



complaint 200444807

facility 757228

# Total Extractable Petroleum Hydrocarbons (Diesel) Case Narrative

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**COGCC**

**Complaint 200444807**

Work Order Number: 1712475

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 12/22/17.
2. The water sample was extracted by adding hexane to the water sample and shaking the resulting two phase solution according to the current revision of SOP 603, which was developed at ALS. The hydrocarbons partition into the hexane layer, which is then removed for analysis.
3. The sample was 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 carbon range integrated for dro extends from C10 to C20 and Oil extends >C20-C35.
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 sample was 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.

Mindy Norton

Mindy Norton  
Organics Primary Data Reviewer

12/30/17

Date

Kath M. A.

Organics Final Data Reviewer

12/31/17

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

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**OrderNum:** 1712475

**Client Name:** COGCC

**Client Project Name:** Complaint 200444807

**Client Project Number:**

**Client PO Number:** GAE 2018-0302

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
757228 Ditlev-Simonsen flowline	1712475-1		WATER	21-Dec-17	14:04

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225 Commerce Drive, Fort Collins, Colorado 80524  
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

## Chain-of-Custody

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

**ALS WORKORDER #**

1712475

[illegible]



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Co. Oil + Gas  
Project Manager: 110

Workorder No: 1712475  
Initials: KS Date: 12-22-17

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	<input checked="" type="radio"/> NO
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	<input checked="" type="radio"/> YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	<input checked="" type="radio"/> YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: <input checked="" type="checkbox"/> dusting ____ moderate <input checked="" type="checkbox"/> heavy	N/A	<input checked="" type="radio"/> YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #3 #4		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>3.3</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

6. Test requested for the 1L amber sample was listed incorrectly.  
15. Bottles 1-3 (40va) have lite dusting. Bottle 4 (1L amber) has heavy sediment.

If applicable, was the client contacted? ☒ YES / NO / NA Contact: Peter Gintautas Date/Time: 12/22/17 15:30

Project Manager Signature / Date: \_\_\_\_\_

# Diesel Range Organics

Method SW8015M\_MOD

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1712475

Client Name: COGCC

ClientProject ID: Complaint 200444807

Lab ID: HC171227-82MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 27-Dec-17

Date Analyzed: 30-Dec-17

Prep Batch: HC171227-82

QCBatchID: HC171227-82-2

Run ID: HC171230-8AA

Cleanup: NONE

Basis: N/A

File Name: 08051.dat

Sample Aliquot: 37.3 ml

Final Volume: 1.25 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	1	0.45	J	0.6	0.36
68334-30-5	DIESEL RANGE ORGANICS	1	0.6	U	0.6	0.17

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	1.75		1.68	105	63 - 126

Data Package ID: HCD1712475-1

Date Printed: Saturday, December 30, 2017

ALS -- Fort Collins

LIMS Version: 6.851

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# Diesel Range Organics

Method SW8015M\_MOD

## Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1712475

Client Name: COGCC

ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo  
Lab ID: 1712475-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 21-Dec-17

Date Extracted: 27-Dec-17

Date Analyzed: 30-Dec-17

Prep Method: METHOD

Prep Batch: HC171227-82

QCBatchID: HC171227-82-2

Run ID: HC171230-8AA

Cleanup: NONE

Basis: As Received

File Name: 08055.dat

Analyst: Joel F. Nolte

Sample Aliquot: 37.9 ml

Final Volume: 1.5 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
	OIL RANGE ORGANICS	20	150	BMH	14	8.5
68334-30-5	DIESEL RANGE ORGANICS	20	160	D	14	4

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	2.22		1.98	112	63 - 126

Data Package ID: HCD1712475-1

Date Printed: Saturday, December 30, 2017

ALS -- Fort Collins

LIMS Version: 6.851

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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: 1712475

Client Name: COGCC

ClientProject ID: Complaint 200444807

Lab ID: HC171227-82LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/27/2017

Date Analyzed: 12/30/2017

Prep Method: METHOD

Prep Batch: HC171227-82

QCBatchID: HC171227-82-2

Run ID: HC171230-8AA

Cleanup: NONE

Basis: N/A

File Name: 08059.dat

Sample Aliquot: 37 ml

Final Volume: 1.25 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
68334-30-5	DIESEL RANGE ORGANICS	8.45	9.17	0.608		109	36 - 150%

Lab ID: HC171227-82LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 12/27/2017

Date Analyzed: 12/30/2017

Prep Method: METHOD

Prep Batch: HC171227-82

QCBatchID: HC171227-82-2

Run ID: HC171230-8AA

Cleanup: NONE

Basis: N/A

File Name: 08060.dat

Sample Aliquot: 36.8 ml

Final Volume: 1.25 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
68334-30-5	DIESEL RANGE ORGANICS	8.49	8.99	0.611		106	20	2

## Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
84-15-1	O-TERPHENYL	1.69	103		102		63 - 126

Data Package ID: HCD1712475-1

Date Printed: Saturday, December 30, 2017

ALS -- Fort Collins

LIMS Version: 6.851

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# Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ASLGG-Fort Collins

Sample : HC171227-82MB

Filename : \\gcserver\gcdata\Projects\GC8\Data\2017\drooro171230\08051.dat

Acquisition Date : 12/30/2017 3:11:04 AM

Instrument : GC8

Quantitation Date : 12/30/2017 3:24:43 PM

Data Acquired By : noltej

Last Method Update : 12/30/2017 3:23:24 PM

Data Processed By : noltej

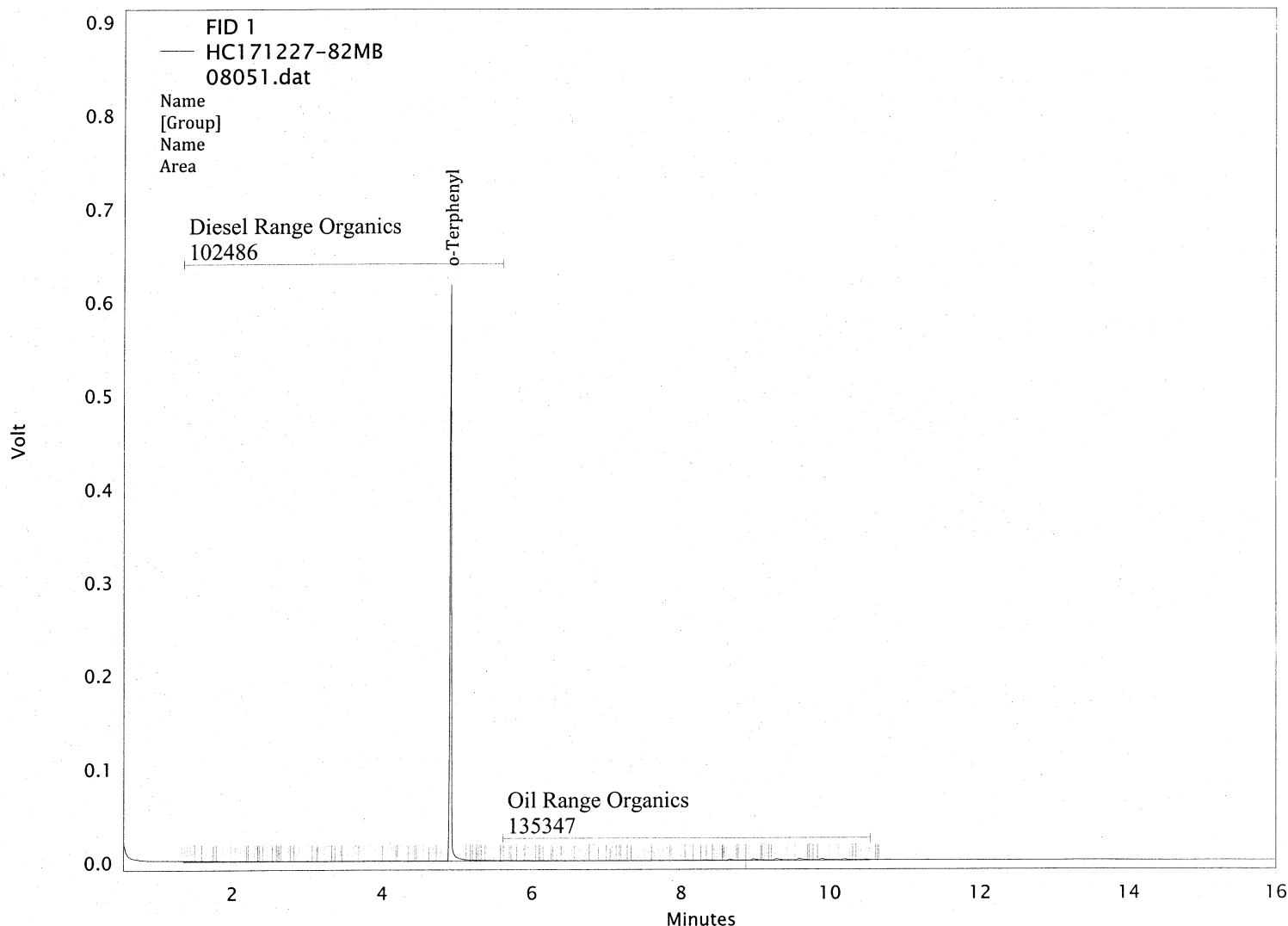
Method : \\gcserver\gcdata\Projects\GC8\Method\2017\drooro171227a.met Inj. Vol. (uL) : 2

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2017\drooro171230.seq Vial : 59

Data Description : water

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	4.92	4.91	818278	LL	52.353	ug/mL
Diesel Range Organics			102486		3.948	ug/mL
Oil Range Organics			135347		13.508	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 : 12/30/2017 3:24:44 PM

# Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : 1712475-1 20x

Filename : \\gcserver\gcdata\Projects\GC8\Data\2017\drooro171230\08055.dat

Acquisition Date : 12/30/2017 4:45:49 AM

Quantitation Date : 12/30/2017 3:24:56 PM

Last Method Update : 12/30/2017 3:23:24 PM

Method : \\gcserver\gcdata\Projects\GC8\Method\2017\drooro171227a.met

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2017\drooro171230.seq

Data Description : water, 25uL/500uL

Instrument : GC8

Data Acquired By : noltej

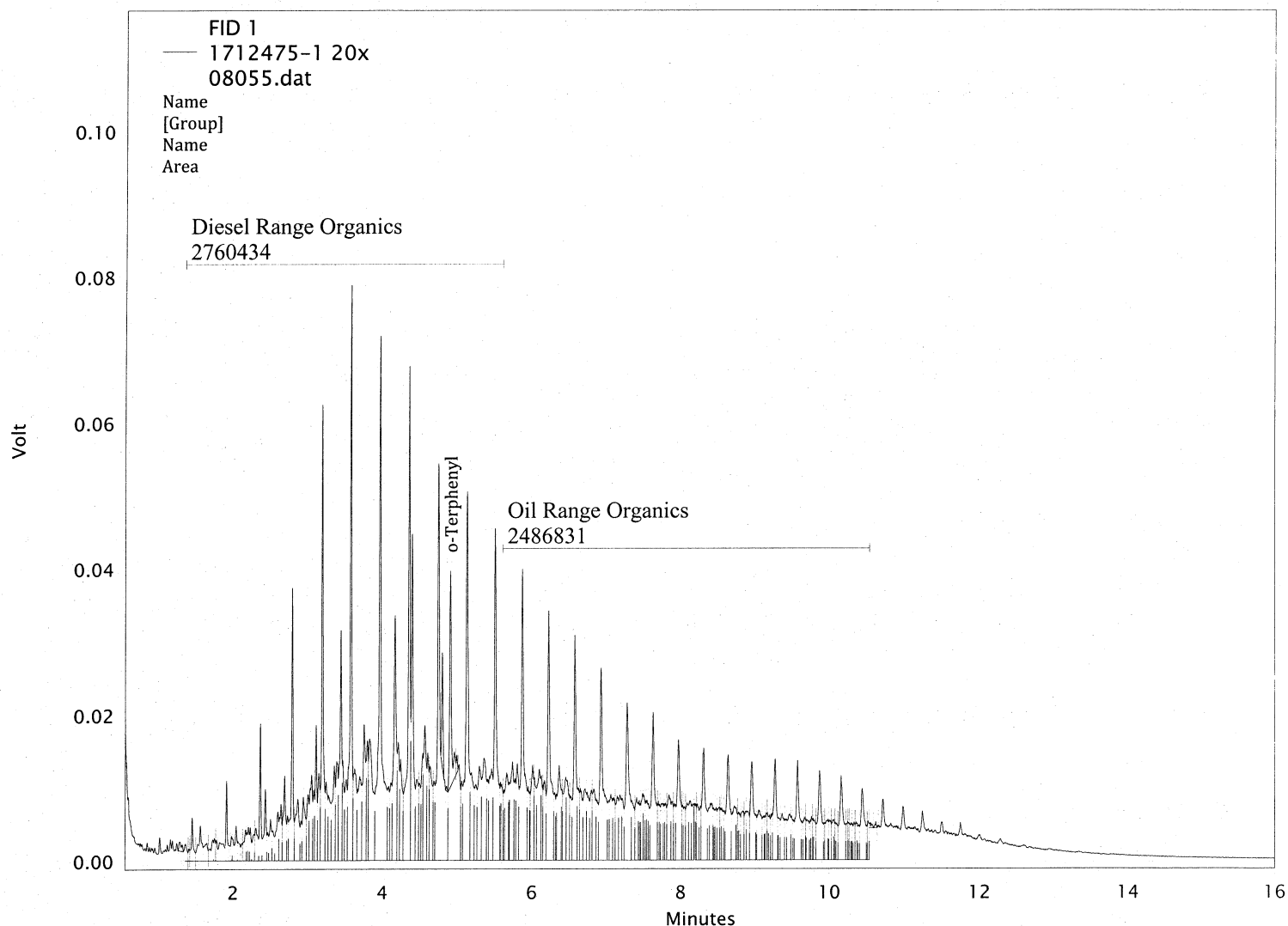
Data Processed By : noltej

Inj. Vol. (uL) : 2

Vial : 63

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	4.91	4.91	42894	TL 112-1	2.799	ug/mL
Diesel Range Organics			2760434		203.622	ug/mL
Oil Range Organics			2486831	B	195.811	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 : 12/30/2017 3:24:57

PM

# Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC171227-82LCS

Filename : \\gcserver\gcdata\Projects\GC8\Data\2017\drooro171230\08059.dat

Acquisition Date : 12/30/2017 6:20:41 AM

Instrument : GC8

Quantitation Date : 12/30/2017 3:25:11 PM

Data Acquired By : noltej

Last Method Update : 12/30/2017 3:23:24 PM

Data Processed By : noltej

Method : \\gcserver\gcdata\Projects\GC8\Method\2017\drooro171227a.met Inj. Vol. (uL) : 2

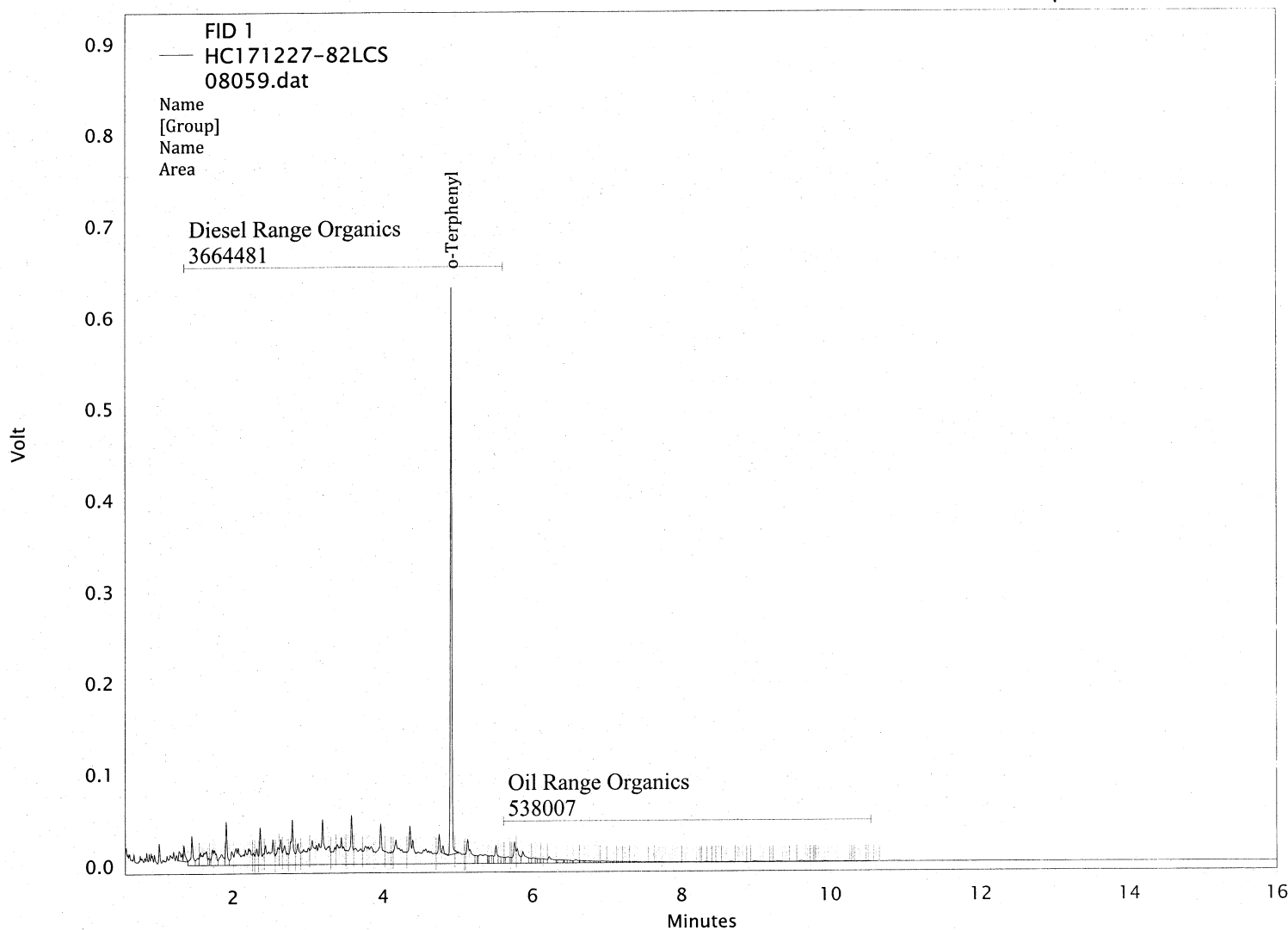
Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2017\drooro171230.seq Vial : 64

Data Description : water, 250ppm

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	4.92	4.91	801922	TL	51.308	ug/mL
Diesel Range Organics			3664481	103%	271.537	ug/mL
Oil Range Organics			538007	109%	44.725	ug/mL

NT



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 : 12/30/2017 3:25:12

PM

# Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC171227-82LCSD

Filename : \\gcserver\gcdata\Projects\GC8\Data\2017\drooro171230\08060.dat

Acquisition Date : 12/30/2017 6:44:09 AM

Quantitation Date : 12/30/2017 3:25:14 PM

Last Method Update : 12/30/2017 3:23:24 PM

Method : \\gcserver\gcdata\Projects\GC8\Method\2017\drooro171227a.met

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2017\drooro171230.seq

Data Description : water, 250ppm

Instrument : GC8

Data Acquired By : noltej

Data Processed By : noltej

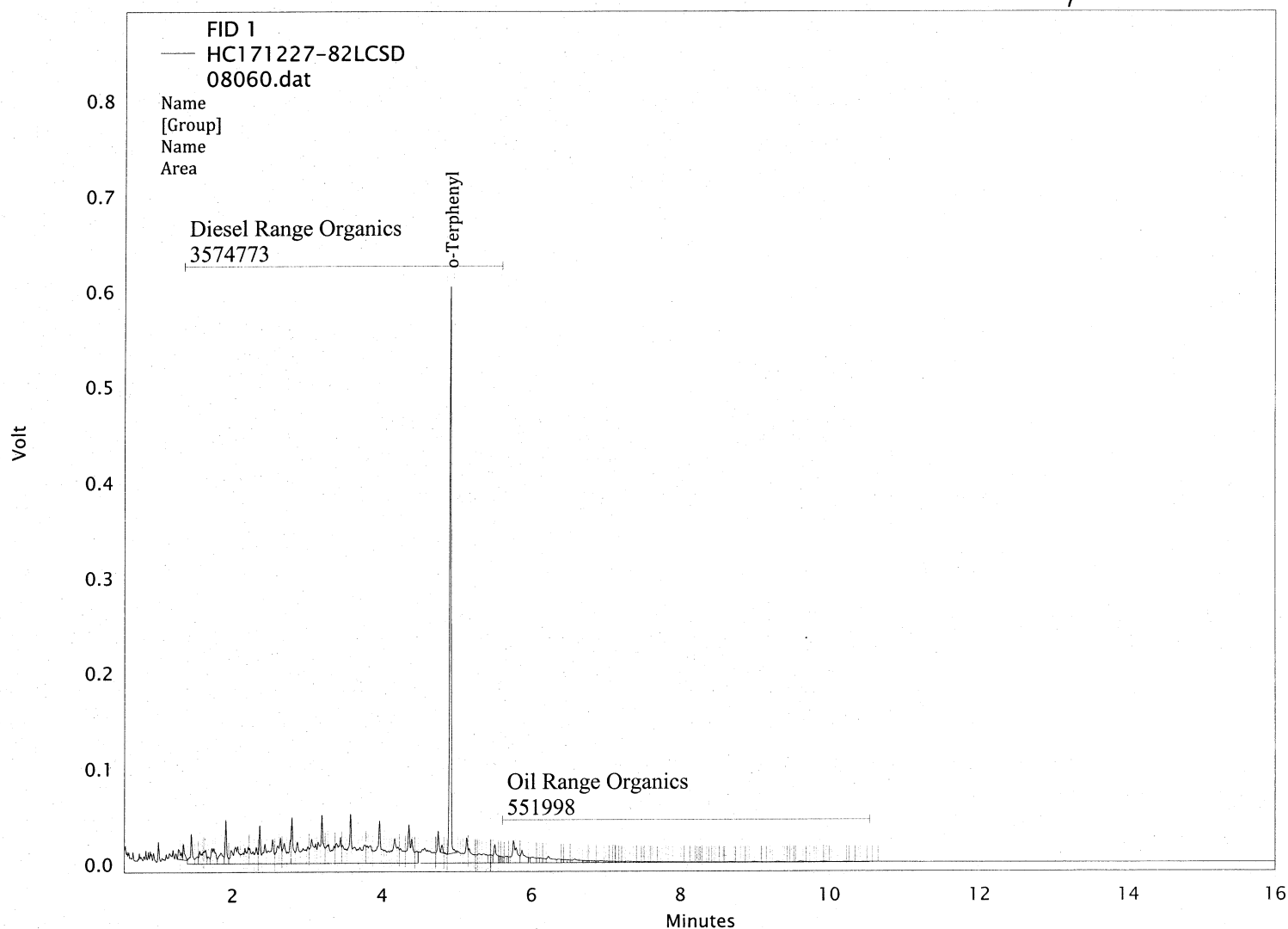
Inj. Vol. (uL) : 2

Vial : 65

## FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	4.92	4.91	793615	TL	50.777	ug/mL
Diesel Range Organics			3574773		264.798	ug/mL
Oil Range Organics			551998		45.810	ug/mL

102%  
106%  
NA



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 : 12/30/2017 3:25:15

PM