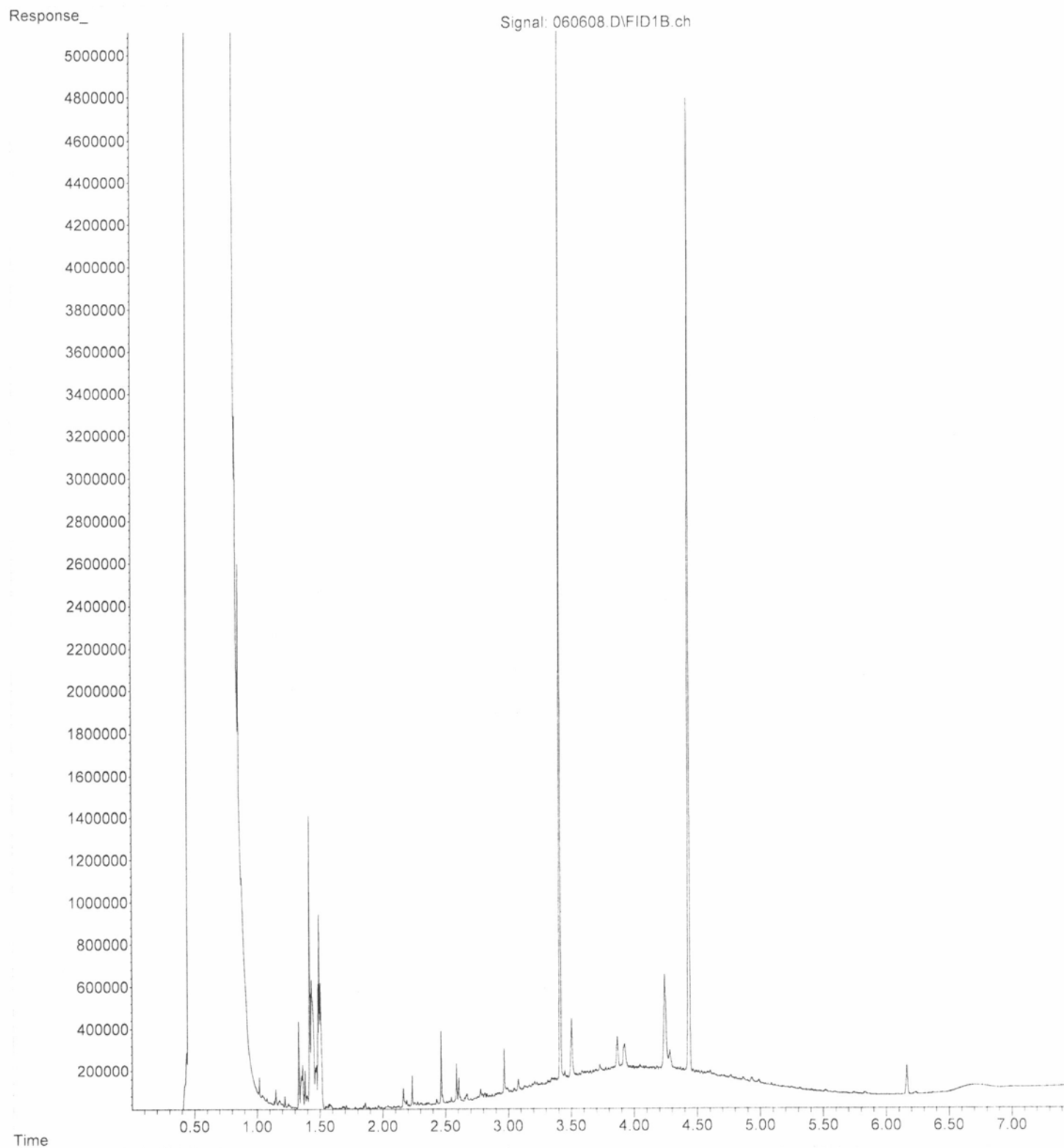
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Operator : TL
Acquired : 06 Jun 2024 12:08 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 406053-02
Misc Info :
Vial Number: 9

ERR



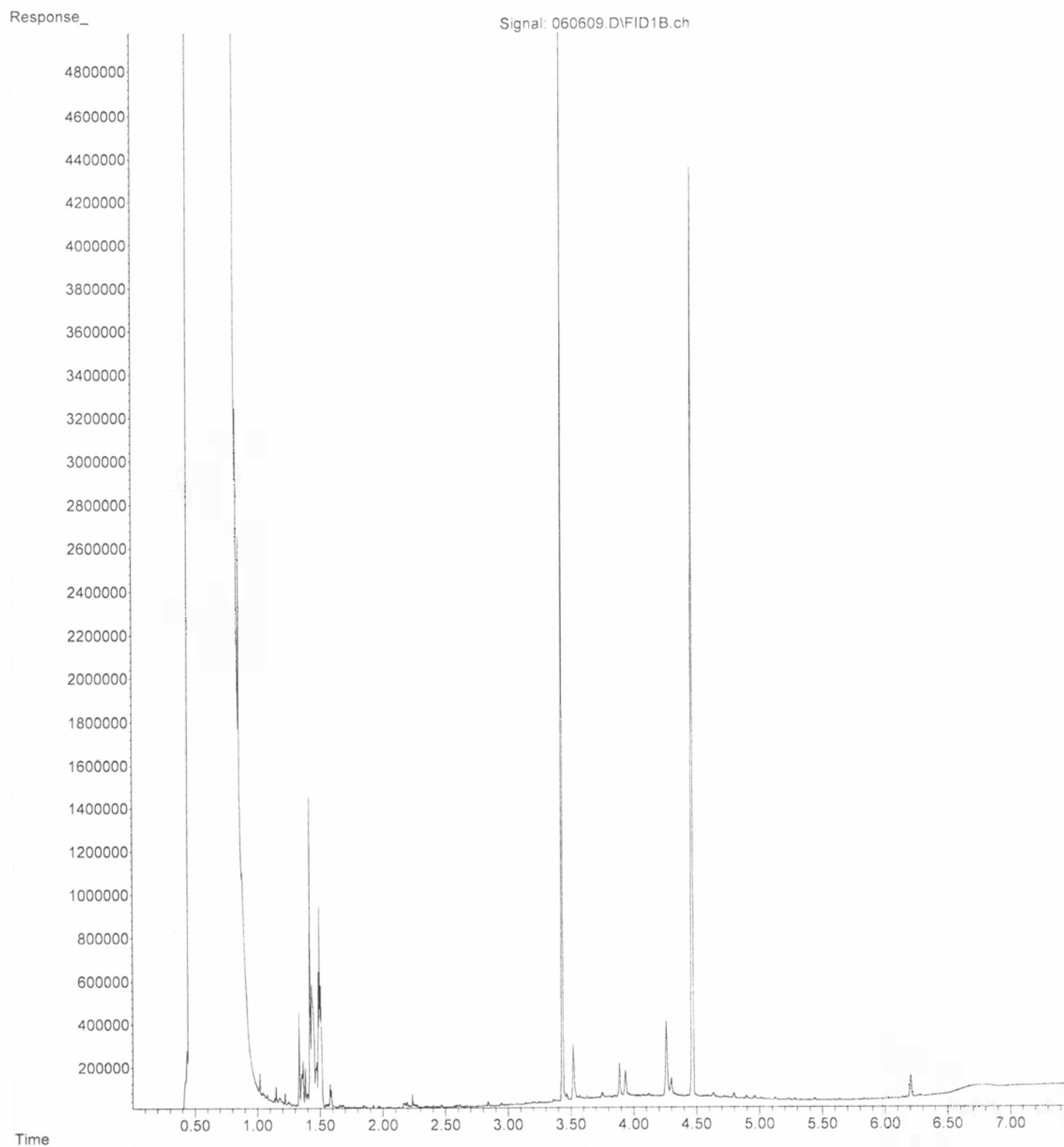
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Instrument : GC14
Sample Name: 406053-06
Misc Info :
Vial Number: 10

ERR



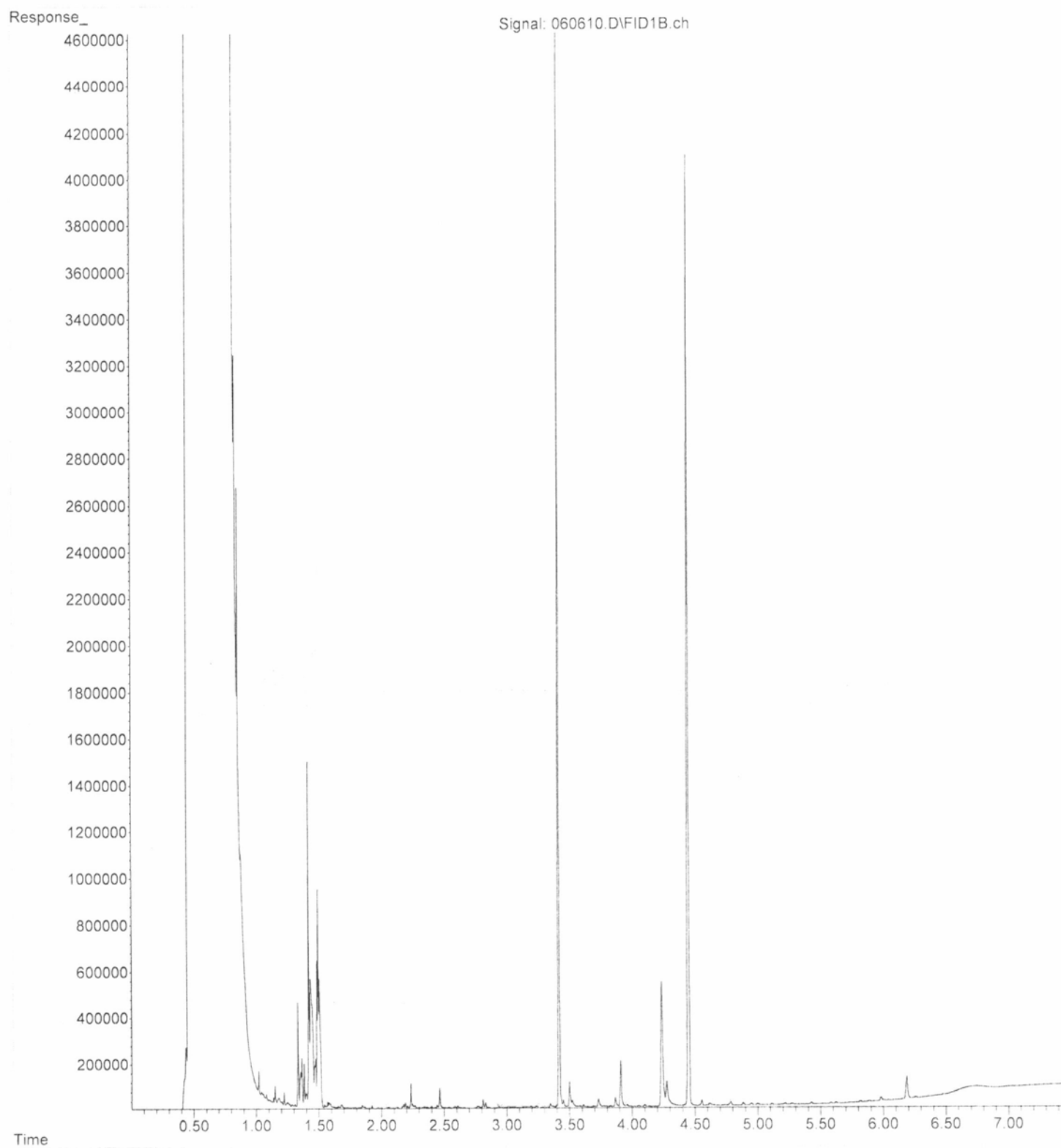
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Instrument : GC14
Sample Name: 406053-07
Misc Info :
Vial Number: 11

ERR



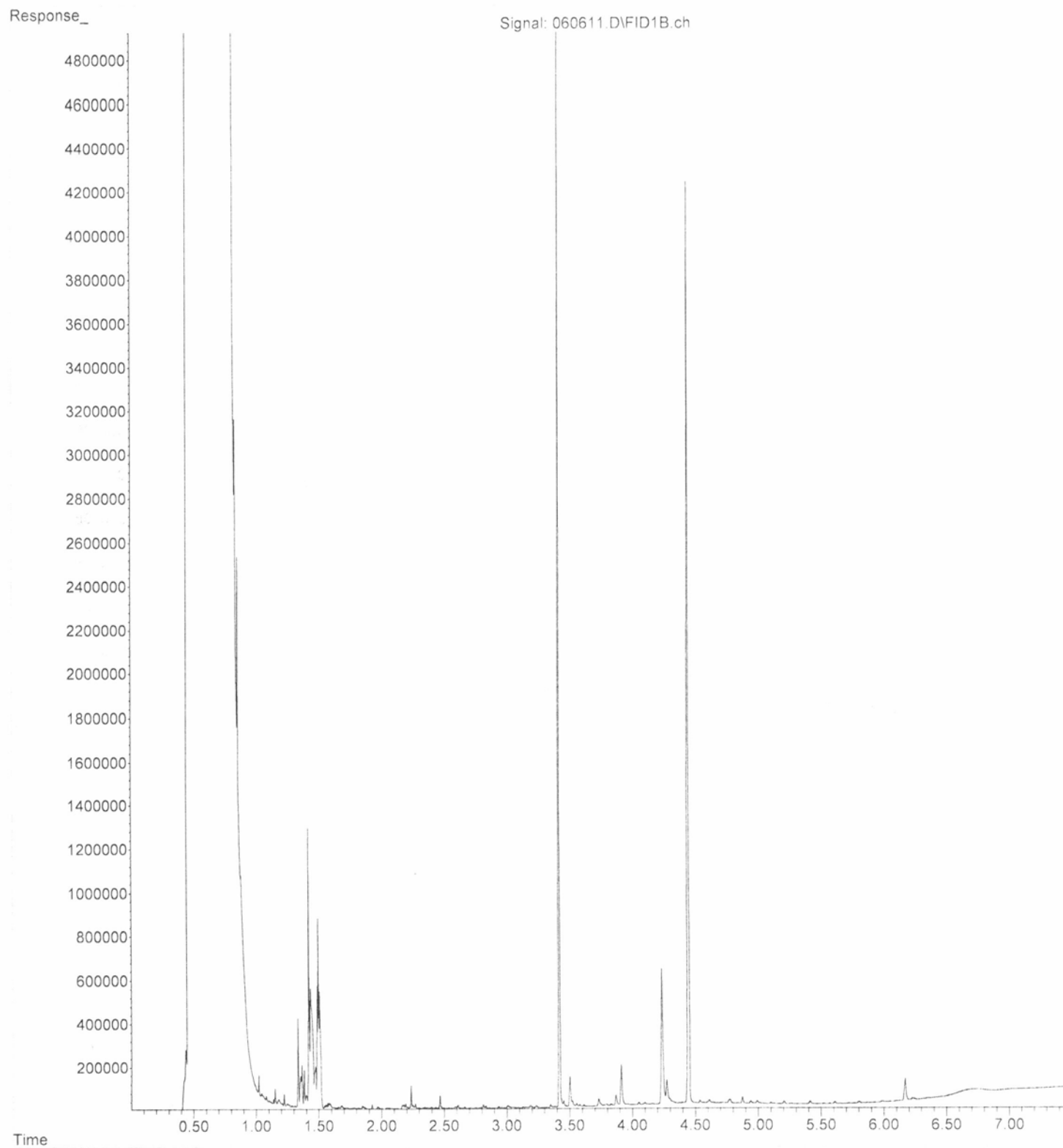
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Instrument : GC14
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Misc Info :
Vial Number: 12

ERR



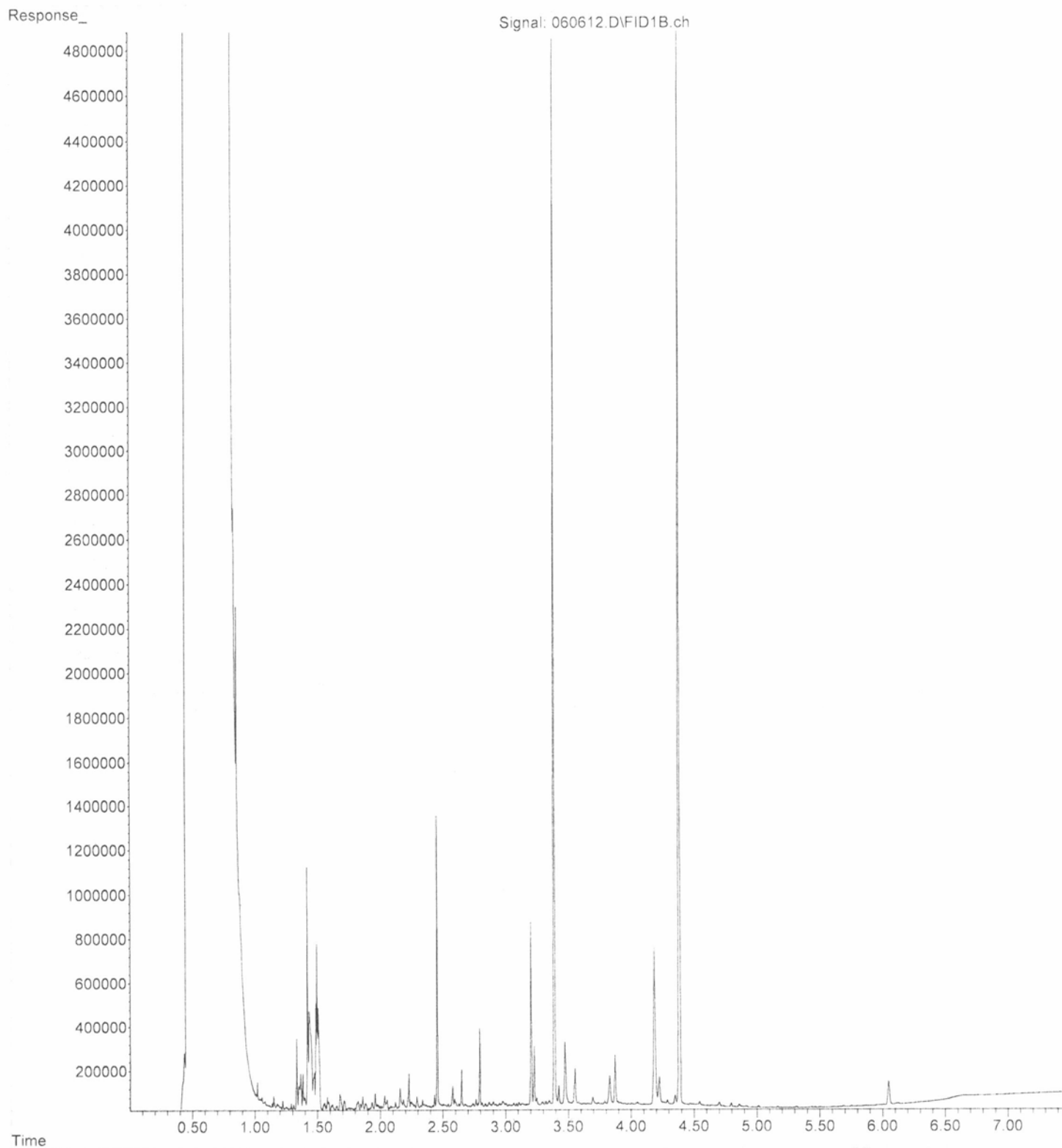
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Instrument : GC14
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Vial Number: 13

ERR



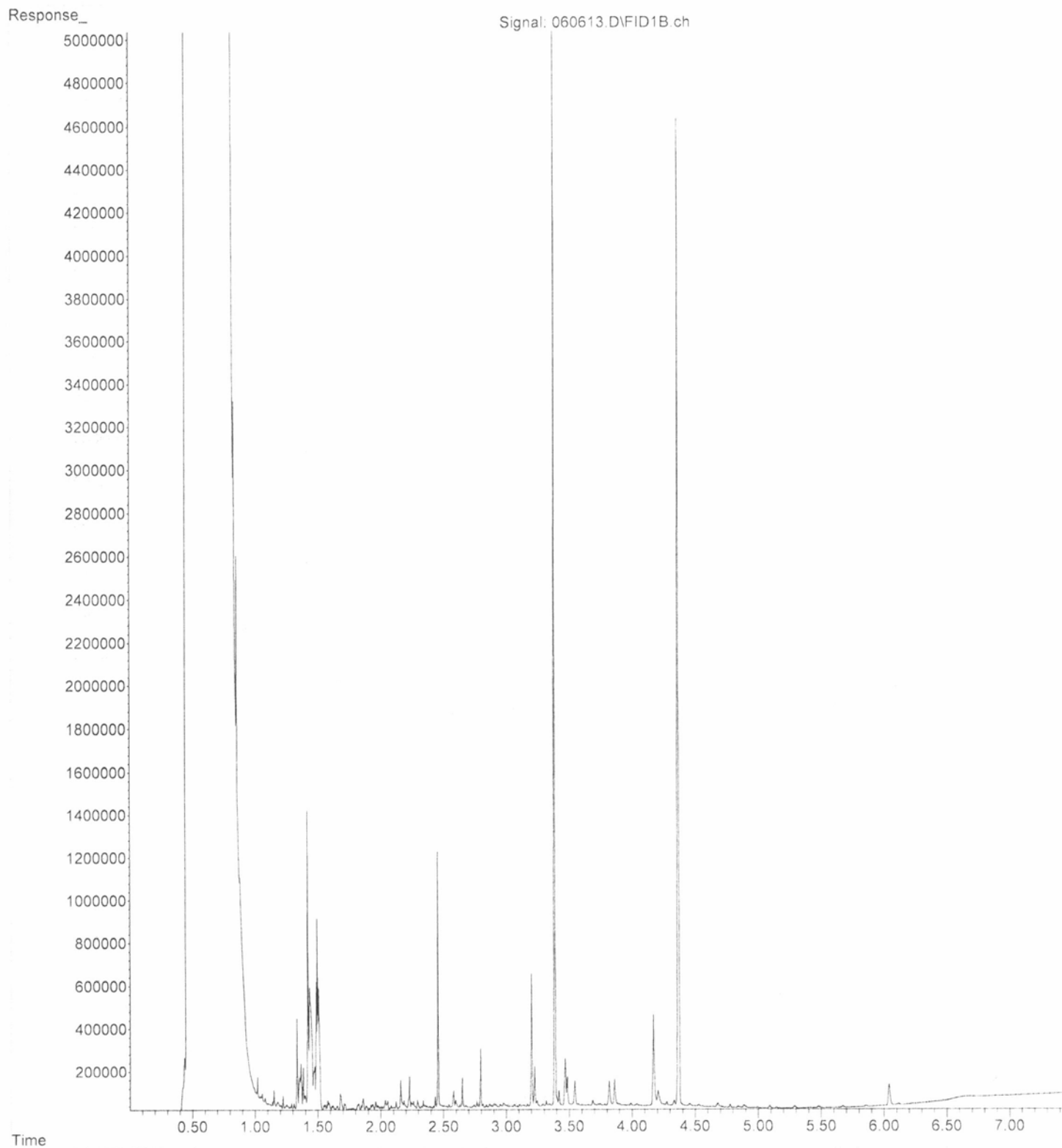
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Instrument : GC14
Sample Name: 406053-13
Misc Info :
Vial Number: 14

ERR



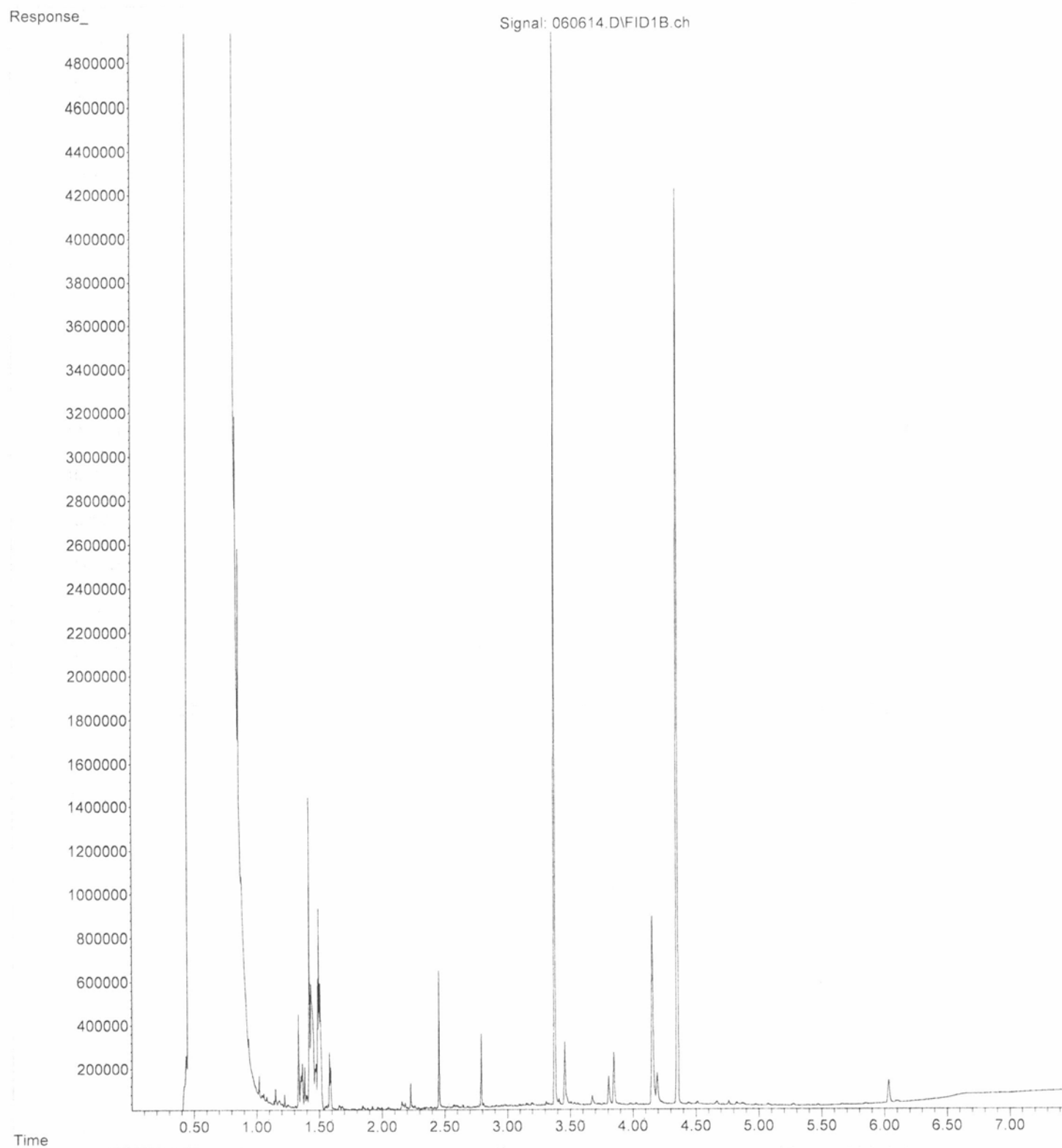
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Operator : TL
Acquired : 06 Jun 2024 01:20 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 406053-14
Misc Info :
Vial Number: 15

ERR



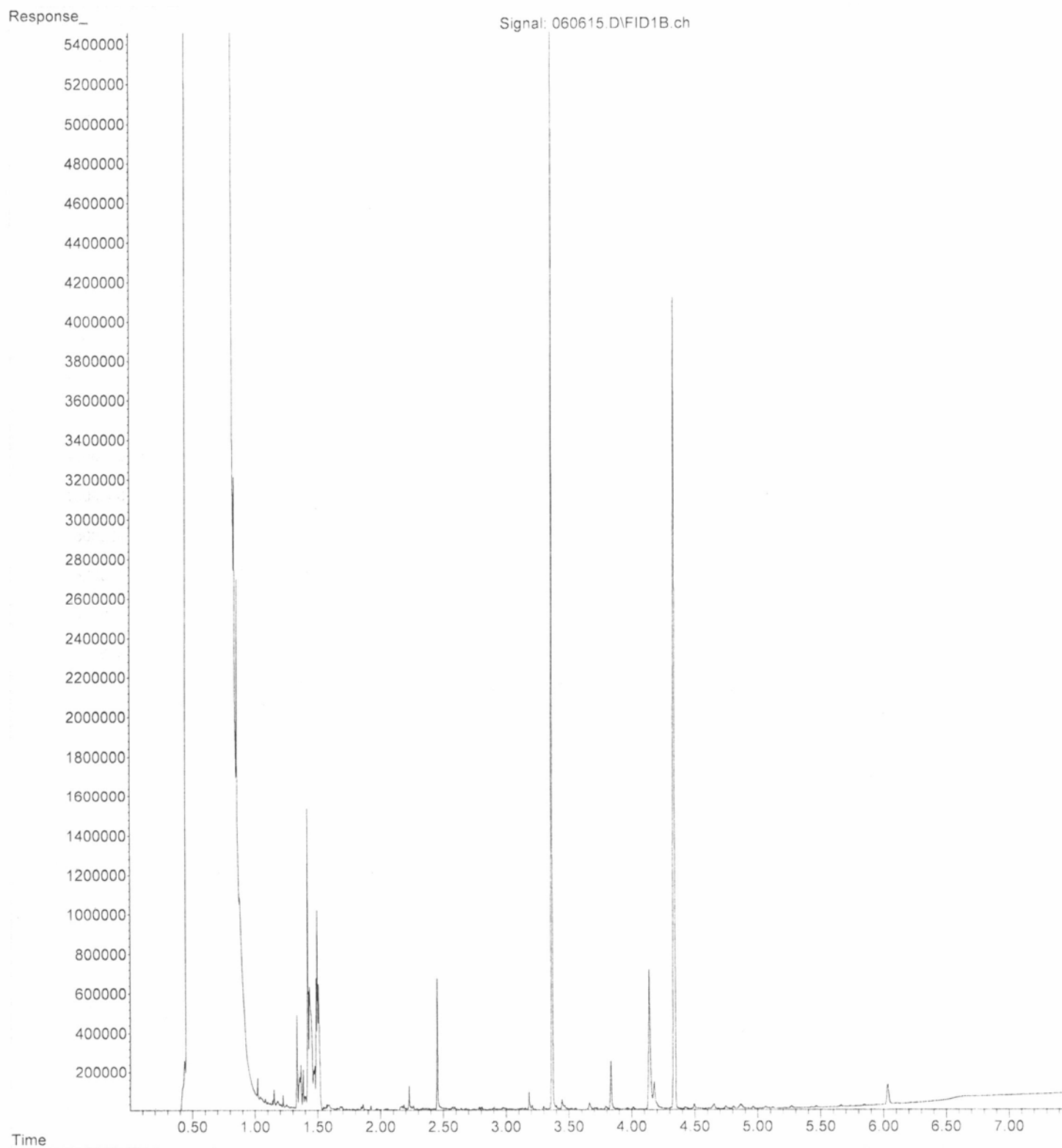
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Operator : TL
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Instrument : GC14
Sample Name: 406053-15
Misc Info :
Vial Number: 16

ERR



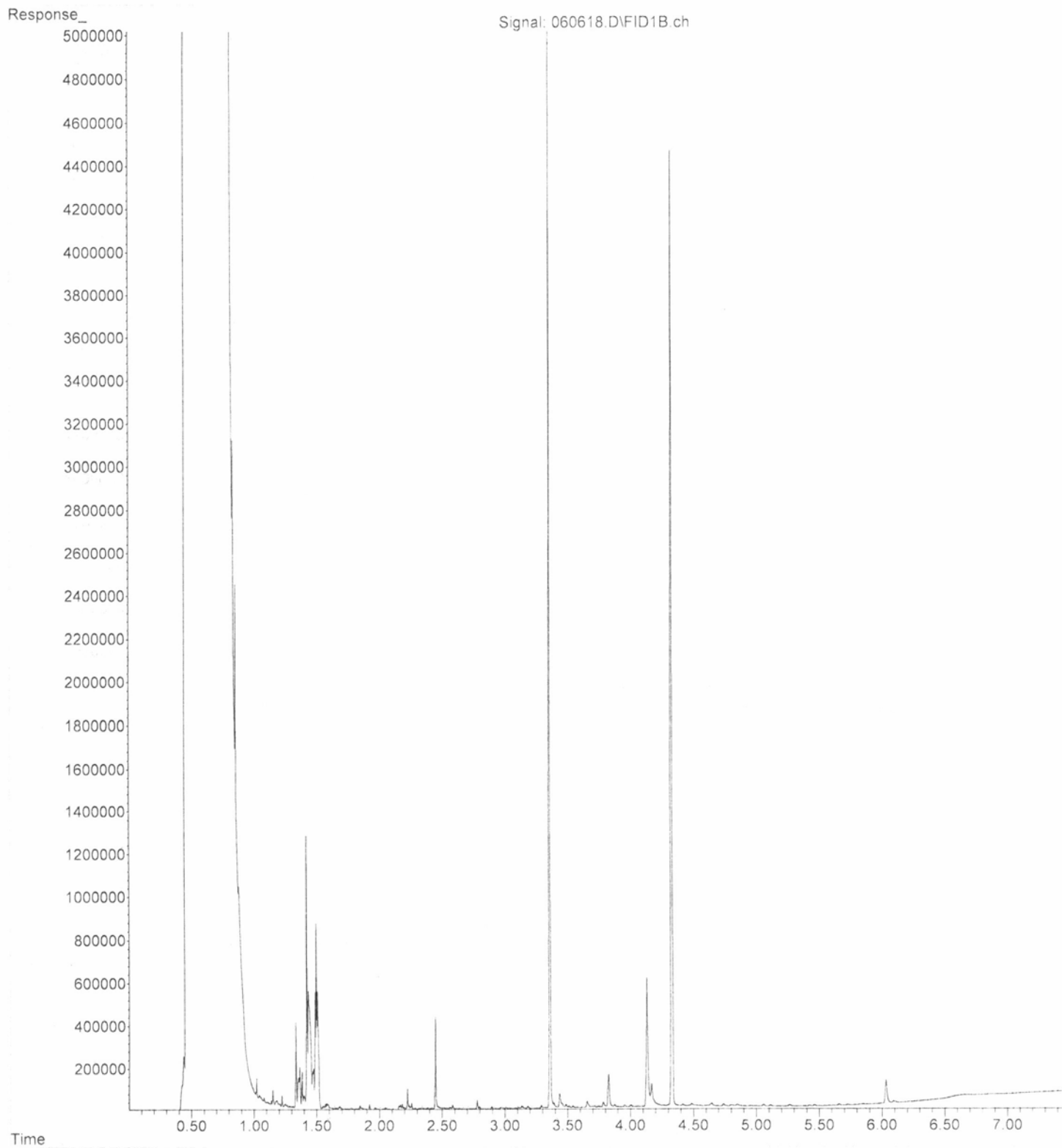
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Instrument : GC14
Sample Name: 406053-16
Misc Info :
Vial Number: 17

ERR



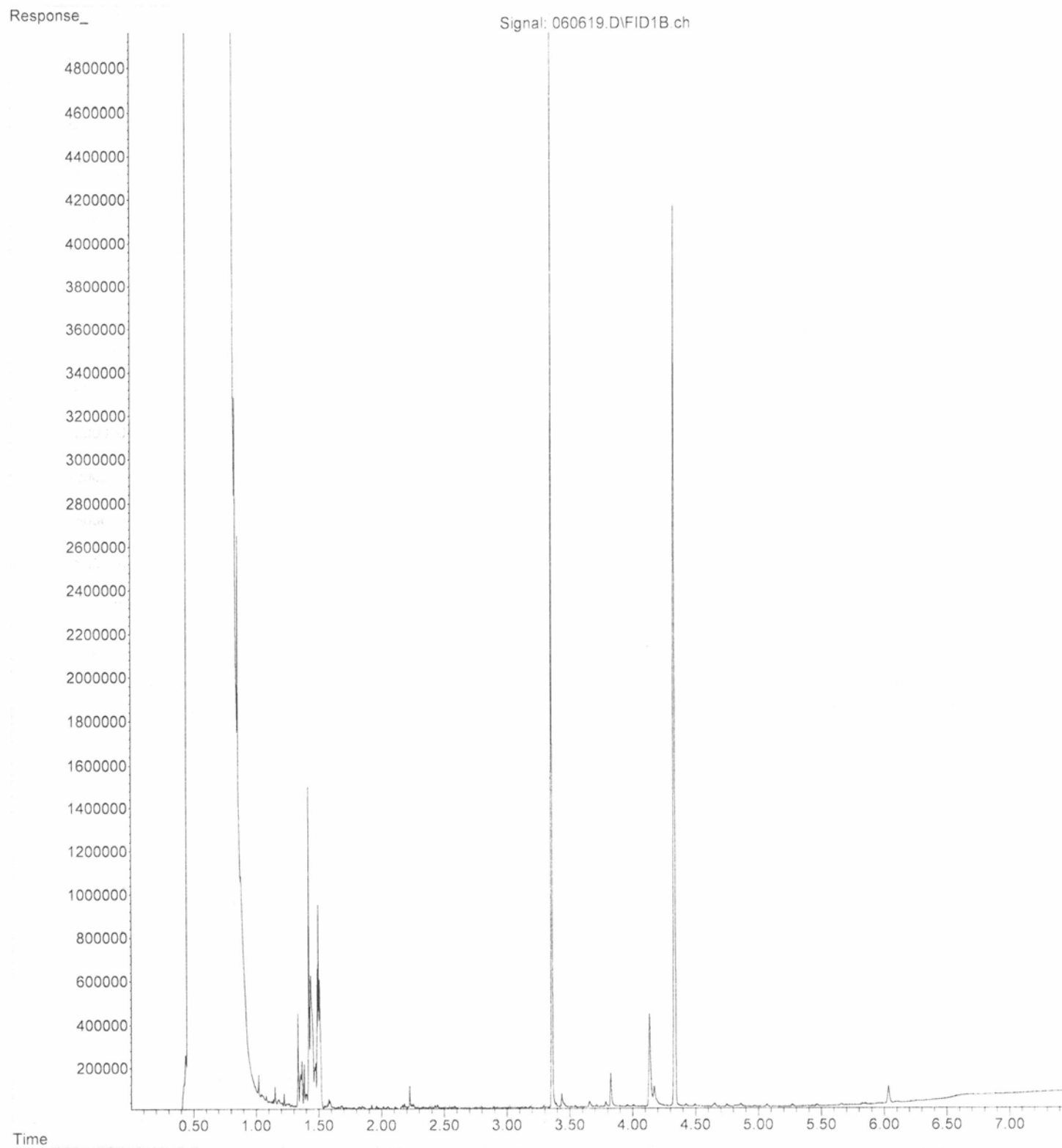
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Instrument : GC14
Sample Name: 406053-21
Misc Info :
Vial Number: 18

ERR



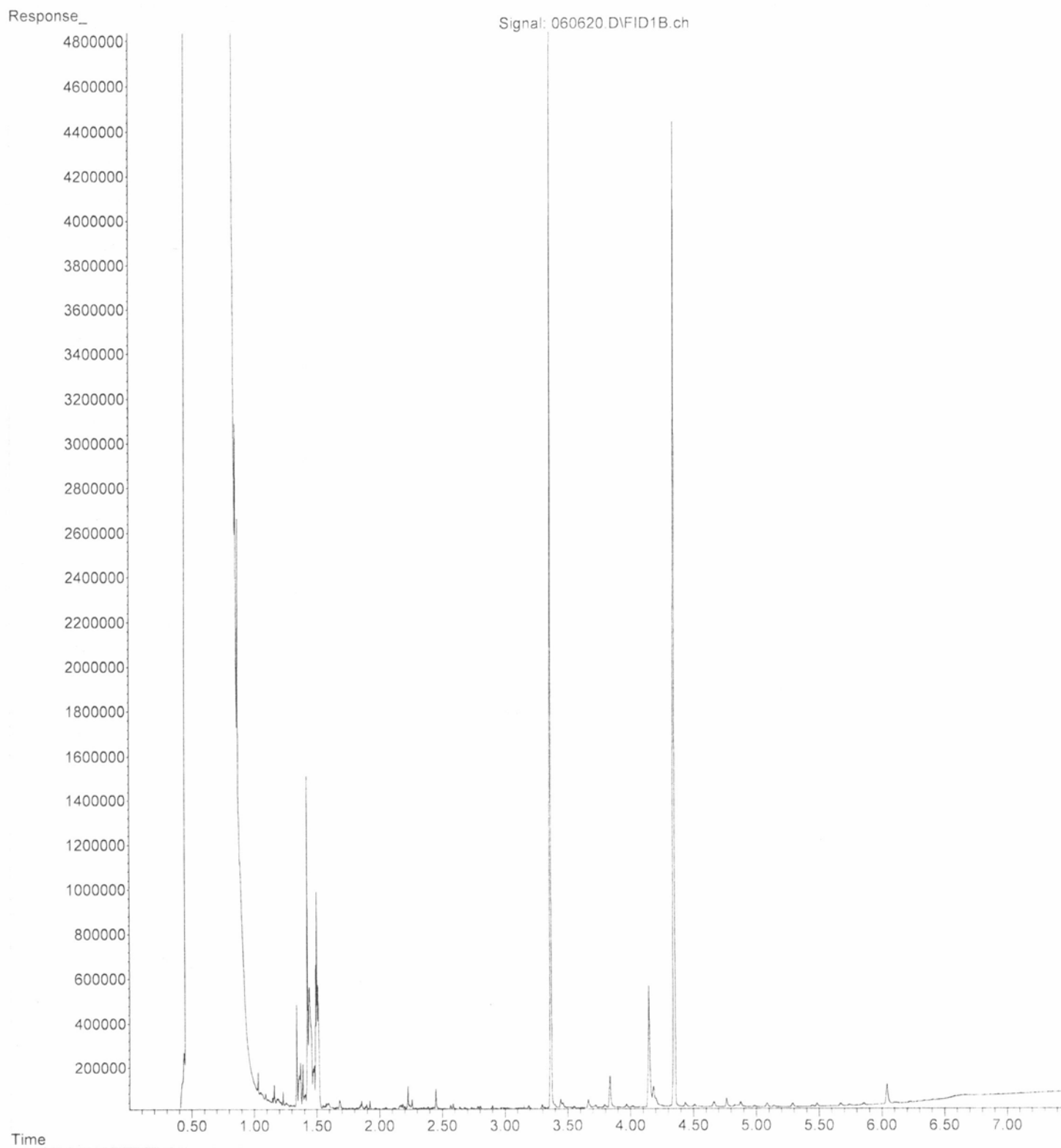
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ERR



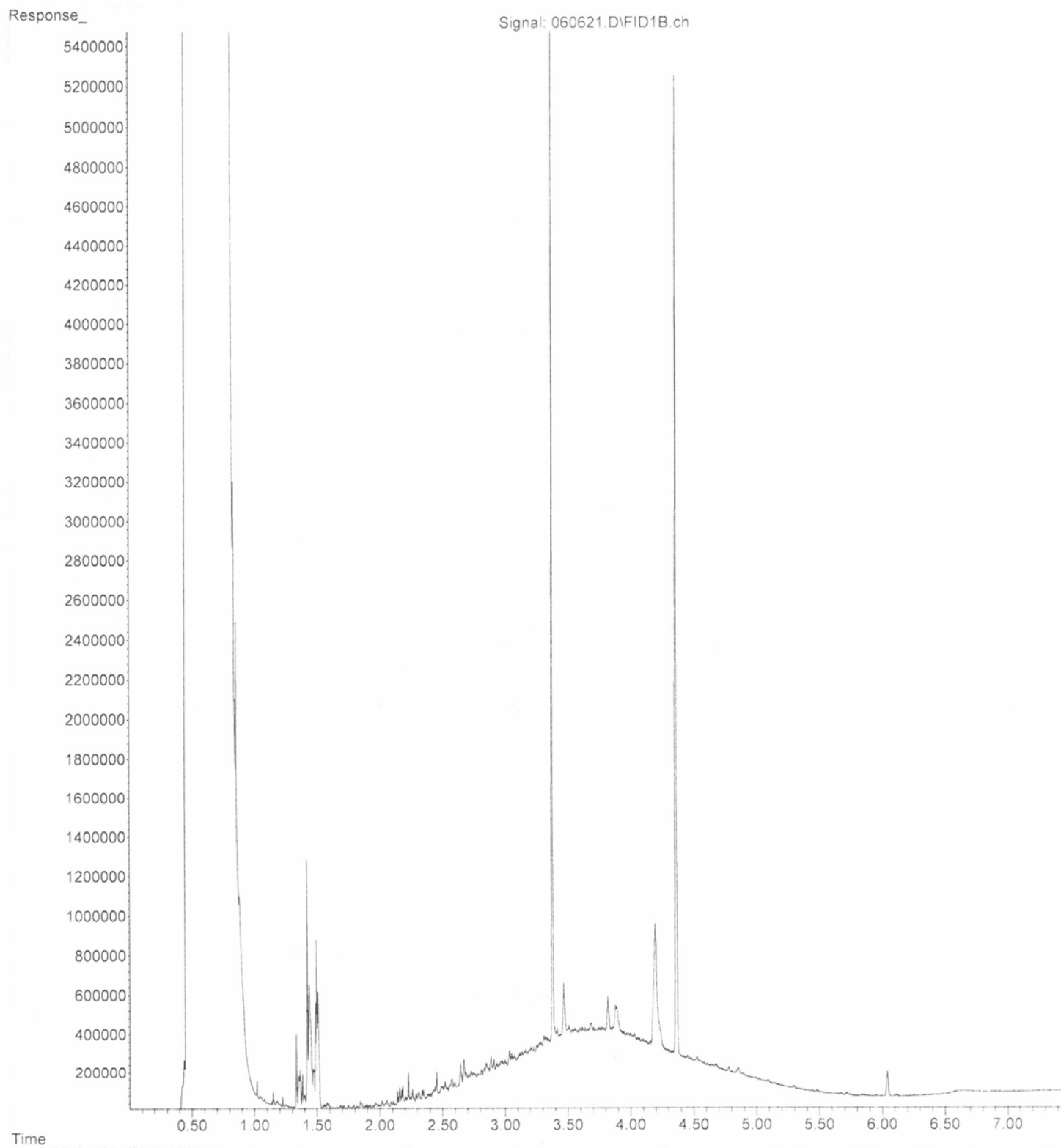
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ERR



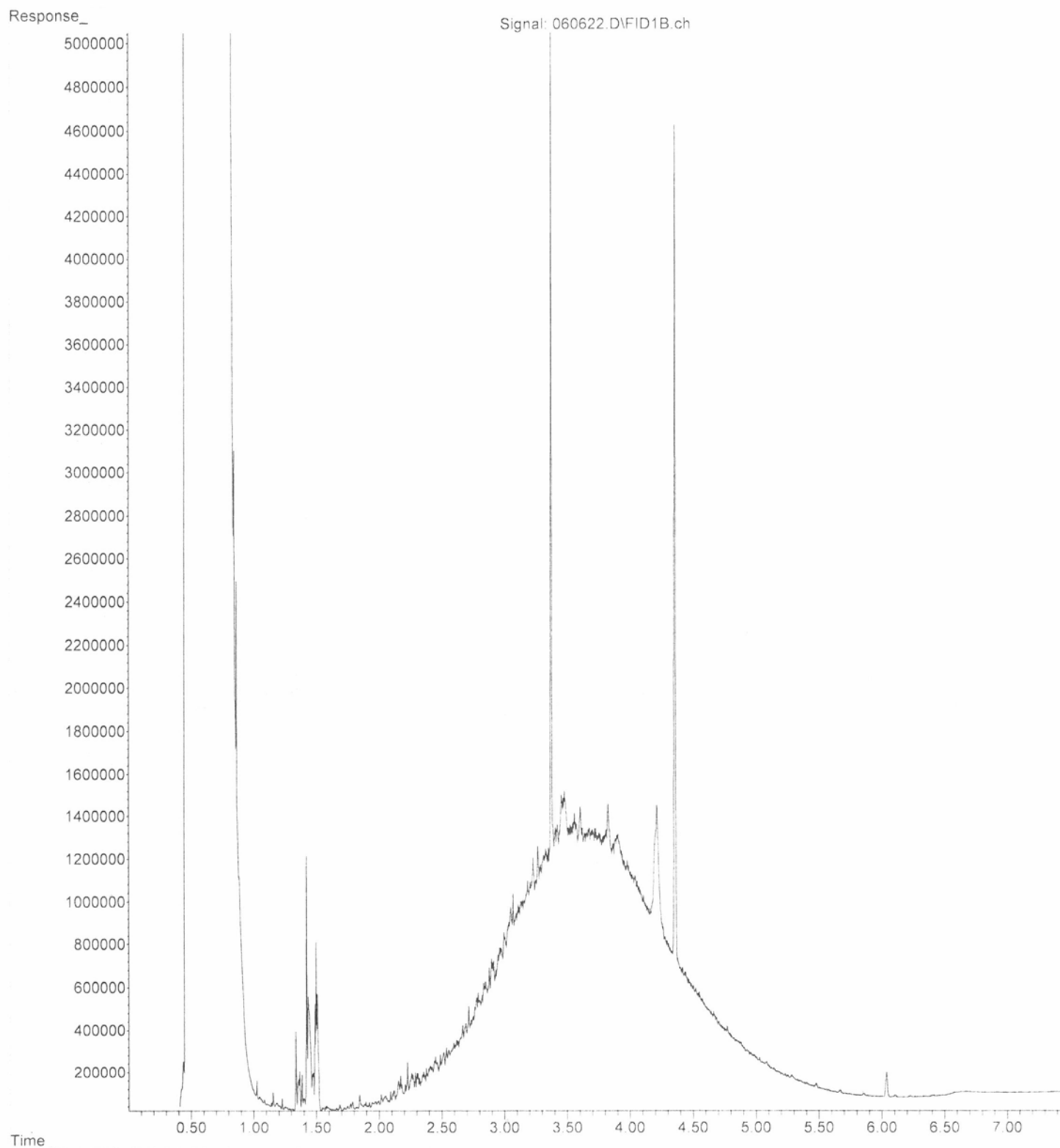
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ERR



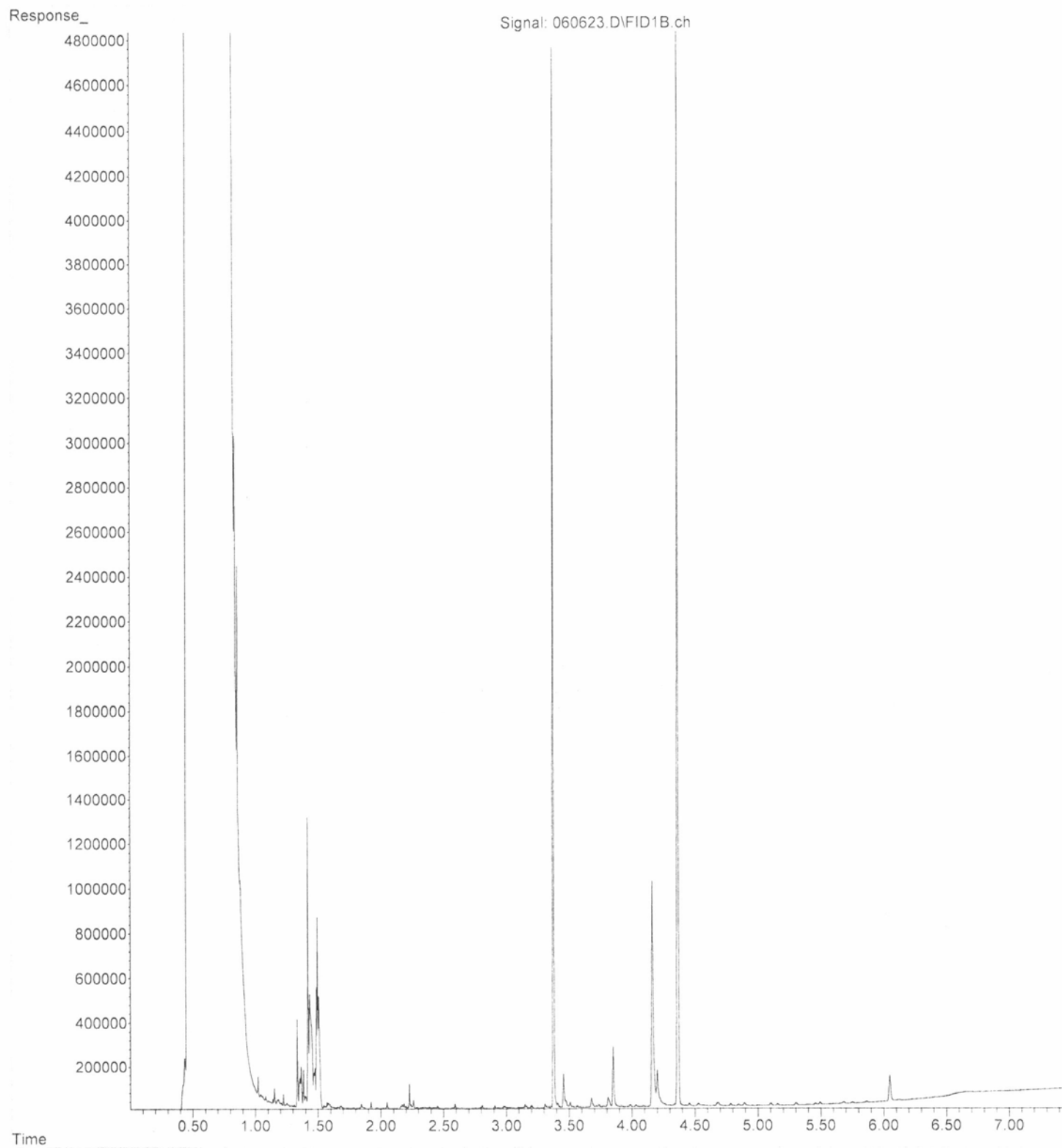
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ERR



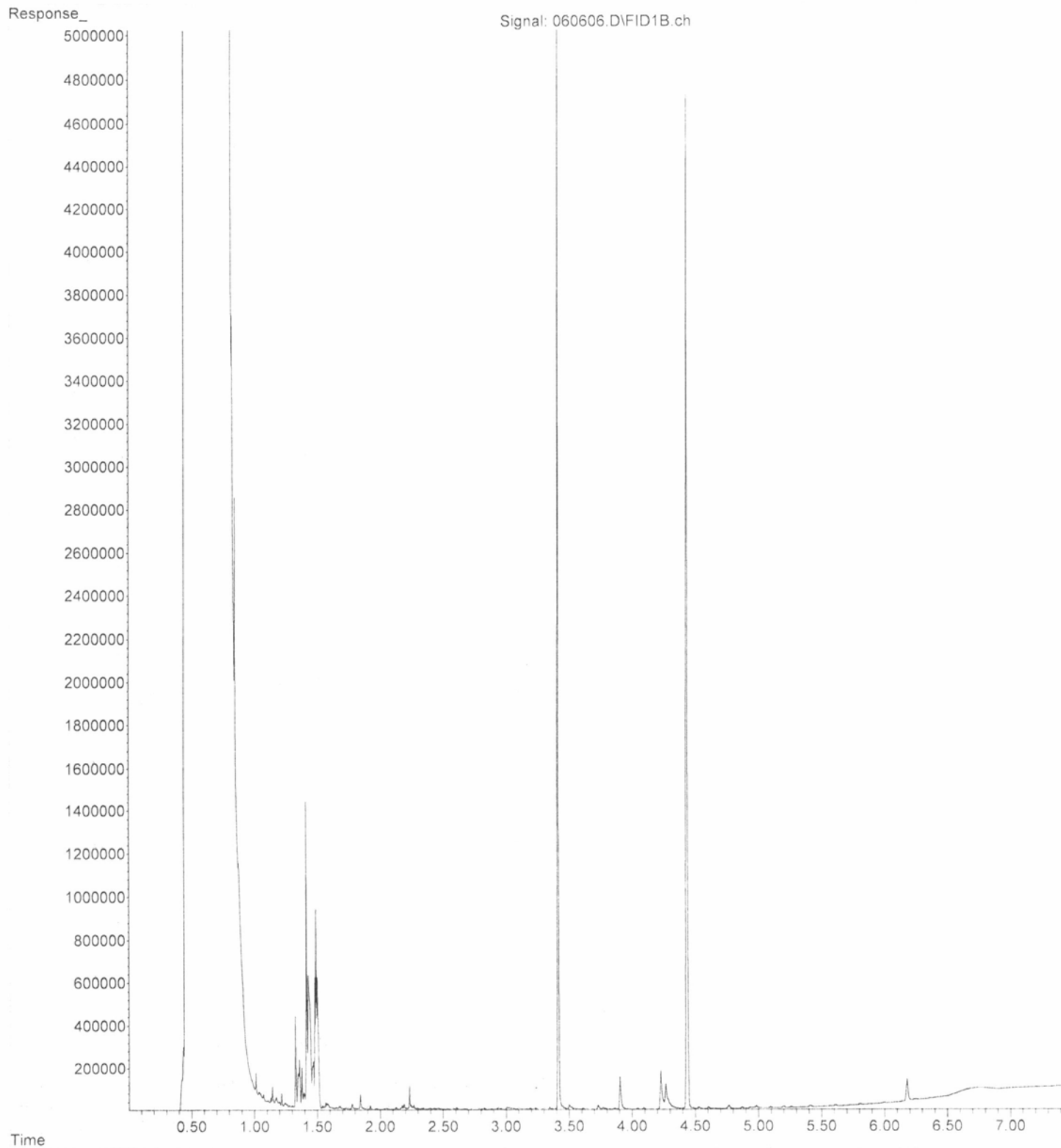
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Instrument : GC14
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Misc Info :
Vial Number: 23

ERR



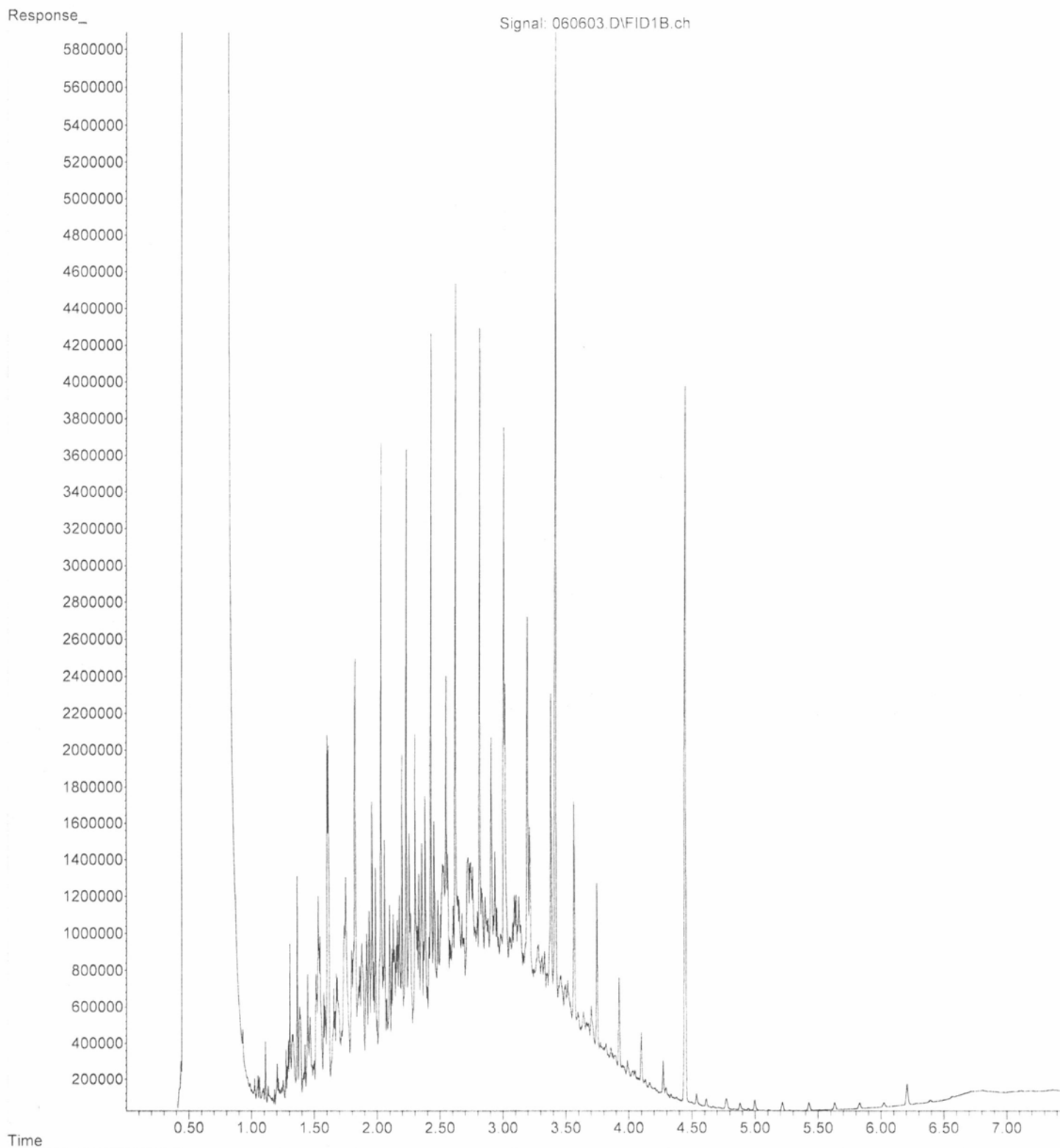
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Misc Info :
Vial Number: 8

ERR



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Misc Info :
Vial Number: 3

ERR

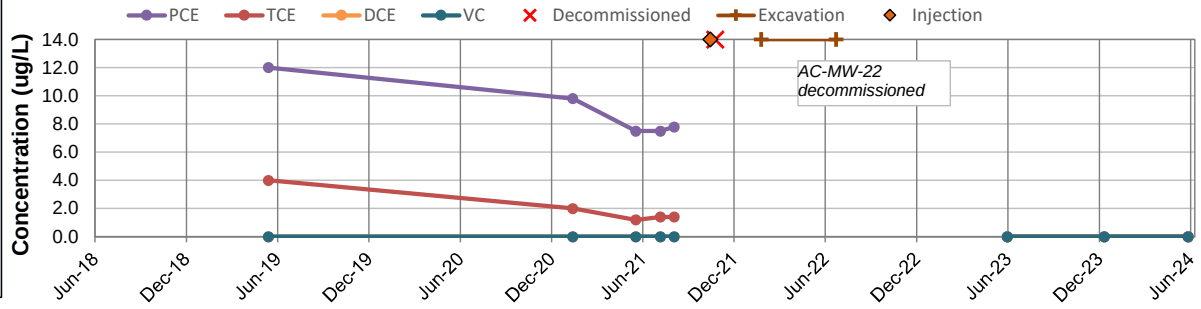


APPENDIX C

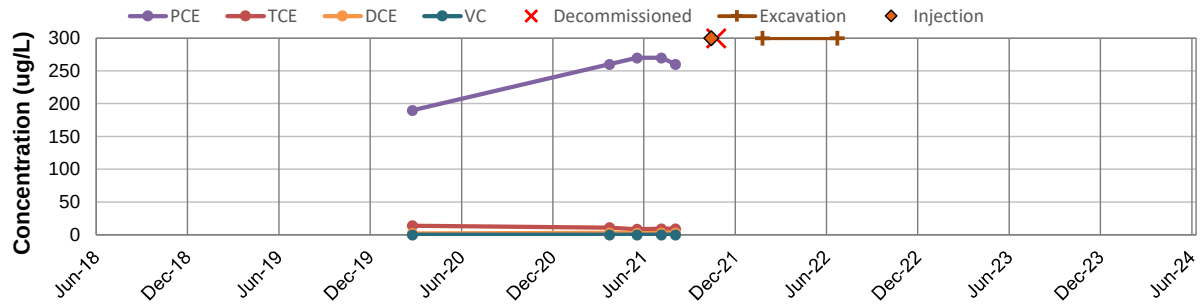
Time-Series Groundwater Analytical Graphs

West Block PCE - North

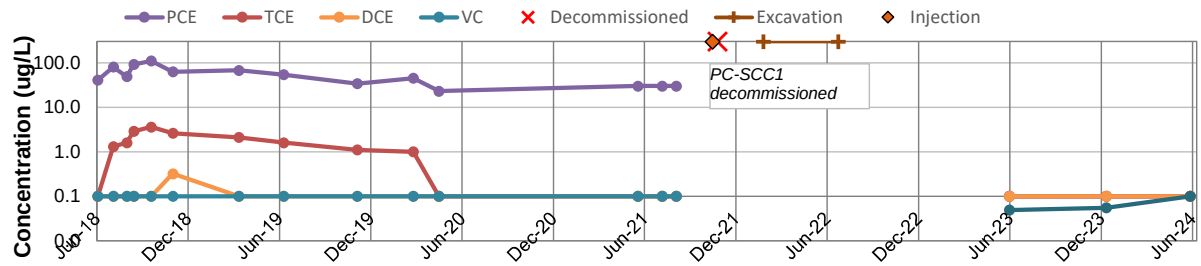
AC-MW-39 (Replaces AC-MW-22)



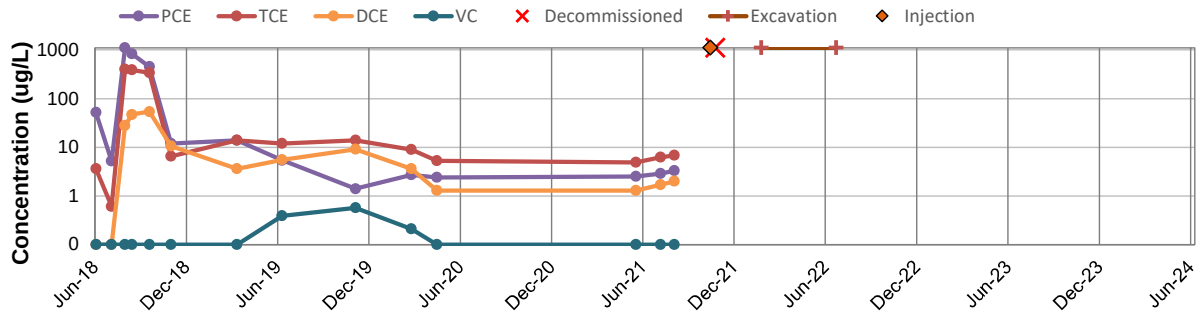
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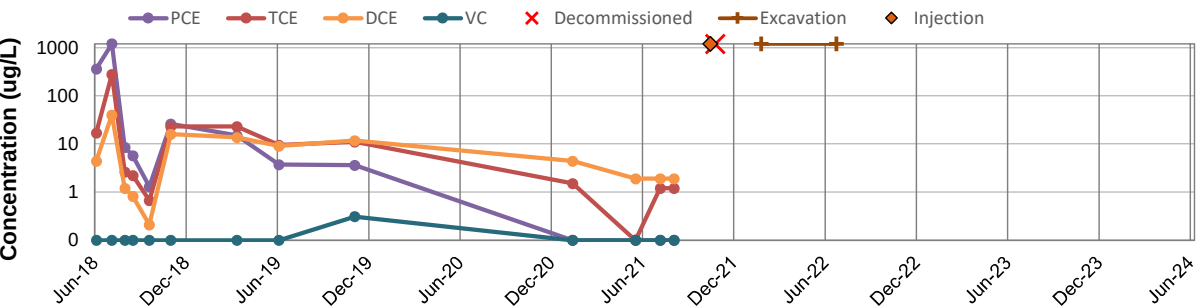
AC-MW-40 (Replaces PC-SCC1)



PC-SCC3 (Decommissioned)



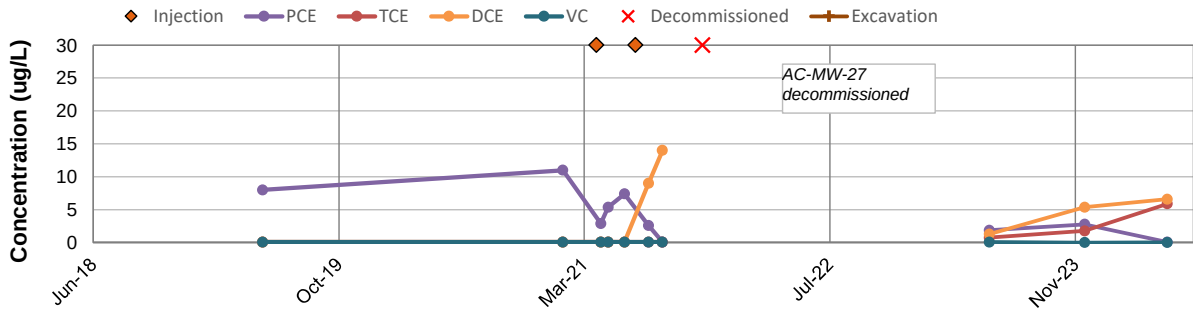
PC-MW-33I (Decommissioned)



West Block PCE - South

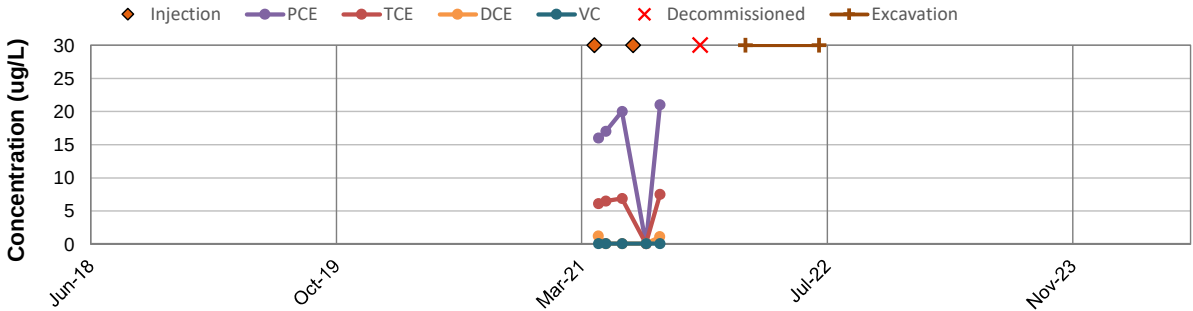
AC-MW-33

(Replaces AC-MW-27 and URS-MW-271)



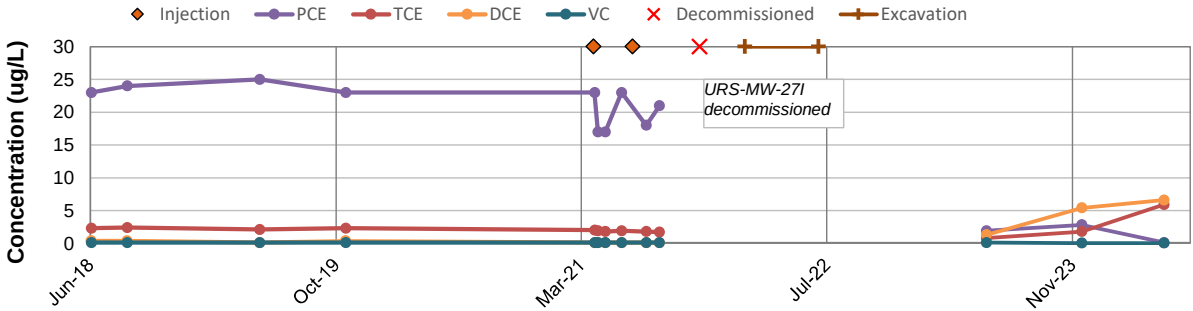
AC-MW-32

(Decommissioned)



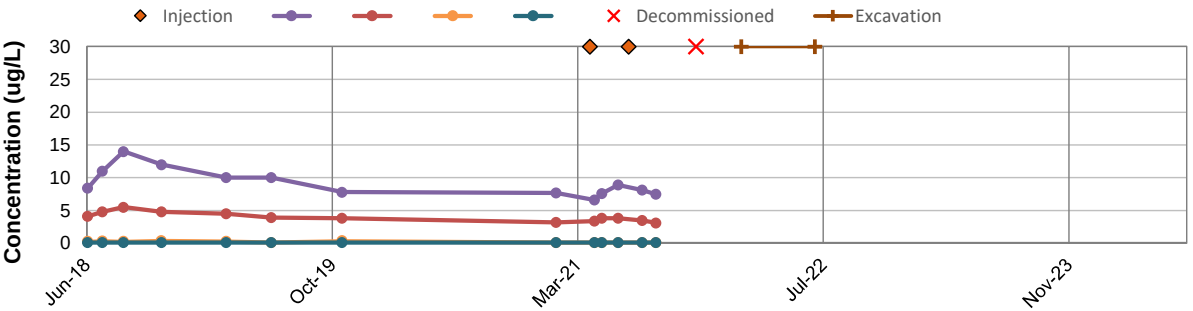
AC-MW-33

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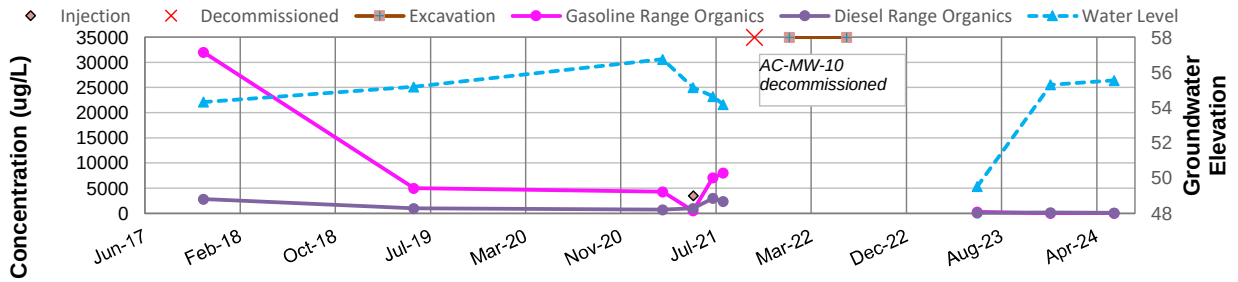
PC-MW-31I

(Decommissioned)

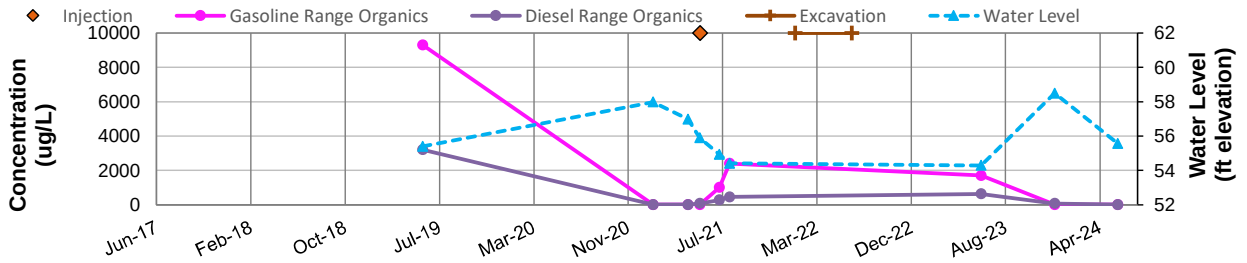


West Block TPH

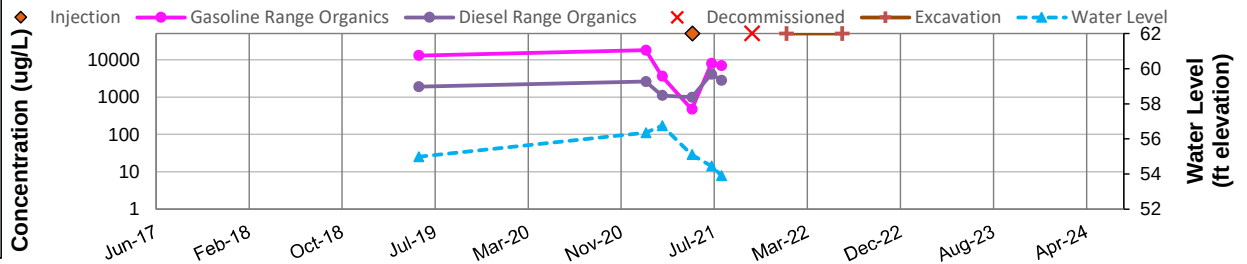
AC-MW3-36
(Replaced AC-MW-10)



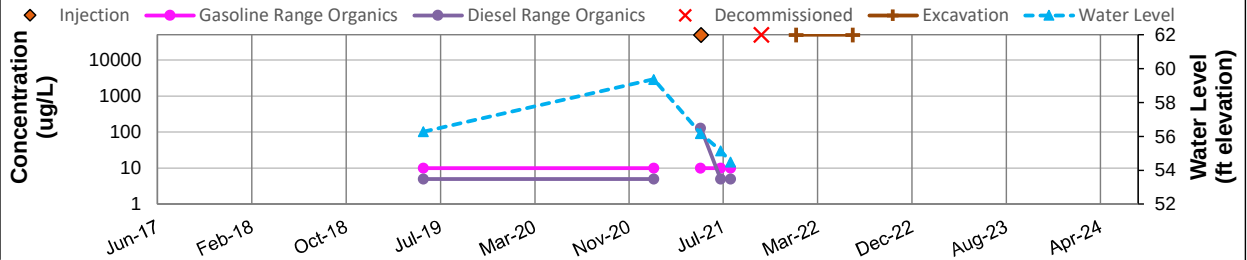
AC-MW-16



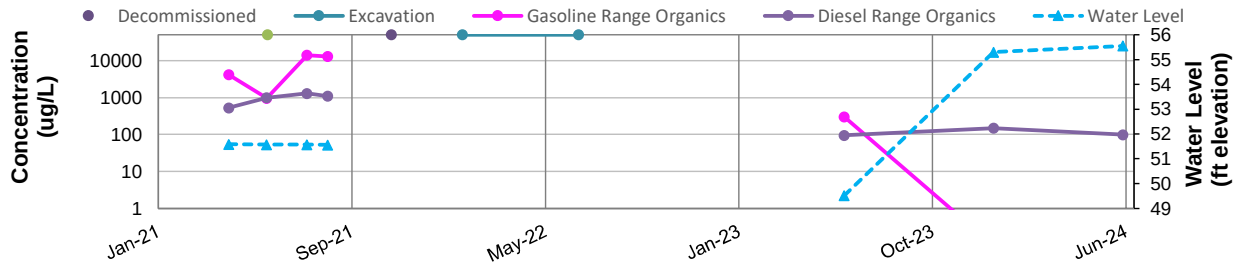
AC-MW-18
(Decommissioned)



AC-MW-20
(Decommissioned)



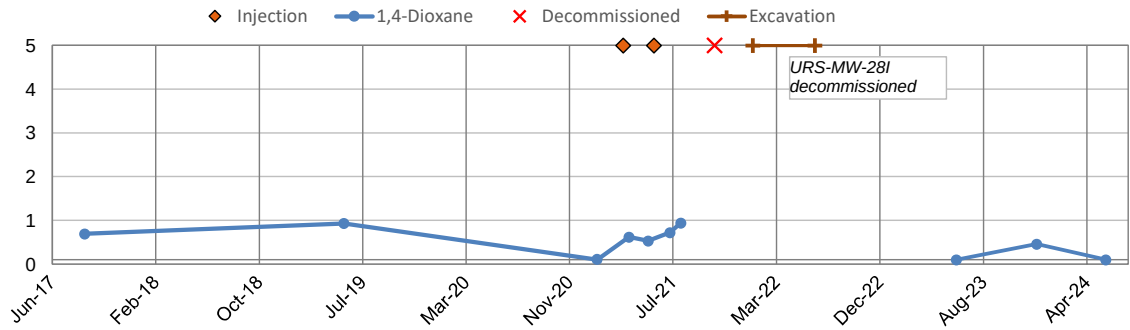
AC-MW-31
(Decommissioned)



West Block 1,4-dioxane

AC-MW-34
(Replaces URS-MW-281)

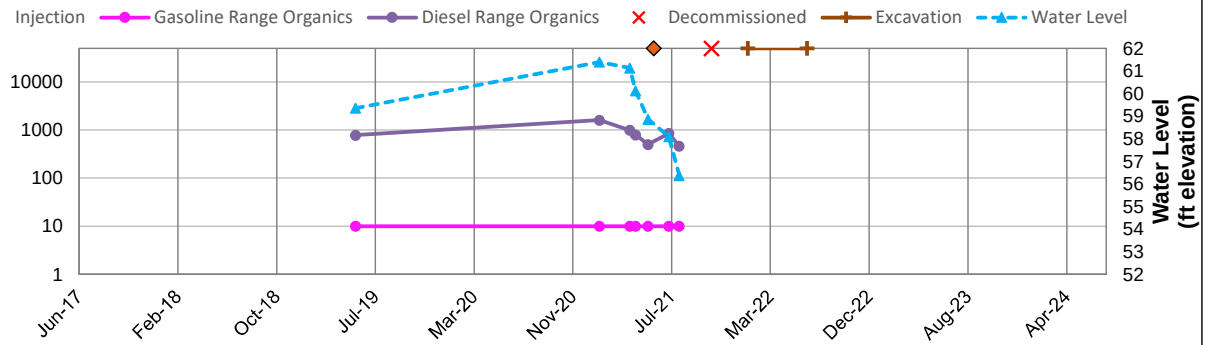
Concentration (ug/L)



East Block TPH

AC-SB-13
(Decommissioned)

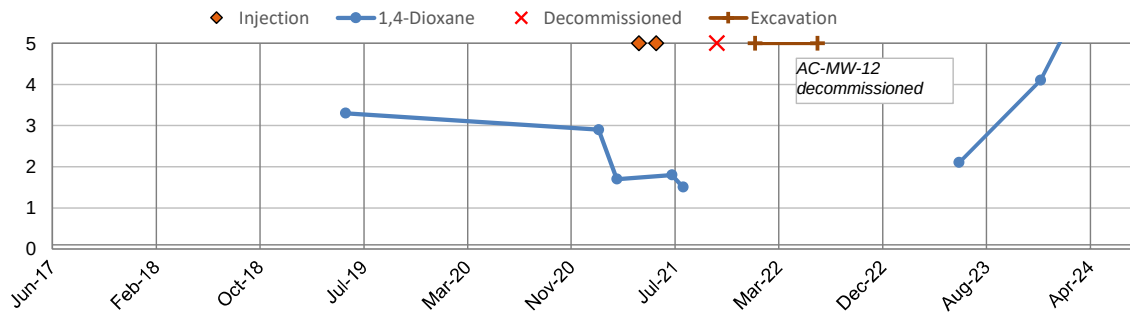
Concentration (ug/L)



East Block 1,4-dioxane

AC-MW-37
(Replaces AC-MW-12)

Concentration (ug/L)



APPENDIX D

Sampling and Analysis Plan/ Quality Assurance Project Plan

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- A Aspect Field Forms

D.1 Introduction

Aspect Consulting, a Geosyntec Company (Aspect) prepared this Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) for the Grand Street Commons Site (Site) located in Seattle, Washington. The GSC Site is listed in the Washington State Department of Ecology's (Ecology) database as Facility/Site ID #97763114 and Cleanup Site ID #3018. This SAP/QAPP is Appendix D to the Groundwater Compliance Monitoring Plan (GCMP).

The purpose of this SAP/QAPP is to ensure that field sample collection, handling, and laboratory analysis will generate data to meet project-specific data quality objectives (DQOs) in accordance with the Model Toxics Control Act (MTCA) requirements (Washington Administrative Code [WAC] 173-340-350). This SAP/QAPP is comprised of two major components: a Field Sampling Plan (FSP) for defining field protocols and a Quality Assurance Project Plan (QAPP) for defining analytical protocols.

Compliance monitoring activities to be performed under this SAP/QAPP are on behalf of Grand Street Commons, LLC (GSC) according to the Prospective Purchaser Consent Decree (PPCD) between Ecology and GSC, (PPCD No. 18-2-14708-5 SEA) and a PPCD between Ecology and Mt. Baker Housing Association (MBHA; PPCD No. 18-2-14714-0). The two PPCDs outline the roles and responsibilities of GSC and MBHA for the cleanup of the Site. Herein, for the purposes of this report, GSC and MBHA will be referred to collectively as GSC. It is the responsibility of Aspect and subcontracted personnel (analytical laboratory and any others) performing the sampling and analysis activities to adhere to the requirements of this SAP/QAPP. The FSP (Section D.2) and QAPP (Section D.3) are presented below.

D.2 Field Sampling Plan

Field investigation and sampling procedures to be followed during monitored natural attenuation (MNA) of groundwater at the Site are described in the following sections. The rationale for the sampling program is described in Section 3 of the GCMP. Figure 3 of the GCMP depicts locations of wells in the groundwater monitoring network.

D.2.1 Groundwater Level Monitoring

Prior to conducting groundwater sampling, groundwater elevations at all existing wells in the groundwater monitoring network will be evaluated in one of two ways depending on whether the well is under artesian conditions:

- For non-artesian wells: The locking well cap will be removed, and the well will be allowed to equilibrate with atmospheric pressure for at least 15 minutes. Once equilibrated, the depth-to-groundwater will be measured from the surveyed location (marked on the casing with a "V" notch or black mark) to the nearest

0.01 foot using an electronic water level measuring device. Depth-to-water measurements will be conducted in monitoring wells using an electric water level indicator, graduated to 0.01 foot.

- For artesian wells: The locking well cap will be removed, and a well-specific cap with a pressure gauge and flow valve will be temporarily installed on the monitoring well casing. The pressure head in the monitoring well will be allowed to equilibrate for at least 15 minutes. Once equilibrated, a pressure head measurement will be taken from the pressure gauge installed on each monitoring well.

D.2.2 Groundwater Sampling Procedure

Groundwater samples will be collected and handled in accordance with the procedures described below.

- Each monitoring well will be purged using a peristaltic pump and dedicated tubing (polyethylene tubing with a short length of silicon tubing through the pump head) in order to minimize drawdown. Artesian wells will be purged by controlling flow using a valve, relying on natural pressure to generate flow. The tubing intake will be placed just below the center of the saturated section of well screen.
- VOC loss will be minimized by regulating flowrate to prevent the entrainment of air bubbles in the tubing. The flowrate will be adjusted to minimize drawdown; however, a minimum purge flowrate of 100 milliliters per minute (mL/min) will be maintained throughout purging and sampling (Puls and Barcelona, 1996; Ecology, 2012), and the maximum flowrate will not exceed 1,000 mL/min.
- During purging, field parameters (temperature, pH, specific electrical conductance, dissolved oxygen, and oxidation-reduction potential [ORP]) will be monitored using an AquaTroll water quality meter and flow-through cell, or equivalent, and turbidity will be measured using a Hach 2100Q turbidimeter. Additionally, turbidity will be recorded using a turbidimeter and the depth-to-water will be recorded during purging. These field parameters will be recorded at 3 to 5 minute intervals throughout well purging until they stabilize. Stabilization is defined as three successive readings where:
 - o The water level is stable, in accordance with EPA's low-flow groundwater guidance (i.e., water level drawdown is less than 0.33 foot below the initial water level reading)
 - o Temperature varies by less than 0.1 degree Celsius
 - o Specific conductance varies by less than 3 percent
 - o Dissolved oxygen varies by less than 10 percent (or 0.5 milligrams per liter [mg/L] if the readings are below 1 mg/L)
 - o pH varies by less than 0.1
 - o ORP varies by less than 10 mV

- Turbidity varies by less than 10 percent (or if three consecutive readings are less than 10 nephelometric turbidity units)
 - However, no more than three well casing volumes will be purged prior to groundwater sample collection.
- If the monitoring well is completely dewatered during purging, samples will be collected when sufficient recharge has occurred to allow filling of all sample containers.
- Once purging is complete, the groundwater samples will be collected using the same low-flow rate from the dedicated tubing upstream of the flow-through cell to avoid potential cross-contamination and directly into laboratory-supplied sample containers for analysis.
- QC groundwater samples (e.g., field duplicates and trip blanks) will be collected at the respective frequencies prescribed in Section D.3.5.
- After sample collection is complete, the depth to the bottom of the monitoring well will also be measured to evaluate siltation of the monitoring well. Following sampling, the well cap and monument cap will be secured. Each well's dedicated tubing will be retained in the monitoring well for subsequent sampling events. Any damaged or defective well caps or monuments will be noted and scheduled for replacement, if necessary.

Groundwater sampling forms are included in Attachment A.

D.2.3 Groundwater Sample Laboratory Analyses

Groundwater samples will be submitted to a state-certified laboratory and analyzed for a combination of the following Site contaminants of concern, as prescribed in Section 2 of the GCMP:

- Gasoline-range total petroleum hydrocarbons (TPHg) by Ecology Method NWTPH-Gx
- Diesel- and heavy oil-range total petroleum hydrocarbons (TPHd and TPHo) by Ecology Method NWTPH-Dx (without Silica Gel Cleanup)
- Benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEX) by EPA Method 8260E
- Chlorinated volatile organic compounds (cVOCs): Tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene, and vinyl chloride (VC) by EPA Method 8260E
- 1,4-Dioxane by EPA Method 8260E SIM

D.2.4 Groundwater Sample Identification

Each groundwater sample will be assigned a unique sample identification number that includes the well number and the 6-digit date on which the sample was collected in the

format YYMMDD. For example, a groundwater sample collected from monitoring well AC-MW-48 on December 5, 2024, would be identified as AC-MW-48-241205.

D.2.5 Sample Custody and Field Documentation

D.2.5.1 Sample Custody

Upon collection, samples will be placed upright in a cooler. Ice or blue ice will be placed in each cooler to meet sample preservation requirements. Inert cushioning material will be placed in the remaining space of the cooler as needed to limit movement of the sample containers. If the sample coolers are being shipped (not hand carried) to the laboratory, the chain of custody (COC) form will be placed in a waterproof bag taped to the inside lid of the cooler for shipment.

After collection, samples will be maintained in the Aspect's custody until formally transferred to the analytical laboratory. For purposes of this work, custody of the samples will be defined as follows:

- In plain view of the field representatives
- Inside a cooler that is in plain view of the field representative
- Inside any locked space such as a cooler, locker, car, or truck to which the field representative has the only immediately available key(s)

A COC record provided by the laboratory will be initiated at the time of sampling for all samples collected. The record will be signed by the field representative and others who subsequently take custody of the sample. Couriers or other professional shipping representatives are not required to sign the COC form; however, shipping receipts will be collected and maintained as a part of custody documentation in project files. A copy of the COC form with appropriate signatures will be kept by Aspect.

Upon sample receipt, the laboratory will fill out a cooler receipt form to document sample delivery conditions. A designated sample custodian will accept custody of the shipped samples and verify that the COC form matches the samples received. The laboratory will notify the project manager, as soon as possible, of any issues noted with the sample shipment or custody.

D.2.5.2 Field Documentation

While conducting field work, the field representative will document pertinent observations and events specific to each activity on field forms (e.g., boring log form, as-built well completion form, well development form, groundwater sampling form, etc.) and/or in a field notebook, and, when warranted, provide photographic documentation of specific sampling efforts. Field notes will include a description of the field activity, sample descriptions, and associated details such as the date, time, and field conditions. Field documentation forms are included in Attachment A.

D.2.6 Decontamination and Investigative-Derived Waste Management

All non-disposable sampling equipment (e.g., water level indicator) will be decontaminated before collection of each sample. The decontamination sequence consists of a scrub with a non-phosphate (Alconox or Liquinox) solution, followed by tap water (potable) rinse, and finished with thorough spraying with deionized or distilled water. A solvent rinse – methanol or hexane – may be used to remove petroleum product from sampling equipment prior to the decontamination procedure described above.

Investigation-derived waste (IDW) generated during compliance groundwater monitoring will also be temporarily stored on-Site in DOT-approved drums and disposed of off-site. Each drum will be labeled with the following information:

- Non-Classified IDW
- Content of the drum and its source (i.e., the exploration[s] from which the contents came)
- Date IDW was generated
- Name and telephone number of the Project Manager or Field Manager.

All drums of IDW will be temporarily consolidated on-Site, profiled (in accordance with applicable waste regulations) based on available analytical data, and disposed of appropriately at a permitted off-Site disposal facility. Containers of IDW will be on site less than 90 days from date of generation.

Documentation for off-Site disposal of IDW will be maintained in the project file.

D.3 Quality Assurance Project Plan

This QAPP identifies QC procedures and criteria required to ensure that data collected are of known quality and acceptable to achieve project objectives. Specific protocols and criteria are also set forth in this QAPP for data quality evaluation, upon the completion of data collection, to determine the level of completeness and usability of the data. It is the responsibility of the project personnel performing or overseeing the sampling and analysis activities to adhere to the requirements of the FSP and this QAPP.

D.3.1 Purpose of the QAPP

As stated in Ecology's *Guidelines for Preparation of Quality Assurance Project Plans for Environmental Studies* (Ecology, 2016), specific goals of this QAPP are as follows:

- Focus project manager and project team to factors affecting data quality during the planning stage of the project
- Facilitate communication among field, laboratory, and management staff as the project progresses
- Document the planning, implementation, and assessment procedures for QA/QC activities for the investigation
- Ensure that the DQOs are achieved
- Provide a record of the project to facilitate final report preparation

The DQOs for the project include both qualitative and quantitative objectives, which define the appropriate type of data and specify the tolerable levels of potential decision errors that will be used as a basis for establishing the quality and quantity of data needed to support the environmental assessment. To ensure that the DQOs are achieved, this QAPP details aspects of data collection including analytical methods, QA/QC procedures, and data quality reviews. This QAPP describes both quantitative and qualitative measures of data to ensure that the DQOs are achieved. DQOs dictate data collection rationale, sampling and analysis designs that are presented in the main body of the GCMP, and sample collection procedures that are presented in the FSP (Section D.2 of this Appendix).

D.3.2 Project Organization and Responsibilities

The project consultant team involved with data generation includes representatives from Aspect. Key individuals and their roles on this project are as follows:

Project Manager—Aspect. The project manager is responsible for the successful completion of all aspects of this project, including day-to-day management, production of reports, liaison with party and regulatory agencies, and coordination with project team members. The project manager is also responsible for resolution of non-conformance issues, is the lead author on project plans and reports, and provides regular, up-to-date progress reports and other requested information to project team and Ecology.

Field Manager—Aspect. The field manager is responsible for overseeing the field sampling program outlined in this plan, including collecting representative samples and ensuring that they are handled properly prior to transfer of custody to the project laboratory. The field manager will manage procurement of necessary field supplies, assure that monitoring equipment is operational and calibrated in accordance with the specifications provided herein, and act as the Site Health and Safety Officer.

Data Quality Manager—Aspect. The data quality manager is responsible for developing data quality objectives, selecting analytical methods, coordinating with the analytical laboratory, overseeing laboratory performance, and approving QA/QC procedures. The data quality manager is also responsible for overseeing QA validation of the analytical data reports received from the project laboratory. Data will be validated in-house by Aspect.

Laboratory Project Manager—Friedman and Bruya, Inc. (F&B). Aspect will contract F&B for the analysis described in the GCMP. The laboratory project manager is responsible for ensuring that all laboratory analytical work for soil, water, and gas media complies with project requirements, and acts as a liaison with the project manager, field manager, and data quality manager to fulfill project needs on the analytical laboratory work. This responsibility also applies to analysis the laboratory project manager subcontracts to another laboratory.

D.3.3 Analytical Methods and Reporting Limits

Laboratory analytical methods for groundwater analyses to be performed during this environmental characterization are as follows:

Chemical Group and Analyte	Analytical Method
Gasoline-Range Petroleum Hydrocarbons	NWTPH-Gx
Diesel- and Heavy Oil-Range Hydrocarbons	NWTPH-Dx
Benzene, Toluene, Ethylbenzene, and Xylenes	EPA 8260E
Chlorinated Volatile Organic Compounds	EPA 8260E
1,4-Dioxane	EPA 8260E SIM

The attached Table D-1 lists samples containers, preservation, and analytical holding times for each analysis and matrix.

D.3.3.1 Method Detection Limit and Method Reporting Limit

The method detection limit (MDL) is the minimum concentration of a compound that can be measured and reported with a 99-percent confidence that the analyte concentration is greater than zero. MDLs are established by the laboratory using prepared samples, not samples of environmental media.

The method reporting limit (RL) is defined as the lowest concentration at which a chemical can be accurately and reproducibly quantified, within specified limits of precision and accuracy, for a given environmental sample. The RL can vary from sample to sample depending on sample size, sample dilution, matrix interferences, moisture

content, and other sample-specific conditions. As a minimum requirement for organic analyses, the RL should be equivalent to or greater than the concentration of the lowest calibration standard in the initial calibration curve. The expected MDLs and RLs from F&B are summarized in Table D-2 for groundwater samples collected by Aspect.

D.3.4 Data Quality Objectives

DQOs, including the Measurement Quality Indicators (MQIs)—precision, accuracy, representativeness, comparability, completeness, and sensitivity (namely, the PARCCS parameters)—and sample-specific RLs are dictated by the data quality objectives, project requirements, and intended uses of the data. For this project, the analytical data must be of sufficient technical quality to determine whether contaminants are present and, if present, whether their concentrations are greater than or less than applicable screening criteria based on protection of human health and the environment.

The quality of data generated will be assessed against the MQIs set forth in this QAPP. Specific QC parameters associated with each of the MQIs are summarized in Table D-2. Specific MQI goals and evaluation criteria (i.e., MDLs, RLs, percent recovery (%R) for accuracy measurements, relative percent difference (RPD) for precision measurements, are defined in Table D-3. Definitions of these parameters and the applicable QC procedures are presented below.

D.3.4.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared with their average values. Analytical precision is measured through matrix spike/matrix spike duplicate (MS/MSD) samples and laboratory control samples/laboratory control sample duplicate (LCS/LCSD) when there is sufficient sample volume. A laboratory duplicate sample or just an LCS/LCSD may be used in place of an MS/MSD if there is insufficient volume.

Analytical precision is quantitatively expressed as the relative percent difference (RPD) between the LCS/LCSD, MS/MSD, or laboratory duplicate pairs and is calculated with the following formula:

$$RPD (\%) = 100 \times \frac{|S - D|}{(S + D)/2}$$

where:

S = analyte concentration in sample

D = analyte concentration in duplicate sample

Analytical precision measurements will be carried out at a minimum frequency of 1 per 20 samples for each matrix sampled, or one per laboratory analysis group. Laboratory precision will be evaluated against laboratory quantitative RPD performance criteria as defined in Table D-3 for specific analytical methods. If the control criteria are not met,

the laboratory will supply a justification of why the limits were exceeded and implement the appropriate corrective actions. The RPD will be evaluated during data review and validation. The data reviewer will note deviations from the specified limits and will comment on the effect of the deviations on reported data.

D.3.4.2 Accuracy

Accuracy measures the closeness of the measured value to the true value. The accuracy of chemical test results is assessed by “spiking” samples with known standards (surrogates, blank spikes, or matrix spikes) and establishing the average recovery. Accuracy is quantified as the %R. The closer the %R is to 100%, the more accurate the data.

Surrogate recovery will be calculated as follows:

$$\text{Recovery (\%)} = \frac{MC}{SC} \times 100$$

where:

SC = spiked concentration

MC = measured concentration

MS percent recovery will be calculated as follows:

$$\text{Recovery (\%)} = \frac{MC - USC}{SC} \times 100$$

where:

SC = spiked concentration

MC = measured concentration

USC = unspiked sample concentration

Accuracy measurements on MS samples will be carried out at a minimum frequency of 1 in 20 samples per matrix analyzed. Blank spikes will also be analyzed at a minimum frequency of 1 in 20 samples (not including QC samples) per matrix analyzed. Surrogate recoveries for organic compounds will be determined for each sample analyzed for respective compounds. Laboratory accuracy will be evaluated against the performance criteria defined in Table D-3. If the control criteria are not met, the laboratory will supply a justification of why the limits were exceeded and implement the appropriate corrective actions. Percent recoveries will be evaluated during data review and validation, and the data reviewer will comment on the effect of the deviations on the reported data.

D.3.4.3 Representativeness

Representativeness measures how closely the measured results reflect the actual concentration or distribution of the chemical compounds in the matrix sampled. The FSP sampling techniques and sample handling protocols (e.g., homogenizing, storage,

preservation, and use of duplicates and blanks) have been developed to ensure representative samples. Only representative data will be deemed usable. The field sampling procedures are described in the FSP (Section D.2) of this SAP.

The representativeness of a data point is determined by assessing the integrity of the sample upon receipt at the laboratory (e.g., consistency of sample ID and collection date/time between container labels versus COC forms, breakage/leakage, cooler temperature, preservation, headspace for VOA containers, etc.); compliance of method required sample preparation and analysis holding times; the conditions of blanks (trip blank, rinsate blank, field blank, method/preparation blank, and calibration blank) associated with the sample; and the overall consistency of the results within a field duplicate pair.

D.3.4.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal will be achieved through the use of standard techniques to collect samples, EPA-approved standard methods to analyze samples, and consistent units to report analytical results. Data comparability also depends on data quality. Data of unknown quality cannot be compared.

D.3.4.5 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid. Results will be considered valid if the precision, accuracy, and representativeness objectives are met and if RLs are sufficient for the intended uses of the data.

Completeness is calculated as follows:

$$\text{Completeness (\%)} = \frac{V}{P} \times 100$$

where:

V = number of valid measurements

P = number of measurements taken

Valid and invalid data (i.e., data qualified with the R flag [rejected]) will be identified during data validation. The target completeness goal for this project is 95 percent.

D.3.4.6 Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) has of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system include: analytical system background (e.g., laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation), and instrument instability.

D.3.5 Quality Control Procedures

Field and laboratory QC procedures are outlined below.

D.3.5.1 Field Quality Control

Beyond use of standard sampling protocols defined in the FSP (Section D.2), field QC procedures include maintaining the field instrumentation used. Field instruments (e.g., the multiprobe sonde for measuring field parameters during groundwater sampling) are maintained and calibrated regularly prior to use, in accordance with manufacturer recommendations.

In addition, field QC samples will be collected and submitted for analyses to monitor the precision and accuracy associated with field procedures. Field QC samples to be collected and analyzed for this compliance monitoring include field duplicates and trip blanks. The definition and sampling requirements for field QC samples are presented below.

Blind Field Duplicates

Blind field duplicate samples are used to check for sampling and analysis reproducibility; however, the field duplicate sample results include variability introduced during both field sampling and laboratory preparation and analysis, and EPA data validation guidance provides no specific evaluation criteria for field duplicate samples. Advisory evaluation criteria are set forth at 35 percent for RPD (if both results are greater than five times the RL) and two times the RLs for concentration difference (if either of the result is less than five times the RL) between the original and field duplicate results.

Field Duplicates will be submitted “blind” to the laboratory as discrete samples (i.e., given unique sample identifiers to keep the duplicate identity unknown to the laboratory), but will be clearly identified in the field log. **Field duplicate samples will be collected at a frequency of 5 percent (1 per 20) of the field samples for each analytical method, but not less than one duplicate per sampling event.**

Trip Blank

Trip blank samples will be used to monitor possible VOC cross-contamination occurring during sample transport. Trip blank samples are prepared and supplied by the laboratory using organic-free, reagent-grade water into a VOC vial prior to the collection of field samples. The trip blank sample vials are placed with and accompany the VOC and TPH-Gx samples through the entire transporting process. **One trip blank will be collected for each event where VOC or TPH-Gx analyses are conducted.**

In case a target compound is present in a trip blank, results for all samples shipped with this trip blank will be evaluated and data qualified accordingly if determined that the results are affected.

D.3.5.2 Laboratory Quality Control

The laboratory’s analytical procedures must meet requirements specified in the respective analytical methods or approved laboratory standard operating procedures (SOPs), e.g.,

instrument performance check, initial calibration, calibration check, blanks, surrogate spikes, internal standards, and/or labeled compound spikes. Specific laboratory QC analyses required for this project will consist, at a minimum, of the following:

- Instrument tuning, instrument initial calibration, and calibration verification analyses as required in the analytical methods and the laboratory SOPs
- Laboratory and/or instrument method blank measurements at a minimum frequency of 5 percent (1 per 20 samples) or in accordance with method requirements, whichever is more frequent
- Accuracy and precision measurements as defined in Table D-2, at a minimum frequency of 5 percent (1 per 20 samples) or in accordance with method requirements, whichever is more frequent. In cases where a pair of MS/MSD or MS/laboratory duplicate analyses are not performed on a project sample, a set of LCS/LCSD analyses will be performed to provide sufficient measures for analytical precision and accuracy evaluation.

The laboratory's QA officers are responsible for ensuring that the laboratory implements the internal QC and QA procedures detailed in the laboratory's Quality Assurance Manual.

D.3.6 Corrective Actions

If routine QC audits by the laboratory result in detection of unacceptable conditions or data, actions specified in the laboratory SOPs will be taken. Specific corrective actions are outlined in each SOP used and can include the following:

- Identifying the source of the violation;
- Reanalyzing samples if holding time criteria permit;
- Resampling and analyzing;
- Evaluating and amending sampling and analytical procedures; and/or
- Accepting but qualifying data to indicate the level of uncertainty.

If unacceptable conditions occur, the laboratory will contact the project manager to discuss the issues and determine the appropriate corrective action. Corrective actions taken by the laboratory during analysis of samples for this project will be documented by the laboratory in the case narrative associated with the affected samples.

In addition, the project data quality manager will review the laboratory data generated for this investigation to ensure that project DQOs are met. If the review indicates that non-conformances in the data have resulted from field sampling or documentation procedures or laboratory analytical or documentation procedures, the impact of those non-conformances on the overall project data usability will be assessed. Appropriate actions, including re-sampling and/or re-analysis of samples may be recommended to the project manager to achieve project objectives.

D.3.7 Data Reduction, Quality Review, and Reporting

All data will undergo a QA/QC evaluation at the laboratory which will then be reviewed by the Aspect data quality manager. Initial data reduction, evaluation, and reporting at the laboratory will be carried out in full compliance with the method requirement and laboratory SOPs. The laboratory internal review will include verification (for correctness and completeness) of electronic data deliverables (EDD) accompanied with each laboratory report. The responsible database manager will verify the completeness and correctness of all laboratory deliverables (i.e., laboratory report and EDDs) before releasing the deliverables for data validation.

D.3.7.1 Minimum Data Reporting Requirements

The following sections specify general and specific requirements for analytical data reporting to provide sufficient deliverables for project documentation and data quality assessment.

General Requirements

The following requirements apply to laboratory reports for all types of analyses:

- A laboratory report will include a cover page signed by the laboratory director, the laboratory QA officer, or his/her designee to certify the eligibility of the reported contents and the conformance with applicable analytical methodology.
- Definitions of abbreviations, data flags, and data qualifiers used in the report.
- Cross reference of field sample names and laboratory sample identity for all samples in the sample delivery group (SDG).
- Completed chain-of-custody document signed and dated by parties of acquiring and receiving.
- Completed sample receipt document with record of cooler temperature and sample conditions upon receipt at the laboratory. Anomalies such as inadequate sample preservation, inconsistent bottle counts, and sample container breakage, and communication record and corrective actions in response to the anomalies will be documented and incorporated in the sample receipt document. The document will be initialed and dated by personnel that complete the document.
- Case narrative that addresses any anomalies or QC outliers in relation to sample receiving, sample preparation, and sample analysis on samples in the SDG. The narrative will be presented separately for each analytical method and each sample matrix.
- All pages in the report are to be paginated. Any insertion of pages after the laboratory report is issued will be paginated with starting page number suffixed with letters (e.g., pages inserted between pages 134 and 135 should be paginated as 134A, 134B, etc.)

- Any resubmitted or revised report pages will be submitted to the project manager with a cover page stating the reason(s) and scope of resubmission or revision, and signed by laboratory director, QA officer, or the designee.

Specific Requirements

The following presents specific requirements for laboratory reports:

- Sample results: The report pages for sample results (namely Form 1s) will, at minimum, include sample results, RLs, unit, proper data flags, preparation, and analysis, and dilution factor.
- Method blank results.
- LCS and LCSD (if matrix spike duplicate analysis is not performed) results with laboratory acceptance criteria for %R and RPD.
- Surrogate spike results with laboratory acceptance criteria for %R.
- MS and MSD results with laboratory acceptance criteria for %R and RPD. In cases where MS/MSD analyses were not performed on a project sample, LCS/LCSD analyses should be performed and reported instead.

D.3.8 Data Quality Verification and Validation

Reported analytical results will be qualified by the laboratory to identify QC concerns in accordance with the specifications of the analytical methods. Additional laboratory data qualifiers may be defined and reported by the laboratory to more completely explain QC concerns regarding a particular sample result. All data qualifiers will be defined in the laboratory's narrative reports associated with each case. Data validation shall be performed at Quality Assurance Level 2 (EPA2) by Aspect.

In cases where a systematic QC problem is suspected, such as unusual detections of an analyte or consistent outlying results of a QC parameter, a more detailed review will be performed on laboratory records pertinent to the concerned analysis to further evaluate the extend of the QC issue and the final data quality and usability. The actual level of validation for each data point will be entered in the electrical database submitted to the Ecology Environmental Information Management system (EIMs). Data validation will be conducted following the guidance below.

- EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, January 2010, EPA 540/R-10/011 (EPA, 2010).
- EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, EPA-540-R-08-01 (EPA, 2008).

The data validation will examine and verify the following parameters against the method requirements and laboratory control limits specified in Table D-3:

- Sample management and holding times
- Instrument performance check, calibration, and calibration verification
- Laboratory and field blank results
- Detection and reporting limits
- Laboratory replicate results
- MS/MSD results
- LCS and/or standard reference material results
- Field duplicate results
- Surrogate spike recovery (organic analyses only)
- Internal standard recovery (internal calibration methods only)
- Inter-element interference check (inductively coupled plasma analyses only)
- Serial dilution (metals only)
- Labeled compound recovery (isotope dilution methods only)
- Ion ratios for detected compounds (high resolution gas chromatography–mass spectrometry methods only)

Data qualifiers will be assigned based on outcome of the data validation. Data qualifiers are limited to and defined as follows:

- **U**—The analyte was analyzed for but was determined to be non-detect above the reported sample quantitation limit, or the quantitation limit was raised to the concentration found in the sample due to blank contamination.
- **J**—The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ**—The analyte was not detected above the reported quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- **R**—The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified.
- **DNR**—Do not report from this analysis; the result for this analyte is to be reported from an alternative analysis.

In cases of multiple analyses (such as an undiluted and a diluted analysis) performed on one sample, the optimal result will be determined and only the determined result will be reported for the sample.

The scope and findings of the data validation will be documented and discussed in the Cleanup Completion Report (CCR) or in Annual Compliance Monitoring Reports (ACMRs).

D.3.9 Preventative Maintenance Procedures and Schedules

Preventative maintenance in the laboratory will be the responsibility of the laboratory personnel and analysts and ensured by the laboratory project manager. This maintenance includes routine care and cleaning of instruments and inspection and monitoring of carrier gases, solvents, and glassware used in analyses. Details of the maintenance procedures are addressed in the respective laboratory SOPs.

Precision and accuracy data are examined for trends and excursions beyond control limits to determine evidence of instrument malfunction. Maintenance will be performed when an instrument begins to change as indicated by the degradation of peak resolution, shift in calibration curves, decrease in sensitivity, or failure to meet one or another of the method-specific QC criteria.

Maintenance and calibration of instruments used in the field for sampling (e.g., the multiprobe sonde for measuring field parameters during groundwater sampling) will be conducted regularly in accordance with manufacturer recommendations prior to use.

D.3.10 Performance and System Audits

The Aspect project manager has responsibility for reviewing the performance of the laboratory QA program; this review will be achieved through regular contact with the analytical laboratory's project manager. To ensure comparable data, all samples of a given matrix to be analyzed by each specified analytical method will be processed consistently by the same analytical laboratory.

D.3.11 Data and Records Management

Records will be maintained documenting all activities and data related to field sampling and chemical analyses.

Raw data received from the analytical laboratory will be reviewed, entered into a computerized database, and verified for consistency and correctness. The database will be updated based on data review and independent validation if necessary.

The following field data will be included in the database:

- Sample location coordinates
- Sample type (i.e., groundwater)
- Groundwater elevation prior to sampling
- Field parameters

Information regarding whether concentrations represent total phase (unfiltered samples) or dissolved phase (filtered samples) will be compiled and stored in the database. Data

will be submitted to Ecology's EIM database once data have been reviewed and validated.

D.4 References

- Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA Groundwater Issue, EPA/540/S-95/504.
- U.S. Environmental Protection Agency (EPA), 2008, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-08-01.
- U.S. Environmental Protection Agency (EPA), 2010, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, January 2010, USEPA 540/R-10/011.
- Washington State Department of Ecology (Ecology), 2012, Guidance for Groundwater Monitoring at Landfills and Other Facilities Regulated Under Chapters 173-304, 173-306, 173-350, and 173-351 WAC, Publication No. 12-07-072.
- Washington State Department of Ecology (Ecology), 2016, Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Publication No. 04-03-030, revised December 2016.



Field Staff:

DAILY REPORT

Date:	Equipment used:
Project Name:	
Project Number:	
Weather:	
Arrival on site:	
Departure from site:	
	Calibration:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



WELL NUMBER: _____ Page: ____ of ____

Project Number: _____

Starting Water Level (ft TOC):	
--------------------------------	--

Casing Stickup (ft): _____

Total Depth (ft TOC): _____

Total Depth (ft TOC): _____

Casing Diameter (inches): _____

Sample Intake Depth (ft TOC): _____

Sample Intake Depth (ft TOC): _____

$$6'' = 5.56 \text{ Lpf}$$

Criteria:	Typical 0.1-0.5 Lpm	Stable	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%
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Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

[illegible]

Parameters measured with (instrument model & serial number): _____

Purging Equipment: _____ Decon Equipment: _____

Disposal of Discharged Water: _____

Observations/Comments: _____

Table D-1. Analytical Methods, Sample Containers, Preservation, and Holding Times

DRAFT

Project No. AS170304D, Grand Street Commons Site, Seattle, WA

Sample Matrix	Analytical Parameter	Analytical Method	Sample Container	No. Containers	Preservation Requirements	Holding Time
Water	Gasoline-Range Petroleum Hydrocarbons	Ecology Method NWTPH-Gx	40-mL VOA vials	3	4°C ±2°C, HCl pH < 2	14 days for analysis
	Diesel-and Heavy Oil-Range Petroleum Hydrocarbons	Ecology Method NWTPH-Dx (without Silica Gel Cleanup)	500-mL amber glass bottle	1	4°C ±2°C	7 days for extraction, 40 days for analysis
	Chlorinated Volatile Organic Compounds	EPA Method 8260D	40-mL VOA vials	3	4°C ±2°C, 1 with	14 days for analysis
	Benzene, Toluene, Ethylbenzene, and Total Xylenes	EPA Method 8260D	40-mL VOA vials	3	4°C ±2°C, 1 with	14 days for analysis
	1,4-Dioxane	EPA Method 8260D SIM	40-mL VOA vials	3	4°C ±2°C, 1 with	14 days for analysis

Notes:

Ecology = Washington State Department of Ecology

EPA = United States Environmental Protection Agency

HCl = hydrochloric acid

Table D-2. QC Parameters Associated with PARCCS

DRAFT

Project No. AS170304D, Grand Street Commons Site, Seattle, WA

Data Quality Indicators	QC Parameters
Precision	RPD values of:
	(1) LCS/LCS Duplicate
	(2) MS/MSD
	(3) Field Duplicates
Accuracy/Bias	Percent Recovery (%R) or Percent Difference (%D) values of:
	(1) Initial Calibration and Calibration Verification
	(2) LCS
	(3) MS
	(4) Surrogate Spikes
	Results of:
	(1) Instrument and Calibration Blank
	(2) Method (Preparation) Blank
	(3) Trip Blank
	(4) Equipment Rinsate Blank (if appropriate)
Representativeness	Results of All Blanks
	Sample Integrity (Chain-of-Custody and Sample Receipt Forms)
	Holding Times
Comparability	Sample-specific Reporting Limits
	Sample Collection Methods
	Laboratory Analytical Methods
Completeness	Data Qualifiers
	Laboratory Deliverables
	Requested/Reported Valid Results
Sensitivity	MDLs and MRLs

Notes:

LCS = laboratory control sample

MDL = method detection limit

MRL = method reporting limit

MS/MSD = matrix spike/matrix spike duplicate

QC = Quality Control

PARCCS = Precision, Accuracy, Representativeness, Comparability, Completeness, Sensitivity

Table D-3. Measurement Quality Objectives for Water Samples

DRAFT

Project No. AS170304D, Grand Street Commons Site, Seattle, WA

Analyte Name	MDL ^(A)	MRL	LCS/LCSD %R ^(A)	RPD (%)	Surrogate %R ^(A)
Volatile Organic Compounds (VOCs) by SW8260E (µg/L)					
Benzene	0.009	0.35	70-130	≤20	n/a
cis-1,2-Dichloroethene	0.033	1	70-130	≤20	n/a
Ethylbenzene	0.009	1	70-130	≤20	n/a
m,p-Xylene	0.019	2	70-130	≤20	n/a
Naphthalene	0.065	1	70-130	≤20	n/a
o-Xylene	0.010	1	70-130	≤20	n/a
Tetrachloroethene	0.014	1	70-130	≤20	n/a
Toluene	0.016	1	70-130	≤20	n/a
trans-1,2-Dichloroethene	0.046	1	70-130	≤20	n/a
Trichloroethene	0.009	0.5	70-130	≤20	n/a
Vinyl chloride	0.015	0.02	70-130	≤20	n/a
4-Bromofluorobenzene (surr)	n/a	n/a	n/a	n/a	62-136
1,2-dichloroethane (surr)	n/a	n/a	n/a	n/a	71-132
Toluene-d8 (surr)	n/a	n/a	n/a	n/a	68-139
Volatile Organic Compounds (VOCs) by 8260E SIM (µg/L)					
1,4-Dioxane	0.1	0.4	70-130	≤20	n/a
4-Bromofluorobenzene (surr)	n/a	n/a	n/a	n/a	62-136
1,2-dichloroethane (surr)	n/a	n/a	n/a	n/a	71-132
Toluene-d8 (surr)	n/a	n/a	n/a	n/a	68-139
Gasoline Range Hydrocarbons by NWTPH-Gx (µg/L)					
Gasoline Range Hydrocarbons	27.0	100	65 - 135	≤20	n/a
4-Bromofluorobenzene (surr)	n/a	n/a	n/a	n/a	50-150
Diesel and Motor Oil Range Hydrocarbons by NWTPH-Dx without Silica Gel Cleanup (µg/L)					
Diesel Range Hydrocarbons	8.9	50	65 - 135	≤20	n/a
Oil Range Hydrocarbons	52.0	250	--	--	n/a
pentacosane (surr)	n/a	n/a	n/a	n/a	50 - 150
o-Terphenyl (surr)	n/a	n/a	n/a	n/a	50 - 150

Notes:

(A) = Based on current laboratory control criteria. Some values may vary slightly between instruments and can be subject to change as the laboratory updates the charted values periodically.

LCS/LCSD = laboratory control samples and laboratory control sample duplicate

%R = percent recovery

MDL = method detection limit

MRL = method reporting limit

n/a = not applicable

RPD = relative percent difference

µg/L = microgram per liter

-- = Not identified by the lab

Table D-3

SAP/QAPP

Aspect Consulting

8/12/2024

APPENDIX E

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect's services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect's services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect's services do not include an evaluation of radon or lead in drinking water, unless specifically requested.