PIONEER
Engineering & Environmental Services, LLC

2753 West 31st Street | Chicago, IL 60608
Tel: 773-722-9200 | Fax: 773-722-9201 | pioneerEES.com

Transmitted via Electronic Mail

July 15, 2024

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

RE: **Quarterly Progress Report: April 1 through June 30, 2024**
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: APRIL 1 THROUGH JUNE 30, 2024

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)

- A visual check of the site was conducted on May 15, 2024. Construction associated with redevelopment continues on Parcel F, and all interim surfaces on remaining portions of the Site remain in good condition and no other concerns were noted during the site visits.
- Floyd|Snider (F|S) personnel collected the sixth round of post-remediation groundwater samples on May 15, 2024 (Q2 2024) per the approved Groundwater Monitoring Plan (GMP) and additional Ecology email concurrence dated March 27, 2024. Monitoring included continued groundwater collection at contingency well 01MW107 and additional sampling at 01MW15, 01MW58R and 01MW80 based on elevated trichloroethene (TCE) in upgradient portions of the ASKO property and on the BNSF Property.
- Water samples were collected from the ASKO Property permeable reactive barrier vault and gravity well on May 15, 2024 for operation and maintenance (O&M) assessment purposes. The O&M data were collected to coincide with remedial investigation groundwater sampling being performed by BNSF's consultant on the upgradient BNSF Property. O&M assessment will continue in Q3 2024 per Ecology's request.
- Survey of new wells 01MW53R, 01MW58R, and top of casing for the gravity well was completed by Survey & Mapping, LLC (SAM) on May 15, 2024.

Deliverables

Deliverables during this reporting period included the following:

- Groundwater sampling results for the first quarter of 2024 and associated contour maps were submitted to Ecology via email on April 8, 2024.
- The Quarterly Progress Report for the first quarter of 2024 was submitted to Ecology on April 15, 2024.
- Updated financial assurance costs were provided to Ecology via email on April 19, 2024 and a revised version with the inflation factor was provided on April 29, 2024; these costs were accepted by Ecology in an email dated April 30, 2024.
- Per Ecology's request, groundwater and O&M sampling results were submitted to BNSF via email on June 24, 2024 to facilitate evaluation of TCE and cVOCs in the vicinity of the BNSF/ASKO property boundary.
- Groundwater sampling results for the second quarter of 2024 and associated contour maps were submitted to Ecology via email on June 25, 2024.

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)

- TCE and associated cVOC contaminant concentrations originating from the upgradient BNSF property were recently identified in upgradient groundwater as part of the BNSF remedial investigation at levels considerably higher than those observed in the 2019 remedial investigation for the Time Oil Bulk Terminal Site. The elevated TCE and cVOC concentrations in groundwater on BNSF are impacting the shallow water bearing zone (WBZ) in groundwater wells on the downgradient ASKO parcel owned by TOC Seattle Terminal 1, LLC. These impacts, if they continue, represent an on-going source to groundwater and may affect achievement of the cleanup levels (CULs) at the conditional point of compliance (CPOC) within the predicted 15-year restoration timeframe.
- Aside from the item above, there are no other 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 2nd Quarter 2024 were received from Friedman & Bruya, Inc. on May 23, 2024. Results were received in one sample delivery group (F&BI 405273);
- Samples collected for O&M purposes from the ASKO property permeable reactive barrier vault and gravity well were received on May 24, 2024. Results were received in one sample delivery group (F&BI 405272); and
- Copies of the laboratory reports discussed herein are 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 3rd Quarter 2024:

- Seventh round of groundwater sampling and site-wide synoptic gauging in coordination with BNSF is scheduled for August 7 and 8, 2024;
- Review of BNSF 2nd Quarter 2024 water levels and groundwater results;
- Construction on Lot F continues; and
- Site checks will be conducted periodically on all interim surfaces outside of Lot F 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 July through September 2024:

- Submittal of the Quarterly Progress Report for the 2nd Quarter 2024; and
- Transmittal of a summary of 3rd Quarter 2024 groundwater sampling results and associated groundwater contour maps to Ecology via email.

Other Pertinent Information, Including Changes in Key Personnel

- None.

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.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

May 23, 2024

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 May 15, 2024 from the Cantera-TOC/Time Oil, F&BI 405273 project. There are 19 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: Floyd Snider Lab Data, Pamela Osterhout
FDS0523R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 15, 2024 by Friedman & Bruya, Inc. from the Floyd-Snider Cantera-TOC/Time Oil, F&BI 405273 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
405273 -01	01MW19R-051524
405273 -02	01MW84-051524
405273 -03	01MW15-051524
405273 -04	01MW46-051524
405273 -05	01MW53R-051524
405273 -06	01MW58R-051524
405273 -07	01MW80-051524
405273 -08	01MW85-051524
405273 -09	01MW107-051524
405273 -10	02MW04R-051524
405273 -11	01MW19R-051524-D

All quality control requirements were acceptable.

Date of Report: 05/23/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405273
Date Extracted: 05/17/24
Date Analyzed: 05/17/24

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)
01MW19R-051524 405273-01	750	120
01MW84-051524 405273-02	3,900	102
02MW04R-051524 405273-10	<100	104
01MW19R-051524-D 405273-11 1/10	1,000	102
Method Blank 04-895 MB	<100	82

Date of Report: 05/23/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405273
Date Extracted: 05/20/24
Date Analyzed: 05/20/24

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)
01MW19R-051524 405273-01	680 x	<250	86
01MW84-051524 405273-02	1,400 x	<250	89
02MW04R-051524 405273-10	52 x	<250	83
01MW19R-051524-D 405273-11	720 x	<250	86
Method Blank 04-1181 MB	<50	<250	81

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW19R-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-01
Date Analyzed:	05/21/24	Data File:	052116.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	106	84	115
4-Bromofluorobenzene	93	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	2.1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW84-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-02
Date Analyzed:	05/21/24	Data File:	052113.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	78	126
Toluene-d8	105	84	115
4-Bromofluorobenzene	96	72	130

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW15-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-03
Date Analyzed:	05/21/24	Data File:	052124.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	106	84	115
4-Bromofluorobenzene	96	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	58
cis-1,2-Dichloroethene	18
Trichloroethene	2.7

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW46-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-04 1/10
Date Analyzed:	05/21/24	Data File:	052123.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

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

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	69
cis-1,2-Dichloroethene	490
Benzene	2.8 j
Trichloroethene	220

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW53R-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-05
Date Analyzed:	05/21/24	Data File:	052118.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	88	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.33
cis-1,2-Dichloroethene	1.6
Trichloroethene	12

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW58R-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-06 1/10
Date Analyzed:	05/21/24	Data File:	052120.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	104	84	115
4-Bromofluorobenzene	94	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	33
cis-1,2-Dichloroethene	490
Trichloroethene	38

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW80-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-07 1/10
Date Analyzed:	05/21/24	Data File:	052122.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	96	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	51
cis-1,2-Dichloroethene	350
Trichloroethene	190

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW85-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-08 1/10
Date Analyzed:	05/21/24	Data File:	052119.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	90	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	26
cis-1,2-Dichloroethene	970
Trichloroethene	6.2

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW107-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-09
Date Analyzed:	05/21/24	Data File:	052114.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

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

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	02MW04R-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-10
Date Analyzed:	05/21/24	Data File:	052115.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	90	72	130

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	01MW19R-051524-D	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/21/24	Lab ID:	405273-11
Date Analyzed:	05/21/24	Data File:	052117.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

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

Compounds:	Concentration ug/L (ppb)
Benzene	2.2

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/Time Oil
Date Extracted:	05/21/24	Lab ID:	04-1104 mb
Date Analyzed:	05/21/24	Data File:	052108.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	91	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
cis-1,2-Dichloroethene	<1
Benzene	<0.035 j
Trichloroethene	<0.5

Date of Report: 05/23/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405273

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

Laboratory Code: 405236-01 (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	91	70-130

Date of Report: 05/23/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405273

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	88	88	65-151	0

Date of Report: 05/23/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405273

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

Laboratory Code: 405273-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	92	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	10-211
Benzene	ug/L (ppb)	10	<0.35	94	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	96	35-149

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	89	88	64-142	1
cis-1,2-Dichloroethene	ug/L (ppb)	10	90	91	70-130	1
Benzene	ug/L (ppb)	10	88	88	70-130	0
Trichloroethene	ug/L (ppb)	10	91	94	70-130	3

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.

405273

SAMPLE CHAIN OF CUSTODY

05/15/24 F2/VW4

Page # 1 of 1

Report To Kristin Anderson + Pamela Osterhout

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/Time Oil

PO #

REMARKS: CVOCs by 8260: TCE, cis1,2-DCE, and vinyl chloride
Project specific RLs? - Yes / No

INVOICE TO: Pioneer

TURNAROUND TIME
- [x] 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	Benzene 8260	TCE, cis-1,2-DCE, VC			Notes
01MW19R-051524	01 A-G	5/15/24	12:03	GW	7	✓	✓						✓				
01MW84-051524	02 ↓		13:28		7	✓	✓						✓				
01MW15-051524	03 A-C		10:58		3									✓			
01MW46-051524	04		08:56		3								✓	✓			
01MW53R-051524	05		10:17		3									✓			
01MW58R-051524	06 ↓		10:03		3									✓			
01MW80-051524	07 A-B		15:47		2									✓			
01MW85-051524	08 A-C		11:10		3									✓			
01MW107-051524	09 ↓		11:57		3									✓			
02MW04R-051524	10 A-G		15:38		7	✓	✓						✓				
01MW19R-051524-D	11 ↓	5/15/24	1200	GW	7	✓	✓						✓				

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		C. OREIRO	FLOYD SNIDER	5/15/24	1715
Received by:		VINH	FDI	5-15-24	1715
Relinquished by:			Samples received at 4 °C		
Received by:					

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

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 405273 CLIENT FCS INITIALS: MW DATE: 5-15-24

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
*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	
Date Sampled	☑ Yes	☐ No	☐ Not on COC/label
Time Sampled	☑ Yes	☐ No	☐ Not on COC/label
# of Containers	☑ Yes	☐ No	☐ Not on COC/label
Relinquished	☑ Yes	☐ No	
Requested analysis	☑ Yes	☐ On Hold	

Other comments (use a separate page if needed)

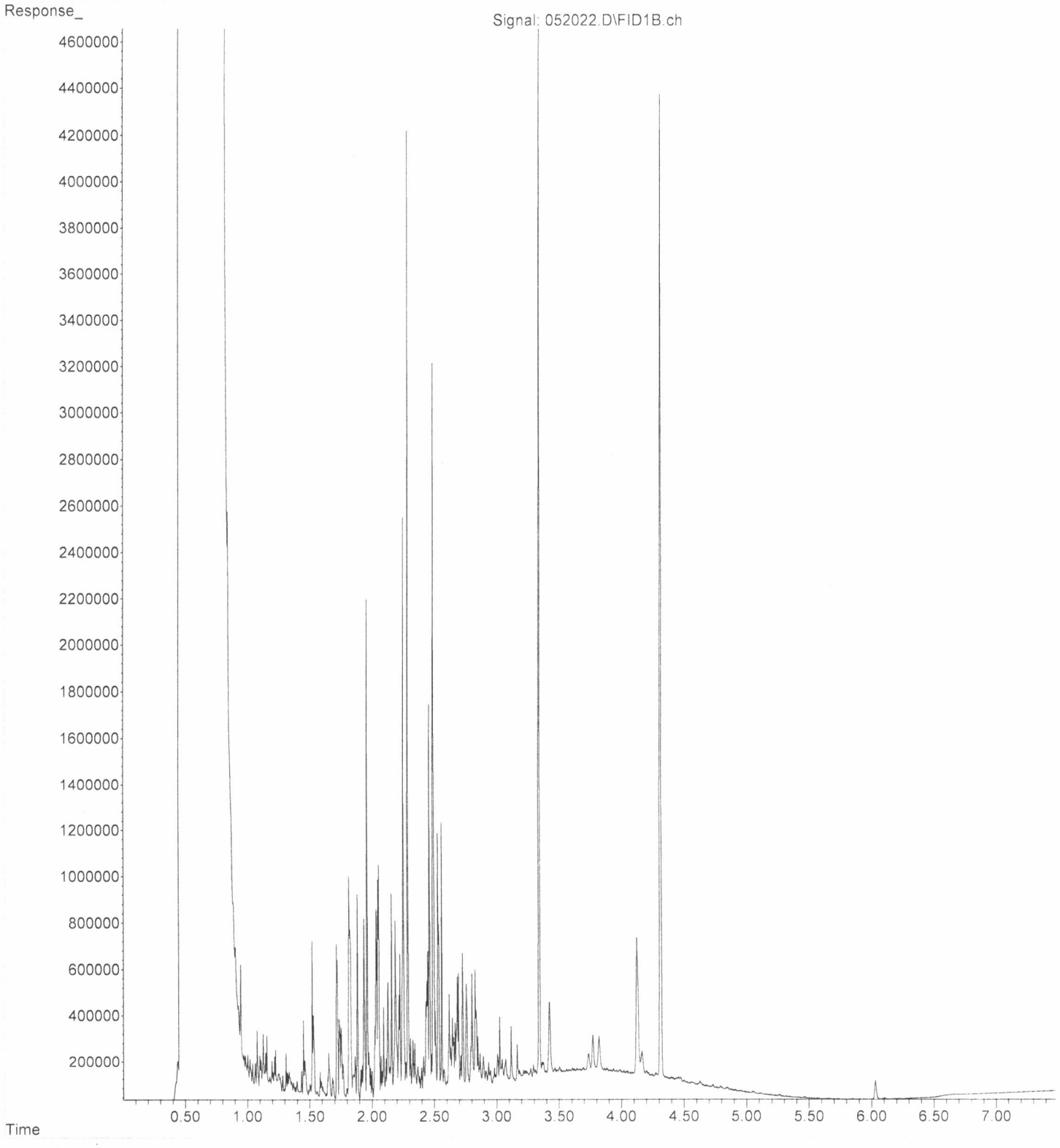
Air Samples: Were any additional canisters/tubes received? ☑ NA ☐ YES ☐ NO

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

File :P:\Proc_GC14\05-20-24\052022.D
Operator : TL
Acquired : 20 May 2024 06:22 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 405273-01
Misc Info :
Vial Number: 16

01MW19R

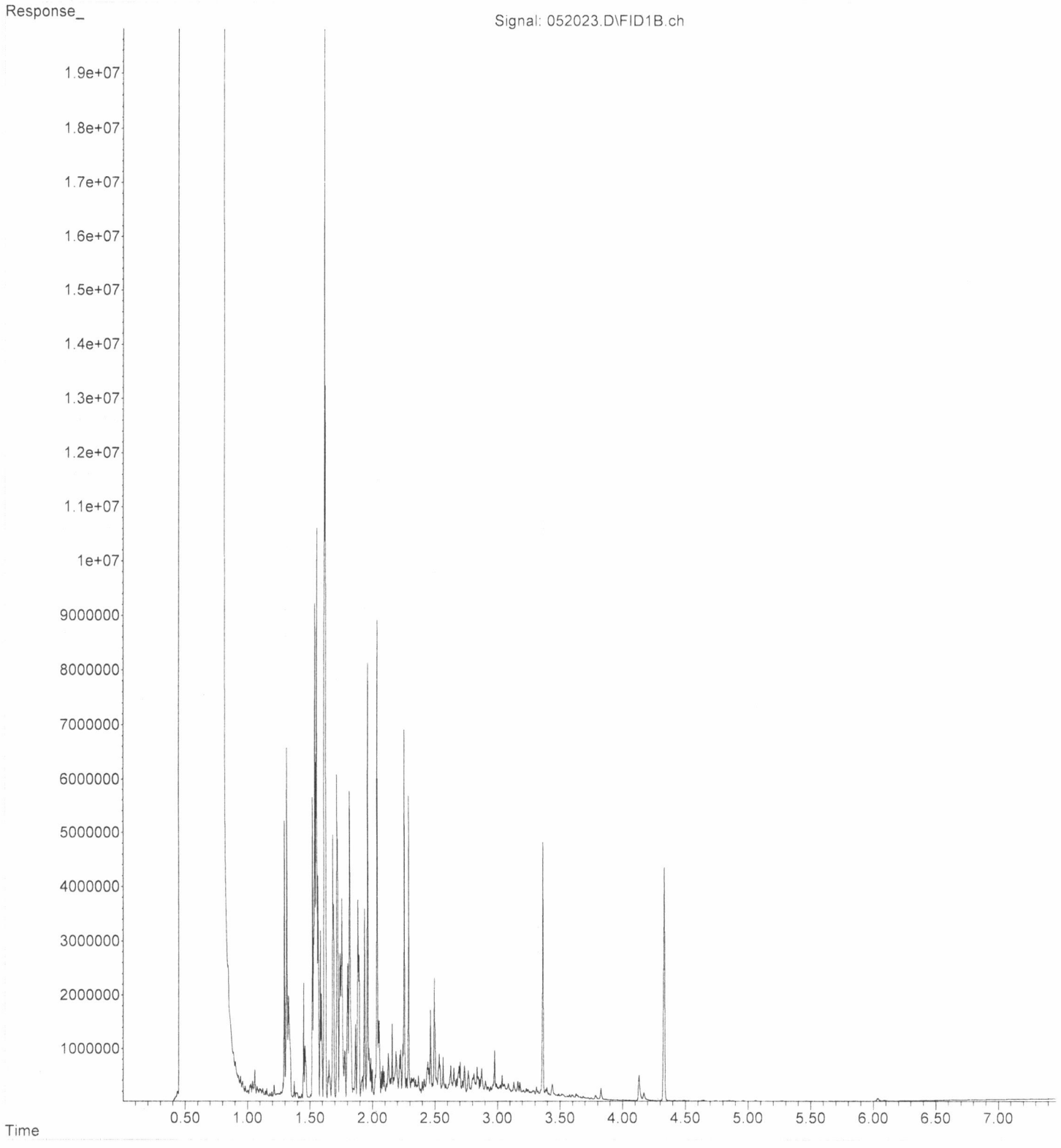
ERR



File :P:\Proc_GC14\05-20-24\052023.D
Operator : TL
Acquired : 20 May 2024 06:34 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 405273-02
Misc Info :
Vial Number: 17

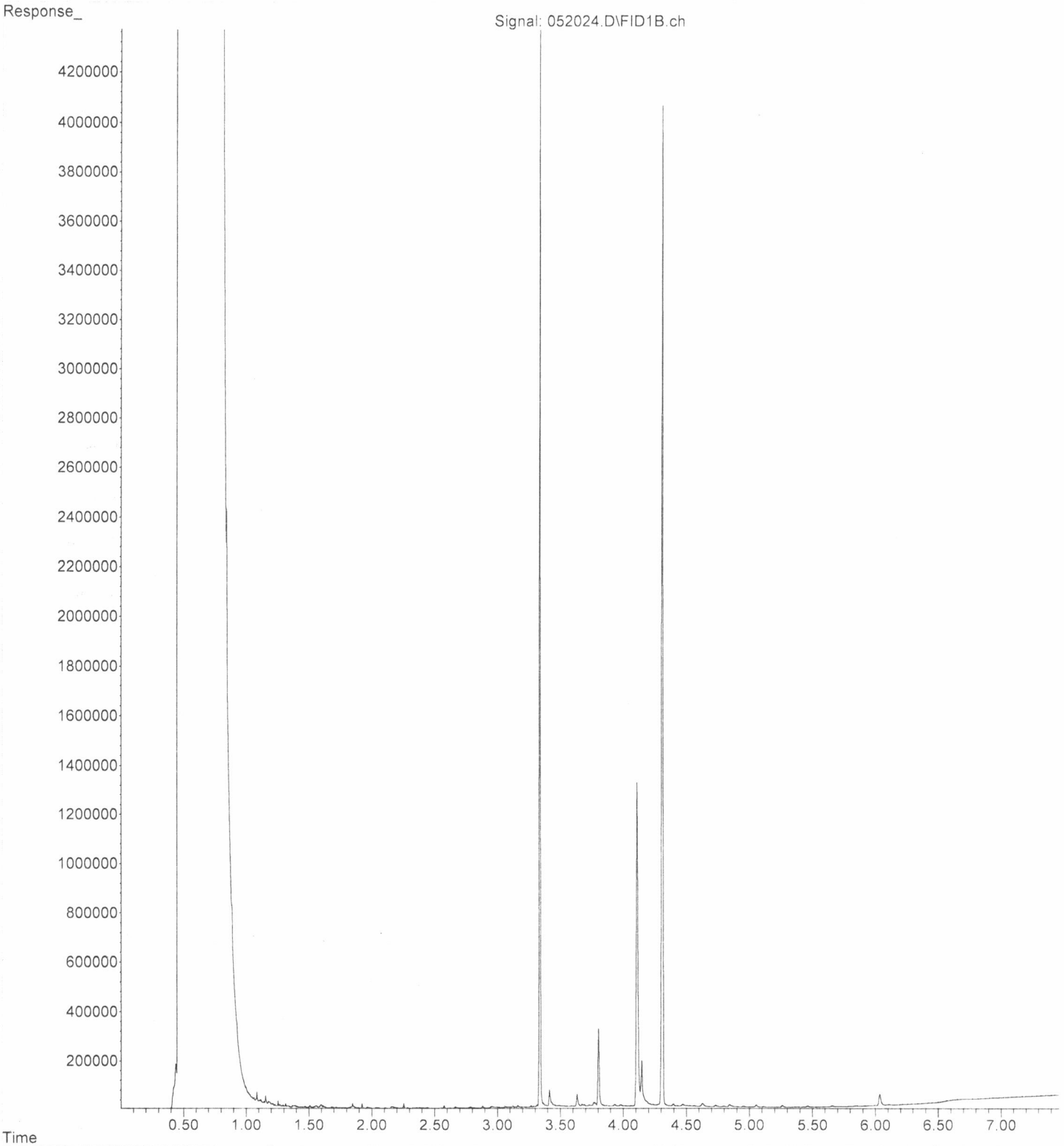
01MW84

ERR



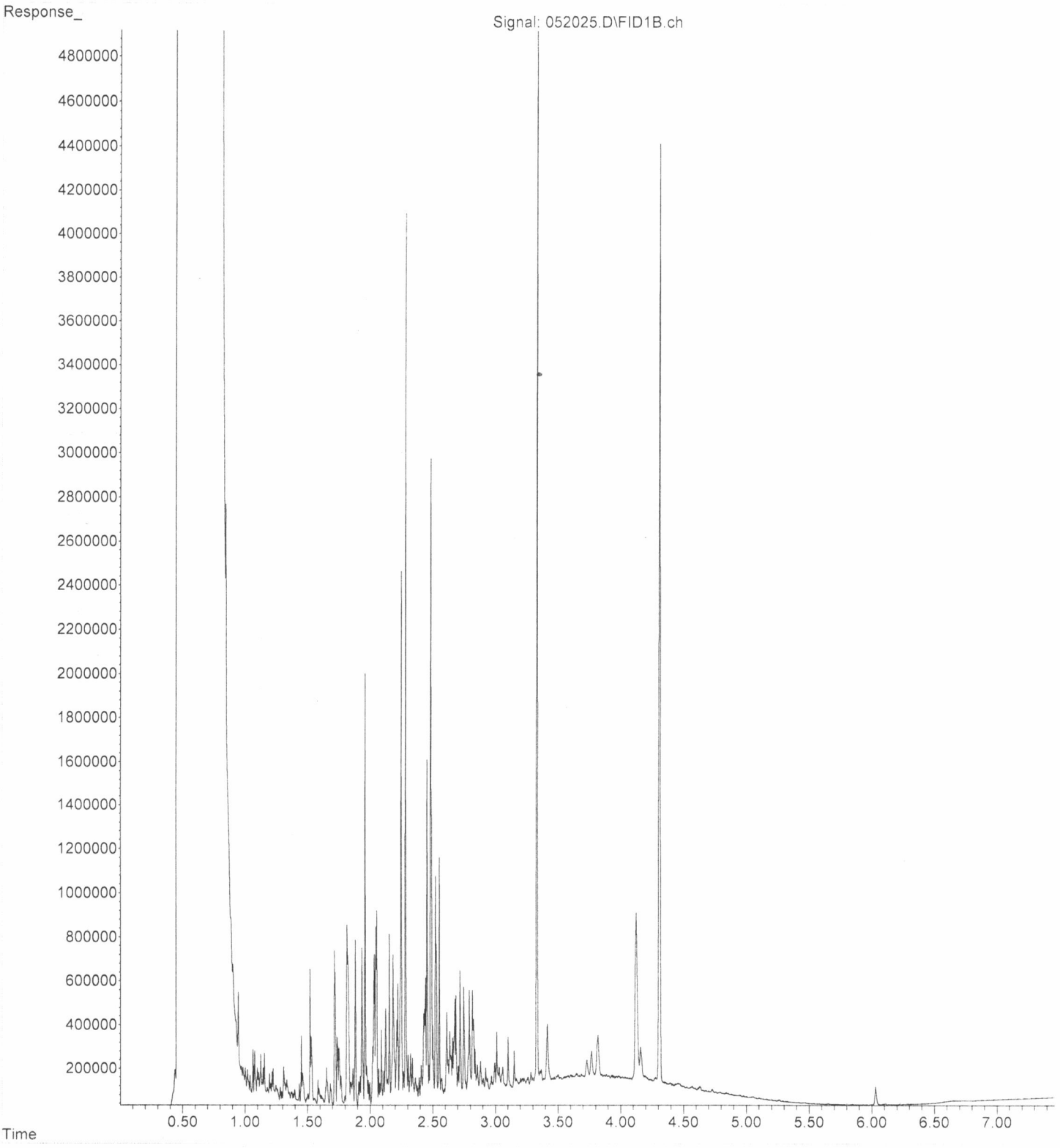
02MW04R

File :P:\Proc_GC14\05-20-24\052024.D
Operator : TL
Acquired : 20 May 2024 06:46 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 405273-10
Misc Info : ERR
Vial Number: 18



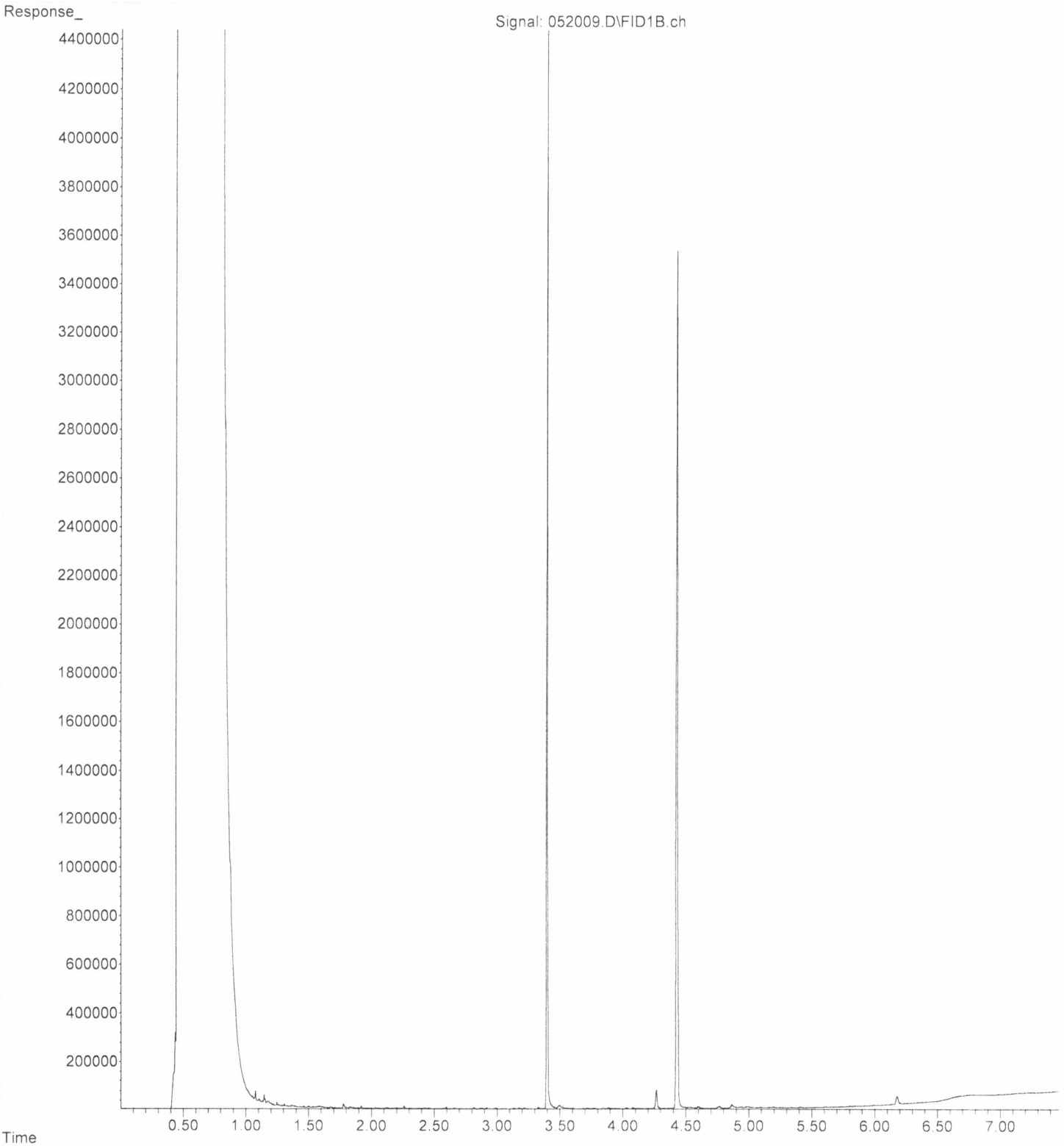
01MW19R-051524-D

File :P:\Proc_GC14\05-20-24\052025.D
Operator : TL
Acquired : 20 May 2024 06:58 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 405273-11
Misc Info : ERR
Vial Number: 19



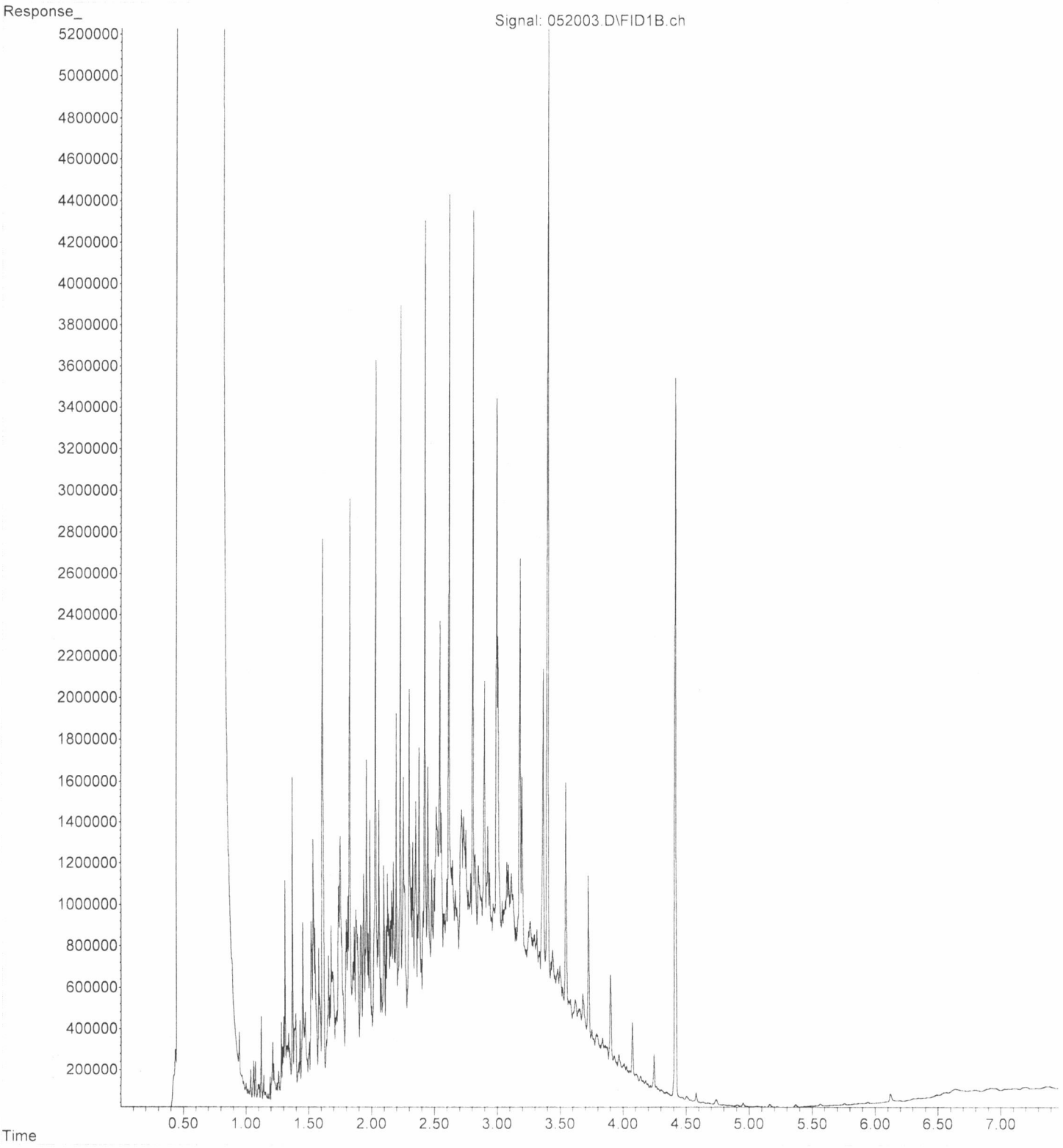
File :P:\Proc_GC14\05-20-24\052009.D
Operator : TL
Acquired : 20 May 2024 03:48 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 04-1181 mb
Misc Info : ERR
Vial Number: 7

Method Blank



File :P:\Proc_GC14\05-20-24\052003.D
Operator : TL
Acquired : 20 May 2024 08:37 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 500 Dx 71-40G
Misc Info :
Vial Number: 3

Diesel Standard



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

May 24, 2024

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 May 15, 2024 from the Cantera-TOC/Time Oil, F&BI 405272 project. There are 7 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: Floyd Snider Lab Data, Pamela Osterhout
FDS0524R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 15, 2024 by Friedman & Bruya, Inc. from the Floyd-Snider Cantera-TOC/Time Oil, F&BI 405272 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
405272 -01	GRAVITY-051524
405272 -02	CLEARVAULT-051524
405272 -03	INFVAULT-051524
405272 -04	Trip Blank

All quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	GRAVITY-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/17/24	Lab ID:	405272-01 1/10
Date Analyzed:	05/23/24	Data File:	052310.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	93	68	139
4-Bromofluorobenzene	100	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	260
cis-1,2-Dichloroethene	610
Trichloroethene	700

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CLEARVAULT-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/17/24	Lab ID:	405272-02
Date Analyzed:	05/17/24	Data File:	051743.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	92	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
cis-1,2-Dichloroethene	<1
Trichloroethene	13

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	INFVAULT-051524	Client:	Floyd-Snider
Date Received:	05/15/24	Project:	Cantera-TOC/Time Oil
Date Extracted:	05/17/24	Lab ID:	405272-03
Date Analyzed:	05/17/24	Data File:	051744.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	92	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.16
cis-1,2-Dichloroethene	4.2
Trichloroethene	25

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/Time Oil
Date Extracted:	05/17/24	Lab ID:	04-1094 mb
Date Analyzed:	05/17/24	Data File:	051709.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	93	72	130

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

Date of Report: 05/24/24
Date Received: 05/15/24
Project: Cantera-TOC/Time Oil, F&BI 405272

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

Laboratory Code: 405264-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	88	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	10-211
Trichloroethene	ug/L (ppb)	10	0.55	95	35-149

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	82	87	64-142	6
cis-1,2-Dichloroethene	ug/L (ppb)	10	94	99	70-130	5
Trichloroethene	ug/L (ppb)	10	94	100	70-130	6

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.

405272

SAMPLE CHAIN OF CUSTODY

05/15/24 VW2

Page # 1 of 1

Report To Kristin Anderson + Pamela Osterhout
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206 292-2070 Email

SAMPLERS (*signature*)
PROJECT NAME: Cantera - TOC/Time 01
PO #
REMARKS: CVOCs include: TCE, cis,1,2-DCE, VC
Project specific RLs? - Yes / No
INVOICE TO: Pioneer

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	cVOCs 8260				Notes
GRAVITY-051524	01 A-C	5/15/24	13:00	GW	3								✓				
CLEARVAULT-051524	02	"	13:30	"	3								✓				
INFVAULT-051524	03	"	13:50	"	3								✓				
Trip Blank	04 A-B	-	-	Water	2												Added at lab AP 05/15
							Samples received at						4	°C			

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	C. OREIRO	FLOYD SNIDER	5/15/24	1715
Received by:	VINA	FBI	5-15-24	1715
Relinquished by:				
Received by:				

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

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 405272 CLIENT FDS INITIALS/ DATE: AP 05/15/24

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
*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~~ (AP) ☒ 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	
Date Sampled	☒ Yes ☐ No	☐ Not on COC/label
Time Sampled	☒ Yes ☐ No	☐ Not on COC/label
# of Containers	☐ Yes ☒ No Added Trip Blank at lab.	☐ Not on COC/label
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** _____