



Total Extractable Petroleum Hydrocarbons (Diesel)

Case Narrative

COGCC

Inspection 697601578

Work Order Number: 2109426

1. This report consists of 3 soil samples. The samples were received cool and intact by ALS on 09/17/21/21.
2. The soil samples were extracted by adding a methanol/water solution to the soil followed by hexane according to the current revision of SOP 603, which was developed at ALS. This mixture is shaken and the hexane portion of the two-phase solution is removed for analysis.
3. The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The diesel carbon range integrated in this test extends from C10 to C20. The oil range extends from C20 to C40.
4. All initial and continuing calibration criteria were met.
5. All method blank criteria were met.
6. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.
7. A matrix spike and matrix spike duplicate were not performed because of insufficient sample. A laboratory control sample and laboratory control sample duplicate were performed instead.
8. The samples were extracted and analyzed within the established holding time.
9. All surrogate recoveries were within acceptance criteria.
10. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.



The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Organics Final Data Reviewer

10/16/21
Date

ALS
Data Qualifier Flags
Organics

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- *:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:** This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.

ALS
Data Qualifier Flags
Fuels

- G:** This flag indicates that a pattern resembling gasoline was detected in this sample.
- D:** This flag indicates that a pattern resembling diesel was detected in this sample.
- M:** This flag indicates that a pattern resembling motor oil was detected in this sample.
- C:** This flag indicates that a pattern resembling crude oil was detected in this sample.
- 4:** This flag indicates that a pattern resembling JP-4 was detected in this sample.
- 5:** This flag indicates that a pattern resembling JP-5 was detected in this sample.
- H:** This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L:** This flag indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z:** This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
gasoline
JP-8
diesel
mineral spirits
motor oil
Stoddard solvent
bunker C
- Multiple flags may be used to indicate the presence of more than one product or component.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2109426

Client Name: COGCC

Client Project Name: Inspection 697601578

Client Project Number:

Client PO Number: GAE- PHAA 2021*056

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
118086 #3 0-6"	2109426-1		SOIL	16-Sep-21	8:35
118086 #4 0-6"	2109426-2		SOIL	16-Sep-21	8:42
118086 #5 0-6"	2109426-3		SOIL	16-Sep-21	8:48
118086 #3 0-6"	2109426-4		SatExtract	16-Sep-21	8:35
118086 #4 0-6"	2109426-5		SatExtract	16-Sep-21	8:42
118086 #5 0-6"	2109426-6		SatExtract	16-Sep-21	8:48

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.



2 1 0 9 4 2 6 - C

[illegible]



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC Workorder No: 2109426
 Project Manager: kmo Initials: CXT Date: 09/17/2021

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?	X		
Tracking number:			
2. Are custody seals on shipping containers intact?	X		
3. Are custody seals on sample containers intact?	X		
4. Is there a COC (chain-of-custody) present?		X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6. Are short-hold samples present?			X
7. Are all samples within holding times for the requested analyses?		X	
8. Were all sample containers received intact? (not broken or leaking)		X	
9. Is there sufficient sample for the requested analyses?		X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)	X		
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X		
13. Were the samples shipped on ice?		X	
14. Were cooler temperatures measured at 0.1-6.0°C?	RAD ONLY	X	
IR gun used*: #5 Cooler #: <u>1</u> Temperature (°C): <u>0.8</u> # of custody seals on cooler: <u>0</u> External µR/hr reading: <u>NA</u> Background µR/hr reading: <u>11</u> Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES (If no, see Form 008.)			

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 9/20/21

Diesel Range Organics

Method SW8015M_MOD

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 2109426

Client Name: COGCC

ClientProject ID: Inspection 697601578

Lab ID: HC210928-83MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 28-Sep-21

Date Analyzed: 12-Oct-21

Prep Batch: HC210928-83

QCBatchID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: N/A

File Name: 18962.dat

Sample Aliquot: 20 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	1	8	U	8	4
68334-30-5	DIESEL RANGE ORGANICS	1	8	U	8	4

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	10.9		12.5	87	60 - 120

Data Package ID: HCD2109426-1

Date Printed: Friday, October 15, 2021

ALS -- Fort Collins

LIMS Version: 7.021b

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Diesel Range Organics

Method SW8015M_MOD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2109426

Client Name: COGCC

ClientProject ID: Inspection 697601578

Field ID: 118086 #3 0-6"

Lab ID: 2109426-1

Sample Matrix: SOIL

% Moisture: 3.7

Date Collected: 16-Sep-21

Date Extracted: 28-Sep-21

Date Analyzed: 12-Oct-21

Prep Method: METHOD

Prep Batch: HC210928-83

QC Batch ID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: Dry Weight

File Name: 18965.dat

Analyst: Jessica R. Spiller

Sample Aliquot: 20.58 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	1	8.1	U	8.1	4
68334-30-5	DIESEL RANGE ORGANICS	1	8.1	U	8.1	4

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	11.3		12.6	90	60 - 120

Data Package ID: HCD2109426-1

Date Printed: Friday, October 15, 2021

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Diesel Range Organics

Method SW8015M_MOD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2109426

Client Name: COGCC

ClientProject ID: Inspection 697601578

Field ID: 118086 #4 0-6"

Lab ID: 2109426-2

Sample Matrix: SOIL

% Moisture: 5.6

Date Collected: 16-Sep-21

Date Extracted: 28-Sep-21

Date Analyzed: 12-Oct-21

Prep Method: METHOD

Prep Batch: HC210928-83

QCBatchID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: Dry Weight

File Name: 18966.dat

Analyst: Jessica R. Spiller

Sample Aliquot: 20.64 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	1	8.2	U	8.2	4.1
68334-30-5	DIESEL RANGE ORGANICS	1	8.2	U	8.2	4.1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	11.7		12.8	91	60 - 120

Data Package ID: HCD2109426-1

Date Printed: Friday, October 15, 2021

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Diesel Range Organics

Method SW8015M_MOD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 2109426

Client Name: COGCC

ClientProject ID: Inspection 697601578

Field ID: 118086 #5 0-6"

Lab ID: 2109426-3

Sample Matrix: SOIL

% Moisture: 2.0

Date Collected: 16-Sep-21

Date Extracted: 28-Sep-21

Date Analyzed: 12-Oct-21

Prep Method: METHOD

Prep Batch: HC210928-83

QCBatchID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: Dry Weight

File Name: 18967.dat

Analyst: Jessica R. Spiller

Sample Aliquot: 20.14 g

Final Volume: 5 ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	1	6.1	J	8.1	4.1
68334-30-5	DIESEL RANGE ORGANICS	1	8.1	U	8.1	4.1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	11.4		12.7	90	60 - 120

Data Package ID: HCD2109426-1

Date Printed: Friday, October 15, 2021

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Diesel Range Organics

Method SW8015M_MOD

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 2109426

Client Name: COGCC

ClientProject ID: Inspection 697601578

Lab ID: HC210928-83LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/28/2021

Date Analyzed: 10/12/2021

Prep Method: METHOD

Prep Batch: HC210928-83

QCBatchID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: N/A

File Name: 18963.dat

Sample Aliquot: 20g

Final Volume: 5ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
	OIL RANGE ORGANICS	62.5	72.4	8		116	80 - 128%
68334-30-5	DIESEL RANGE ORGANICS	62.5	56.4	8		90	75 - 120%

Lab ID: HC210928-83LCSD

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09/28/2021

Date Analyzed: 10/12/2021

Prep Method: METHOD

Prep Batch: HC210928-83

QCBatchID: HC210928-83-1

Run ID: HC211012-81A

Cleanup: NONE

Basis: N/A

File Name: 18964.dat

Sample Aliquot: 20g

Final Volume: 5ml

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
	OIL RANGE ORGANICS	62.5	69.4	8		111	20	4
68334-30-5	DIESEL RANGE ORGANICS	62.5	55.7	8		89	20	1

Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
84-15-1	O-TERPHENYL	12.5	83		85		60 - 120

Data Package ID: HCD2109426-1

Date Printed: Friday, October 15, 2021

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Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC210928-83MB

Filename : \\NAFCLWS006\gdata\Projects\GC_8\Data\2021\drooro211012\18962.dat

Acquisition Date : 10/12/2021 6:34:01 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:29 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

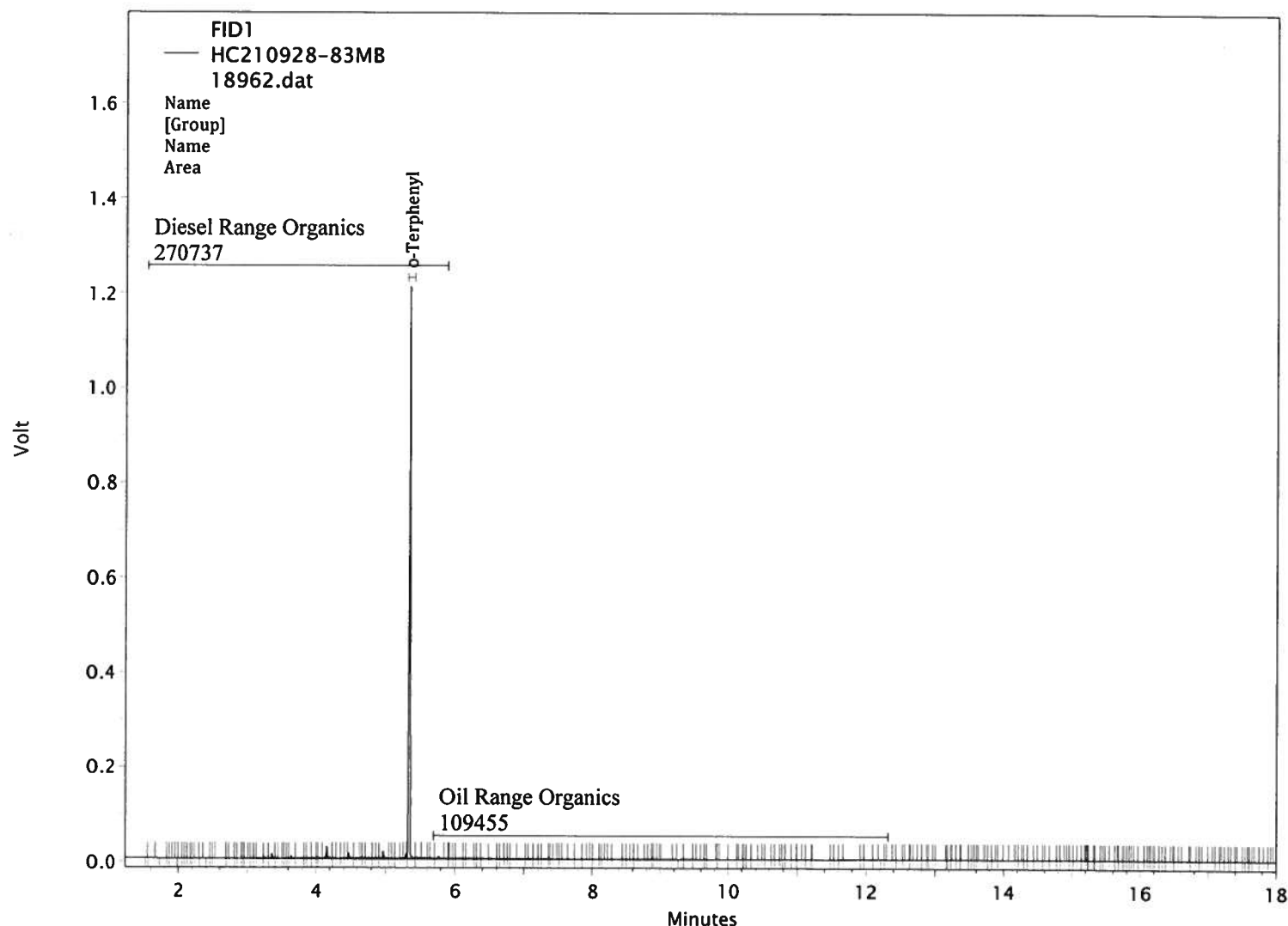
Method : \\NAFCLWS006\gdata\Projects\GC_8\Method\2021\DROOROMETHOD\drooro2108091.met Inj. Vol. (uL) : 2

Sequence : \\NAFCLWS006\gdata\Projects\GC_8\Sequence\DROORO\drooro211012.seq Vial : 19

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.36	5.37	1277751	TV	43.676	ug/mL
Diesel Range Organics			270737		4.167	ug/mL
Oil Range Organics			109455		0.000	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC210928-83LCS

Filename : \\NAFCLWS006\gcdata\Projects\GC_8\Data\2021\drooro211012\18963.dat

Acquisition Date : 10/12/2021 6:59:42 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:33 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

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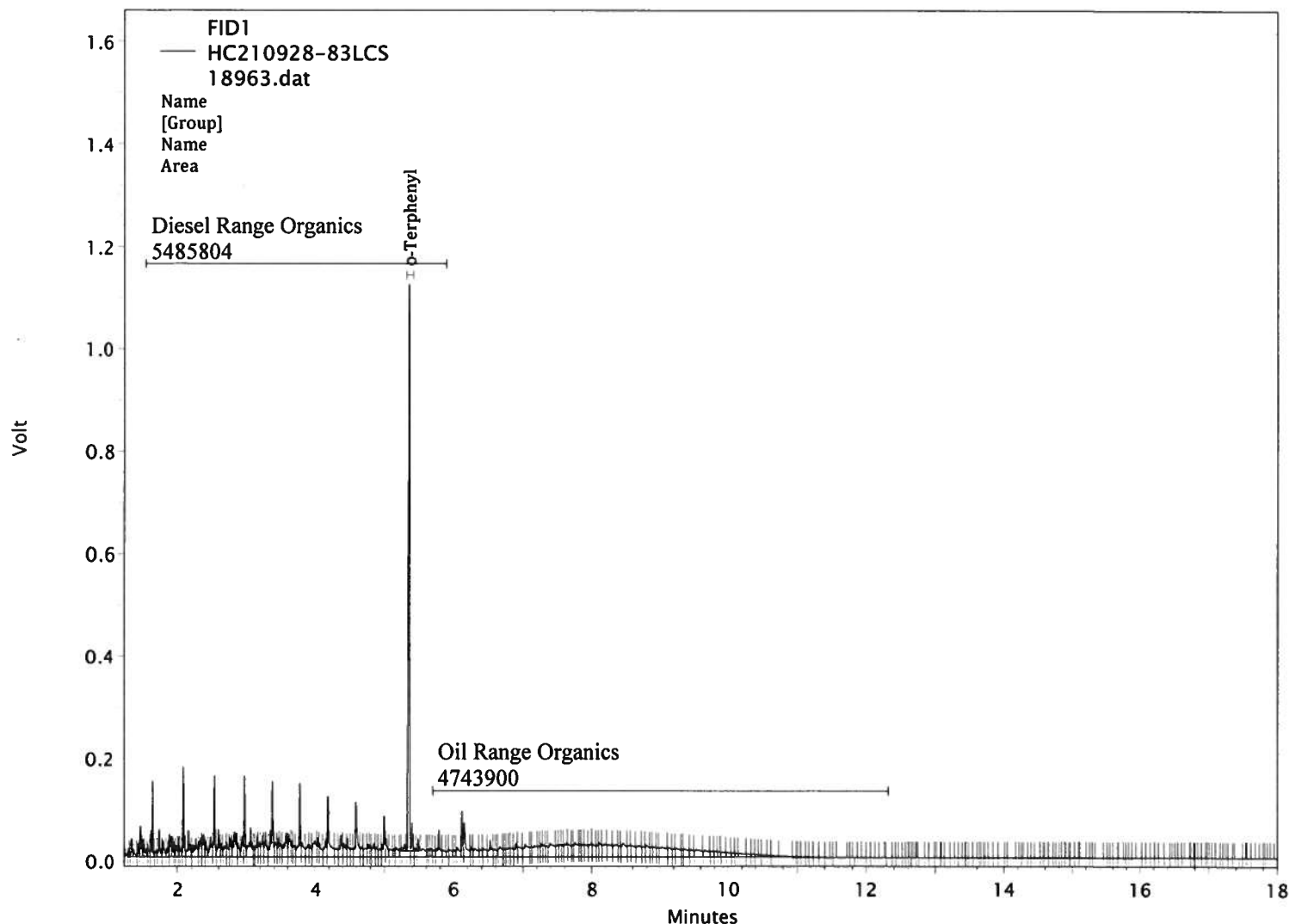
Sequence : \\NAFCLWS006\gcdata\Projects\GC_8\Sequence\DROORO\drooro211012.seq

Vial : 20

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.36	5.37	1214106	Th	41.559	ug/mL
Diesel Range Organics			5485804		225.508	ug/mL
Oil Range Organics			4743900		289.621	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC210928-83LCSD

Filename : \\NAFCLWS006\gcdata\Projects\GC_8\Data\2021\drooro211012\18964.dat

Acquisition Date : 10/12/2021 7:25:32 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:37 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

Method : \\NAFCLWS006\gcdata\Projects\GC_8\Method\2021\DROOROMETHOD\drooro2108091.met Inj. Vol. (uL) : 2

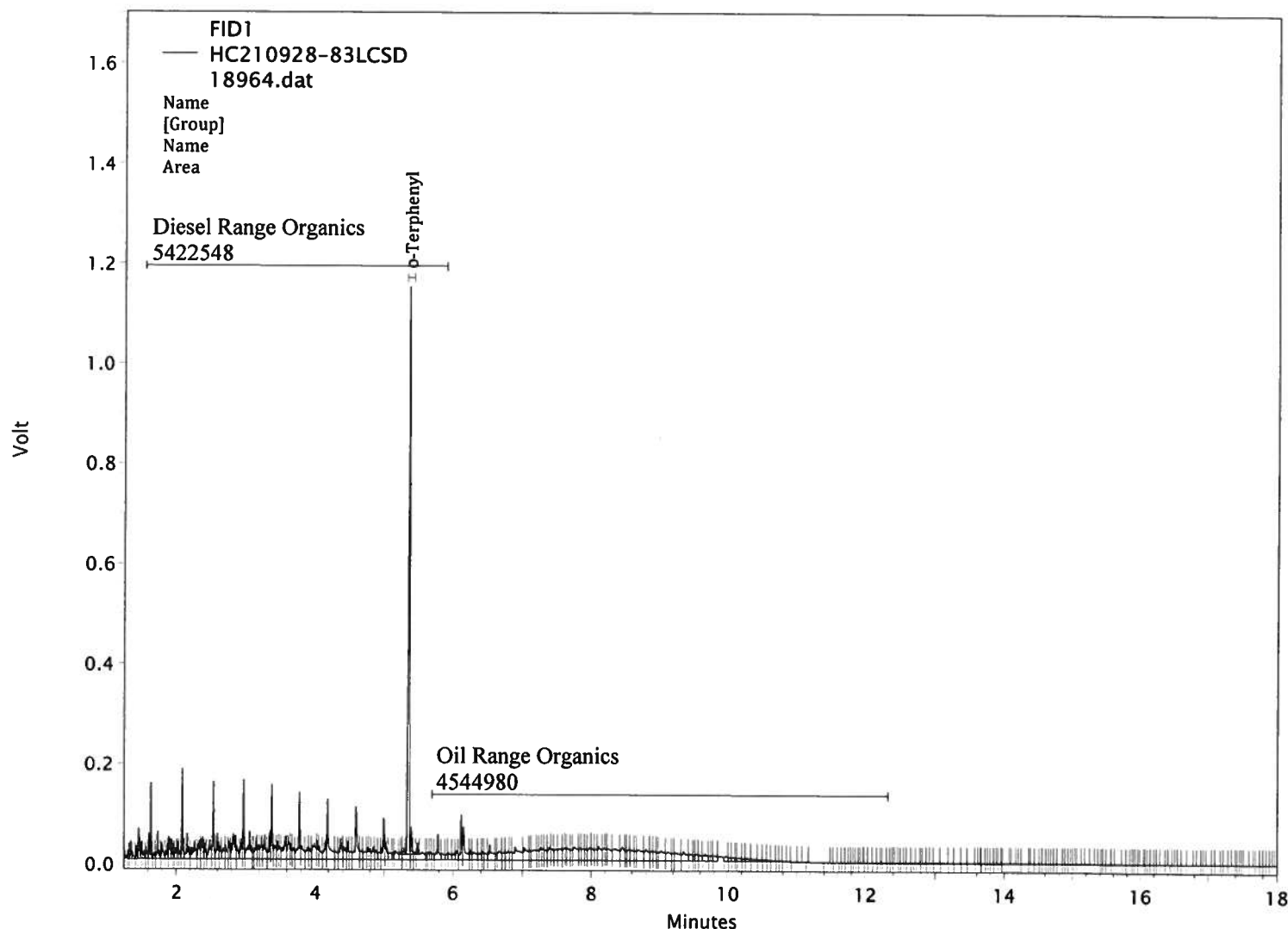
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Vial : 21

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.36	5.37	1249313	Th	42.731	ug/mL
Diesel Range Organics			5422548		222.845	ug/mL
Oil Range Organics			4544980		277.428	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)

(1st int. code is for peak start, 2nd int code is for peak stop) B=baseline, f=force start or stop, l=ended by int. off event, N=begin negative peak, P=end negative peak, H=forward horiz, h=backward horiz, M=manual baseline or peak, m=move baseline start/stop, S=shoulder, T=tangent skim, V=valley, v=forced valley point, x=split peak, E=end of chromatogram encountered, R=reset baseline, L=lowest point horiz.

Printed On : 10/14/2021 10:05:38 AM

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : 2109426-1

Filename : \\NAFCLWS006\gdata\Projects\GC_8\Data\2021\drooro211012\18965.dat

Acquisition Date : 10/12/2021 7:51:19 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:40 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

Method : \\NAFCLWS006\gdata\Projects\GC_8\Method\2021\DROOROMETHOD\drooro2108091.met Inj. Vol. (uL) : 2

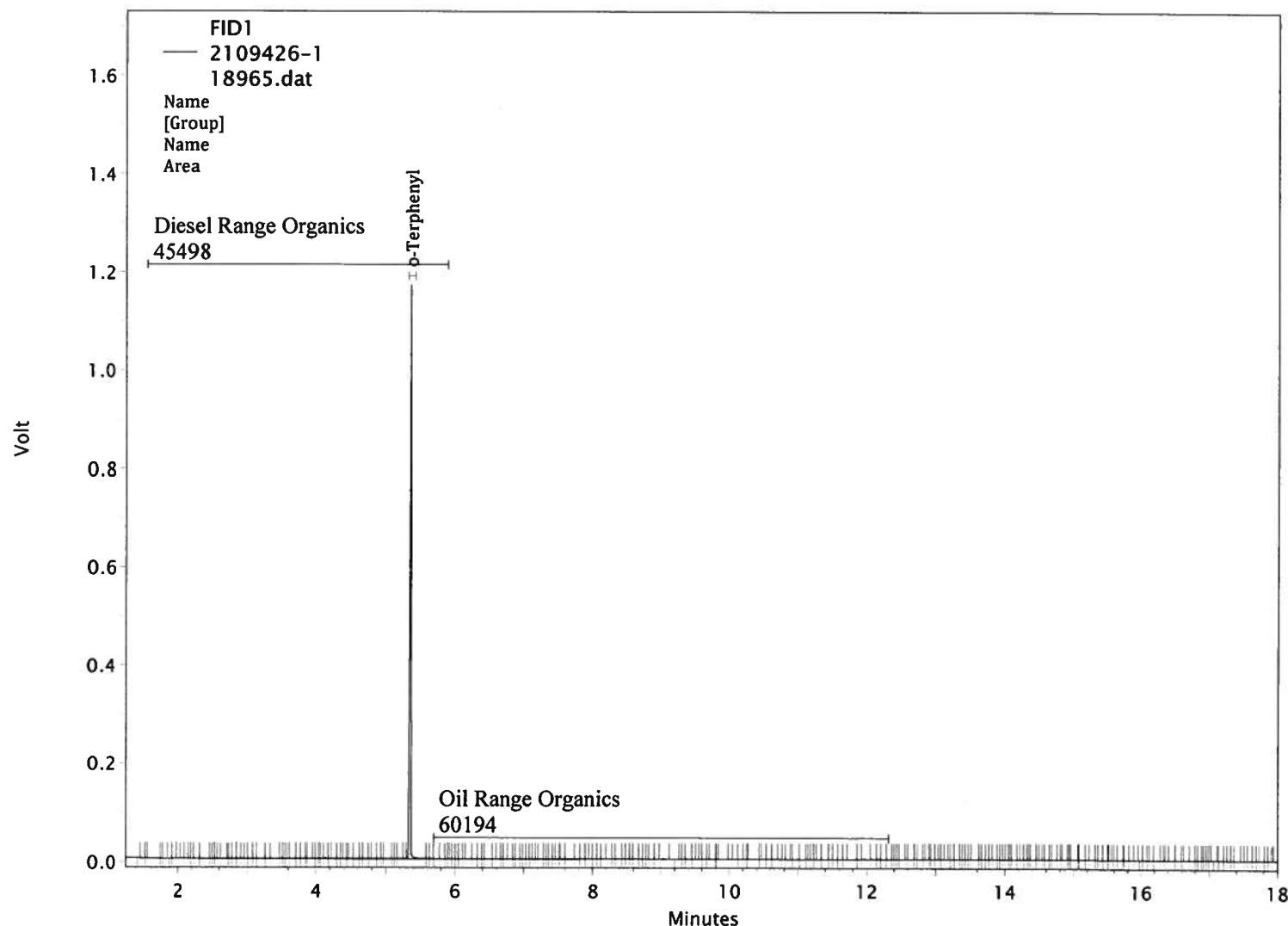
Sequence : \\NAFCLWS006\gdata\Projects\GC_8\Sequence\DROORO\drooro211012.seq

Vial : 22

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.36	5.37	1314471	BV	44.895	ug/mL
Diesel Range Organics			45498		0.000	ug/mL
Oil Range Organics			60194		0.000	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : 2109426-2

Filename : \\NAFCLWS006\gcddata\Projects\GC_8\Data\2021\drooro211012\18966.dat

Acquisition Date : 10/12/2021 8:16:51 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:45 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

Method : \\NAFCLWS006\gcddata\Projects\GC_8\Method\2021\DROOROMETHOD\drooro2108091.met Inj. Vol. (uL) : 2

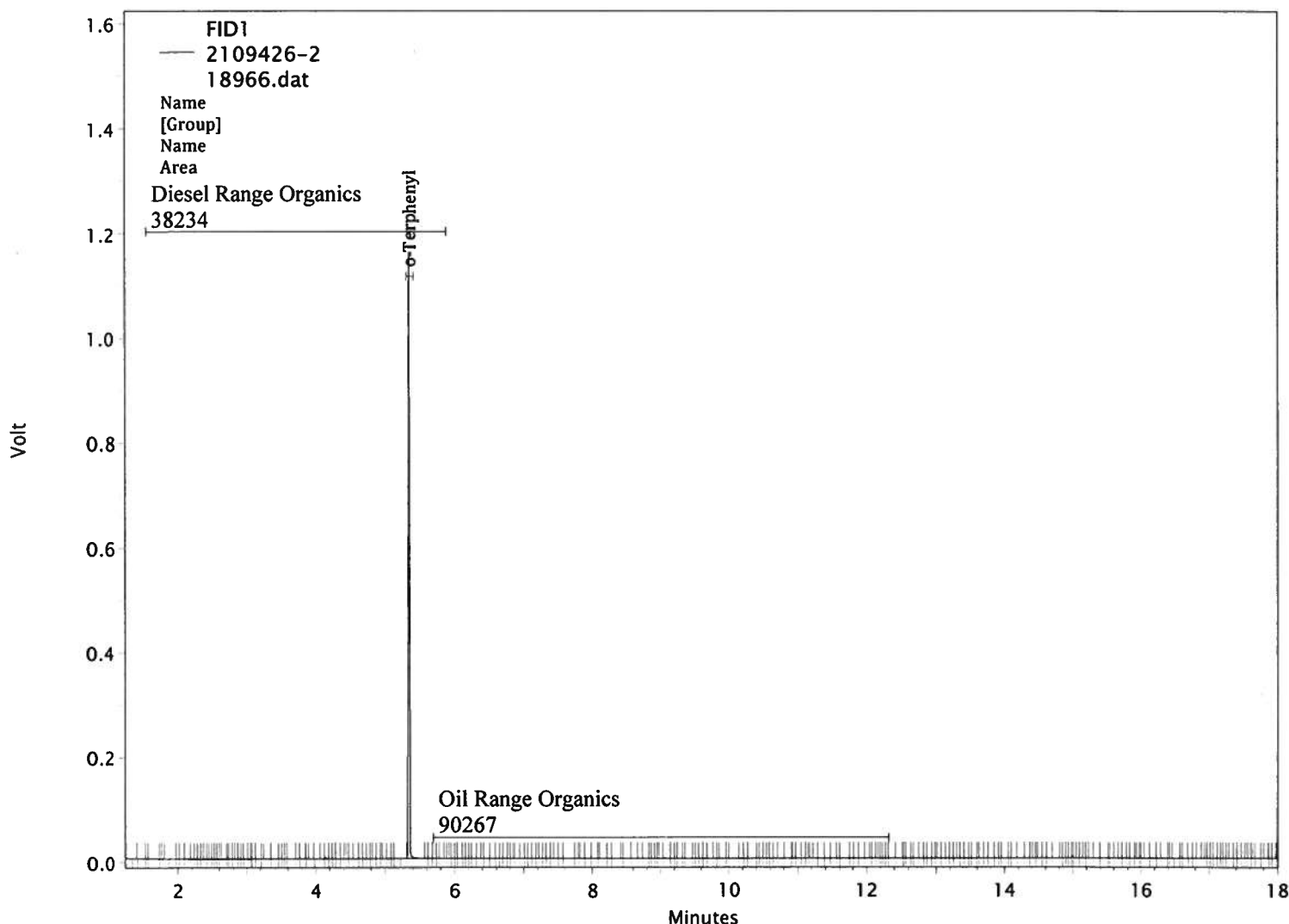
Sequence : \\NAFCLWS006\gcddata\Projects\GC_8\Sequence\DROORO\drooro211012.seq

Vial : 23

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.35	5.37	1331638	BB	45.464 ✓	ug/mL
Diesel Range Organics			38234		0.000 ✓	ug/mL
Oil Range Organics			90267		0.000 ✓	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ASLGG-Fort Collins

Sample : 2109426-3

Filename : \\NAFCLWS006\gcdata\Projects\GC_8\Data\2021\drooro211012\18967.dat

Acquisition Date : 10/12/2021 8:42:34 PM

Instrument : GC8

Quantitation Date : 10/14/2021 10:05:48 AM

Data Acquired By : spiller

Last Method Update : 10/14/2021 10:03:07 AM

Data Processed By : spiller

Method : \\NAFCLWS006\gcdata\Projects\GC_8\Method\2021\DROOROMETHOD\drooro2108091.met Inj. Vol.

(uL) : 2

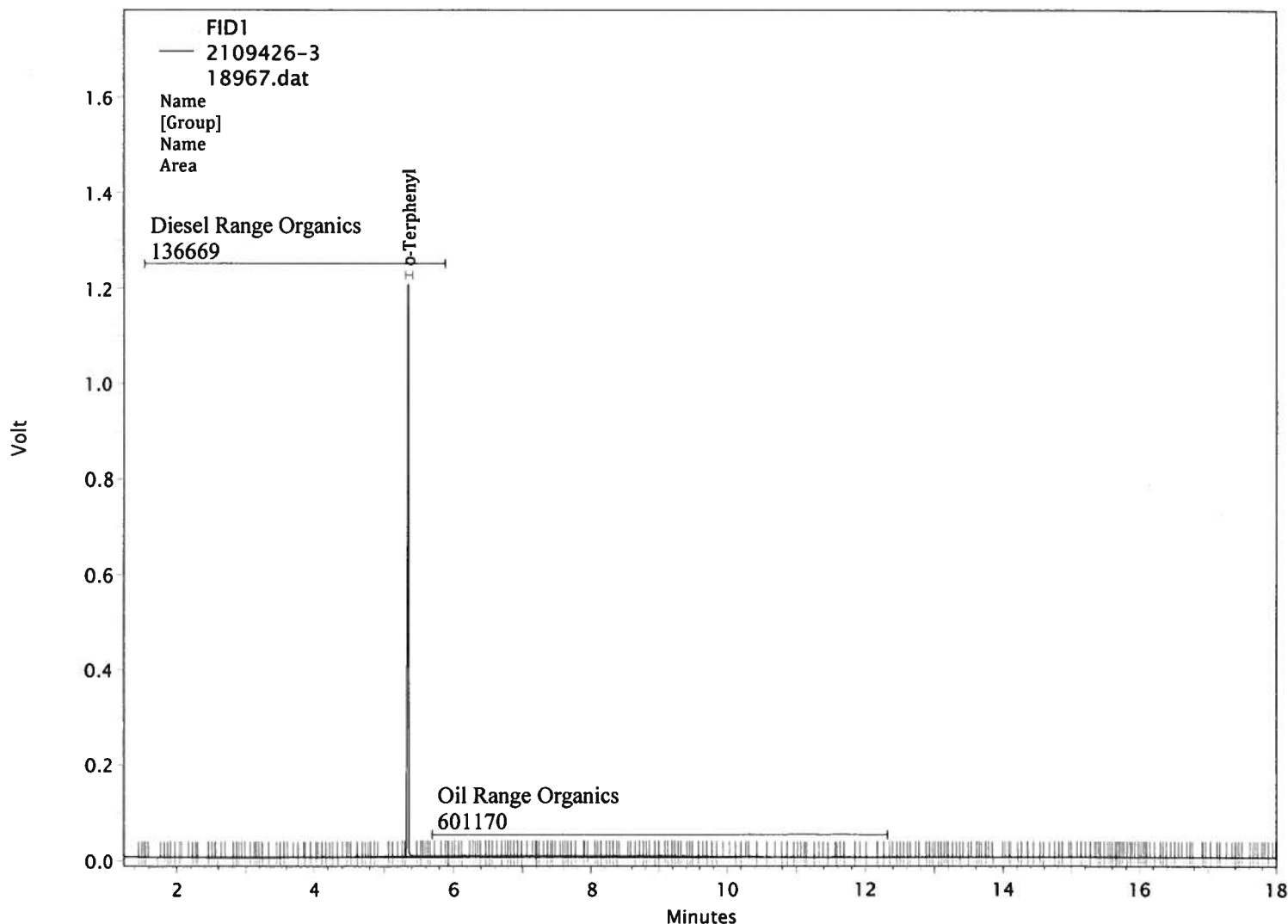
Sequence : \\NAFCLWS006\gcdata\Projects\GC_8\Sequence\DROORO\drooro211012.seq

Vial : 24

Data Description : {Data Description}

FID1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.36	5.37	1319900	Th	45.075	ug/mL
Diesel Range Organics			136669		0.000	ug/mL
Oil Range Organics			601170		23.894	ug/mL



Column : ZB-1HT (15M x 0.25mm x 0.25u)