PIONEER
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Transmitted via Electronic Mail

April 7, 2023

Ms. Tena Seeds
Washington State Department of Ecology
Toxics Cleanup Program
15700 Dayton Ave N., Shoreline, WA 98133

RE: **Quarterly Progress Report: January 1 through March 31, 2023**
Time Oil Bulk Terminal Site, Cleanup Site ID #14604
Prospective Purchaser Consent Decree No. 20-2-15215-3 SEA

Dear Ms. Seeds:

Pioneer Engineering & Environmental Services, LLC on behalf of TOC Seattle Terminal 1, LLC submits the attached Quarterly Progress Report for the Time Oil Bulk Terminal Site per Section XII of the Prospective Purchaser Consent Decree between the Washington State Department of Ecology and TOC Seattle Terminal 1, LLC. The quarterly progress report consists of a brief narrative summary of notable activities that occurred during the reporting period and that are anticipated for the upcoming reporting period.

If you have any questions about this report, please contact me at 773-435-3725.

Sincerely,

Kim Hempel
Project Coordinator
Pioneer Engineering & Environmental Services, LLC

Distribution List:
Doug Ciserella and Mike Ciserella, TOC Seattle Terminal 1, LLC
Bill Joyce, Hillis Clark Martin & Peterson P.S.
Jamie Stevens, CRETE Consulting
Kristin Anderson, Floyd|Snider

TIME OIL BULK TERMINAL SITE
PROSPECTIVE PURCHASER CONSENT DECREE NO. 20-2-15215-3 SEA
QUARTERLY PROGRESS REPORT: JANUARY 1 THROUGH MARCH 31, 2023

This report has been prepared in accordance with the requirements of the Time Oil Bulk Terminal Site Prospective Purchaser Consent Decree (PPCD) between the Washington State Department of Ecology (Ecology) and TOC Seattle Terminal 1, LLC. This progress report provides details on the following: 1) all on site activities; 2) any deviations from required tasks; 3) anticipated problems in meeting schedule or objectives and associated solutions 4) sampling, testing, or other data received; 5) work planned for the upcoming 3-month period; and, 6) deliverables planned for the upcoming 3-month period.

Summary of On-Site Activities Performed During the Reporting Period (PPCD Section XII.A)

Activities completed during this reporting period included:

- A visual check of the site was conducted on January 26, 2023. All completed interim surfaces remain in good condition and no concerns were noted during the site visits.
- Floyd|Snider (F|S) met with Axis Survey and Mapping (Axis) at the site on January 26, 2023 so Axis could survey the four new wells installed in late December 2022 (01MW19R, 01MW49R, MW03R, and 02MW04R). Axis returned to the site on February 23, 2023 to confirm well survey measurements.
- F|S personnel collected the first round of post-remediation groundwater samples per the approved Groundwater Monitoring Plan (GMP) on January 31 and February 1, 2023, but were unable to collect samples from MW03R since this well was dry. Baseline samples were not able to be collected at 01MW51 and 01MW87 due to safety concerns in the travel lane of West Commodore Way, as discussed with Ecology prior to the sampling event; the baseline samples from these wells were proposed to be collected after obtaining a right-of-way permit in the 2nd Quarter of 2023.

Deliverables

Deliverables during this reporting period included the following:

- The Quarterly Progress Report for the fourth quarter of 2022 was submitted to Ecology on January 11, 2023, and associated clarifications were provided to Ecology via email on January 18, 2023.
- Components of the Long-Term Compliance Monitoring Plan (LTCMP) were submitted to Ecology for review as follows:
    - Soil and Remedial Elements Management Plan (SREMP)- previously approved by Ecology on October 18, 2022.
    - Groundwater Monitoring Plan (GMP) - Ecology provided additional comments on the revised GMP, dated November 29, 2022 on January 4, 2023. Revised GMP components were submitted to Ecology on January 17, 19, and 20, 2023; and minor comments were provided by Ecology. The final GMP was submitted to Ecology on January 25, 2023, and subsequently approved by Ecology via email on January 30, 2023.
    - Vapor Intrusion Assessment and Mitigation Plan (VI Plan)- A revised VI Plan was submitted to Ecology for review on January 25, 2023, based on Ecology's comments provided on December 7, 2022. Ecology provided additional comments on the VI Plan on February 6, 2023. A revised VI Plan was submitted to Ecology for review on February 8, 2023, and minor comments were provided by Ecology on February 9, 2023. A revised/final version of the VI Plan was provided to Ecology on February 10, 2023.
    - Ecology provided additional comments on the LTCMP front end text on January 10, 2023. A revised version of the LTCMP front end text was submitted to Ecology for review on January 25, 2023. Minor comments were provided by Ecology on January 30, 2023, and a final version was provided to Ecology on February 9, 2023.

- The final LTCMP including the SREMP, GMP, and VI Plan was submitted to Ecology on February 10, 2023, and Ecology subsequently provided an approval letter for the LTCMP on February 14, 2023.
- A Notice of Transfer Letter regarding Parcel "F", located on the eastern portion of the Bulk Terminal Property was submitted to Ecology on February 16, 2023, and Ecology provided a written acknowledgement in a letter dated February 23, 2023.
- Revised Financial Assurance documentation was submitted to Ecology for review on March 31, 2023.

Deviations from Required Tasks (PPCD Section XII.B)

- None.

Anticipated Problems in Meeting Schedule or Objectives and Associated Solutions (PPCD Section XII.C and XII.D)

- There are no anticipated problems in meeting the schedule of deliverables specified in Exhibit D of the PPCD. The schedule of deliverables and activities specified in Table 8.1 of the Cleanup Action Plan (Exhibit C of the PPCD) are currently on track or ahead of schedule.

Raw Data Received (PPCD Section XII.E)

- Groundwater sampling results for the 1st Quarter 2023 were received from Friedman & Bruya, Inc. on February 13, 2023. Results were received in one sample delivery group (F&BI 203018), appended with results for MNA parameters (anions, sulfide dissolved gases) subcontracted to Fremont Analytical. A copy of the laboratory report for F&BI 203018 is provided as an attachment to this Progress Report.

Work Planned During the Upcoming Reporting Period (PPCD Section XII.F)

The following work is planned for the 2nd Quarter 2023:

- Second round of groundwater sampling is scheduled for April 7, 2023; and
- Site checks will be conducted periodically to ensure that conditions remain stable during the interim period prior to site development.

Deliverables Planned During the Upcoming Reporting Period (PPCD Section XII.G)

The following deliverables are anticipated to be completed during the next quarterly reporting period of April through June 2023:

- Transmittal of a summary of 1st Quarter 2023 groundwater sampling results and associated groundwater contour maps to Ecology via email;
- Submittal of the Quarterly Progress Report for the 1st Quarter 2023; and
- Finalization of the Financial Assurance documentation, pending receipt of Ecology comments.

Other Pertinent Information, Including Changes in Key Personnel

- A portion of the Time Oil Bulk Terminal site, specifically Lot F located on the eastern side of the Bulk Terminal property, was sold to 2707 W Commodore Way LLC on March 14, 2023.

Attachments

- Attachment 1 – Laboratory Analytical Reports

END QUARTERLY PROGRESS REPORT

ATTACHMENT 1

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.

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February 13, 2023

Kristin Anderson, Project Manager
Floyd-Snider
Two Union Square
601 Union St, Suite 600
Seattle, WA 98101

Dear Ms Anderson:

Included are the results from the testing of material submitted on February 1, 2023 from the Cantera TOC, F&BI 302018 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
FDS0213R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 1, 2023 by Friedman & Bruya, Inc. from the Floyd-Snider Cantera TOC, F&BI 302018 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
302018 -01	01MW12-013123
302018 -02	01MW35-013123
302018 -03	01MW40-013123
302018 -04	01MW49R-013123
302018 -05	01MW84-013123
302018 -06	01MW84D-013123
302018 -07	01MW85-013123
302018 -08	01MW19R-013123
302018 -09	01MW66-013123
302018 -10	BT-TRIP-BLANK
302018 -11	01MW56-020123
302018 -12	01MW108-020123
302018 -13	01MW46-020123
302018 -14	01MW15-020123
302018 -15	MW05-020123
302018 -16	MW06-020123
302018 -17	02MW19-020123
302018 -18	02MW07-020123
302018 -19	02MW04R-020123
302018 -20	EW-TRIP-BLANK
302018 -21	01MW53-020123

All quality control requirements were acceptable.

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018
Date Extracted: 02/07/23
Date Analyzed: 02/07/23

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
01MW12-013123 302018-01	<100	111
01MW35-013123 302018-02	<100	108
01MW40-013123 302018-03	<100	112
01MW49R-013123 302018-04	<100	112
01MW84-013123 302018-05	2,300	105
01MW84D-013123 302018-06	2,200	99
01MW19R-013123 302018-08	990	110
BT-TRIP-BLANK 302018-10	<100	110
02MW19-020123 302018-17	<100	105
02MW07-020123 302018-18	<100	103
02MW04R-020123 302018-19	<100	101

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018
Date Extracted: 02/07/23
Date Analyzed: 02/07/23

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
EW-TRIP-BLANK 302018-20	<100	98
Method Blank 03-220 MB	<100	103

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018
Date Extracted: 02/03/23
Date Analyzed: 02/03/23

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
01MW12-013123 302018-01	1,000 x	<250	111
01MW35-013123 302018-02	110 x	<250	108
01MW40-013123 302018-03	4,700 x	600 x	96
01MW49R-013123 302018-04	260 x	<250	108
01MW84-013123 302018-05	810 x	<250	104
01MW84D-013123 302018-06	830 x	<250	101
01MW19R-013123 302018-08	910 x	<250	108
02MW19-020123 302018-17	150 x	<250	114
02MW07-020123 302018-18	86 x	<250	109
02MW04R-020123 302018-19	69 x	<250	107
Method Blank 03-308 MB	<50	<250	98

Analysis For Total Metals By EPA Method 6020B

Client ID:	02MW19-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/02/23	Lab ID:	302018-17 x2
Date Analyzed:	02/08/23	Data File:	302018-17 x2.034
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.25

Analysis For Total Metals By EPA Method 6020B

Client ID:	02MW07-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/02/23	Lab ID:	302018-18
Date Analyzed:	02/03/23	Data File:	302018-18.095
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	MG

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Floyd-Snider
Date Received:	NA	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/02/23	Lab ID:	I3-72 mb2
Date Analyzed:	02/03/23	Data File:	I3-72 mb2.034
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	MG

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW12-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-01
Date Analyzed:	02/06/23	Data File:	020609.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	91	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW35-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-02
Date Analyzed:	02/06/23	Data File:	020610.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	71	132
Toluene-d8	91	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW40-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-03
Date Analyzed:	02/06/23	Data File:	020611.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	0.73

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW49R-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-04
Date Analyzed:	02/06/23	Data File:	020612.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	71	132
Toluene-d8	88	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW84-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-05
Date Analyzed:	02/06/23	Data File:	020613.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW84D-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-06
Date Analyzed:	02/06/23	Data File:	020614.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

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

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW85-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-07 1/10
Date Analyzed:	02/06/23	Data File:	020624.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	71	132
Toluene-d8	91	68	139
4-Bromofluorobenzene	96	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	13
cis-1,2-Dichloroethene	1,200
Trichloroethene	5.7

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW19R-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-08
Date Analyzed:	02/06/23	Data File:	020615.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	5.2

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	BT-TRIP-BLANK	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-10
Date Analyzed:	02/03/23	Data File:	020316.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	105	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW56-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-11
Date Analyzed:	02/06/23	Data File:	020616.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.99
cis-1,2-Dichloroethene	<1
Trichloroethene	0.81

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW108-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-12
Date Analyzed:	02/06/23	Data File:	020617.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	99	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.27
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW46-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-13 1/10
Date Analyzed:	02/06/23	Data File:	020625.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	17
cis-1,2-Dichloroethene	140
Trichloroethene	240
Benzene	3.8

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW15-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-14
Date Analyzed:	02/06/23	Data File:	020618.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	36
cis-1,2-Dichloroethene	6.4
Trichloroethene	<0.5

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW05-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-15 1/10
Date Analyzed:	02/06/23	Data File:	020626.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

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

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	6.8
cis-1,2-Dichloroethene	360
Trichloroethene	140

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW05-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-15
Date Analyzed:	02/03/23	Data File:	020318.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	105	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	1.4

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW06-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-16
Date Analyzed:	02/06/23	Data File:	020619.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	104	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	2.6
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	02MW19-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-17
Date Analyzed:	02/06/23	Data File:	020620.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	98	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	02MW07-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-18
Date Analyzed:	02/06/23	Data File:	020621.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	02MW04R-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-19
Date Analyzed:	02/06/23	Data File:	020622.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	71	132
Toluene-d8	89	68	139
4-Bromofluorobenzene	101	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	EW-TRIP-BLANK	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-20
Date Analyzed:	02/03/23	Data File:	020317.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	110	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW53-020123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-21
Date Analyzed:	02/06/23	Data File:	020623.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	99	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.57
cis-1,2-Dichloroethene	5.4
Trichloroethene	2.9

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	03-0264 mb
Date Analyzed:	02/03/23	Data File:	020315.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	106	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
cis-1,2-Dichloroethene	<1
Trichloroethene	<0.5
Benzene	<0.35

Analysis for Semivolatile Phenols By EPA Method 8270E SIM

Client Sample ID:	01MW66-013123	Client:	Floyd-Snider
Date Received:	02/01/23	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	302018-09
Date Analyzed:	02/03/23	Data File:	020320.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2,4,6-Tribromophenol	109	50	150

Compounds:	Concentration ug/L (ppb)
Pentachlorophenol	1.9

Analysis for Semivolatile Phenols By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Cantera TOC, F&BI 302018
Date Extracted:	02/03/23	Lab ID:	03-310 mb
Date Analyzed:	02/03/23	Data File:	020319.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2,4,6-Tribromophenol	79	50	150

Compounds:	Concentration ug/L (ppb)
Pentachlorophenol	<0.2

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018

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

Laboratory Code: 302017-01 (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	93	70-130

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018

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	120	112	70-130	7

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 301238-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.06	83	79	75-125	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	89	80-120

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018

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

Laboratory Code: 302018-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	10	7.8	96	108	50-150	12
cis-1,2-Dichloroethene	ug/L (ppb)	10	350	145	270 b	50-150	60 b
Benzene	ug/L (ppb)	10	1.4	105	106	50-150	1
Trichloroethene	ug/L (ppb)	10	140	7 b	109	50-150	176 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	10	113	111	70-130	2
cis-1,2-Dichloroethene	ug/L (ppb)	10	98	104	70-130	6
Benzene	ug/L (ppb)	10	100	104	70-130	4
Trichloroethene	ug/L (ppb)	10	97	100	70-130	3
Toluene	ug/L (ppb)	10	97	107	70-130	10

Date of Report: 02/13/23
Date Received: 02/01/23
Project: Cantera TOC, F&BI 302018

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILE PHENOLS BY EPA METHOD 8270E SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 30)
Pentachlorophenol	ug/L (ppb)	2.5	101	88	70-130	14

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. 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 lowest calibration standard. 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.

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.

302018

SAMPLE CHAIN OF CUSTODY

02-01-23 VW4/F3/J2 3

Page # 1 of 3

Report To Kristin Anderson
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206 292-2078 Email

SAMPLERS (*signature*)

PROJECT NAME: Cantera TOC

PO #

REMARKS: CVOCs = TCE, cis-1,2-DCE and vinyl chloride
Project specific RLs? - Yes / No

INVOICE TO

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 8270D SIM	PCBs EPA 8082	Benzene by 8260D	cVOCs 8260D	Nitrate, Nitrite + Sulfate (300.0)	Sulfide SM4500D	Methane, Ethane, Ethene (RSK-175)	Notes
01MW12-013123	01A-H	1/31/23	09:30	GW	8	✓	✓						✓					
01MW35-013123	02		10:37	GW	8	✓	✓						✓					
01MW40-013123	03		11:20	GW	8	✓	✓						✓					
01MW49R-013123	04		12:02	GW	8	✓	✓						✓					
01MW84-013123	05		13:47	GW	8	✓	✓						✓					
01MW84D-013123	06		13:57	GW	8	✓	✓						✓					
01MW85-013123	07A-K		16:12	GW	11									✓	✓	✓	✓	
01MW19R-013123	08A-H		16:30	GW	8	✓	✓						✓					
01MW66-013123	09A-C		14:15	GW	3						✓							
BT-TRIP-BLANK	10A-B		09:00	W	2		✓						✓					

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Pamela Osterhout	Floyd Snider	2/1/23	1801
Received by:	VINT	FBI	2-1-23	1801
Relinquished by:				
Received by:		Samples received at 4 °C		

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

302018

SAMPLE CHAIN OF CUSTODY

02-01-23 VW4/F3/J2

Page # 2 of 3

Report To Kristin Anderson

Company Floyd Snider

Address see page 1

City, State, ZIP

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: Cantera TOC

PO #

REMARKS: cVOCs = TCE, cis-1,2-DCE + vinyl chloride

Project specific RLs? - Yes / No

INVOICE TO

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	Benzene BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	cVOCs (8260D)	Nitrate, Nitrite + Sulfate 300.0	Sulfide SM4500	6020B Total Arsenic	Notes
01MW56-020123	11 A-H	2/1/23	0907	GW	8								✓	✓	✓		
01MW108-020123	12 A-F		09:10	GW	6								✓				
01MW46-020123	13 A-H		09:30	GW	8			✓					✓	✓	✓		
01MW15-020123	14 A-F		11:00	GW	6			~~✓~~					✓				(No Benzene)
MW05-020123	15 A-N		12:26	GW	8 (MS/MSD)			✓					✓	✓	✓		MS/MSD
MW06-020123	16 A-H		1235	GW	8			✓					✓	✓	✓		
02MW19-020123	17 A-I		14:12	GW	9	✓	✓	✓								✓	
02MW07-020123	18 A-I		14:20	GW	9	✓	✓	✓								✓	
02MW04R-020123	19 A-H		15:35	GW	8	✓	✓	✓									
EW-TRIP-BLANK	20 A-B		09:00	W	2		✓	✓									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P Osterhout	FS	2/1/23	1801
Received by:	VINH	FBI	2-1-23	1801
Relinquished by:				
Received by:		Samples received at 4 °C		

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

302018

SAMPLE CHAIN OF CUSTODY

02-01-23

VW4/F3/J2

Page # 3 of 3

Report To Kristin Anderson

Company Floyd Snider

Address

City, State, ZIP Seattle

Phone Email

SAMPLERS (*signature*)

PROJECT NAME: Cantera TOC

PO #

REMARKS: ~~FLL~~

Project specific RLs? - Yes / No

INVOICE TO

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	TCE, cis-1,2-DCE, Vinyl Chloride by 8260				Notes
													✓	✓			
01MW53-020123	21A-F	2/1/23	16:50	GW	6												

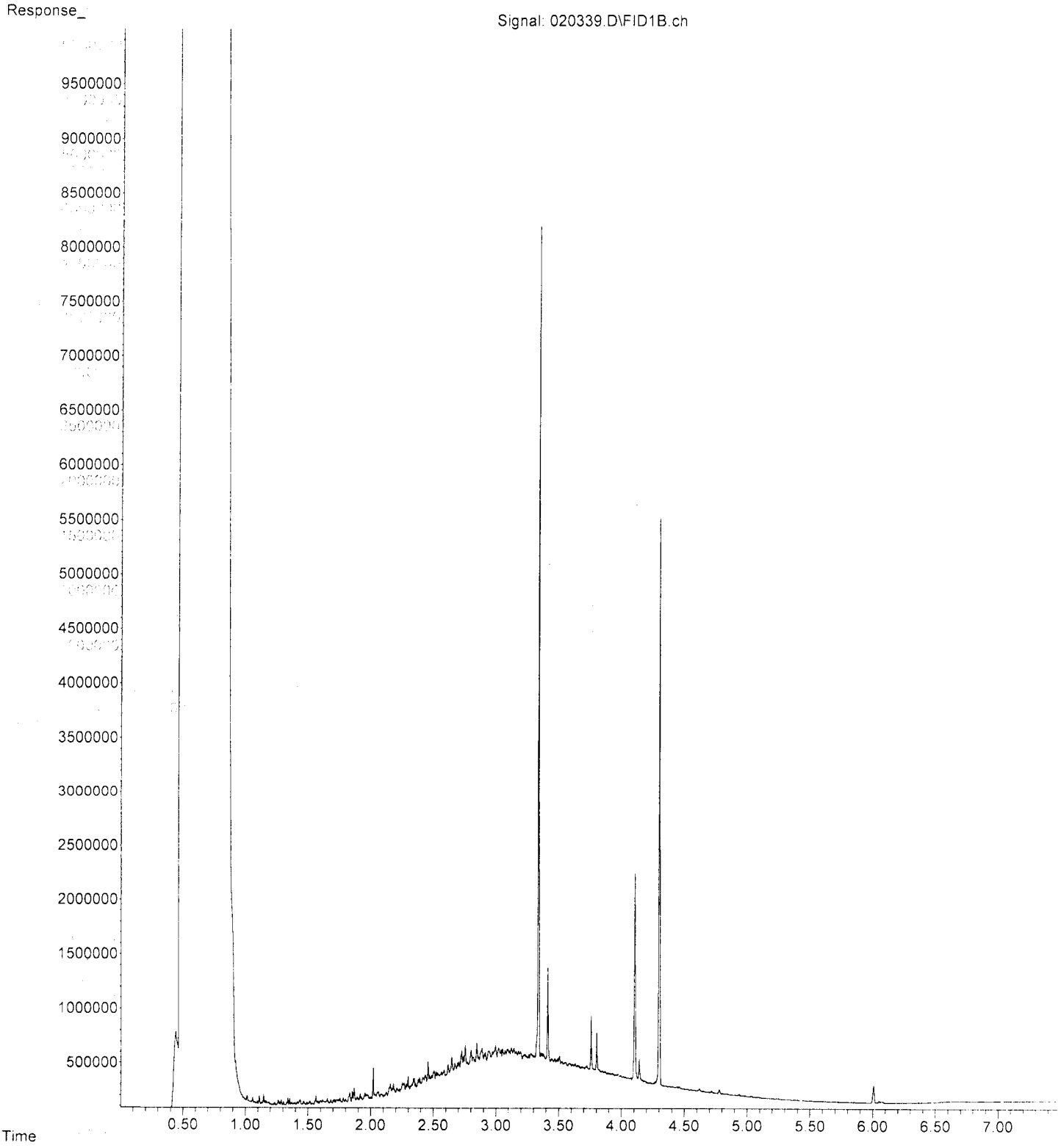
ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	P. Osterhout	F/S	2/1/23	1801
Received by:	VINH	FBI	2-1-23	1801
Relinquished by:				
Received by:		Samples received at 4 °C		

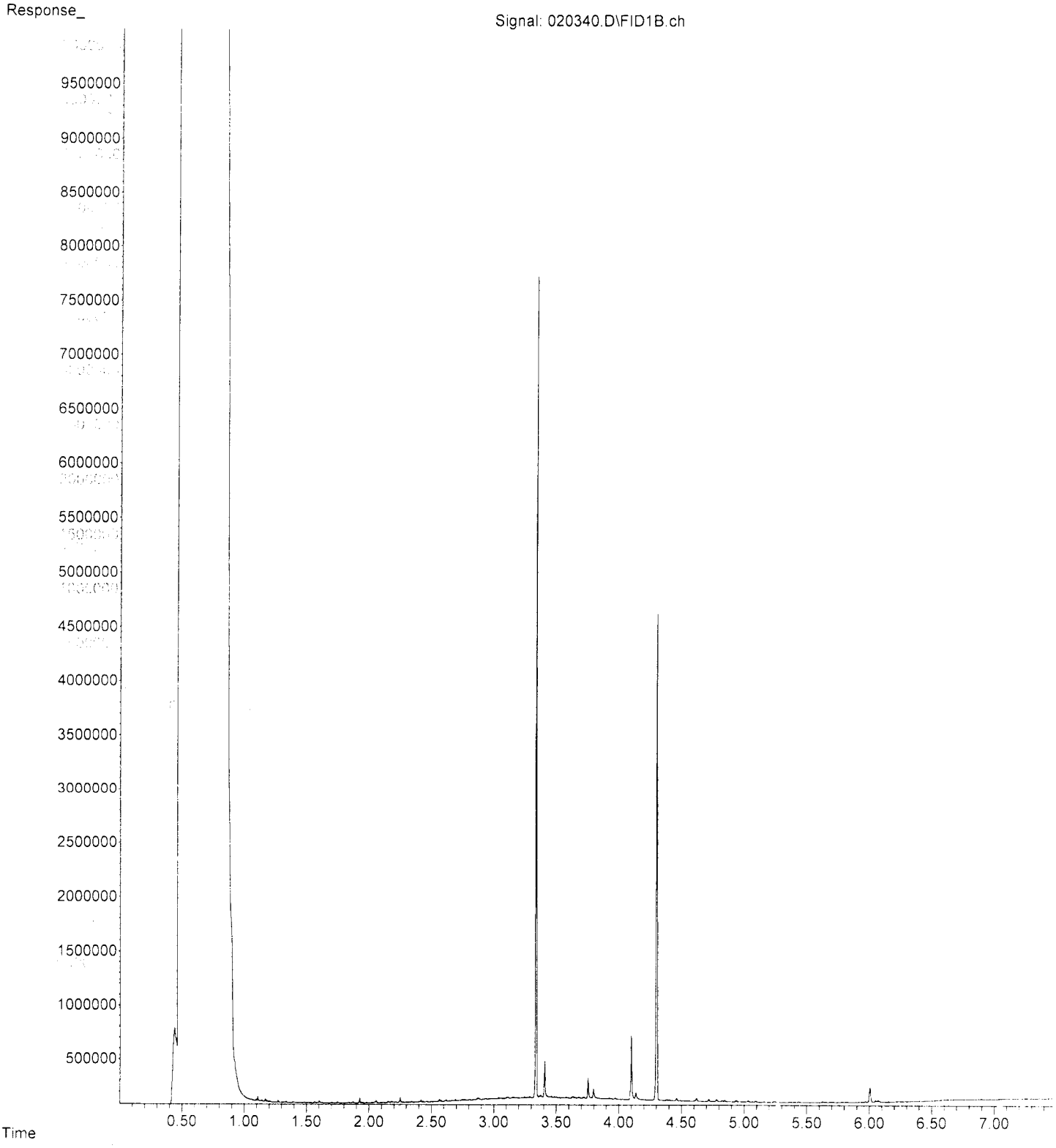
Friedman & Bruya, Inc.
Ph. (206) 285-8282

File :P:\Proc_GC13\02-03-23\020339.D
Operator : TL
Acquired : 03 Feb 2023 04:08 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-01
Misc Info :
Vial Number: 37

ERR

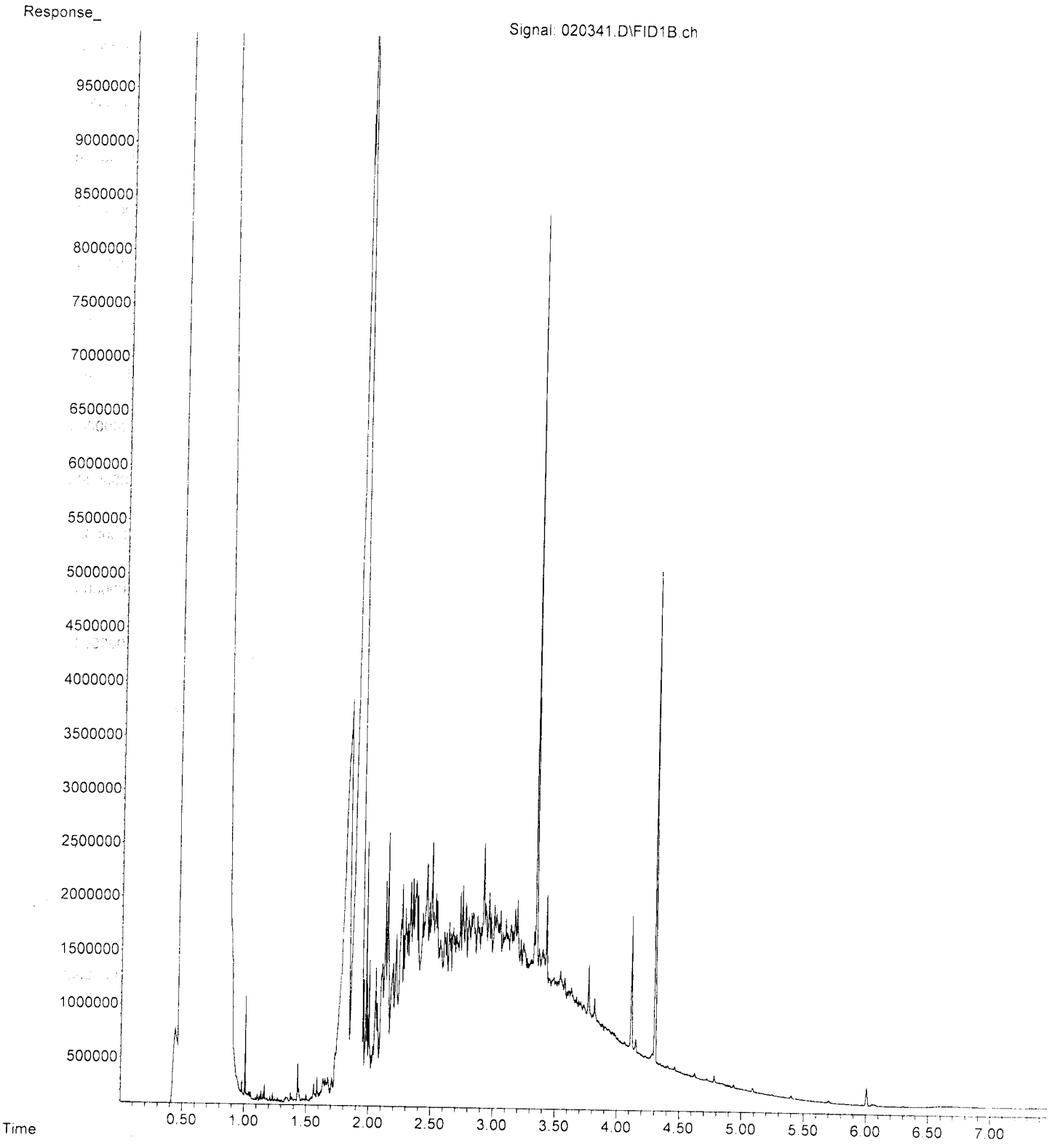


File :P:\Proc_GC13\02-03-23\020340.D
Operator : TL
Acquired : 03 Feb 2023 04:19 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-02
Misc Info : ERR
Vial Number: 38

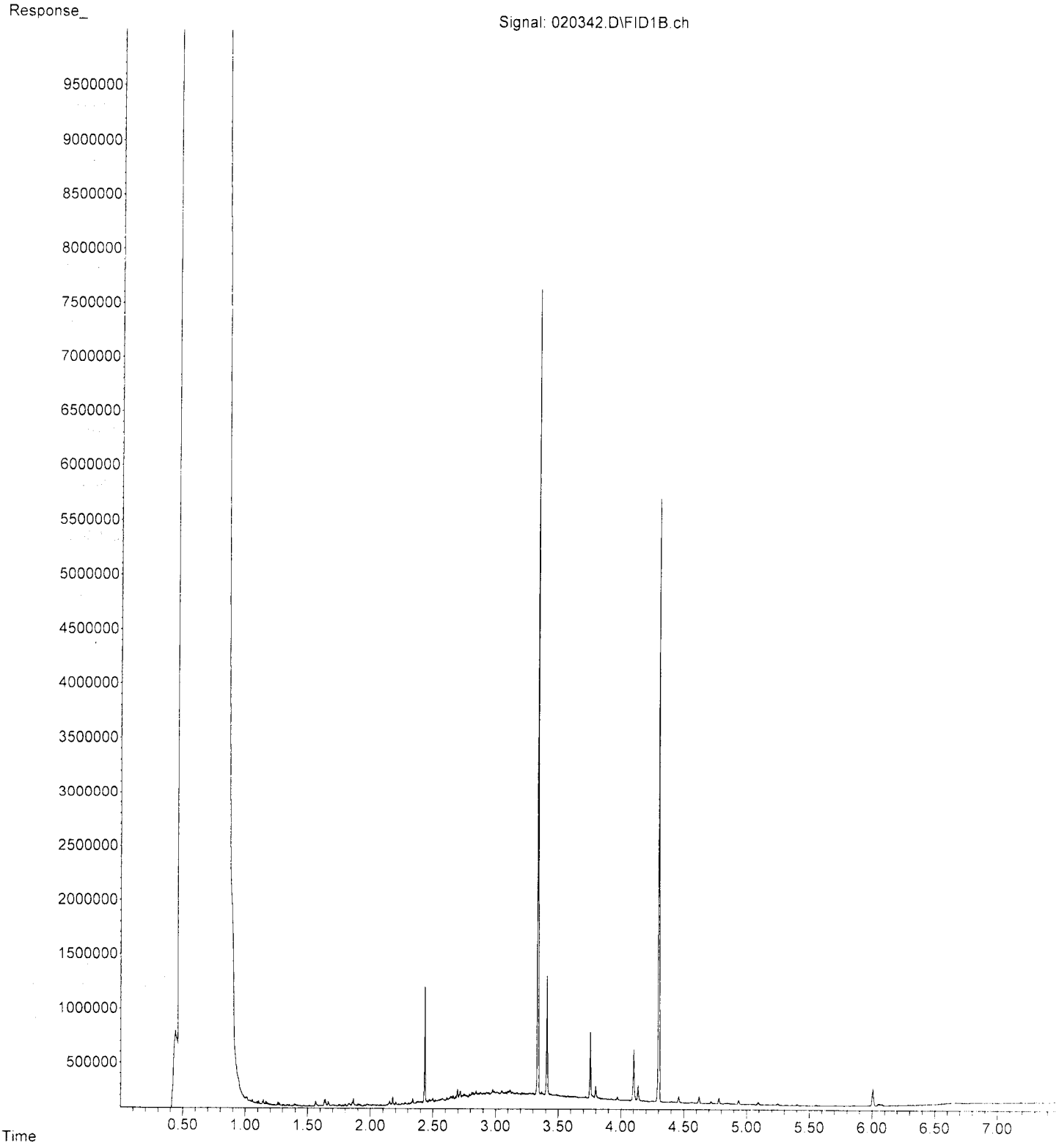


File :P:\Proc_GC13\02-03-23\020341.D
Operator : TL
Acquired : 03 Feb 2023 04:30 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-03
Misc Info :
Vial Number: 39

ERR

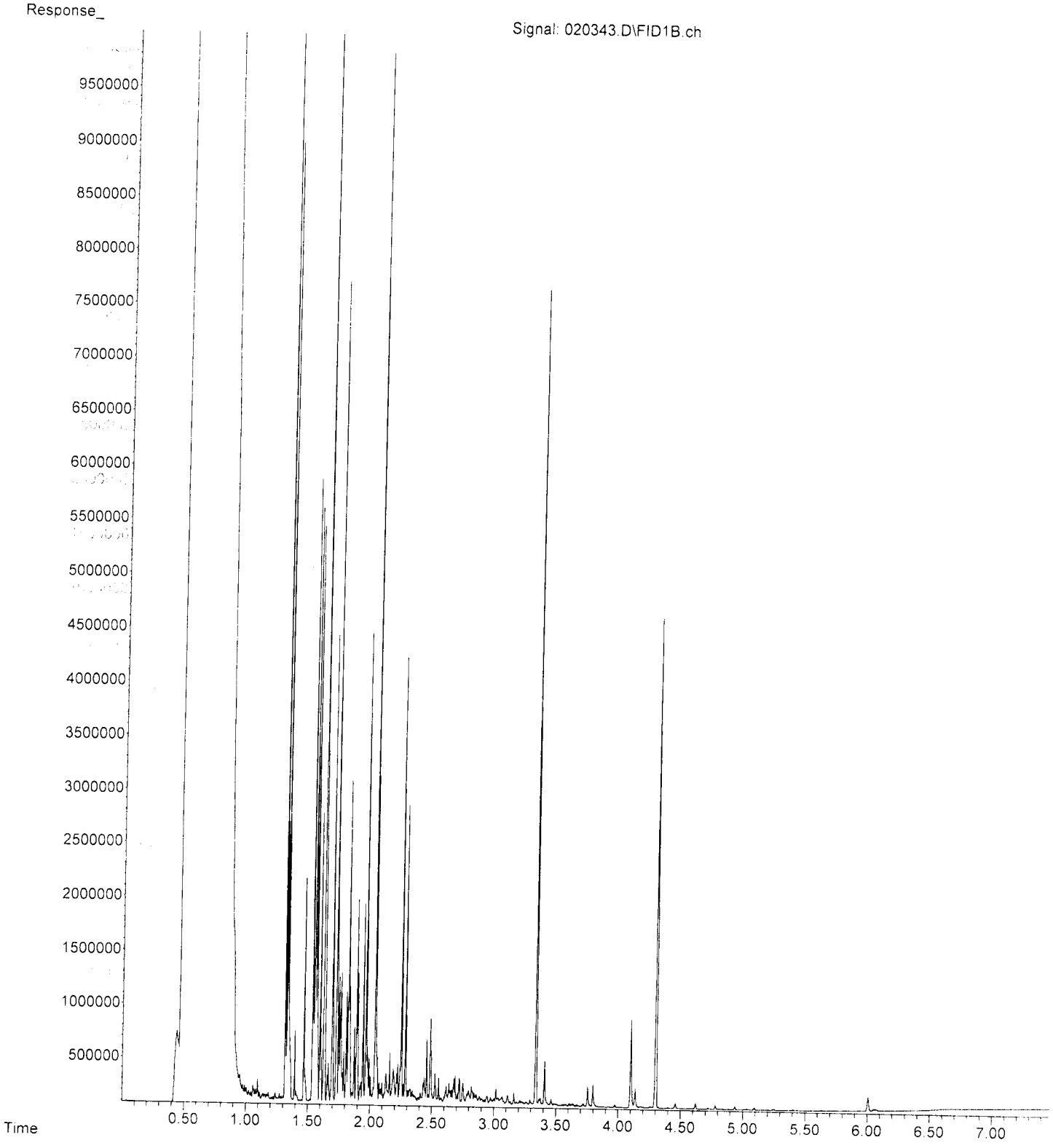


File :P:\Proc_GC13\02-03-23\020342.D
Operator : TL
Acquired : 03 Feb 2023 04:42 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-04
Misc Info : ERR
Vial Number: 40



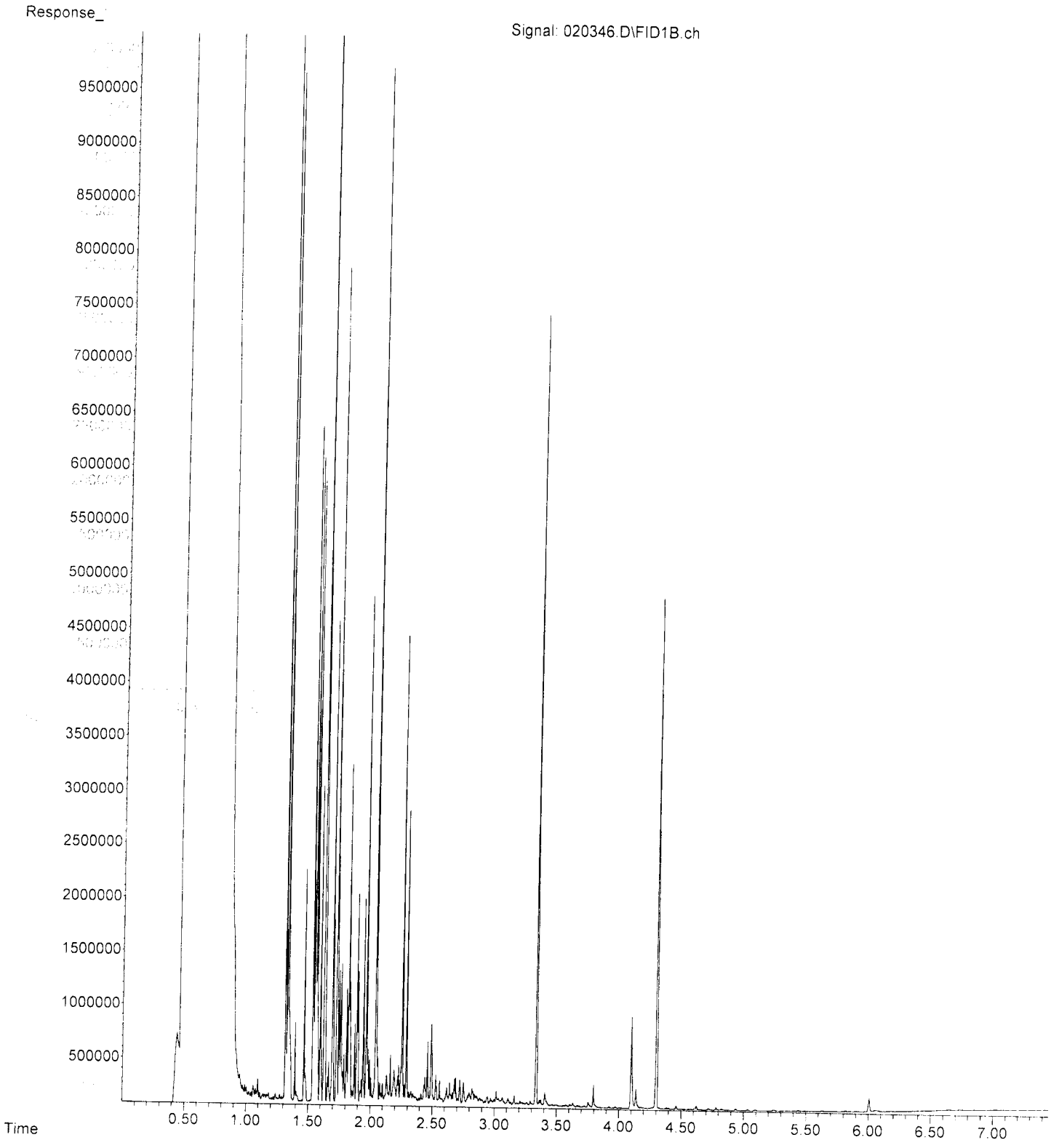
File :P:\Proc_GC13\02-03-23\020343.D
Operator : TL
Acquired : 03 Feb 2023 04:53 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-05
Misc Info :
Vial Number: 41

ERR



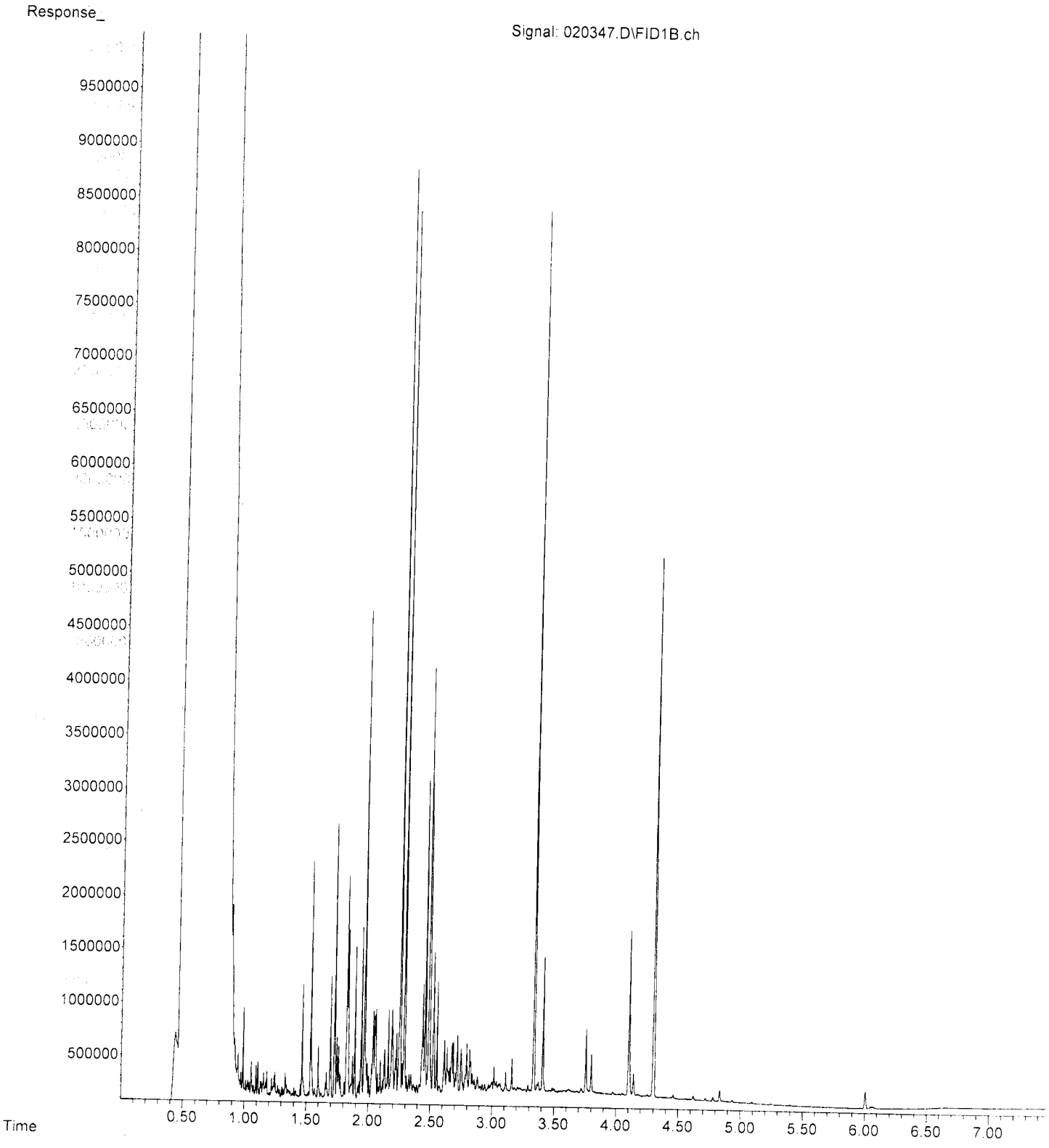
File :P:\Proc_GC13\02-03-23\020346.D
Operator : TL
Acquired : 03 Feb 2023 05:27 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-06
Misc Info :
Vial Number: 42

ERR

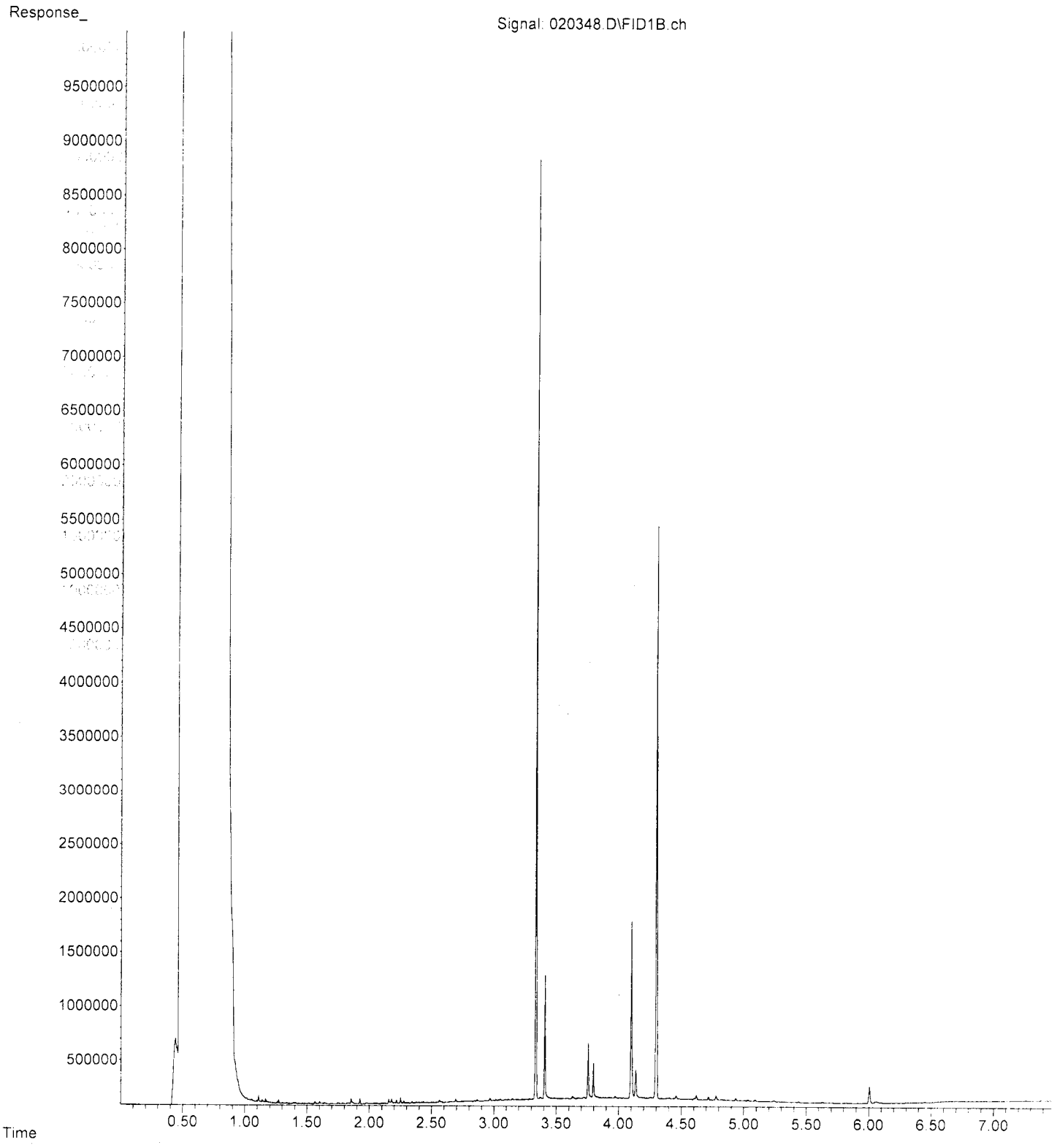


File :P:\Proc_GC13\02-03-23\020347.D
Operator : TL
Acquired : 03 Feb 2023 05:38 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-08
Misc Info :
Vial Number: 43

ERR

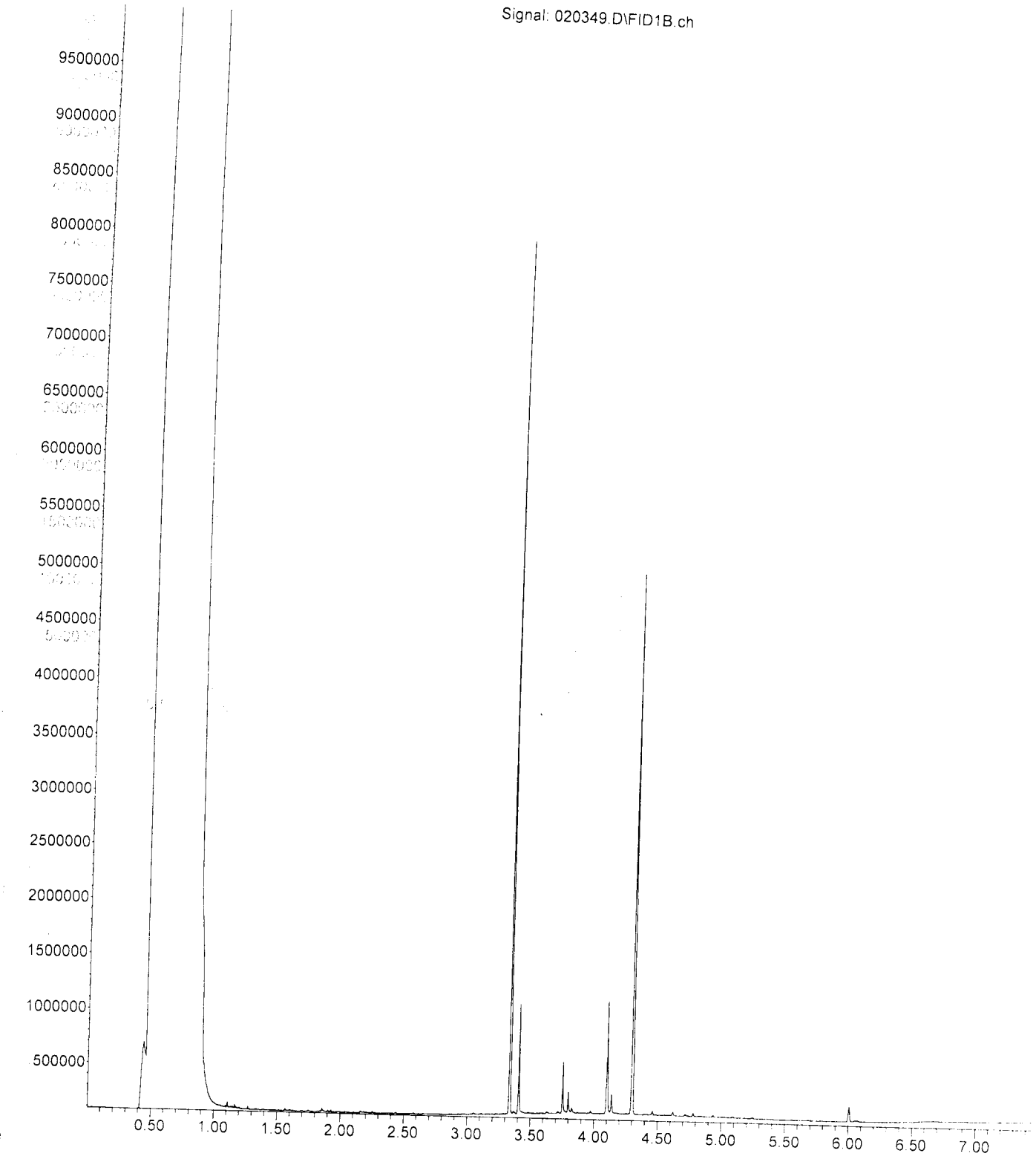


File :P:\Proc_GC13\02-03-23\020348.D
Operator : TL
Acquired : 03 Feb 2023 05:49 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-17
Misc Info : ERR
Vial Number: 44

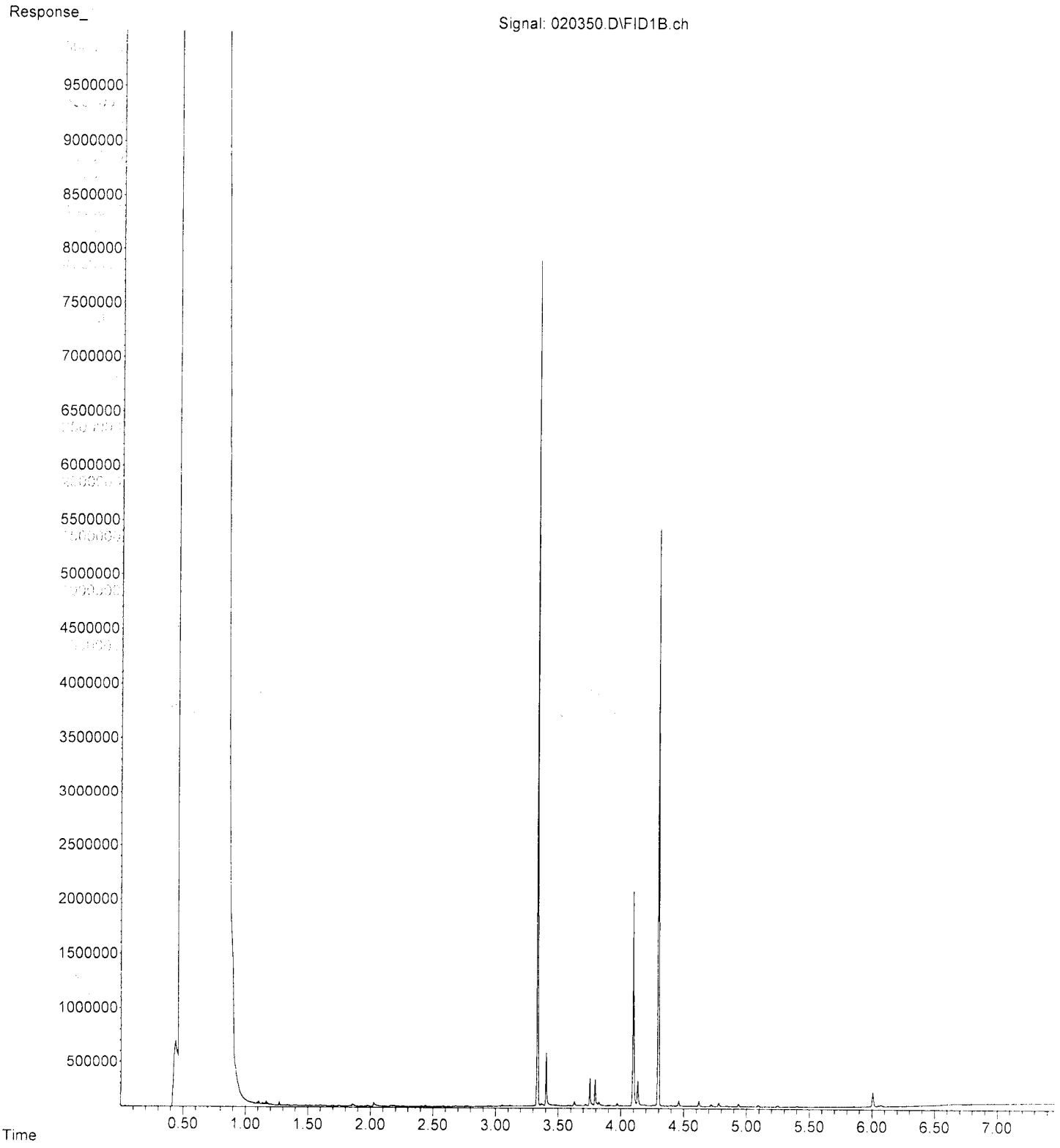


File : P:\Proc_GC13\02-03-23\020349.D
Operator : TL
Acquired : 03 Feb 2023 06:01 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-18
Misc Info :
Vial Number: 45

ERR

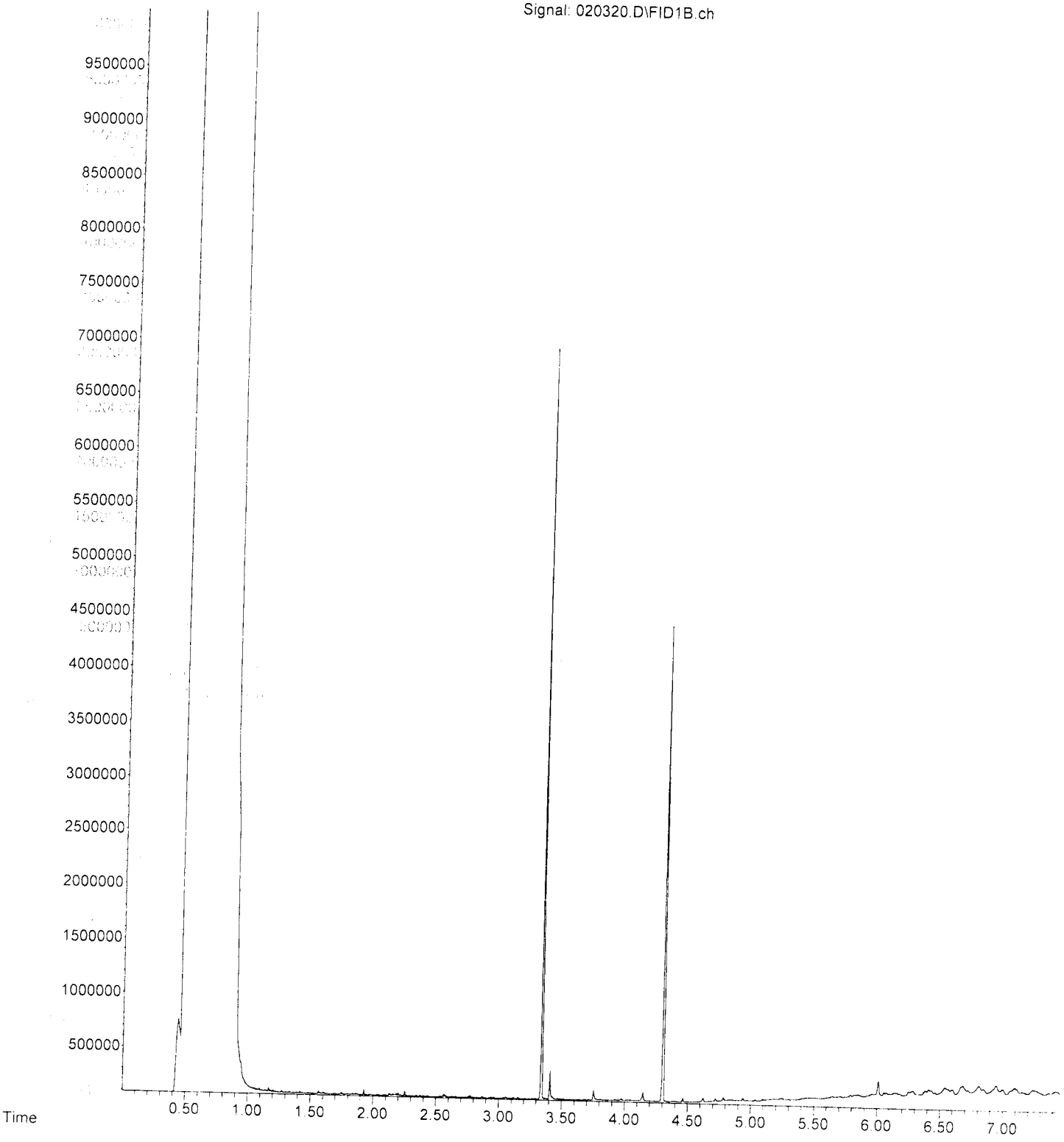


File :P:\Proc_GC13\02-03-23\020350.D
Operator : TL
Acquired : 03 Feb 2023 06:12 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 302018-19
Misc Info : ERR
Vial Number: 46



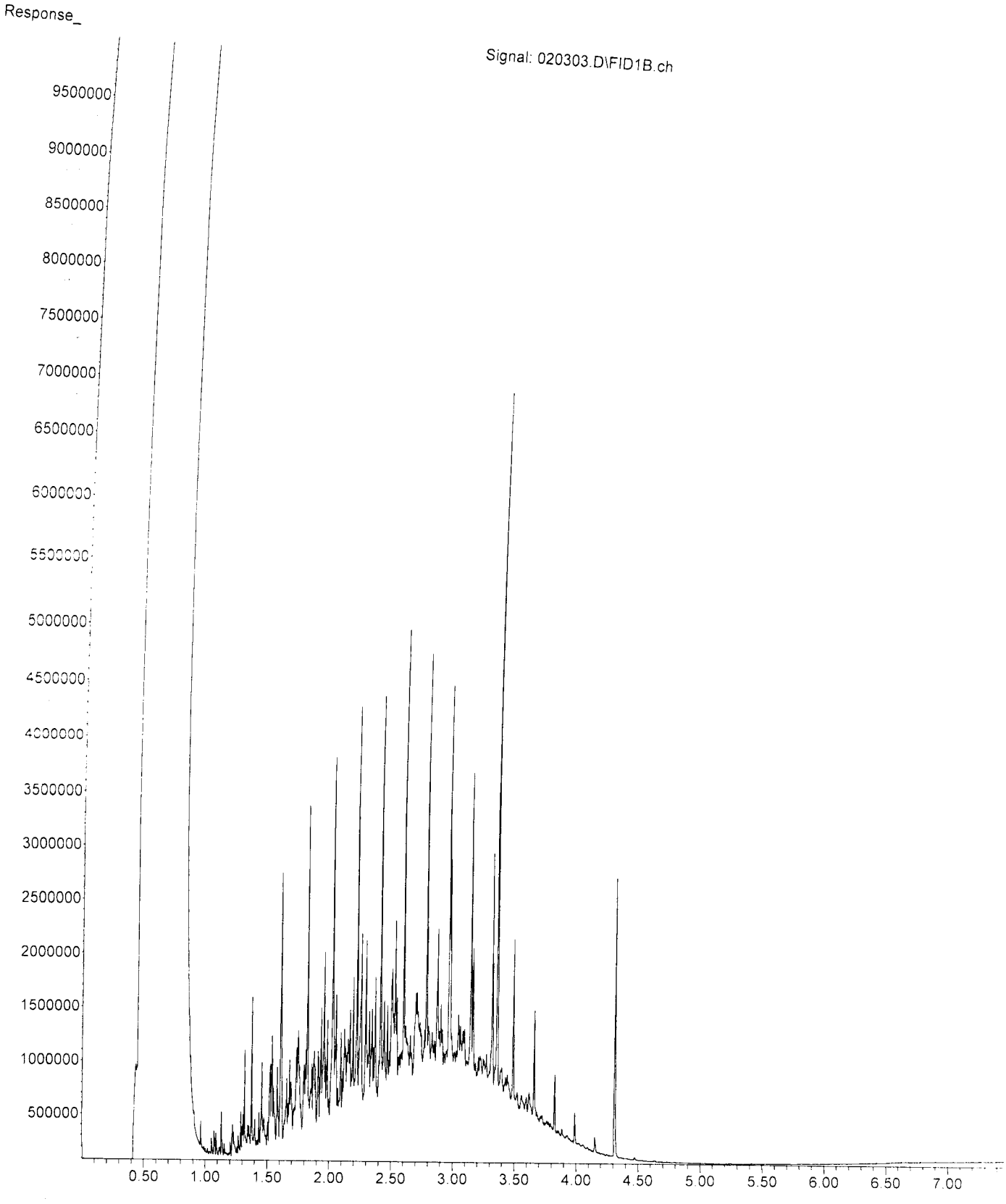
File :P:\Proc_GC13\02-03-23\020320.D
Operator : TL
Acquired : 03 Feb 2023 12:34 pm using AcqMethod Dx.M
Instrument : GC13
Sample Name: 03-308 mb
Misc Info :
Vial Number: 22

ERR



File : P:\Proc_GC13\02-03-23\020303.D
Operator : TL
Acquired : 03 Feb 2023 08:52 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 67-143B
Misc Info :
Vial Number: 3

ERR



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 302018
Work Order Number: 2302048

February 10, 2023

Attention Michael Erdahl:

Fremont Analytical, Inc. received 5 sample(s) on 2/2/2023 for the analyses presented in the following report.

Dissolved Gases by RSK-175
Ion Chromatography by EPA Method 300.0
Sulfide by SM 4500-S2-F

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *02/10/2023*

CLIENT: Friedman & Bruya
Project: 302018
Work Order: 2302048

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2302048-001	01MW85-013123	01/31/2023 4:12 PM	02/02/2023 2:14 PM
2302048-002	01MW56-020123	02/01/2023 9:07 AM	02/02/2023 2:14 PM
2302048-003	01MW46-020123	02/01/2023 9:30 AM	02/02/2023 2:14 PM
2302048-004	MW05-020123	02/01/2023 12:26 PM	02/02/2023 2:14 PM
2302048-005	MW06-020123	02/01/2023 12:35 PM	02/02/2023 2:14 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2302048**
Date: **2/10/2023**

CLIENT: Friedman & Bruya
Project: 302018

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 302018

Lab ID: 2302048-001 **Collection Date:** 1/31/2023 4:12:00 PM
Client Sample ID: **01MW85-013123** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dissolved Gases by RSK-175				Batch ID: R81757		Analyst: LB
Methane	1.75	0.0675	D	mg/L	10	2/9/2023 3:38:00 PM
Ethene	ND	0.0146		mg/L	1	2/9/2023 3:14:00 PM
Ethane	ND	0.0151		mg/L	1	2/9/2023 3:14:00 PM
Ion Chromatography by EPA Method 300.0				Batch ID: 39317		Analyst: AT
Nitrite (as N)	ND	1.20	DH	mg/L	10	2/2/2023 10:51:00 PM
Nitrate (as N)	ND	1.00	DH	mg/L	10	2/2/2023 10:51:00 PM
Sulfate	7.69	6.00	D	mg/L	10	2/2/2023 10:51:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R81758		Analyst: SS
Sulfide	ND	0.500	H	mg/L	1	2/8/2023 4:00:00 PM

Lab ID: 2302048-002 **Collection Date:** 2/1/2023 9:07:00 AM
Client Sample ID: **01MW56-020123** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 39317		Analyst: AT
Nitrite (as N)	ND	1.20	D	mg/L	10	2/2/2023 11:15:00 PM
Nitrate (as N)	0.330	1.00	DJ	mg/L	10	2/2/2023 11:15:00 PM
Sulfate	25.1	6.00	D	mg/L	10	2/2/2023 11:15:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R81758		Analyst: SS
Sulfide	ND	0.500		mg/L	1	2/8/2023 4:00:00 PM

CLIENT: Friedman & Bruya
Project: 302018

Lab ID: 2302048-003 **Collection Date:** 2/1/2023 9:30:00 AM
Client Sample ID: **01MW46-020123** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 39317		Analyst: AT
Nitrite (as N)	ND	1.20	D	mg/L	10	2/2/2023 11:38:00 PM
Nitrate (as N)	ND	1.00	D	mg/L	10	2/2/2023 11:38:00 PM
Sulfate	144	6.00	D	mg/L	10	2/2/2023 11:38:00 PM
Sulfide by SM 4500-S2-F				Batch ID: R81758		Analyst: SS
Sulfide	0.200	0.500	J	mg/L	1	2/8/2023 4:00:00 PM

Lab ID: 2302048-004 **Collection Date:** 2/1/2023 12:26:00 PM
Client Sample ID: **MW05-020123** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 39317		Analyst: AT
Nitrite (as N)	ND	1.20	D	mg/L	10	2/3/2023 12:01:00 AM
Nitrate (as N)	ND	1.00	D	mg/L	10	2/3/2023 12:01:00 AM
Sulfate	76.6	6.00	D	mg/L	10	2/3/2023 12:01:00 AM
Sulfide by SM 4500-S2-F				Batch ID: R81758		Analyst: SS
Sulfide	1.00	0.500		mg/L	1	2/8/2023 4:00:00 PM

Analytical Report

Work Order: **2302048**
Date Reported: **2/10/2023**

CLIENT: Friedman & Bruya
Project: 302018

Lab ID: 2302048-005 **Collection Date:** 2/1/2023 12:35:00 PM
Client Sample ID: **MW06-020123** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 39317		Analyst: AT
Nitrite (as N)	ND	1.20	D	mg/L	10	2/3/2023 1:34:00 AM
Nitrate (as N)	ND	1.00	D	mg/L	10	2/3/2023 1:34:00 AM
Sulfate	42.1	6.00	D	mg/L	10	2/3/2023 1:34:00 AM
Sulfide by SM 4500-S2-F				Batch ID: R81758		Analyst: SS
Sulfide	ND	0.500		mg/L	1	2/8/2023 4:00:00 PM

Work Order: 2302048
CLIENT: Friedman & Bruya
Project: 302018

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **MB-39317A** SampType: **MBLK** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **MBLKW** Batch ID: **39317** Analysis Date: **2/2/2023** SeqNo: **1694599**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	ND	0.120									
Nitrate (as N)	ND	0.100									
Sulfate	ND	0.600									

Sample ID: **LCS-39317** SampType: **LCS** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **LCSW** Batch ID: **39317** Analysis Date: **2/2/2023** SeqNo: **1694600**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	0.739	0.120	0.7500	0	98.5	90	110				
Nitrate (as N)	0.746	0.100	0.7500	0	99.5	90	110				
Sulfate	3.66	0.600	3.750	0	97.5	90	110				

Sample ID: **2302048-004ADUP** SampType: **DUP** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **MW05-020123** Batch ID: **39317** Analysis Date: **2/3/2023** SeqNo: **1694614**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	ND	1.20						0	0	20	D
Nitrate (as N)	ND	1.00						0	0	20	D
Sulfate	76.1	6.00						76.60	0.668	20	D

Sample ID: **2302048-004AMS** SampType: **MS** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **MW05-020123** Batch ID: **39317** Analysis Date: **2/3/2023** SeqNo: **1694615**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	7.24	1.20	7.500	0	96.5	80	120				D
Nitrate (as N)	7.29	1.00	7.500	0	97.2	80	120				D
Sulfate	112	6.00	37.50	76.60	95.1	80	120				D

Work Order: 2302048
CLIENT: Friedman & Bruya
Project: 302018

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **2302048-004AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **MW05-020123** Batch ID: **39317** Analysis Date: **2/3/2023** SeqNo: **1694616**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	7.11	1.20	7.500	0	94.8	80	120	7.240	1.81	20	D
Nitrate (as N)	7.14	1.00	7.500	0	95.2	80	120	7.290	2.08	20	D
Sulfate	111	6.00	37.50	76.60	91.9	80	120	112.3	1.09	20	D

Sample ID: **2302028-001ADUP** SampType: **DUP** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **BATCH** Batch ID: **39317** Analysis Date: **2/3/2023** SeqNo: **1694635**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	ND	12.0						0	0	20	D
Nitrate (as N)	ND	10.0						0	0	20	D
Sulfate	ND	60.0						0	0	20	D

Sample ID: **2302028-001AMS** SampType: **MS** Units: **mg/L** Prep Date: **2/2/2023** RunNo: **81754**
Client ID: **BATCH** Batch ID: **39317** Analysis Date: **2/3/2023** SeqNo: **1694636**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	73.2	12.0	75.00	0	97.6	80	120				D
Nitrate (as N)	72.8	10.0	75.00	0	97.1	80	120				D
Sulfate	354	60.0	375.0	0	94.4	80	120				D

Work Order: 2302048
CLIENT: Friedman & Bruya
Project: 302018

QC SUMMARY REPORT

Sulfide by SM 4500-S2-F

Sample ID: **MB-R81758**	SampType: **MBLK**	Units: **mg/L**	Prep Date: **2/8/2023**	RunNo: **81758**
Client ID: **MBLKW**	Batch ID: **R81758**		Analysis Date: **2/8/2023**	SeqNo: **1694731**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	ND	0.500									

Sample ID: **LCS-R81758**	SampType: **LCS**	Units: **mg/L**	Prep Date: **2/8/2023**	RunNo: **81758**
Client ID: **LCSW**	Batch ID: **R81758**		Analysis Date: **2/8/2023**	SeqNo: **1694732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	1.60	0.500	2.000	0	80.0	55.8	124				

Sample ID: **2302048-004BDUP**	SampType: **DUP**	Units: **mg/L**	Prep Date: **2/8/2023**	RunNo: **81758**
Client ID: **MW05-020123**	Batch ID: **R81758**		Analysis Date: **2/8/2023**	SeqNo: **1694737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	1.00	0.500						1.000	0	30	

Sample ID: **2302048-004BMS**	SampType: **MS**	Units: **mg/L**	Prep Date: **2/8/2023**	RunNo: **81758**
Client ID: **MW05-020123**	Batch ID: **R81758**		Analysis Date: **2/8/2023**	SeqNo: **1694738**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	6.00	0.500	2.000	1.000	250	21.5	190				S

NOTES:
S - Spike recovery indicates a possible matrix effect.

Sample ID: **2302048-004BMSD**	SampType: **MSD**	Units: **mg/L**	Prep Date: **2/8/2023**	RunNo: **81758**
Client ID: **MW05-020123**	Batch ID: **R81758**		Analysis Date: **2/8/2023**	SeqNo: **1694739**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfide	2.40	0.500	2.000	1.000	70.0	21.5	190	6.000	85.7	30	R

NOTES:
R - High RPD observed.

Work Order: 2302048
CLIENT: Friedman & Bruya
Project: 302018

QC SUMMARY REPORT

Dissolved Gases by RSK-175

Sample ID: **LCS-R81757** SampType: **LCS** Units: **ppmv** Prep Date: **2/9/2023** RunNo: **81757**
Client ID: **LCSW** Batch ID: **R81757** Analysis Date: **2/9/2023** SeqNo: **1694763**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	967	0.00675	1,000	0	96.7	68.9	131				
Ethene	967	0.0146	1,000	0	96.7	72	129				
Ethane	974	0.0151	1,000	0	97.4	73.4	128				

Sample ID: **MB-R81757** SampType: **MBLK** Units: **mg/L** Prep Date: **2/9/2023** RunNo: **81757**
Client ID: **MBLKW** Batch ID: **R81757** Analysis Date: **2/9/2023** SeqNo: **1694770**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	ND	0.00675									
Ethene	ND	0.0146									
Ethane	ND	0.0151									

Sample ID: **2302021-001FREP** SampType: **REP** Units: **mg/L** Prep Date: **2/9/2023** RunNo: **81757**
Client ID: **BATCH** Batch ID: **R81757** Analysis Date: **2/9/2023** SeqNo: **1694743**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methane	3.11	0.00675						2.811	10.0	30	
Ethene	ND	0.0146						0	0	30	
Ethane	ND	0.0151						0	0	30	

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2302048
Logged by:	Clare Griggs	Date Received:	2/2/2023 2:14:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☑	No ☐	NA	☐
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☐	Not Present	☑
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☑	No ☐	NA	☐
				NaOH & Zn Acetate to B fractions		
12.	Is there headspace in the VOA vials?	Yes	☐	No ☑	NA	☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☐	No ☑		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	4.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY 2302048

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 302018

PO # D-135

REMARKS Floyd Snider EDD
Please Email Results

TURNAROUND TIME
X Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	Nitrate	Nitrite	Sulfate	Sulfide	Methane, Ethane, Ethene RSK			Notes
01MW85-013123		1/31/23	1612	water	5				x	x	x	x	x			
01MW56-020123		2/1/23	0907	water.	2				x	x	x	x				
01MW46-020123		2/1/23	0930	water.	2				x	x	x	x				
MW05-020123		2/1/23	1226	water	2				x	x	x	x				MS/MSD
MW06-020123		2/1/23	1235	water.	2				x	x	x	x				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/2/23	0800 AM
Received by:		Nate Ries	FAI	2/2/23	1414
Relinquished by:					
Received by:					