November 7, 2024

Transmitted via email to:

Toxics Cleanup Program
Washington Department of Ecology, Northwest Region
P.O. Box 330316
Shoreline, WA 98133

Attn: Cecilia Henderson

Re: Response To Ecology Comments on Subsurface Assessment and Remedial Action Report
ERTS No. 730872
Koz Development Property
312 West Republic Street
Seattle, Washington

Dear Cecilia:

Landau Associates (Landau), on behalf of Koz Development LLC (Koz), is submitting this letter in response to your comments on Landau's Subsurface Assessment and Remedial Action Report (Remedial Action Report), dated March 2024, regarding the property located at 312 West Republican Street in Seattle, Washington (Subject Property). The Remedial Action Report, along with additional historical investigation documents, was submitted to the Washington State Department of Ecology (Ecology) through the Environmental Report Tracking System (ERTS) on May 15, 2024, and the project was assigned ERTS No. 730872. After Ecology's review of these documents, you provided comments regarding the Remedial Action Report in a July 23, 2024 e-mail requesting additional information and collection of additional groundwater monitoring data.

This letter provides responses to your comments and, where applicable, supporting information is attached. Your comments are in italic font.

SOIL COMMENTS

Ecology Comment #1 regarding soil contamination: *Please provide additional supporting information regarding the anticipated gas/diesel range overlap in soil sample B1-WSW-16'. A descriptive narrative from the lab may be helpful to include. Include chromatograms for this sample and lab standards used. The chromatograms included in the report do not include this sample.*

Response: The amended laboratory report that includes the chromatogram for sample B1-WSW-16' is included in Attachment A. As noted in the amended laboratory report, the chromatogram "showed the presence of middle distillate product, such as diesel fuel. A pattern of peaks indicating the presence of low boiling point or gasoline range product in the sample was not observed." This

chromatogram further supports the conclusion that the gasoline range organics (GRO) reported for this sample were due to overlap of the diesel range organics (DRO) or middle distillates observed in the NWTPH-Dx analysis.

Ecology Comment #2 regarding soil contamination: *Regarding the total naphthalenes value reported in post-excavation compliance soil sample B1-WSW-16' at 5.02 mg/kg, I understand this value is close to the MTCA Method A cleanup level of 5.00 mg/kg. However, additional supporting information beyond what is provided in the 2024 report section 4.4 will be necessary to consider this result in compliance with MTCA. Consider evaluating the total naphthalene data via statistical evaluation as described in the Ecology Guidance for Remediation of Petroleum Contaminated Sites. In regard to how to approach the significant number of samples with total naphthalene results below the method quantitation limit, refer to the information provided in the WAC Chapter 173-340-740(7)(f). Data may be calculated within the Ecology MTCAStat 97: Site Module. Additional information can also be found in the public Statistical Guidance for Ecology Site Managers.*

Response: Landau recently conducted a statistical analysis of the total naphthalenes concentrations in the final confirmation soil samples from the 2024 soil excavation consistent with the references listed in the Ecology comment (i.e., MTCA regulation, petroleum guidance document, and the Ecology statistical guidance document). The process used to evaluate the data is presented on the attached flowchart from the Statistical Guidance for Ecology Site Managers in Attachment B. This process is summarized as follows:

1. The total naphthalene results (23 samples) from the 2024 final excavation confirmation samples were entered into the MTCAStat 97 (MTCAStat) spreadsheet. For 21 of the 23 samples, the results shown in Table 2 of the Remedial Action Report show that none the three naphthalenes (1-methynaphthalene, 2-methynaphthalene, and naphthalene) that together make up the "total naphthalene" value were detected above the laboratory method reporting limit (MRL) of 0.01 mg/kg. For these samples, one half of the MRL, or 0.005 mg/kg, for each of the three compounds were added together to generate a total naphthalene concentration of 0.015 mg/kg. This approach, though different than that specified in WAC 173-340-740(7)(f), is appropriate given the known source of the contamination (underground storage tank [UST] release), cleanup method (excavation of all soil exceeding cleanup levels), and proximity of the compliance samples to each other.

2. Using both the probability plot method and W test to determine the distribution of the data, MTCAStat rejected both the normal and lognormal distributions. From the MTCAStat options for calculating an upper confidence level (UCL) when the data are not normally or lognormally distributed, Landau chose the Z-based UCL method. With this method, MTCAStat calculated a UCL of 0.594, which is well below the cleanup level of 5 mg/kg (see the MTCAStat compliance calculations table in Attachment B). It is important to note that if the MRL values had been used for the analysis, the calculated UCL would still have been well below the cleanup level.

3. For the last two evaluations in the flow chart, no single result was greater than two times the soil cleanup level (i.e., 10 mg/kg), and only 4.3 percent of the samples were greater than the soil cleanup level, less than the required maximum of 10 percent of the results.

Based on these results, the remaining total naphthalenes concentrations at the Site are in compliance with the MTCA Method A soil cleanup level and the Site is considered clean for total naphthalenes in soil (see the flowchart in Attachment B).

GROUNDWATER COMMENTS

Ecology Comment #1 regarding groundwater contamination: *Based on available information, characterization of groundwater is incomplete and groundwater is not in compliance with MTCA (refer to the Ecology Guidance for Remediation of Petroleum Contaminated Sites). Groundwater was reported exceeding MTCA Method A cleanup levels in the permanent groundwater monitoring well PG-1 in December 2020, and below Method A in April 2019 and December 2023. The following additional information is necessary to demonstrate compliance with MTCA:*

- ***Alternative A:*** *Collect one additional round of groundwater sampling from well PG-1 for analysis with and without silica gel cleanup (SGC) and provide explanation of the results; please include chromatograms. Include the same analyses as your previous sampling event. Please refer to the Ecology Guidance for Silica Gel Cleanup in Washington State. If results with SGC are reported exceeding Method A, the recommended actions in Alternative B below are needed to demonstrate compliance with MTCA and Ecology would likely recommend the site be listed on the Contaminated Sites List. If results with SGC are reported below Method A, Ecology will evaluate any need for additional groundwater monitoring.*
- ***Alternative B:*** *Install at least two additional permanent groundwater monitoring wells and complete four consecutive quarters of groundwater monitoring events with results below Method A. We recommend placing one well hydraulically upgradient and one downgradient of existing well PG-1. As mentioned above, this would likely include Ecology's recommendation to list the site on the Contaminated Sites List and enroll in an Ecology Voluntary Cleanup Program (VCP).*

Response: Landau elected to pursue Alternative A above and collected an additional groundwater sample from monitoring well PG-1 on August 8, 2024 and analyzed the sample for GRO, benzene, toluene, ethylbenzene, total xylenes (BTEX), DRO, and polycyclic aromatic hydrocarbons. For the DRO analysis, the sample was run both with and without SGC. The laboratory report associated with this sampling event, including chromatograms, is included in Attachment C. The GRO and BTEX results were all non-detect. For the DRO results, the analysis without using SGC reported a DRO concentration of 850 micrograms per liter (µg/L) and the result of the analysis after SGC was 320 µg/L. Using the approach outlined in the Ecology's *Guidance for Silica Gel Cleanup in Washington State* (SGC Guidance), the DRO concentration is 320 µg/L (below the cleanup level of 500 ug/L) and the "polar organics" concentration is 530 µg/L, slightly above the 500 µg/L MTCA Method A cleanup level.

Based on these results, Landau re-sampled monitoring well PG-1 on September 3, 2024. This sample was only analyzed for DRO with and without SGC. The results of this re-sampling showed the sample

analyzed without SGC contained a DRO concentration of 791 µg/L and the DRO concentration for the sample tested after SGC was 248 µg/L. Making the same correction as before, the DRO concentration for the resampling is 248 µg/L (below the cleanup level) while the polar organics concentration is 543 µg/L, again, slightly above the 500 µg/L cleanup level. The DRO and polar organics results from the two sampling events are shown in the table below.

Sample Number	Sample Date	DRO (w/o SGC)	DRO (after SGC)	Polar Organics
PG-1	08/08/2024	850 ug/L	320 ug/L	530 ug/L
PG-1-240903	09/03/2024	791 ug/L	248 ug/L	543 ug/L

The total polar organics concentrations in the groundwater samples from PG-1 may include naturally occurring polar organic compounds that reflect background conditions and, if the total concentration of these naturally occurring polar organic compounds is at or greater than only 43 µg/L, the polar organic concentrations in the groundwater at PG-1 would be reduced to below the 500 µg/L cleanup level.

To document the concentration of these naturally occurring organic compounds, Landau proposes installing a new monitoring well approximately 16 feet north (upgradient) of monitoring well PG-1 (see Figure 1). This new well is located north of the Subject Property and at a higher ground surface elevation than PG-1 (property area generally slopes north to south), and it is likely located hydraulically upgradient of PG-1.

The boring for the well will be drilled and sampled by using hollow-stem auger methods. The boring will be advanced to a depth of approximately 5 feet below the groundwater table (approximately 23 feet below ground surface [bgs]) and, during drilling, soil samples will be collected at approximate 2.5-foot intervals. Landau staff will screen the soil samples for the potential presence of petroleum hydrocarbons by using physical appearance, odor, and photoionization detector readings. If there is any field evidence of petroleum, the soil sample that exhibits the greatest evidence of contamination will be submitted to Apex Laboratories (Apex) in Tigard, Oregon for analysis. The soil sample collected from the bottom of the boring would also be submitted to Apex for potential analysis to delineate the vertical extent of contamination, if necessary. If there is no field evidence of contamination in the boring, then the soil sample collected immediately above the groundwater table would be submitted to Apex for analysis. The sample(s) would be analyzed for TPH-Dx and BTEX.

Once installed and developed, this well would be sampled and analyzed for DRO both with and without SGC to determine the background polar organics concentration. Consistent with the approach outlined in the SGC Guidance, this background polar organic concentration can be subtracted from the polar organic concentrations in PG-1, and the resulting adjusted concentrations compared to the 500 µg/L cleanup level.

Ecology Comment #2 regarding groundwater contamination: *Please provide additional supporting information regarding the anticipated perched groundwater on site, and include at least one detailed*

cross-section showing lithology, water table elevations, explorations, and confirmation sample locations.

Response: The attached Figure 1 provides a site map displaying the extent and depths of the 2024 remedial excavation, final confirmation soil samples from the excavation, well PG-1, the location of the requested geologic cross section, and the pre-excavation soil borings and test pits that were located along this cross section. The attached Figure 2 presents Cross Section A-A', which is oriented approximately northwest-southeast from PG-1 (in the alley west of the Subject Property) through the 2024 excavation area. Prominent features include PG-1, the shoring wall abutting the western property boundary, several soil borings (P05, P07, and P10) drilled in 2019, the lateral and vertical extents of the 2021 UST excavation, 2023 test pits TP-1 and TP-4, and the 2024 remedial excavation with several final confirmation soil samples on the west sidewall (A1-WSW-9.5', A1-WSW-15.5', and A1-WSW-22.0') and in the eastern part of the excavation (B2-B-18.0', B2-ESW-12.0', and B2-ESW-10.0'). For the cross-section, the asphalt or concrete surface elevation was estimated based on a site survey conducted prior to site construction, and the approximate ground surface at the start of the remedial excavation (which was somewhat variable across the site) was estimated based on a review of field notes and site photographs.

As shown on the cross section, the site lithology consists of approximately 5 to 12 feet of primarily sandy, gravelly fill, as well as pea gravel, sand, and gravel backfill as shown in the 2021 UST excavation. The native soil beneath the fill for the majority of the northwest corner of the Subject Property (i.e., the 2024 excavation area) is very hard silt and clay that has been identified as the Lawton Clay. At the western 5 to 10 feet of the excavation area along the western property line, the fill is underlain by dense to very dense sand and silty sand (Vashon Till). As shown on the cross section, the Vashon Till appears to pinch out by boring P07, with only the Lawton Clay present beneath the fill throughout the rest of the excavation area. West of the property in the alley, the boring log for PG-1 (Attachment D and shown on the cross section) shows significantly different lithology than the subsurface beneath the property, with approximately 5 feet of fill underlain by a thicker (24 feet) zone of the Vashon Till, which in turn is underlain by the Lawton Clay.

As with the lithology, the presence or absence of groundwater is different beneath the alley compared to beneath the Subject Property. Since 2019, the groundwater table elevations in PG-1 ranged between approximately 76 and 79 feet (15 to 18 feet bgs) above the NAVD 88 datum, within the dense Vashon Till. As shown on the boring log for PG-1, the Vashon Till at this location is noted as being moist down to approximately 20 feet bgs, where it described as wet and also grading to slightly gravelly compared to the finer-grained soil above. It appears that the groundwater observed at PG-1 is likely located in this coarser-grained lens, which is laterally discontinuous and not present on the property. At PG-1, the Lawton Clay underlying the Vashon Till is described as moist. On the Subject Property, limited perched groundwater (seepage) was observed in two test pits TP-1 and TP-4, both located in or adjacent to the backfilled 2021 UST excavation. The seepage in TP-1 and TP-4 was approximately 3 to 10 ft shallower than groundwater table in PG-1 and occurred just above the underlying finer-grained Vashon Till or Lawton Clay units indicating these are discontinuous, perched

zones. It should also be noted that the boring log for TP-1 notes the soil as only moist down to approximately elevation 74 feet (below the water table seen in the alley at PG-1).

During the 2024 excavation activities, nearly all of the water observed was associated with stormwater run-on from the northern property boundary into the excavation area and rainfall directly into the excavation. This stormwater run-on is the likely source of water that collected within the 2021 excavation backfill and was observed slowly seeping into test pits TP-1 and TP-4. In addition to this stormwater run-on, minimal groundwater seepage was observed in the portion of the 2024 excavation that extended below the groundwater table at PG-1 and no groundwater accumulated in bottom of the excavation that was at least partially open for over two to three weeks. The lack of groundwater was due to the shoring wall holding back any groundwater in the Vashon Till at the property line and the high silt and clay content and density of the Lawton Clay beneath the property. Note that the top of the Lawton Clay beneath the property is at an elevation above the groundwater level observed in PG-1.

The minimal perched groundwater beneath the northwestern part of the Subject Property was removed during the 2024 soil excavation, and the area has been "capped" by a building and concrete footing to prevent additional stormwater run-on to the property. It is likely that there is no groundwater beneath the property that could be hydraulically connected to the off-property groundwater in PG-1.

Ecology Comment #3 regarding groundwater contamination: *Please include depth to groundwater measurements in the groundwater data table or as a separate table for ease of reference.*

Response: The table in Attachment E provides groundwater level measurements in monitoring well PG-1, which have ranged from 15.81 to 19.05 feet below the top of the well casing from April 2019 through September 2024.

SUBSEQUENT COMMUNICATIONS WITH ECOLOGY

On October 9, 2024, Mike Staton of Landau spoke with you to discuss the August and September 2024 groundwater sample analytical results from PG-1 and our plan to install and sample an upgradient monitoring well to assess the background polar organics concentrations that could be present in the groundwater at PG-1. After evaluating the groundwater sample analytical results, you prepared an email dated October 24, 2024 that provided additional comments and recommendations. The responses above were designed to also respond to the comments provided in said email.

RECOMMENDATIONS AND CONCLUSIONS

Landau recommends installing the new upgradient well at the location shown on Figure 1, and sampling this well for DRO with and without SGC to determine the background polar organic concentration, if any. We do not believe that any additional action should be conducted at this time.

The background polar organic concentration would be used to correct the August and September 2024 polar organics concentrations from PG-1, as appropriate. If the adjusted polar organic

concentrations in PG-1 are below the cleanup level, then the available data would document that the groundwater adjacent to the Subject Property does not contain DRO or polar organics concentrations above the MTCA Method A cleanup levels. This result (if confirmed), in conjunction with the complete removal of contaminated soil and perched groundwater exceeding cleanup levels on the property (documented in the March 2024 Remedial Action Report), would support the determination that no further action is required at this Site.

Landau appreciates the opportunity to submit this response letter. If you have questions or require additional information, please contact Bian O'Neal at (425) 241-2627 or boneal@landauinc.com.

LANDAU ASSOCIATES, INC.

Brian O'Neal, PE
Senior Associate

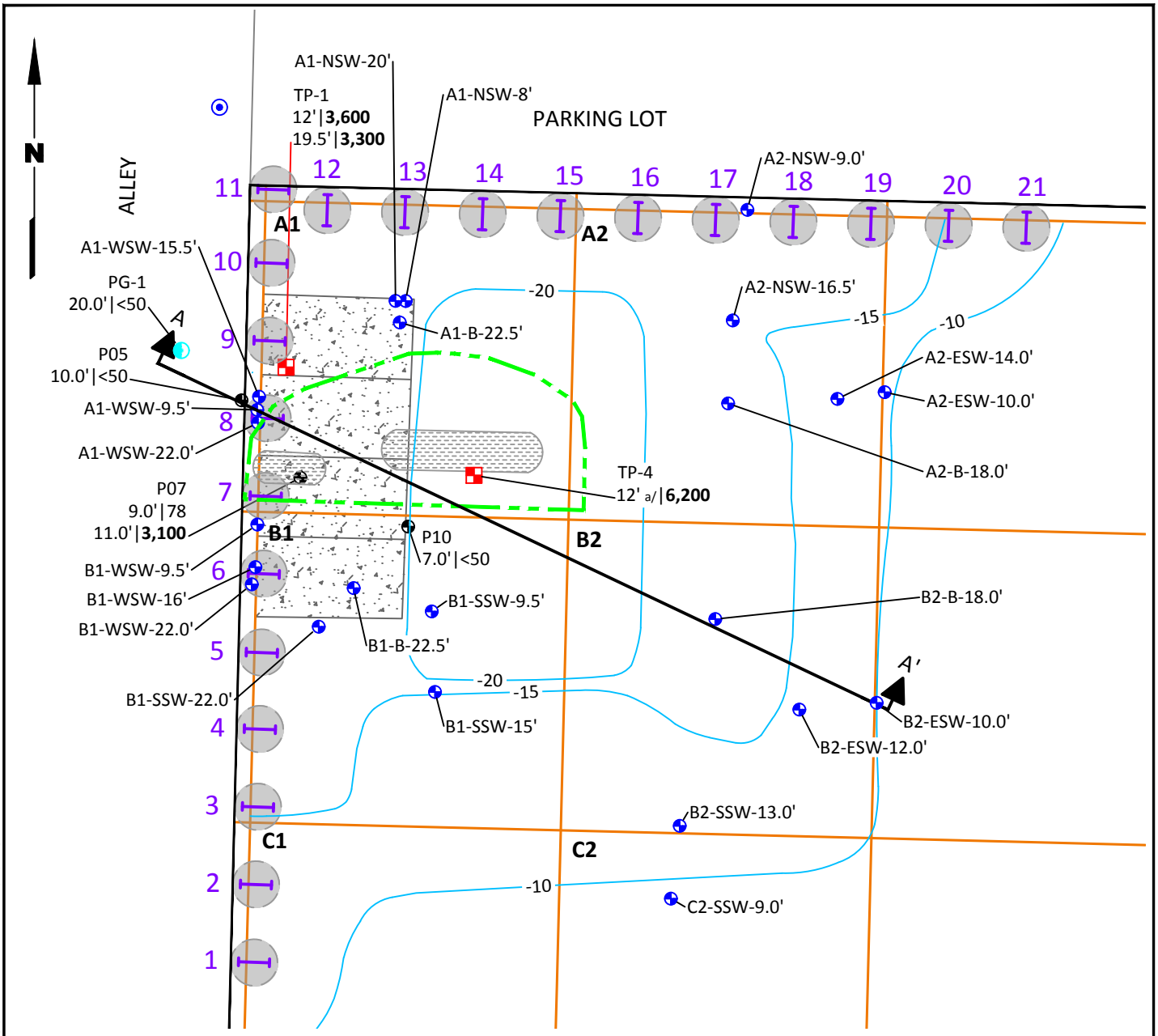
Mike Staton, LG
Senior Principal

BDO/MDS/SEL/tmh

[\\EDMDATA01\PROJECTS\2251\001\020\R\ERTS 730872 ECOLOGY COMMENTS RESPONSE\LANDAU RESPONSE TO ECOLOGY COMMENTS - REVISED DRAFT 110524.DOCX]

Attachments:

Figure 1.	Location of Geologic Cross Section, Excavation Dimensions, and Sample Locations
Figure 2.	Cross Section A-A'
Attachment A.	Amended Laboratory Report for sample B1-WSW-16
Attachment B.	Statistical Evaluation of Total Naphthalene Results
Attachment C.	Laboratory Reports for August and September 2024 Sampling of PG-1
Attachment D.	Well PG-1 Boring Log
Attachment E.	Water Level Elevation Measurement Data



Legend

- B1-WSW — Soil Sample Location
- TP-1 — 2023 Test Pit Location and Designation
- P12 — 2019 Soil Boring Location and Designation
- PG-1 — Groundwater Monitoring Well Location and Designation
- Proposed Background Well
- Soldier Pile Surrounded by Concrete
- 1 — Soldier Pile Number
- A1 — Proposed Soil Excavation Grid Cell Location and Designation
- Property Boundary
- Former Underground Storage Tank (Removed in January/February 2021)
- Slot Trenches Filled with Concrete
- -10 — Soil Excavation Depth Contour Line
- King County Parcel Boundary
- 2021 UST Excavation Area

Notes

1. Edge of excavation approximately 1ft from the property boundary varying slightly by location.
2. Slot trenches were excavated to a depth of 23 feet.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 10 20

Scale in Feet

Source: Farallon Consulting, 2023

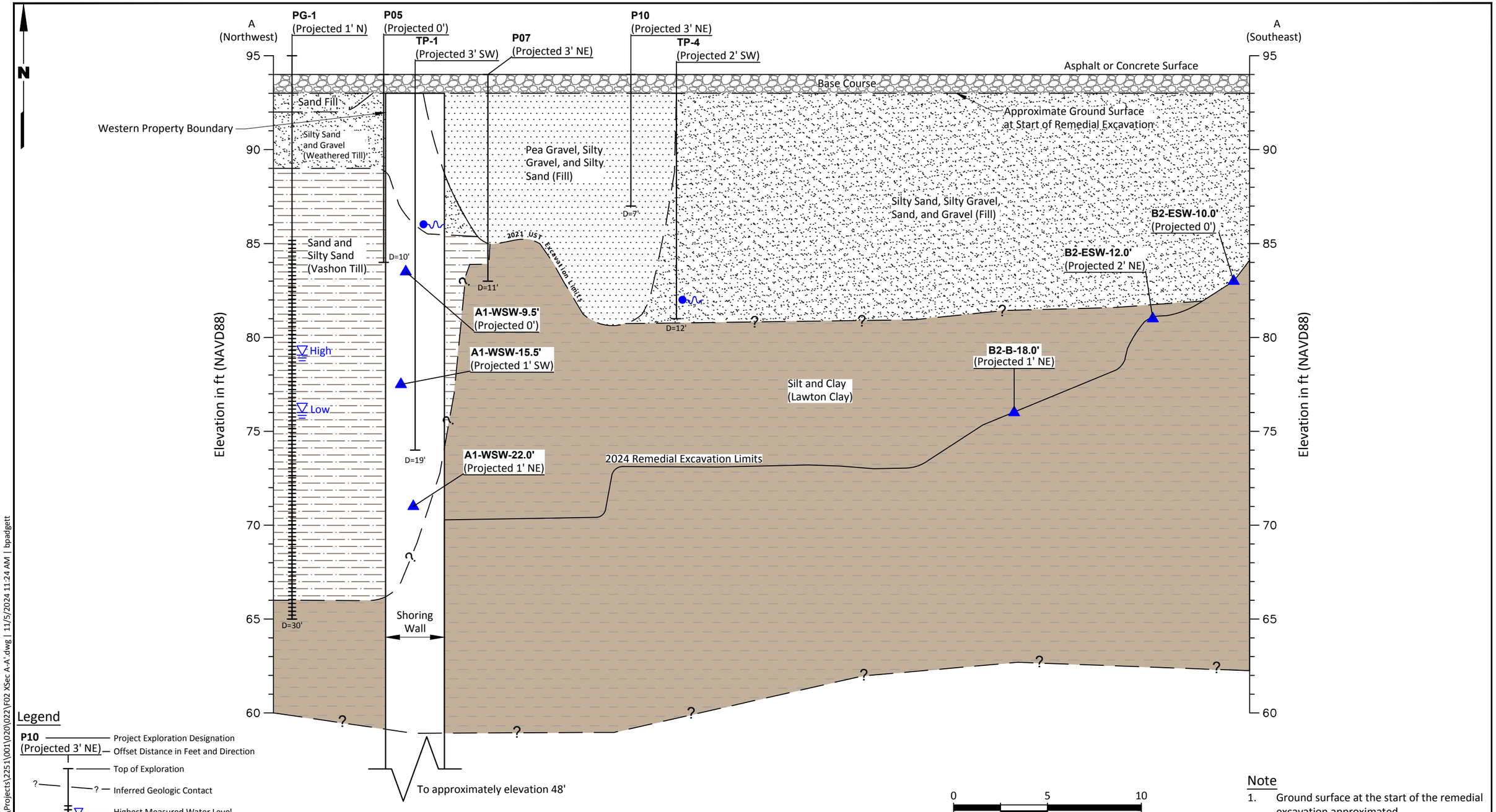
Koz Development Property
312 West Republican Street
Seattle, Washington

Location of Geologic Cross Section, Excavation Dimensions, and Sample Locations

Figure 1

LANDAU ASSOCIATES

Landau Associates | G:\Projects\2251\001\020\022\F01 XSec And SampleLocs.dwg | 11/4/2024 12:11 PM | bpadgett



Legend

- **P10** (Projected 3' NE) — Project Exploration Designation; Offset Distance in Feet and Direction
- Top of Exploration
- Inferred Geologic Contact
- Highest Measured Water Level
- Lowest Measured Water Level
- Well Screen Interval
- 2024 Soil Sample Location and Designation
- D=5' — Bottom of Exploration; Exploration Depth
- Minor Groundwater Seepage Observed During Test Pit Excavation
- Primarily Sand
- Fill
- Vashon Till
- Lawton Clay
- Base Course

0 5 10
Scale in Feet

Source: Farallon Consulting, 2023

Note

1. Ground surface at the start of the remedial excavation approximated.
2. Lithology shown is what was present prior to the 2024 excavation work.

Koz Development Property 312 West Republican Street Seattle, Washington	**Cross Section A-A'**	Figure 2

LANDAU ASSOCIATES

ATTACHMENT A

Amended Laboratory Report for sample B1-WSW-16

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
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www.friedmanandbruya.com

August 2, 2024

Brian O'Neal, Project Manager
Landau Associates, Inc.
155 NE 100th St, Suite 302
Seattle, WA 98125

Dear Mr O'Neal:

Included is the amended report from the testing of material submitted on February 7, 2024 from the Koz Development 2251001.010.015, F&BI 402101 project. The case narrative was updated.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: data@landauinc.com
LDU0208R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
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February 8, 2024

Brian O'Neal, Project Manager
Landau Associates, Inc.
155 NE 100th St, Suite 302
Seattle, WA 98125

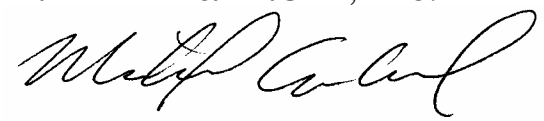
Dear Mr O'Neal:

Included are the results from the testing of material submitted on February 7, 2024 from the Koz Development 2251001.010.015, F&BI 402101 project. There are 14 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: data@landauinc.com
LDU0208R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 7, 2024 by Friedman & Bruya, Inc. from the Landau Associates Koz Development 2251001.010.015, F&BI 402101 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Landau Associates
402101 -01	A1-WSW-15.5'
402101 -02	B1-WSW-16'

Review of the NWTPH-Dx chromatogram for sample B1-WSW-16' showed the presence of a middle distillate product, such as diesel fuel. A pattern of peaks indicating the presence of a low boiling or gasoline range product in the sample was not observed. The NWTPH-Gx concentration in B1-WSW-16' was qualified accordingly.

Benzo(g,h,i)perylene in the 8270E laboratory control sample did not meet the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101
Date Extracted: 02/08/24
Date Analyzed: 02/08/24

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)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
A1-WSW-15.5' 402101-01	<5	111
B1-WSW-16' 402101-02 1/5	1,200 x	ip
Method Blank 04-204 MB	<5	117

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101
Date Extracted: 02/07/24
Date Analyzed: 02/07/24

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
A1-WSW-15.5' 402101-01	<50	<80 j	95
B1-WSW-16' 402101-02	1,900	<80 j	100
Method Blank 04-323 MB	<50	<80 j	94

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	A1-WSW-15.5'	Client:	Landau Associates
Date Received:	02/07/24	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	402101-01
Date Analyzed:	02/07/24	Data File:	020727.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	86	114
Toluene-d8	96	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

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B1-WSW-16'	Client:	Landau Associates
Date Received:	02/07/24	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	402101-02
Date Analyzed:	02/07/24	Data File:	020728.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	86	114
Toluene-d8	111	86	115
4-Bromofluorobenzene	86	83	116

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	1.2
m,p-Xylene	1.7
o-Xylene	2.4

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Landau Associates
Date Received:	Not Applicable	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	04-0283 mb
Date Analyzed:	02/07/24	Data File:	020706.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	86	114
Toluene-d8	101	86	115
4-Bromofluorobenzene	109	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

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	A1-WSW-15.5'	Client:	Landau Associates
Date Received:	02/07/24	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	402101-01 1/5
Date Analyzed:	02/08/24	Data File:	020809.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	90 ca	16	137
2-Fluorobiphenyl	74	46	122
2,4,6-Tribromophenol	66	17	154
Terphenyl-d14	72	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01 jl

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B1-WSW-16'	Client:	Landau Associates
Date Received:	02/07/24	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	402101-02 1/5
Date Analyzed:	02/08/24	Data File:	020810.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	109 ca	16	137
2-Fluorobiphenyl	70	46	122
2,4,6-Tribromophenol	65	17	154
Terphenyl-d14	62	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.62
2-Methylnaphthalene	2.2
1-Methylnaphthalene	2.2
Acenaphthylene	<0.01
Acenaphthene	0.065
Fluorene	<0.01
Phenanthrene	1.0
Anthracene	<0.01
Fluoranthene	0.017
Pyrene	0.081
Benz(a)anthracene	<0.01
Chrysene	0.012
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01 jl

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Landau Associates
Date Received:	Not Applicable	Project:	Koz Development 2251001.010.015
Date Extracted:	02/07/24	Lab ID:	04-0330 mb 1/5
Date Analyzed:	02/08/24	Data File:	020808.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	95 ca	16	137
2-Fluorobiphenyl	78	46	122
2,4,6-Tribromophenol	68	17	154
Terphenyl-d14	75	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01 jl

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101

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

Laboratory Code: 402097-01 (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	117	70-130

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101

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

Laboratory Code: 402071-02 (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	350	85	85	64-136	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	80	78-121

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101

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

Laboratory Code: 402083-01 (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	82	73	29-129	12
Toluene	mg/kg (ppm)	2	<0.05	86	79	35-130	8
Ethylbenzene	mg/kg (ppm)	2	<0.05	90	81	32-137	11
m,p-Xylene	mg/kg (ppm)	4	<0.1	88	80	34-136	10
o-Xylene	mg/kg (ppm)	2	<0.05	88	76	33-134	15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	2	97	65-136
Toluene	mg/kg (ppm)	2	98	66-126
Ethylbenzene	mg/kg (ppm)	2	102	64-123
m,p-Xylene	mg/kg (ppm)	4	97	68-128
o-Xylene	mg/kg (ppm)	2	96	67-129

Date of Report: 02/08/24
Date Received: 02/07/24
Project: Koz Development 2251001.010.015, F&BI 402101

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 402101-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	<0.01	70	73	50-150	4
2-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	74	76	50-150	3
1-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	71	73	50-150	3
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	75	75	50-150	0
Acenaphthene	mg/kg (ppm)	0.83	<0.01	74	75	50-150	1
Fluorene	mg/kg (ppm)	0.83	<0.01	75	75	50-150	0
Phenanthrene	mg/kg (ppm)	0.83	<0.01	76	73	10-170	4
Anthracene	mg/kg (ppm)	0.83	<0.01	74	75	37-139	1
Fluoranthene	mg/kg (ppm)	0.83	<0.01	76	78	10-203	3
Pyrene	mg/kg (ppm)	0.83	<0.01	77	78	10-208	1
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	78	78	37-146	0
Chrysene	mg/kg (ppm)	0.83	<0.01	81	80	36-144	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	80	83	40-150	4
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	78	82	45-157	5
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	77	83	50-150	7
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	75	71	24-145	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	75	71	31-137	5
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	66	64	14-141	3

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.83	77	59-105
2-Methylnaphthalene	mg/kg (ppm)	0.83	82	62-108
1-Methylnaphthalene	mg/kg (ppm)	0.83	79	62-108
Acenaphthylene	mg/kg (ppm)	0.83	84	61-111
Acenaphthene	mg/kg (ppm)	0.83	85	61-110
Fluorene	mg/kg (ppm)	0.83	84	62-114
Phenanthrene	mg/kg (ppm)	0.83	83	64-112
Anthracene	mg/kg (ppm)	0.83	82	63-111
Fluoranthene	mg/kg (ppm)	0.83	82	66-115
Pyrene	mg/kg (ppm)	0.83	80	65-112
Benz(a)anthracene	mg/kg (ppm)	0.83	83	64-116
Chrysene	mg/kg (ppm)	0.83	88	66-119
Benzo(a)pyrene	mg/kg (ppm)	0.83	89	62-116
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	87	61-118
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	88	65-119
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	73	64-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	72	67-131
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	60 vo	67-126

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.

402101

LANDAU ASSOCIATES Chain-of-Custody Record

02/07/24 VSB1/D1

- [x] North Seattle (206) 631-8660
- [ ] Tacoma (253) 926-2493
- [ ] Olympia (360) 791-3178
- [ ] Spokane (509) 327-9737
- [ ] Portland (503) 542-1080
- [ ] _____

Date 2/6/24

Page 1 of 1

Turnaround Time:
Standard _____
Accelerated X 24 TAT

Project Name KOZ development Project No. 225100i.010.015

Project Location/Event Seattle, WA / Petroleum hydrocarbon contaminated soil excavation

Sampler's Name Ashleigh Gentsch

Project Contact Brian O'Neal

Send Results To BOneal@landauinc.com & data@landauinc.com

Special Handling Requirements: _____

Shipment Method: PICK UP

Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	Dx (NWTPH-Dx)	G/D (NWTPH-Gx)	BTEX (8260D)	PAHs (EPA 8270E)	Lab ID	Observations/Comments
			Soil	5						
A1-WSW-15.5'	2/7/24	11:10	↓	↓	X	X	X	X	01	
B1-WSW-16'	2/7/24	11:15	↓	↓	X	X	X	X	02	

Testing Parameters

Samples received at 3 °C

__ Allow water samples to settle, collect aliquot from clear portion ☐

__ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐

__ Dissolved metal samples were field filtered

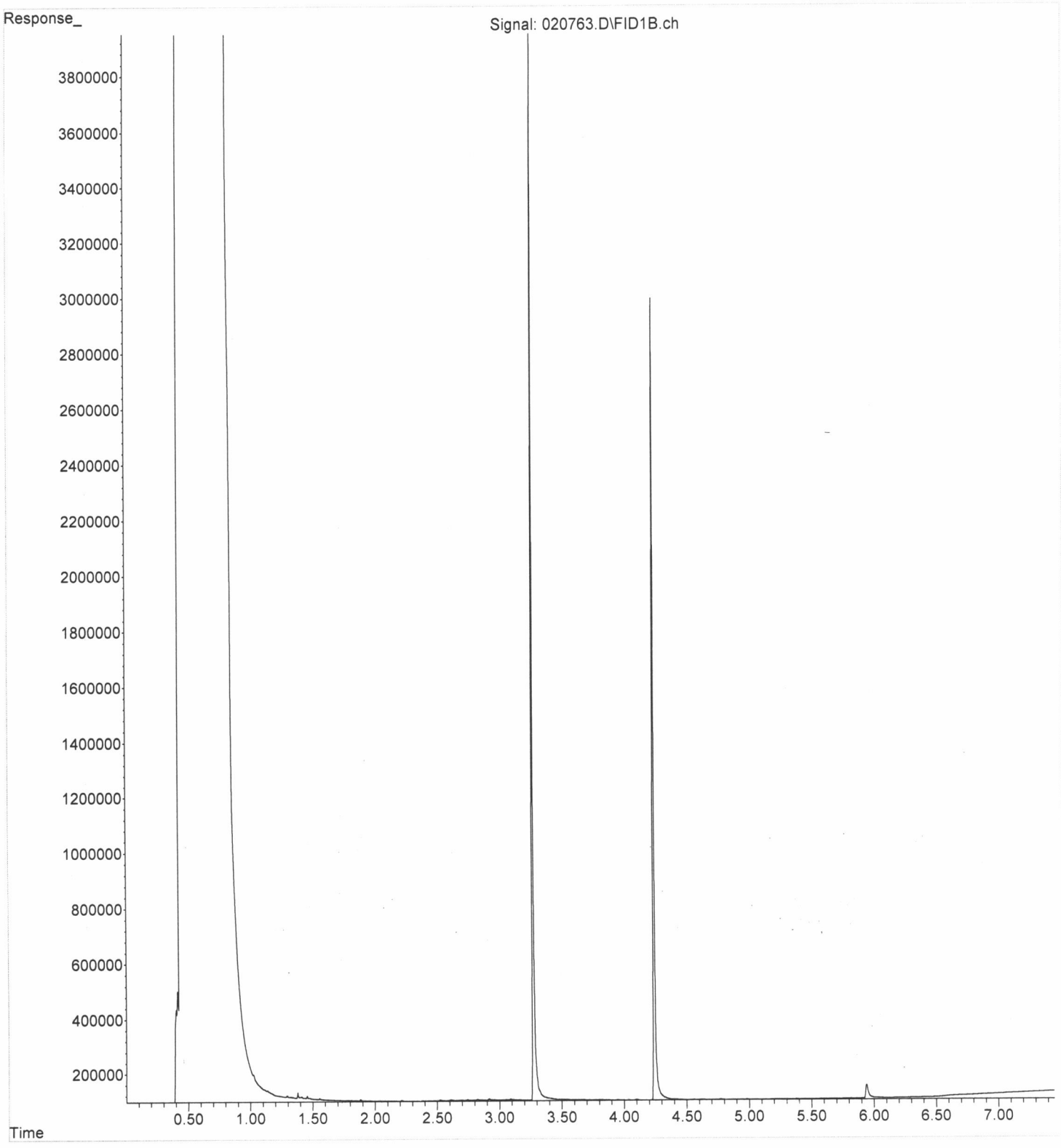
Other _____

Relinquished by	Received by	Relinquished by	Received by
Signature A. Gentsch	Signature	Signature	Signature
Printed Name A. Gentsch	Printed Name Uhan Phan	Printed Name	Printed Name
Company Landau	Company FIBI	Company	Company
Date 2/7/24 Time 2:10	Date 2/7/24 Time 1408	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

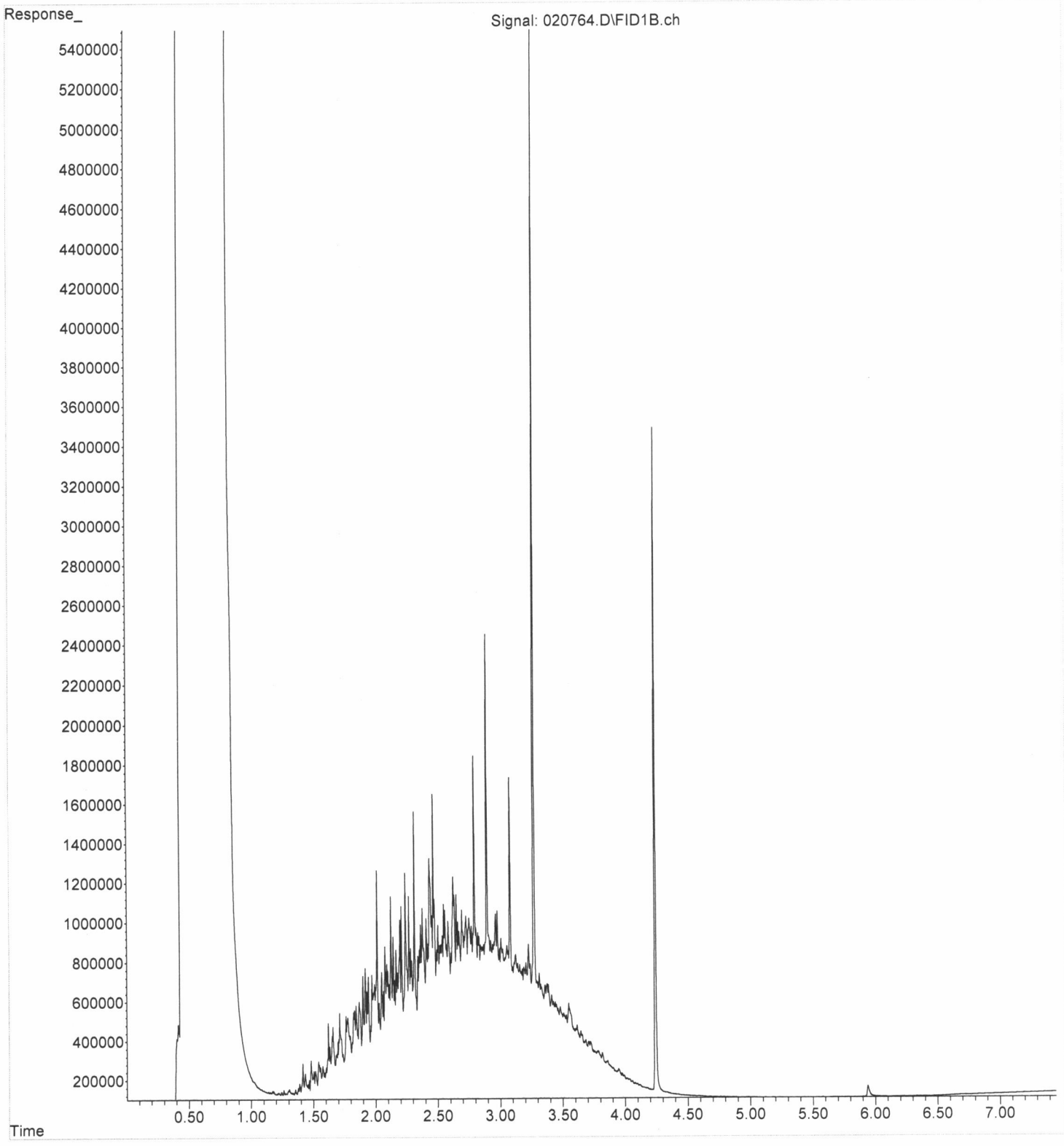
10/2018

File :P:\Proc_GC13\02-07-24\020763.D
Operator : TL
Acquired : 07 Feb 2024 10:23 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 402101-01
Misc Info : ERR
Vial Number: 56



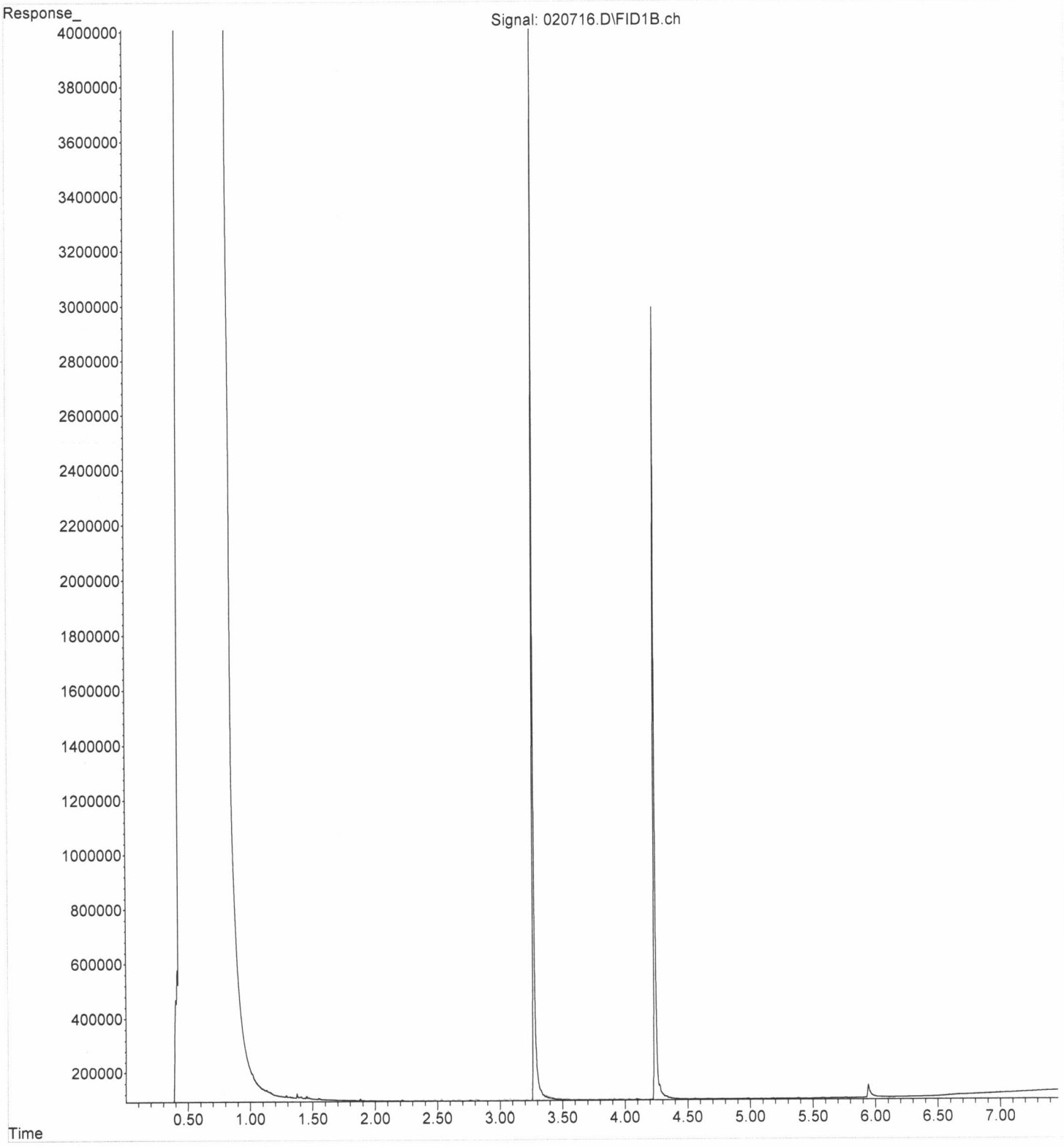
File :P:\Proc_GC13\02-07-24\020764.D
Operator : TL
Acquired : 07 Feb 2024 10:34 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 402101-02
Misc Info :
Vial Number: 57

ERR

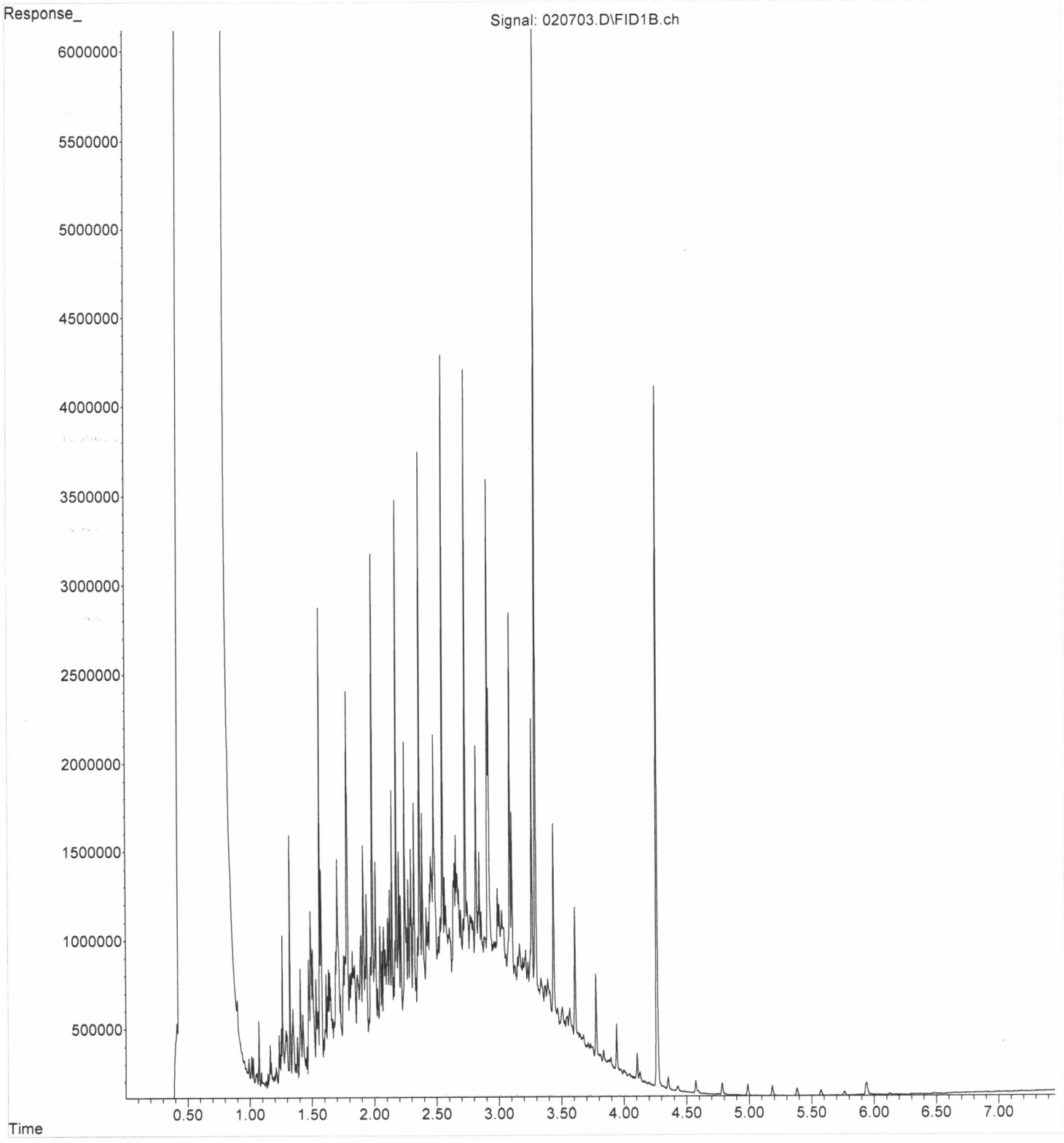


File :P:\Proc_GC13\02-07-24\020716.D
Operator : TL
Acquired : 07 Feb 2024 01:36 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 04-323 mb
Misc Info :
Vial Number: 15

ERR



File :P:\Proc_GC13\02-07-24\020703.D
Operator : TL
Acquired : 07 Feb 2024 08:16 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 70-26F
Misc Info : ERR
Vial Number: 3



ATTACHMENT B

Statistical Evaluation of Total Naphthalene Results

0.015	1	Naphthalene Upper Confidence Limit Calculation, MTCAStat 97
0.015	2	Koz Development Property, Seattle, Washington
0.015	3	
0.015	4	
0.015	5	
0.015	6	
0.015	7	
0.015	8	
0.015	9	
0.015	10	
0.015	11	
0.015	12	
0.015	13	
0.015	14	
0.015	15	
0.015	16	
0.015	17	
0.015	18	
0.015	19	
0.015	20	
0.015	21	
0.094	22	
5.02	23	

Number of samples		Uncensored values	
Uncensored	23	Mean	0.24
Censored		Lognormal mean	0.05
Detection limit or PQL		Std. devn.	1.04299571
Method detection limit		Median	0.015
TOTAL	23	Min.	0.015
		Max.	5.02

Lognormal distribution?		Normal distribution?	
r-squared is:	0.272	r-squared is:	0.194

Recommendations:

Reject lognormal distribution.

W value is 0.2984. This is less than the tabled value of 0.914

Reject normal distribution.

W value is 0.2206. This is less than the tabled value of 0.914

UCL (based on t-statistic) is 0.609456017694122

UCL (based on Z-statistic) is 0.594

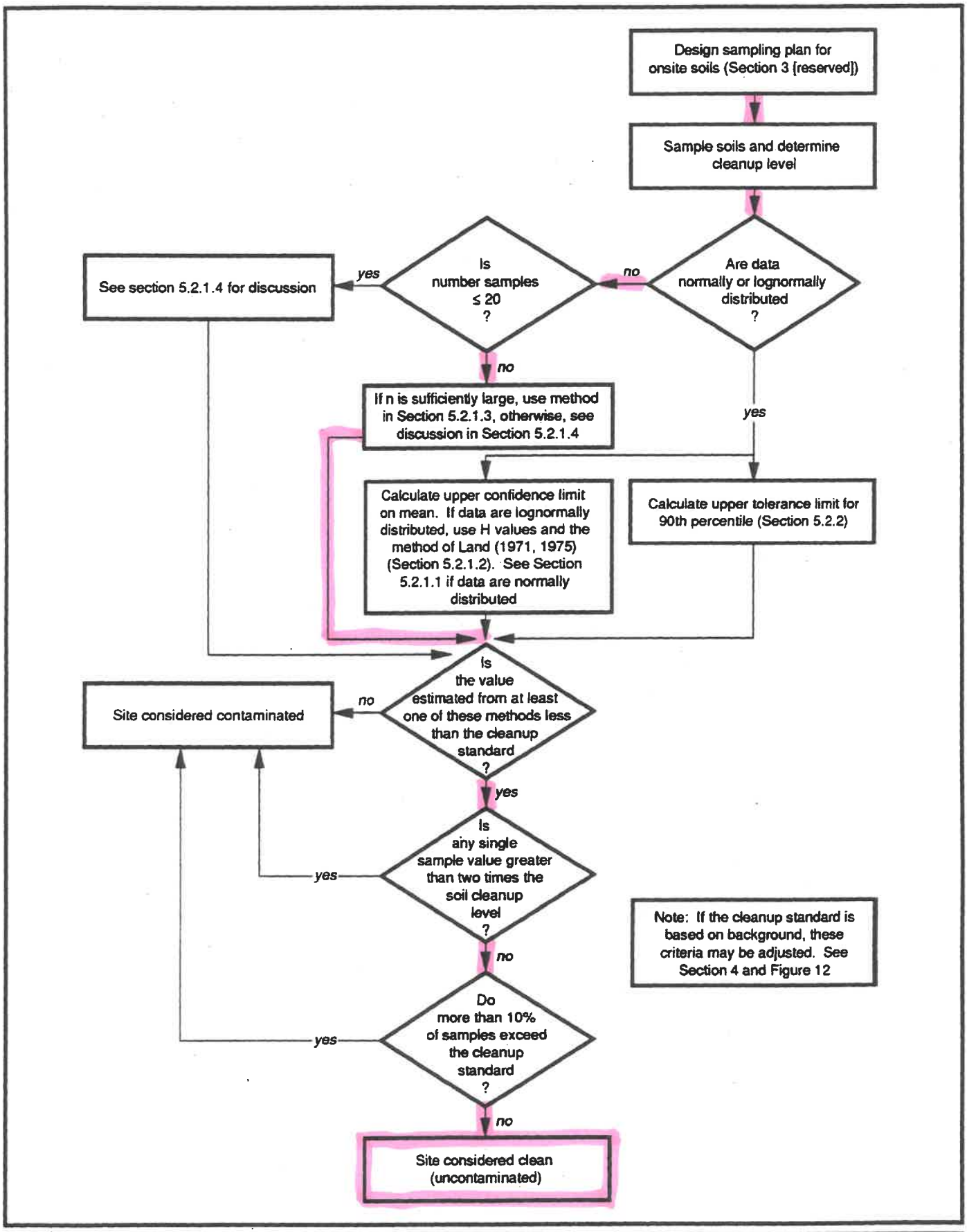


Figure 13. Flowchart for determining if soils at a site meet a cleanup standard.

C704-19-09 0392

ATTACHMENT C

Laboratory Reports for August and September 2024 Sampling of PG-1

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

August 16, 2024

Brian O'Neal, Project Manager
Landau Associates, Inc.
155 NE 100th St, Suite 302
Seattle, WA 98125

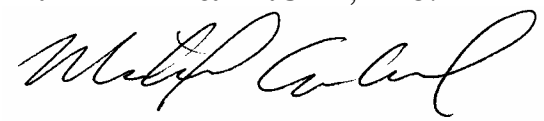
Dear Mr O'Neal:

Included are the results from the testing of material submitted on August 8, 2024 from the KOZ GW 2251001.020.021, F&BI 408169 project. There are 11 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data@LandauInc.com
LDU0816R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 8, 2024 by Friedman & Bruya, Inc. from the Landau Associates KOZ GW 2251001.020.021, F&BI 408169 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Landau Associates
408169 -01	PG-1-240808

Phenanthrene in the 8270E method blank was detected above the reporting limit. Sample PG-1-240808 contained this analyte at a level greater than ten times the concentration observed in the method blank, therefore the data were reported.

All other quality control requirements were acceptable.

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169
Date Extracted: 08/13/24
Date Analyzed: 08/13/24

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
PG-1-240808 408169-01	<1	<1	<1	<3	<100	98
Method Blank 04-1755 MB	<1	<1	<1	<3	<100	97

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169
Date Extracted: 08/09/24
Date Analyzed: 08/14/24

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
PG-1-240808 408169-01	320	<250	100
Method Blank 04-1900 MB	<50	<250	100

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169
Date Extracted: 08/09/24
Date Analyzed: 08/09/24

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
PG-1-240808 408169-01	850	<250	94
Method Blank 04-1900 MB	<50	<250	88

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	PG-1-240808	Client:	Landau Associates
Date Received:	08/08/24	Project:	KOZ GW 2251001.020.021
Date Extracted:	08/13/24	Lab ID:	408169-01
Date Analyzed:	08/14/24	Data File:	081416.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	89	15	144
2-Fluorobiphenyl	76	25	128
2,4,6-Tribromophenol	97	10	142
Terphenyl-d14	112	41	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	5.6
2-Methylnaphthalene	3.3
1-Methylnaphthalene	11
Acenaphthylene	<0.02
Acenaphthene	0.62
Fluorene	1.1
Phenanthrene	1.7
Anthracene	0.054
Fluoranthene	<0.02
Pyrene	0.050
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Landau Associates
Date Received:	Not Applicable	Project:	KOZ GW 2251001.020.021
Date Extracted:	08/13/24	Lab ID:	04-1915 mb
Date Analyzed:	08/15/24	Data File:	081441.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	79	11	173
2-Fluorobiphenyl	76	25	128
2,4,6-Tribromophenol	71	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	0.021 lc
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 408169-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	94	70-130
Toluene	ug/L (ppb)	50	90	70-130
Ethylbenzene	ug/L (ppb)	50	86	70-130
Xylenes	ug/L (ppb)	150	87	70-130
Gasoline	ug/L (ppb)	1,000	90	70-130

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169

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

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	80	92	65-151	14

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169

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

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	76	80	65-151	5

Date of Report: 08/16/24
Date Received: 08/08/24
Project: KOZ GW 2251001.020.021, F&BI 408169

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	10	72	74	58-93	3
2-Methylnaphthalene	ug/L (ppb)	10	74	76	63-97	3
1-Methylnaphthalene	ug/L (ppb)	10	74	76	62-99	3
Acenaphthylene	ug/L (ppb)	10	87	89	68-111	2
Acenaphthene	ug/L (ppb)	10	87	89	67-104	2
Fluorene	ug/L (ppb)	10	89	93	70-130	4
Phenanthrene	ug/L (ppb)	10	93	96	70-130	3
Anthracene	ug/L (ppb)	10	91	95	70-130	4
Fluoranthene	ug/L (ppb)	10	97	101	70-130	4
Pyrene	ug/L (ppb)	10	95	97	70-130	2
Benz(a)anthracene	ug/L (ppb)	10	97	101	70-130	4
Chrysene	ug/L (ppb)	10	94	98	70-130	4
Benzo(a)pyrene	ug/L (ppb)	10	96	100	70-130	4
Benzo(b)fluoranthene	ug/L (ppb)	10	101	104	70-130	3
Benzo(k)fluoranthene	ug/L (ppb)	10	97	100	70-130	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	10	88	88	70-130	0
Dibenz(a,h)anthracene	ug/L (ppb)	10	89	89	70-130	0
Benzo(g,h,i)perylene	ug/L (ppb)	10	81	81	68-131	0

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.

408169

SAMPLE CHAIN OF CUSTODY

ME 08-08-24

Page # 1 of 1 VW21 F3

Report To data@landauinc.com; BONeal@landauinc.com

Company Landau Associates

Address ~~RVE~~ 155 NE 100th St.

City, State, ZIP Seattle, WA 98125

Phone 425 967 2006 Email BONeal@landauinc.com

SAMPLERS (*signature*) Darius Withrow

PROJECT NAME: KOZ GW

PO #: 225001.020.021

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: 225001.020.021

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 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	SILICA GEL				Notes ✓-per 30 2nd 08/13
					10	ANALYSES REQUESTED											
PG-1-240808	01A-J	8/8/24	1300	AQ	8	X	X	X			X		✓				2 Extra Ambers filled in case of Silica Gel cleanup analysis
					EMB												

Samples received at 4 °C

EMB

Friedman & Bruya, Inc.
5500 4th Ave S.
Seattle WA 98108
(206) 285-8282
office@friedmanandbruya.com

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Darius Withrow	Landau	8/8/24	1430
Received by:		Eric Crowley	F&B	8/8/24	1430
Relinquished by:					
Received by:					

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 408169 CLIENT LANDAU INITIALS/ DATE: 08/08/24

If custody seals are present on cooler, are they intact? ☐ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °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/ Date: EWB 8/8
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 0 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	☐ 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	

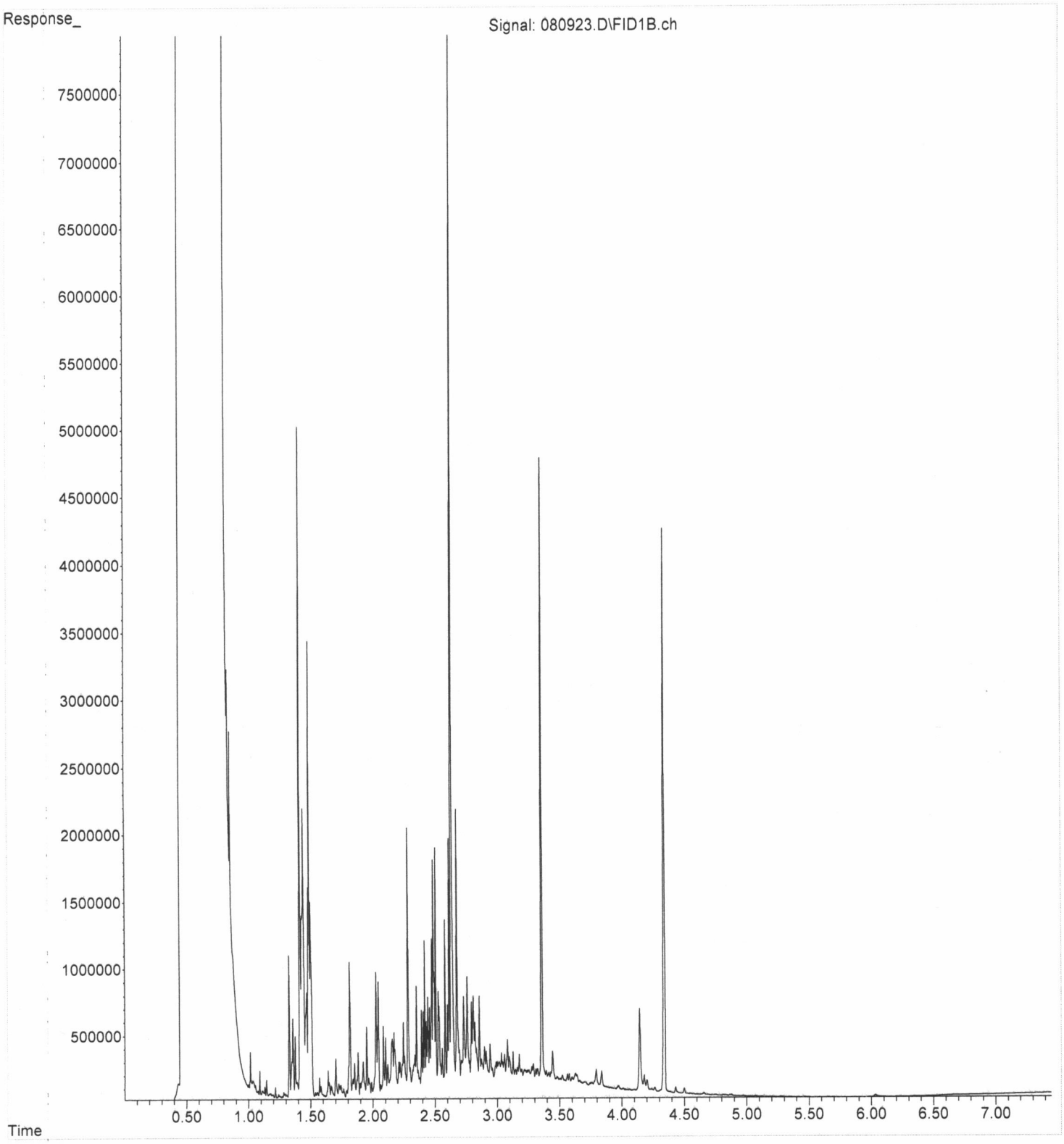
Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO

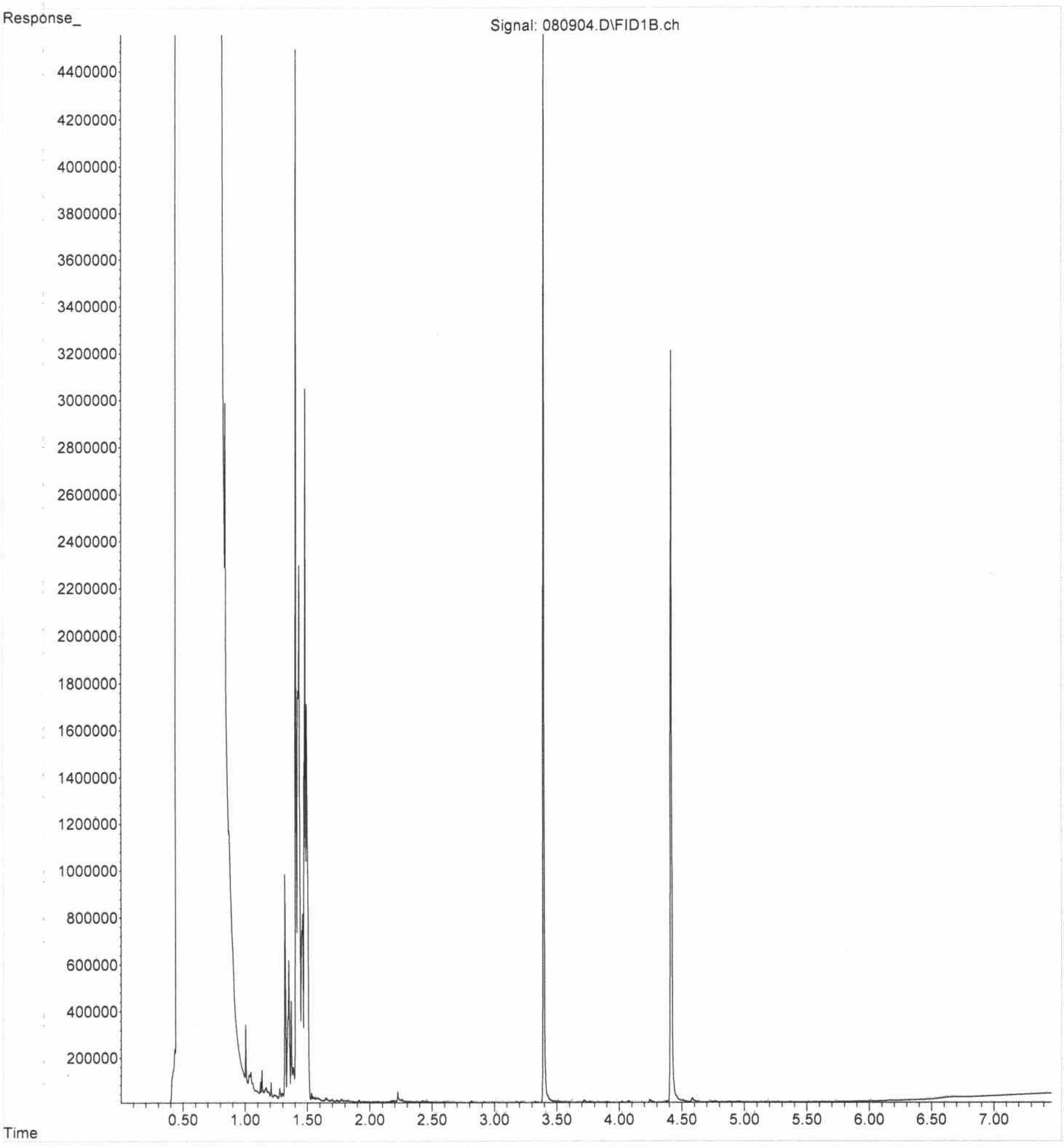
Number of unused TO15 canisters _____ Number of unused TO17 tubes _____

File :P:\Proc_GC14\08-09-24\080923.D
Operator : TL
Acquired : 09 Aug 2024 12:48 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 408169-01
Misc Info :
Vial Number: 106

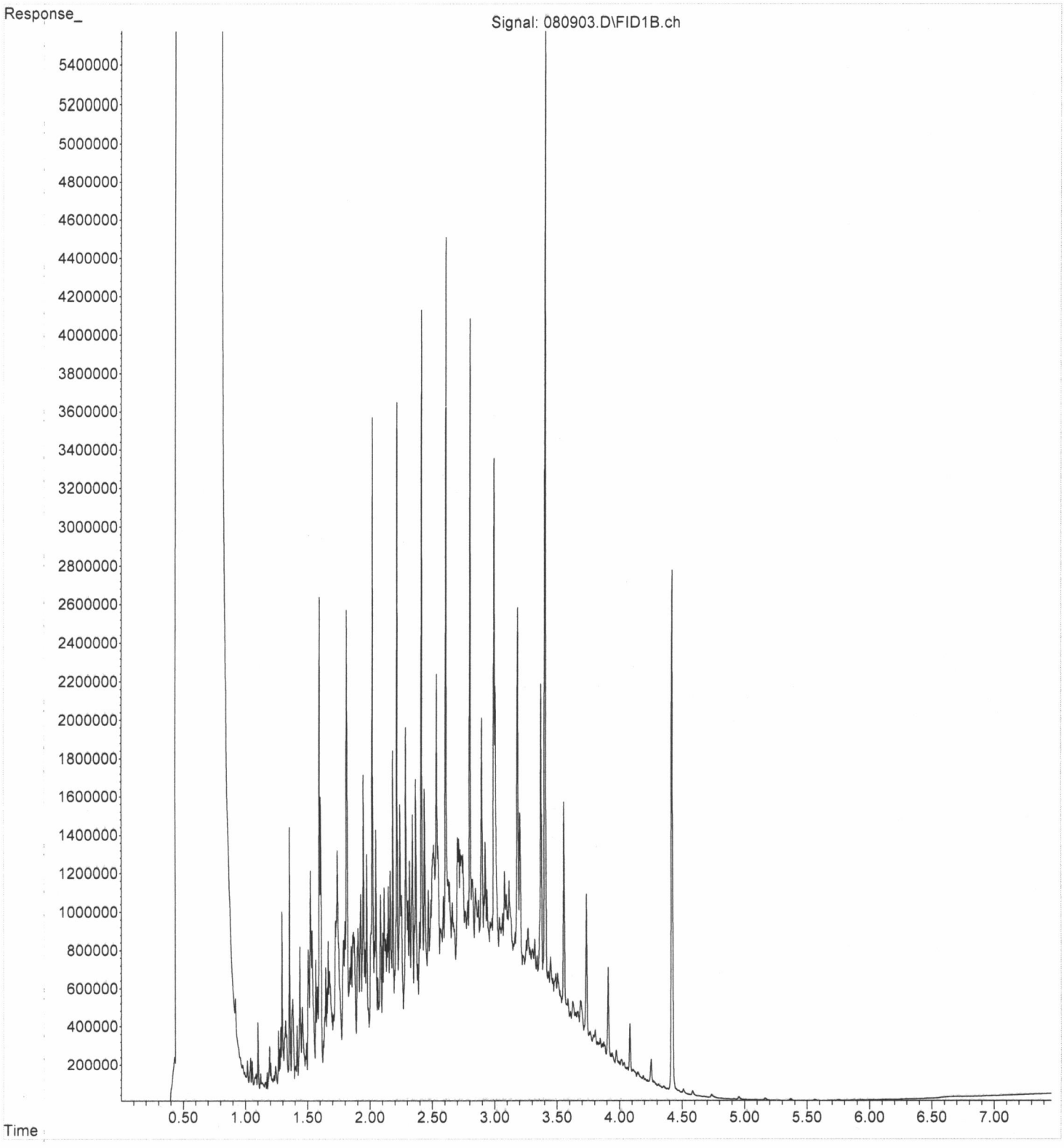
ERR



File : P:\Proc_GC14\08-09-24\080904.D
Operator : TL
Acquired : 09 Aug 2024 08:51 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 04-1900 mb
Misc Info : ERR
Vial Number: 6

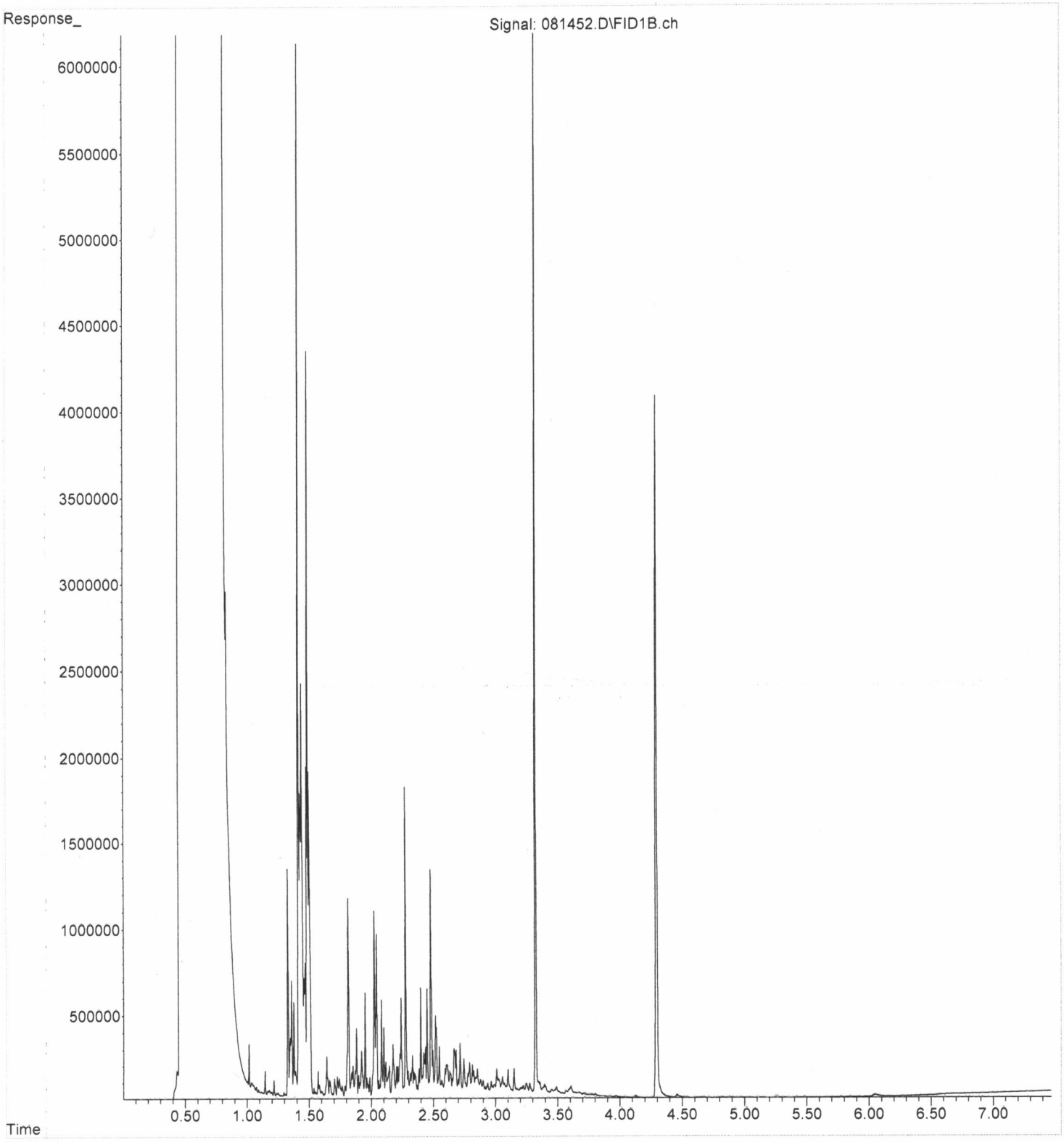


File :P:\Proc_GC14\08-09-24\080903.D
Operator : TL
Acquired : 09 Aug 2024 08:39 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 500 Dx 71-152C
Misc Info : ERR
Vial Number: 3



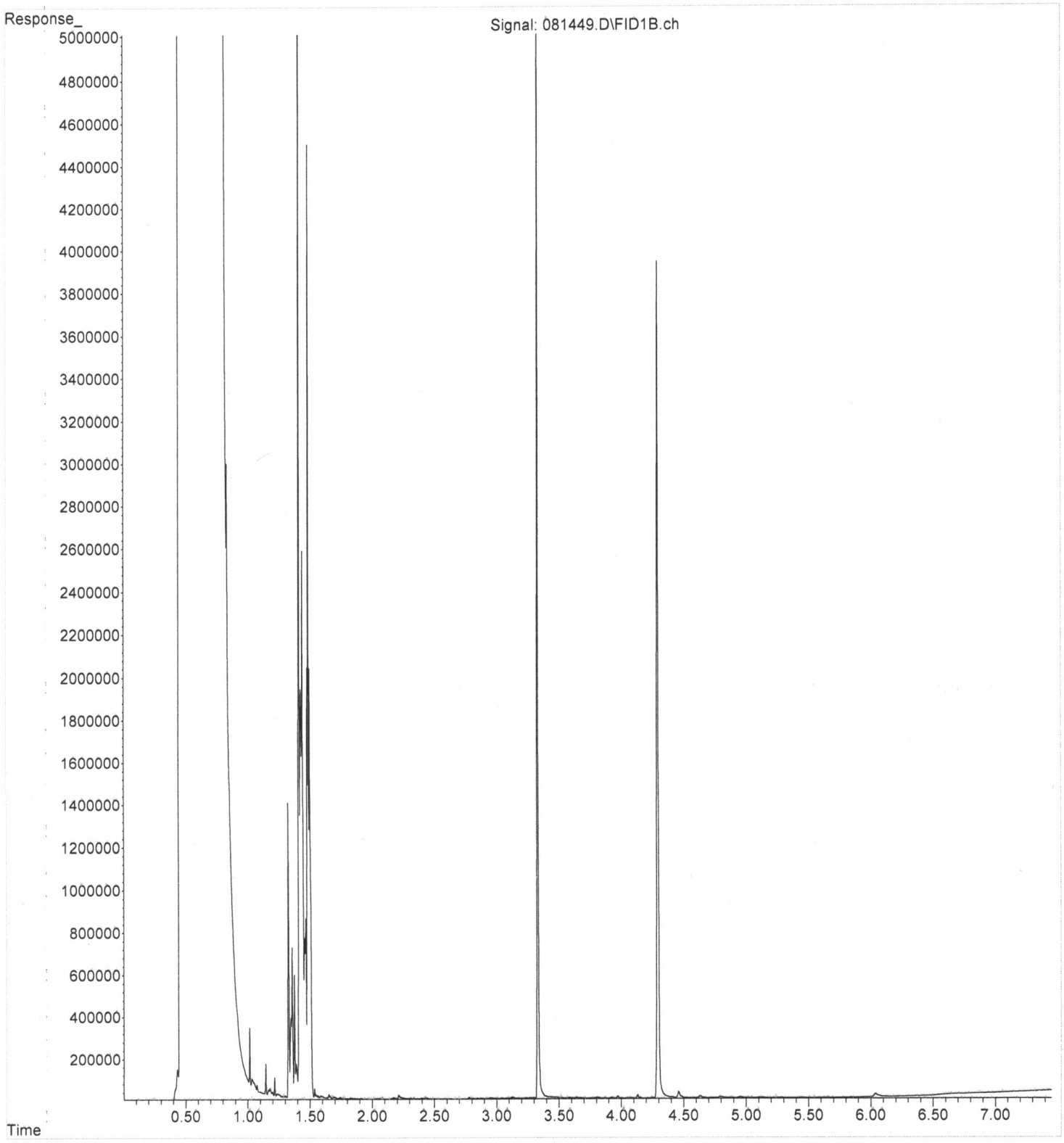
File :P:\Proc_GC14\08-14-24\081452.D
Operator : TL
Acquired : 14 Aug 2024 09:23 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 408169-01 sg
Misc Info :
Vial Number: 41

ERR



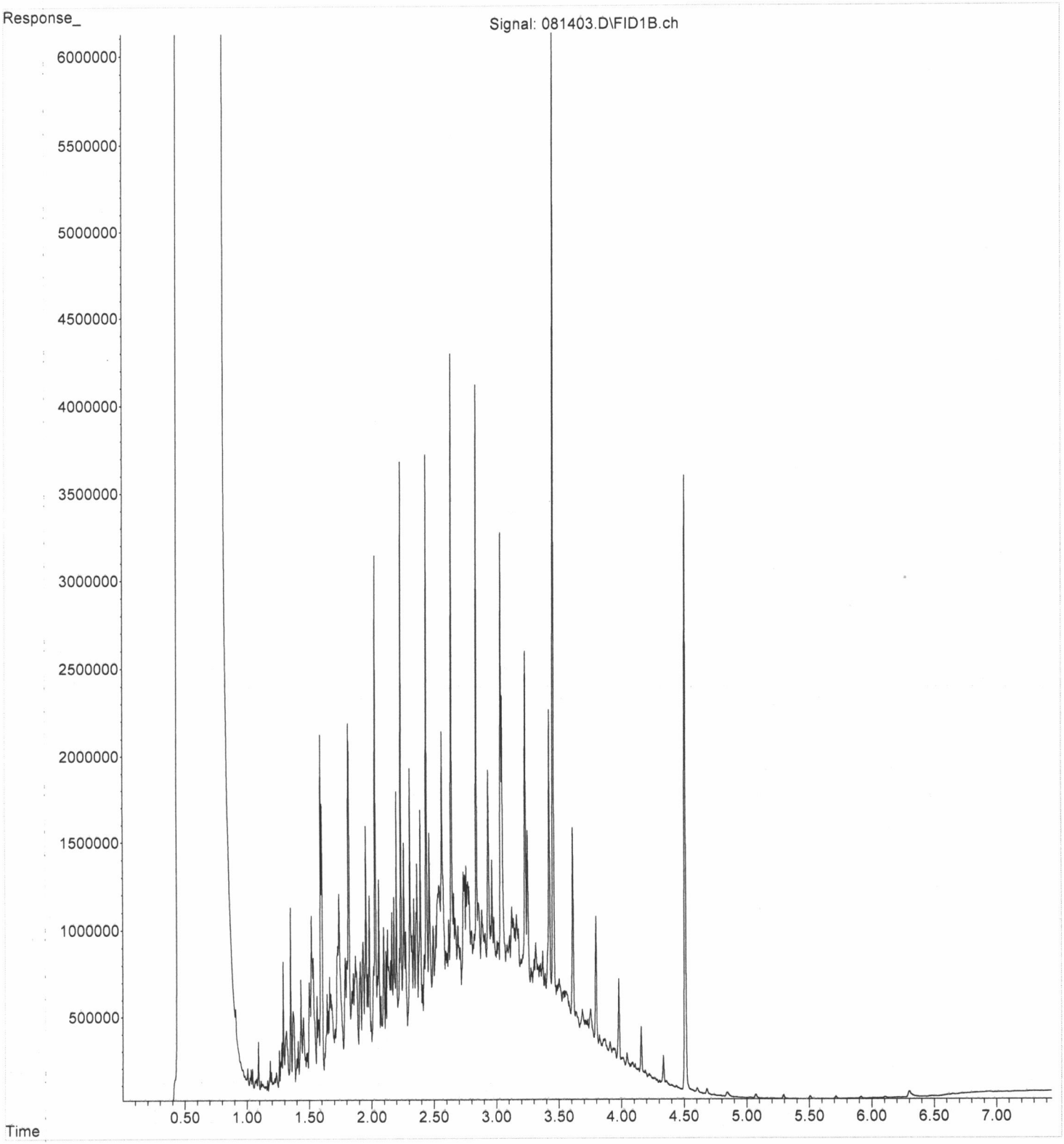
File :P:\Proc_GC14\08-14-24\081449.D
Operator : TL
Acquired : 14 Aug 2024 08:47 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 04-1900 mb sg
Misc Info :
Vial Number: 38

ERR



File :P:\Proc_GC14\08-14-24\081403.D
Operator : TL
Acquired : 14 Aug 2024 08:31 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 500 Dx 71-152C
Misc Info :
Vial Number: 3

ERR



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

ANALYTICAL REPORT

Wednesday, October 30, 2024

Mike Staton
Landau Associates (Northgate)
155 NE 100th St #302
Seattle, WA 98125

RE: A4I0854 - KOZ GW - 2251001.020.021

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

Enclosed are the results of analyses for work order A4I0854, which was received by the laboratory on 9/5/2024 at 10:39:00AM.

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

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

Cooler Receipt Information
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.
(See Cooler Receipt Form for details)
Default Cooler 4.8 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PG-1-240903	**A4I0854-01**	**Water**	**09/03/24 13:20**	**09/05/24 10:39**

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
PG-1-240903 (A4I0854-01)				**Matrix: Water**		**Batch: 24I0278**		
Diesel	**791**	38.5	76.9	ug/L	1	09/10/24 20:09	NWTPH-Dx LL	**F-13**
Oil	ND	76.9	154	ug/L	1	09/10/24 20:09	NWTPH-Dx LL	
Surrogate: o-Terphenyl (Surr)		*Recovery: 80 %*		*Limits: 50-150 %*	*1*	*09/10/24 20:09*	*NWTPH-Dx LL*	

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

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ANALYTICAL REPORT

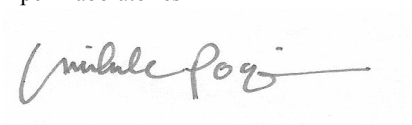
Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

ANALYTICAL SAMPLE RESULTS

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

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
PG-1-240903 (A4I0854-01)				**Matrix: Water**		**Batch: 24I0523**		
Diesel	**248**	38.5	76.9	ug/L	1	09/17/24 21:32	NWTPH-Dx/SGC	**F-13**
Oil	ND	76.9	154	ug/L	1	09/17/24 21:32	NWTPH-Dx/SGC	
Surrogate: o-Terphenyl (Surr)		*Recovery: 71 %*		*Limits: 50-150 %*	*1*	*09/17/24 21:32*	*NWTPH-Dx/SGC*	

Apex Laboratories



Michele Poquiz For Kurt Johnson, Senior Chemist

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ORELAP ID: OR100062

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: KOZ GW	
155 NE 100th St #302	Project Number: 2251001.020.021	Report ID:
Seattle, WA 98125	Project Manager: Mike Staton	A4I0854 - 10 30 24 1603

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24I0278 - EPA 3510C (Fuels/Acid Ext.)									Water			
Blank (24I0278-BLK1)				Prepared: 09/10/24 11:06 Analyzed: 09/10/24 18:59								
NWTPH-Dx LL												
Diesel	ND	40.0	80.0	ug/L	1	---	---	---	---	---	---	
Oil	ND	80.0	160	ug/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 81 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (24I0278-BS1)				Prepared: 09/10/24 11:06 Analyzed: 09/10/24 19:22								
NWTPH-Dx LL												
Diesel	333	40.0	80.0	ug/L	1	500	---	67	36-132%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 80 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (24I0278-BSD1)				Prepared: 09/10/24 11:06 Analyzed: 09/10/24 19:45								Q-19
NWTPH-Dx LL												
Diesel	338	40.0	80.0	ug/L	1	500	---	68	36-132%	1	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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Michele Poquiz For Kurt Johnson, Senior Chemist

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6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: KOZ GW	
155 NE 100th St #302	Project Number: 2251001.020.021	Report ID:
Seattle, WA 98125	Project Manager: Mike Staton	A4I0854 - 10 30 24 1603

QUALITY CONTROL (QC) SAMPLE RESULTS

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

Analyte	Result	Detection L Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24I0523 - EPA 3510C (Fuels/Acid Ext.) w/SGC									Water			
Blank (24I0523-BLK1)				Prepared: 09/10/24 11:06 Analyzed: 09/17/24 20:22								
NWTPH-Dx/SGC												
Diesel	ND	40.0	80.0	ug/L	1	---	---	---	---	---	---	
Oil	ND	80.0	160	ug/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 71 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (24I0523-BS1)				Prepared: 09/10/24 11:06 Analyzed: 09/17/24 20:45								
NWTPH-Dx/SGC												
Diesel	319	40.0	80.0	ug/L	1	500	---	64	36-132%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 73 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (24I0523-BSD1)				Prepared: 09/10/24 11:06 Analyzed: 09/17/24 21:09								Q-19
NWTPH-Dx/SGC												
Diesel	333	40.0	80.0	ug/L	1	500	---	67	36-132%	4	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 77 %*	*Limits: 50-150 %*			*Dilution: 1x*					

Apex Laboratories

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Michele Poquiz For Kurt Johnson, Senior Chemist

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

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24I0278							
A4I0854-01	Water	NWTPH-Dx LL	09/03/24 13:20	09/10/24 11:06	1040mL/2mL	1000mL/2mL	0.96

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

Prep: EPA 3510C (Fuels/Acid Ext.) w/SGC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24I0523							
A4I0854-01	Water	NWTPH-Dx/SGC	09/03/24 13:20	09/10/24 11:06	1040mL/2mL	1000mL/2mL	0.96

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

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

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

QUALIFIER DEFINITIONS

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

Apex Laboratories

F-13	The chromatographic pattern does not resemble the fuel standard used for quantitation
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

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

ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

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

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

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

QC Source:

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

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

Miscellaneous Notes:

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

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

Apex Laboratories

Michele Poquiz For Kurt Johnson, Senior Chemist

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

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

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

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

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

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

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold

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ANALYTICAL REPORT

Landau Associates (Northgate)	Project: **KOZ GW**	
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

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

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

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

Apex Laboratories

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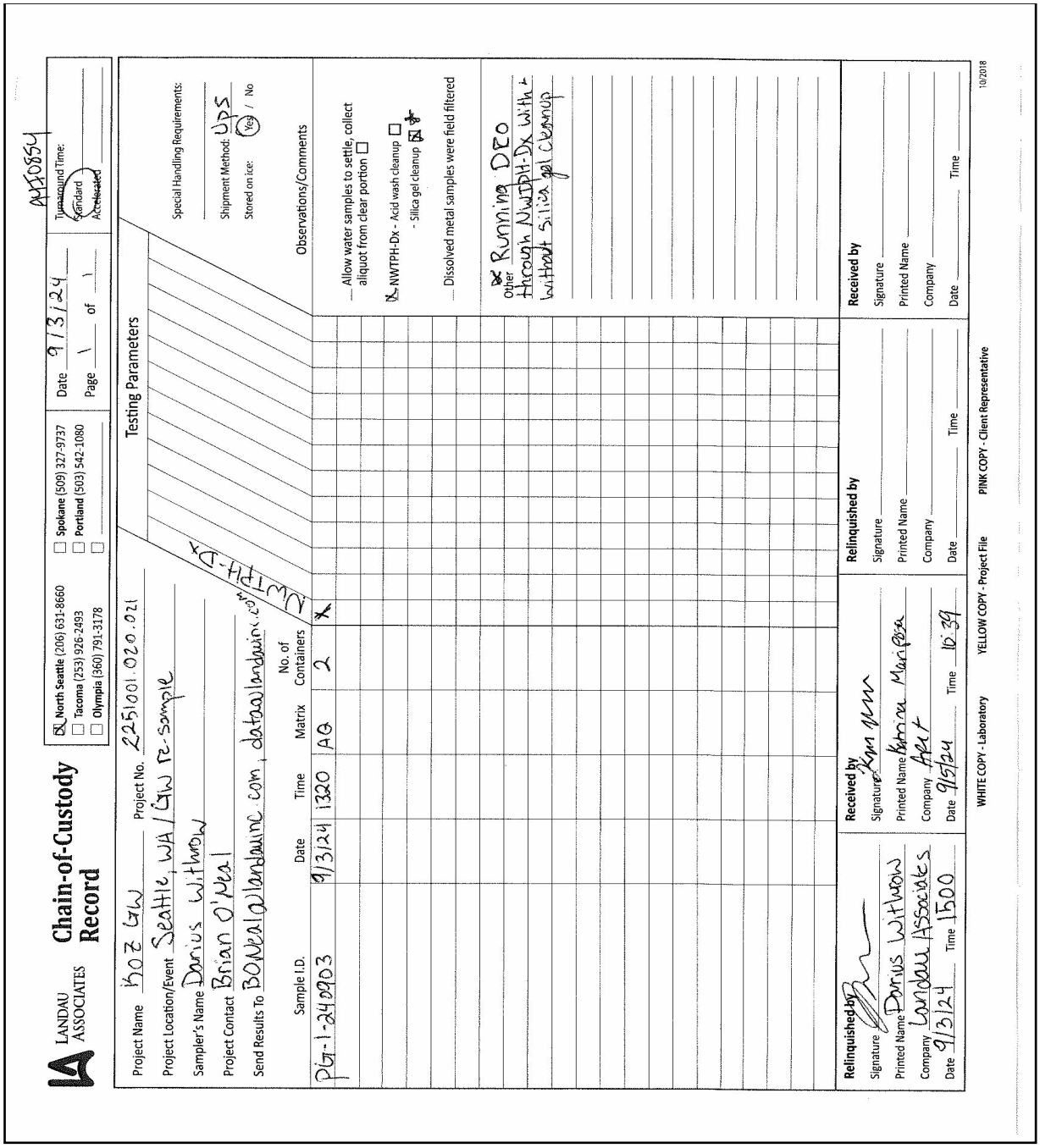
155 NE 100th St #302	Project Number: **2251001.020.021**	**Report ID:**
Seattle, WA 98125	Project Manager: **Mike Staton**	**A4I0854 - 10 30 24 1603**



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APEX LABS COOLER RECEIPT FORM

Client: Landau Associates Element WO#: A4I0854

Project/Project #: KOZ GW / 2251001.020.021

Delivery Info:

Date/time received: 9/5/24 @ 10:39 By: KSM

Delivered by: Apex__Client__ESS__FedEx__UPS X Radio__Morgan__SDS__Evergreen__Other__

From USDA Regulated Origin? Yes _____ No X

Cooler Inspection Date/time inspected: 9/5/24 @ 10:40 By: KSM

Chain of Custody included? Yes X No _____

Signed/dated by client? Yes X No _____

Contains USDA Reg. Soils? Yes _____ No X Unsure (email RegSoils) _____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	4.8						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition (In/Out):	In						

Cooler out of temp? (Y/N) Possible reason why: _____

Green dots applied to out of temperature samples? Yes/No

Out of temperature samples form initiated? Yes/No

Sample Inspection: Date/time inspected: 9/5/24 @ 1132 By: AMW

All samples intact? Yes X No ___ Comments: _____

Bottle labels/COCs agree? Yes X No ___ Comments: _____

COC/container discrepancies form initiated? Yes ___ No X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments: _____

Do VOA vials have visible headspace? Yes ___ No ___ NA X

Comments _____

Water samples: pH checked: Yes X No___NA___ pH appropriate? Yes X No___NA___ pH ID: AA33172

Comments: _____

12 26E 748 03 9571 9147

Labeled by: AMW Witness: MN Cooler Inspected by: AMW

Form Y-003 R-02

Apex Laboratories

Michele Poquiz

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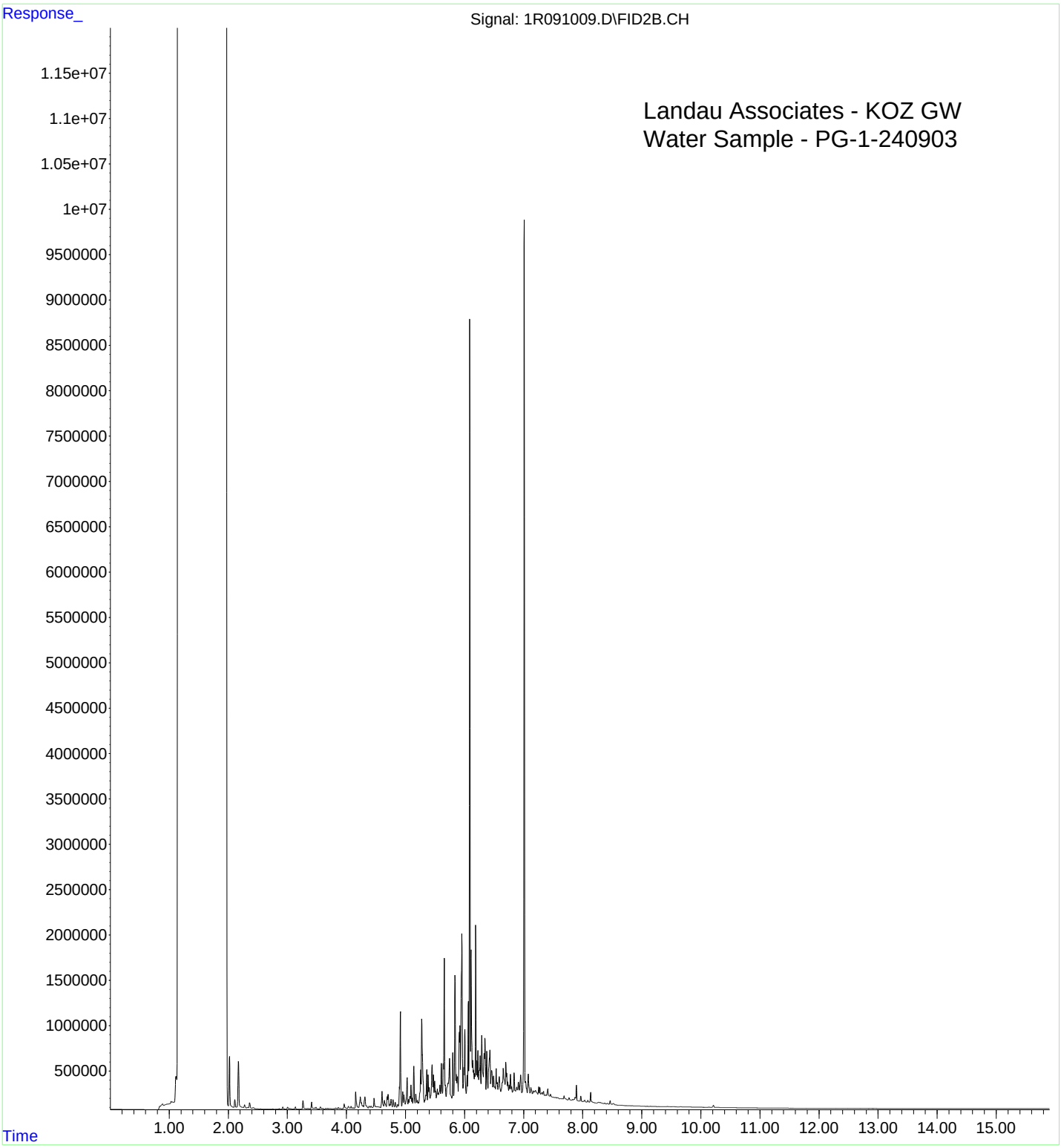
Michele Poquiz For Kurt Johnson, Senior Chemist

File :C:\msdchem\1\copied data\4I10062\1R091009.D
Operator : BLL
Acquired : 10 Sep 2024 8:09 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: A4I0854-01
Misc Info :
Vial Number: 56



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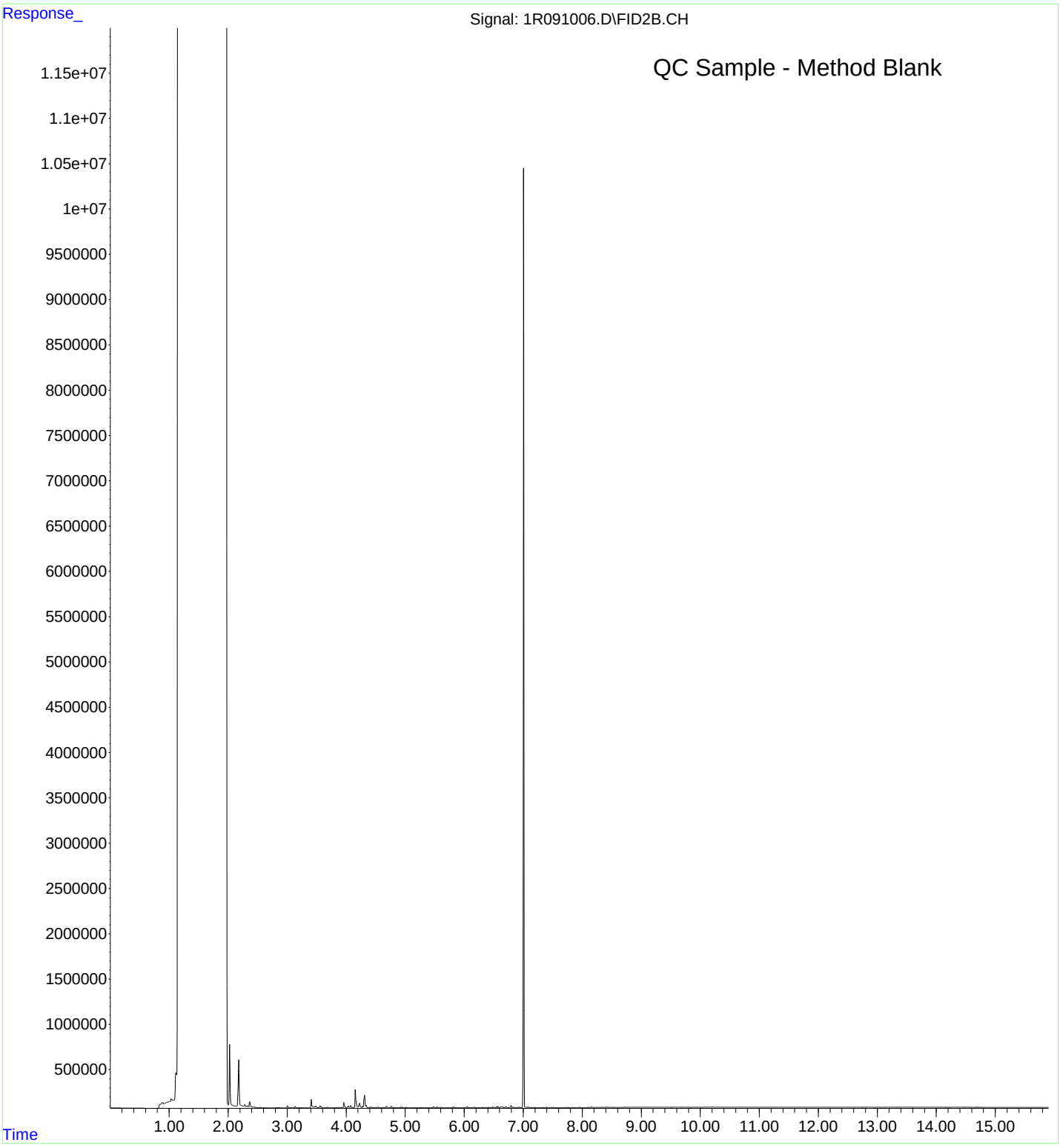
Operator : BLL
Acquired : 10 Sep 2024 6:59 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 24I0278-BLK1
Misc Info :
Vial Number: 53



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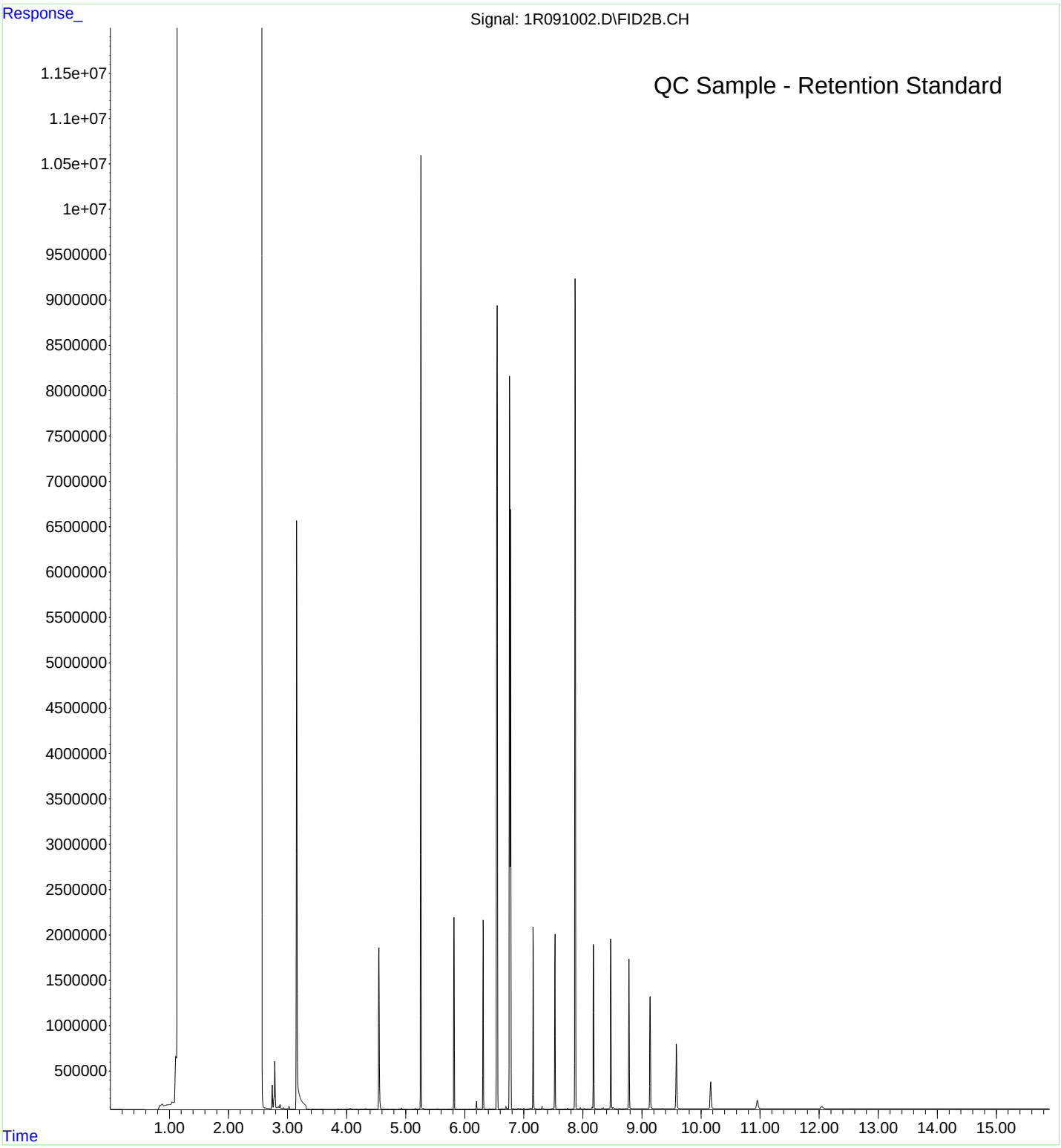
Operator : BLL
Acquired : 10 Sep 2024 2:49 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I10062-RES1
Misc Info :
Vial Number: 95



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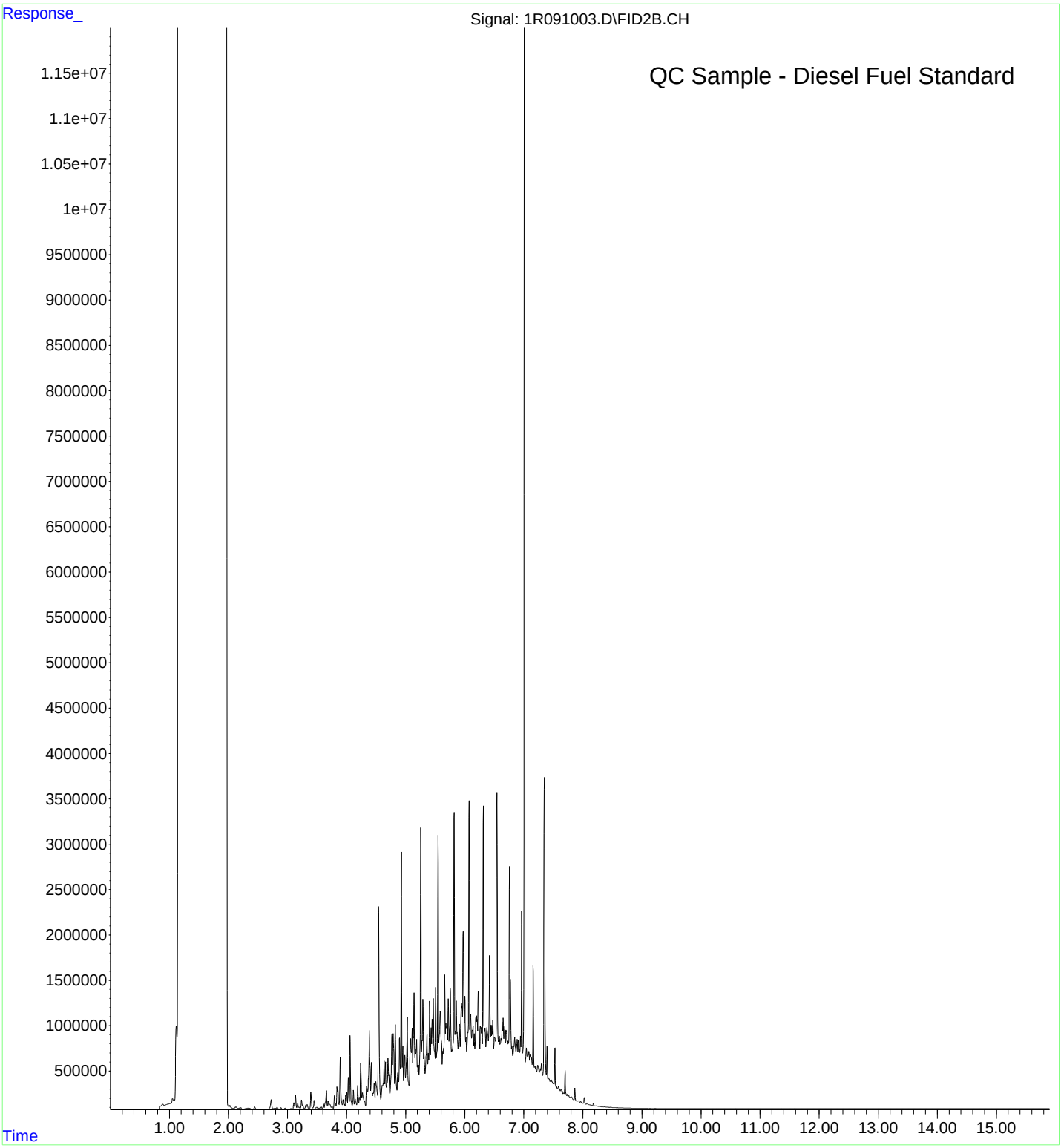
Operator : BLL
Acquired : 10 Sep 2024 3:13 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I10062-CCV1
Misc Info :
Vial Number: 51



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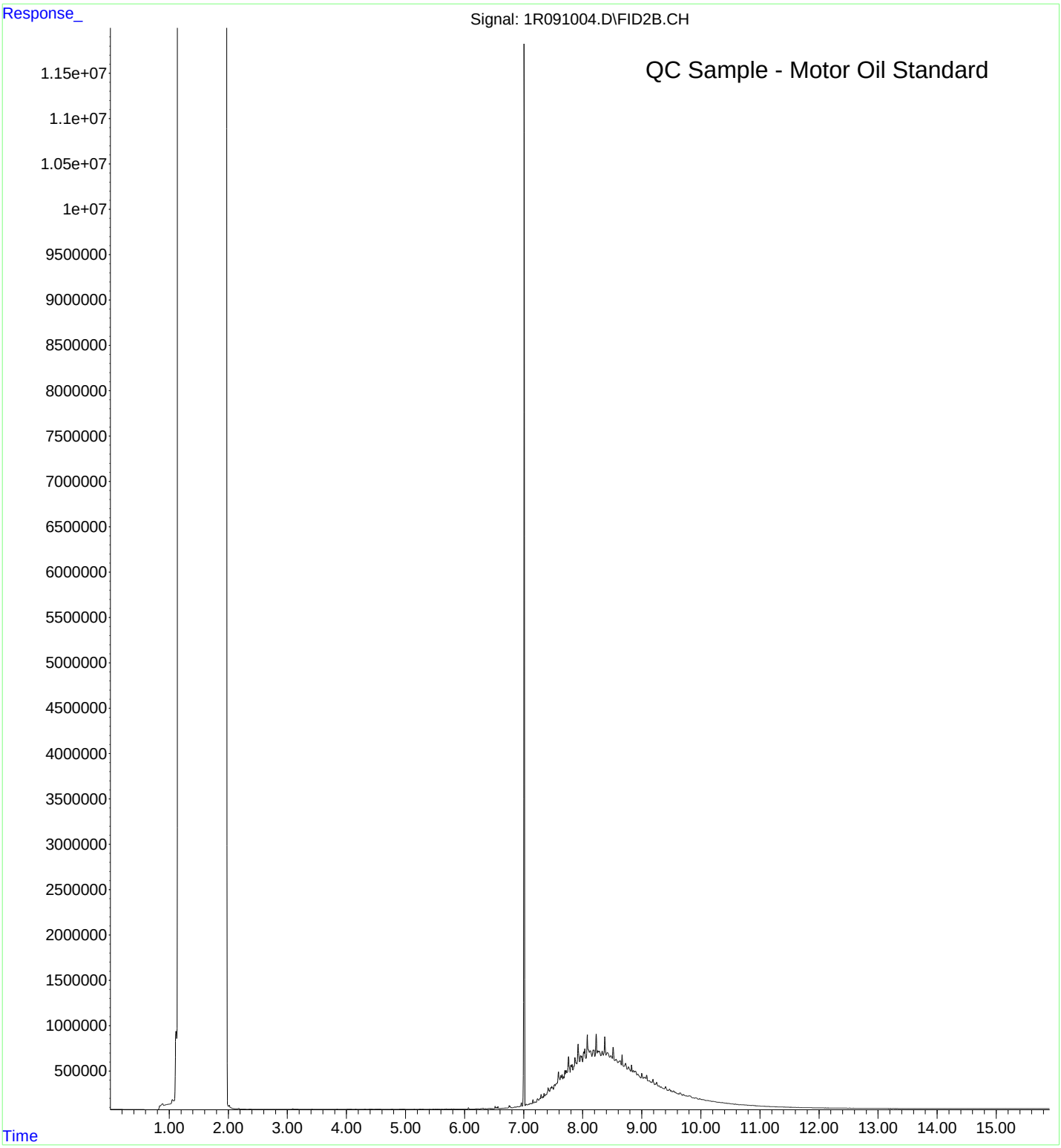
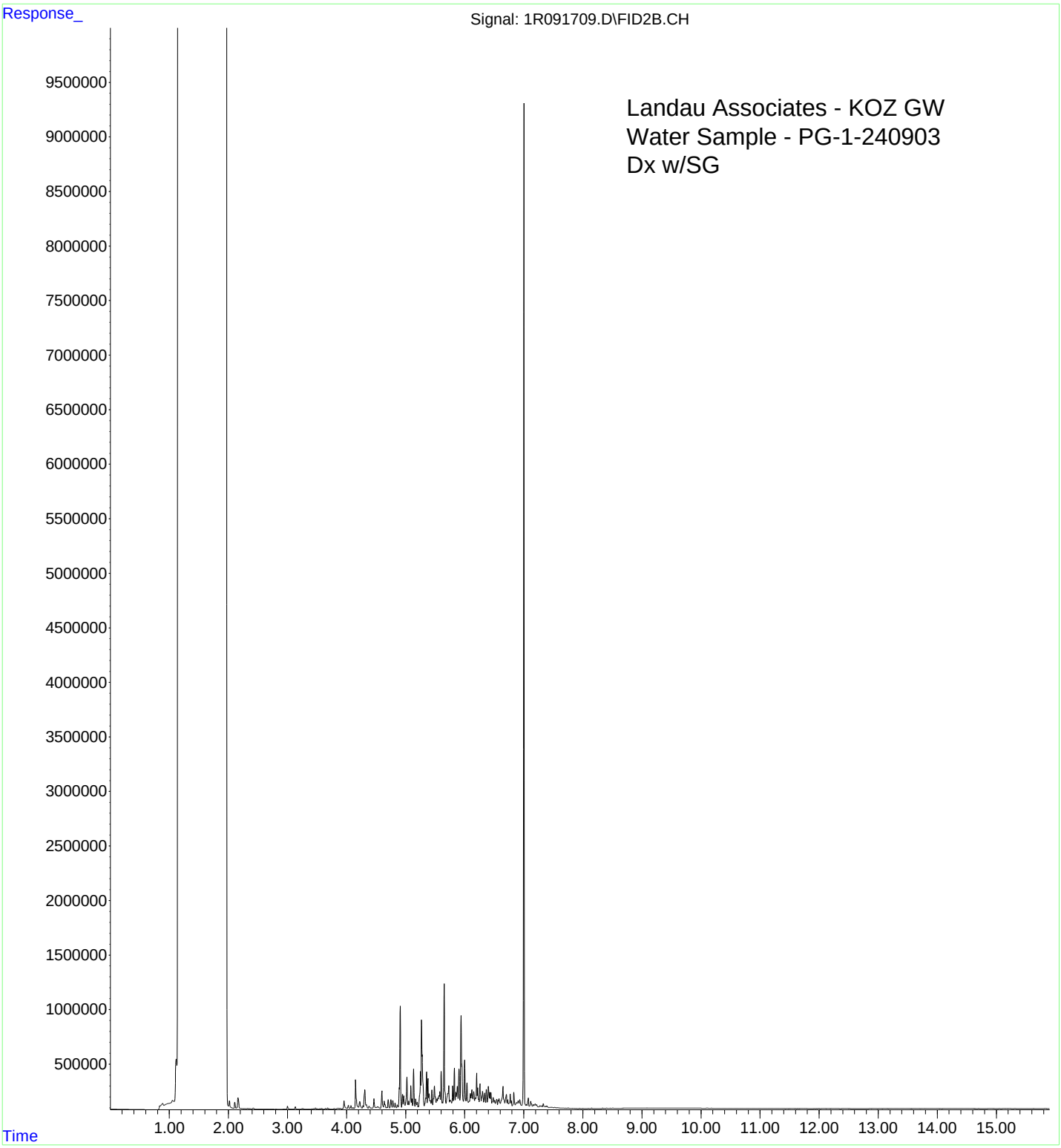
Operator : BLL
Acquired : 10 Sep 2024 3:37 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I10062-CCV2
Misc Info :
Vial Number: 52



File :C:\msdchem\1\copied data\4I17072\1R091709.D
Operator : BLL
Acquired : 17 Sep 2024 9:32 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: A4I0854-01
Misc Info :
Vial Number: 56



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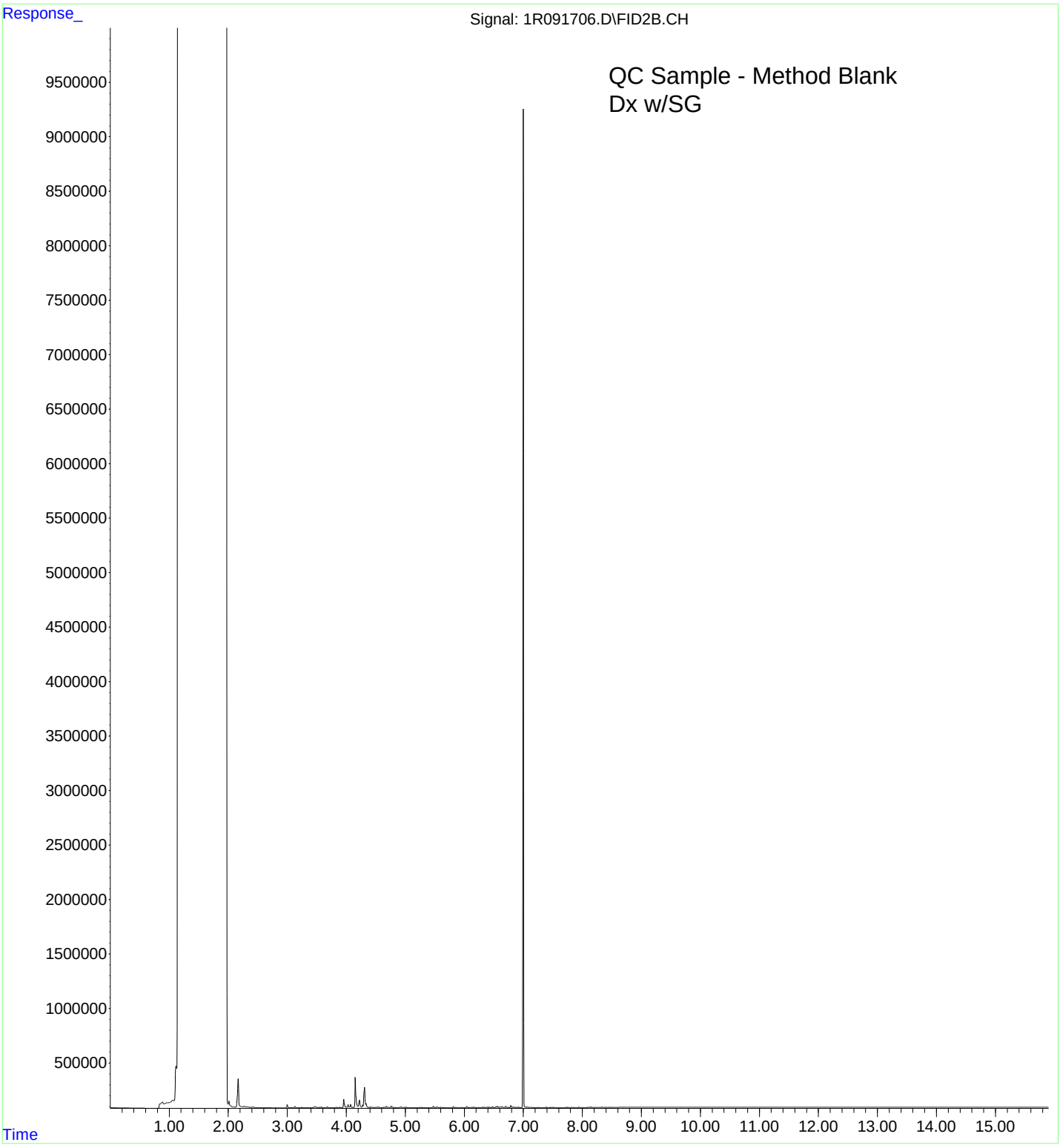
Operator : BLL
Acquired : 17 Sep 2024 8:22 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 24I0523-BLK1
Misc Info :
Vial Number: 53



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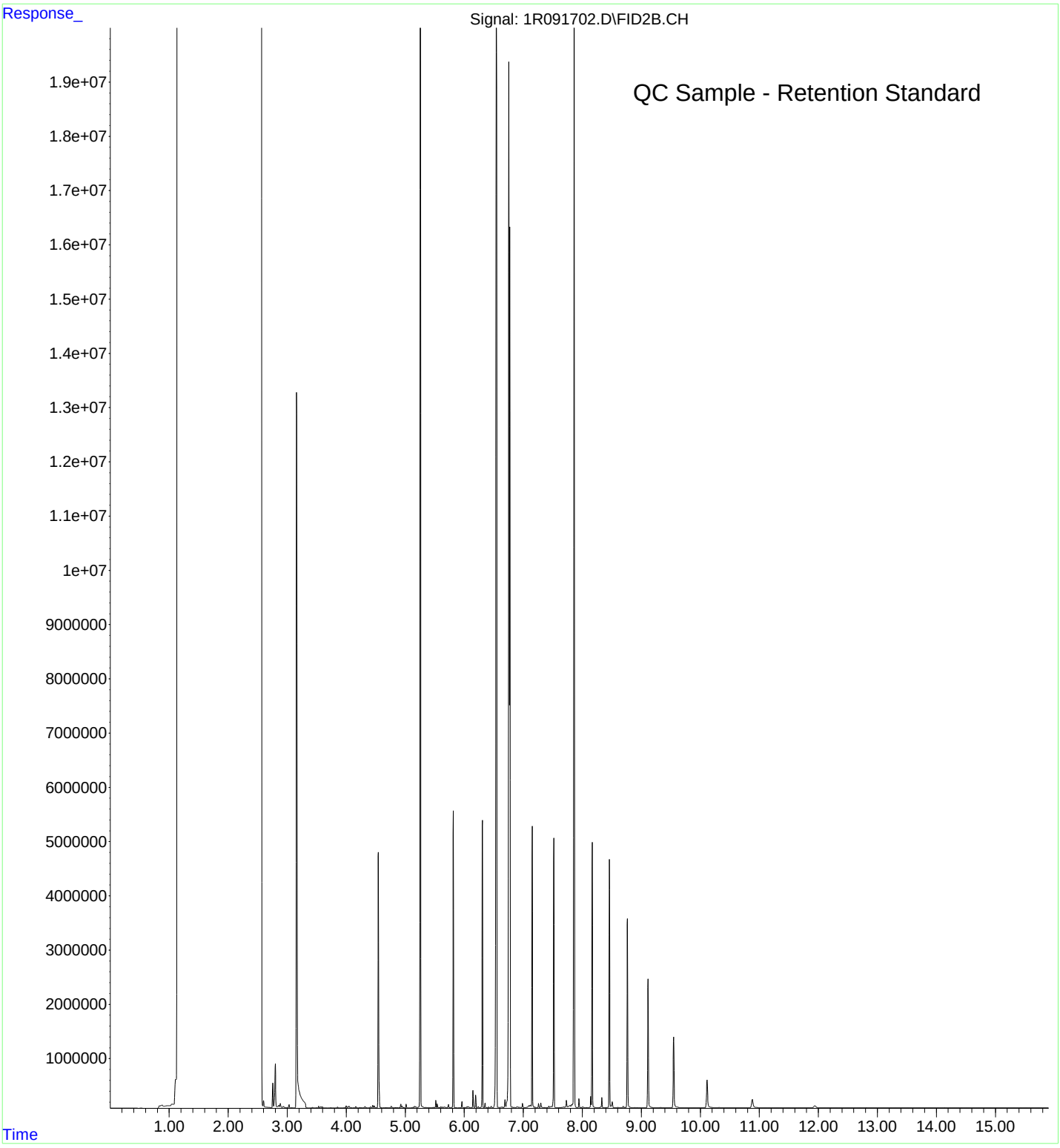
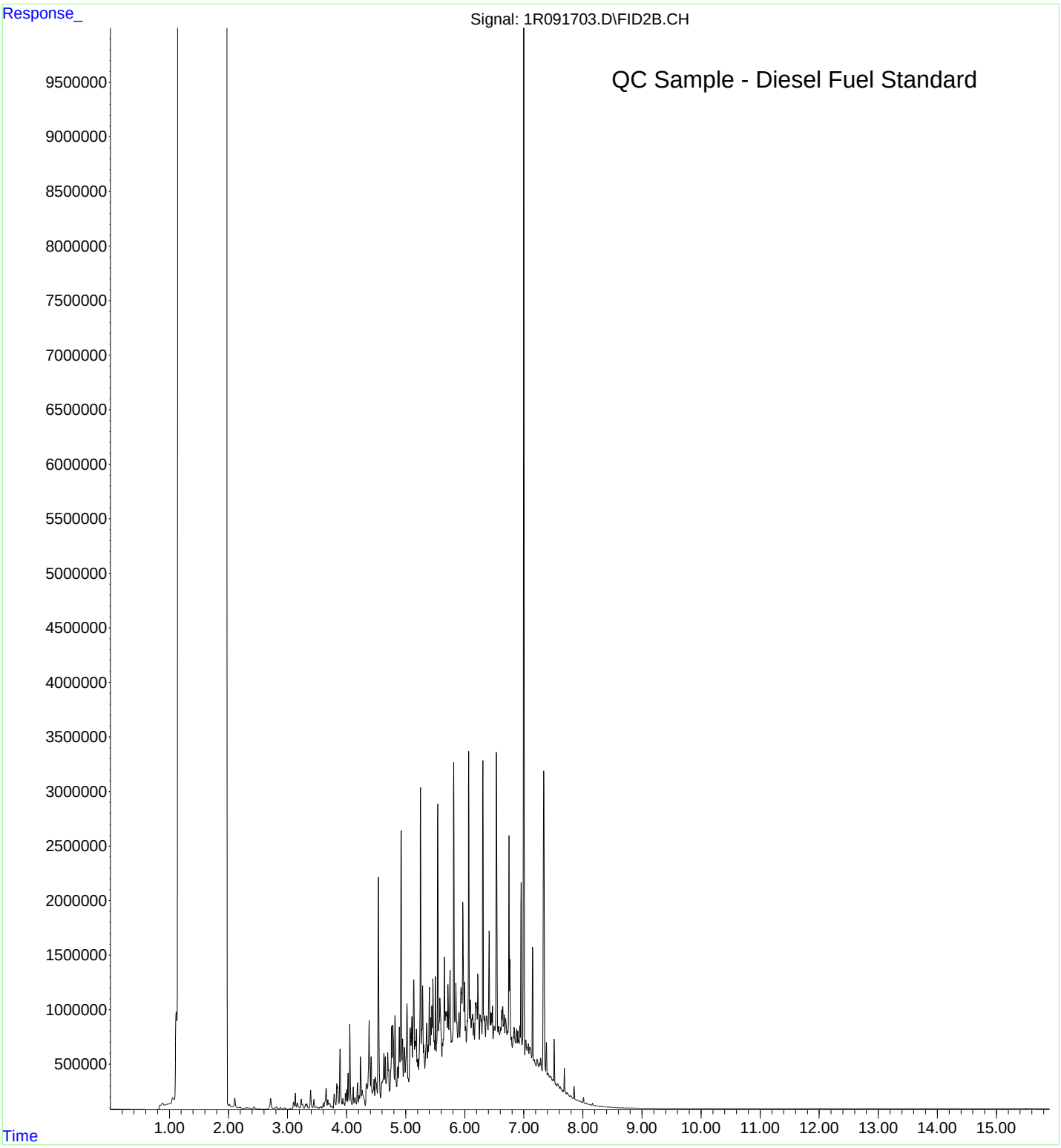
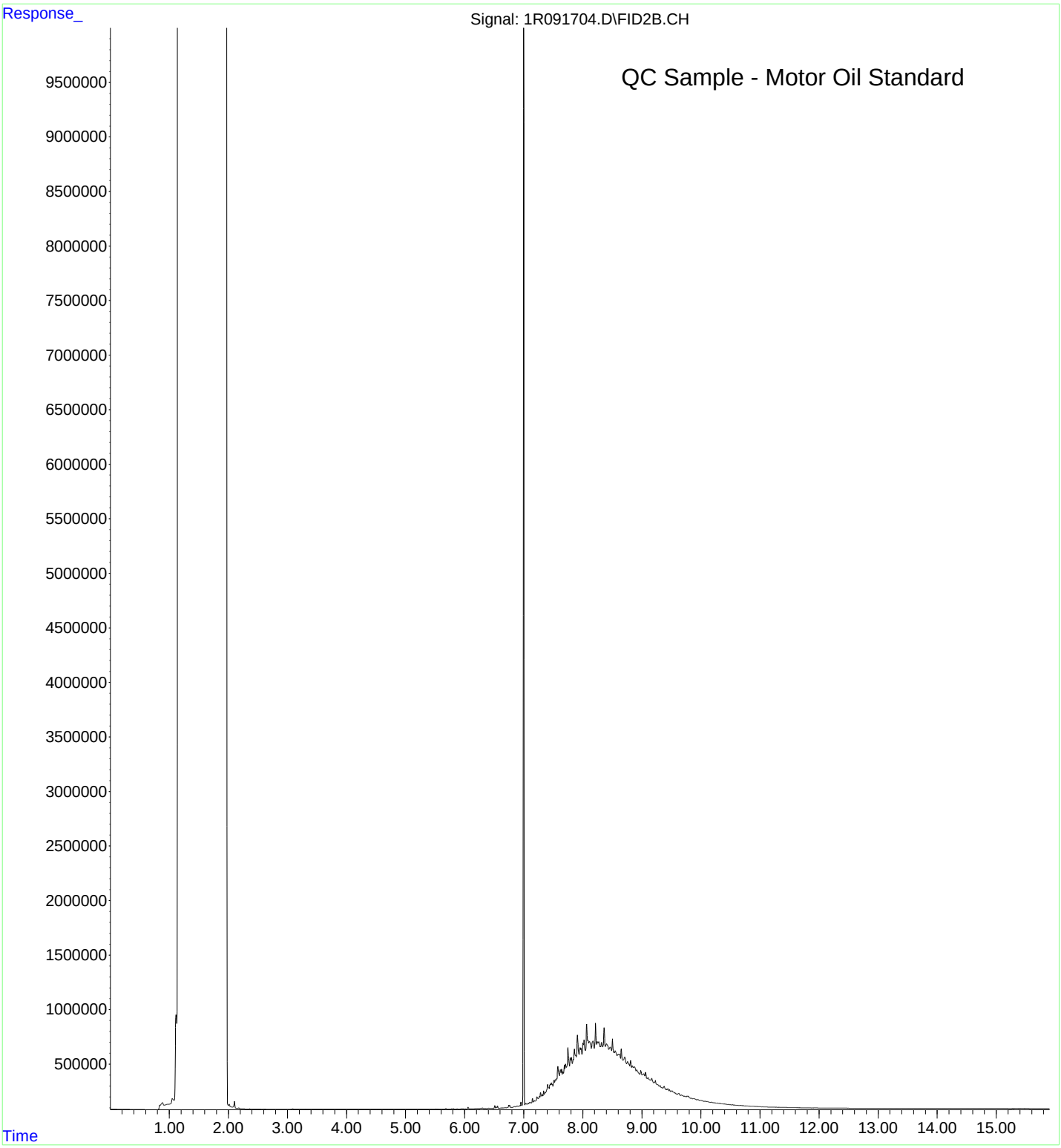
Operator : BLL
Acquired : 17 Sep 2024 3:26 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I17072-RES1
Misc Info :
Vial Number: 95



File :C:\msdchem\1\copied data\4I17072\1R091703.D
Operator : BLL
Acquired : 17 Sep 2024 3:49 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I17072-CCV1
Misc Info :
Vial Number: 51

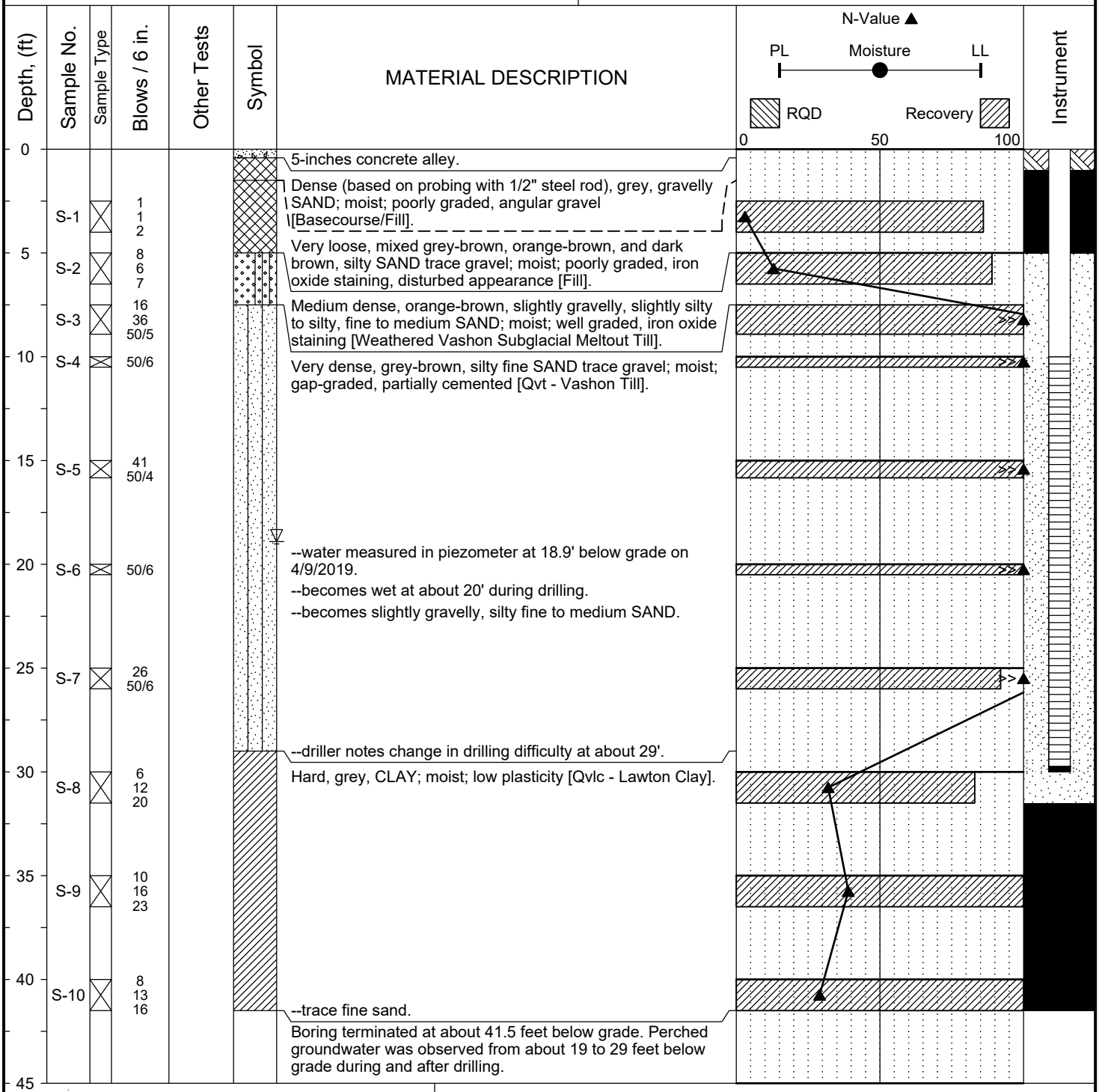


File :C:\msdchem\1\copied data\4I17072\1R091704.D
Operator : BLL
Acquired : 17 Sep 2024 4:13 pm using AcqMethod A1F40422.M
Instrument : HP G1530A
Sample Name: 4I17072-CCV2
Misc Info :
Vial Number: 52



Well PG-1 Boring Log

Project:	505 3rd Avenue W	Surface Elevation:	95.0ft
Job Number:	19-061	Top of Casing Elev.:	95.0ft
Location:	505 3rd Ave W & 312 W Republican St	Drilling Method:	HSA
Coordinates:	Northing: 47.62369, Easting: -122.36129	Sampling Method:	SPT



Completion Depth:	41.5ft
Date Borehole Started:	4/4/19
Date Borehole Completed:	4/4/19
Logged By:	B Weitering
Drilling Company:	Boretec, Inc.

Remarks: Borings drilled using an EC-95 track-mounted drill rig. Standard penetration test (SPT) sampler driven with a 140 lb. safety hammer. Hammer operated with a rope and cathead mechanism. Surface elevation estimated based on SDCI GIS maps. Well tag BJG 141.

PanGEO INCORPORATED

LOG OF TEST BORING PG-1

Figure A-2

The stratification lines represent approximate boundaries. The transition may be gradual.

ATTACHMENT E

Water Level Elevation Measurement Data

Table E-1
Groundwater Monitoring Data
Koz Development Property
312 West Republican Street
Seattle, Washington

Well	Approximate Depth of Well Screen (feet)	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
PG-1	10 to 30	95.0	04/02/19	18.90	NP	76.10
			12/12/23	15.81	NP	79.19
			02/13/24	17.28	NP	77.72
			02/14/24	17.53	NP	77.47
			08/08/24	19.05	NP	75.95
			09/03/24	18.85	NP	76.15

Notes:

Groundwater elevations are relative to the NAVD 88 datum.

NP = Product was not present in well.

[a] Well completion information and well casing elevation from PanGeo Incorporated.