



Total Extractable Petroleum Hydrocarbons (Diesel) Case Narrative

COGCC

Complaint 200439757

Work Order Number: 1607364

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 07/20/16.
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 C₂₁ and motor oil extends from C₂₁-C₃₂.
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. Due to dilution requirements, the surrogates for sample 1607364-1 were not recoverable. All other surrogate recoveries were within acceptance criteria.



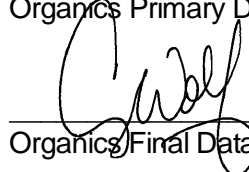
10. Due to the concentration of target analytes, the sample was analyzed at a dilution. The reporting limits have been adjusted accordingly.
11. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

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.



Megan Johnstone
Organics Primary Data Reviewer

7/26/16
Date



Organics Final Data Reviewer

7/26/16
Date

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: 1607364

Client Name: COGCC

Client Project Name: Complaint 200439757

Client Project Number:

Client PO Number: CT 2016-141

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
754914 Sump	1607364-1		WATER	20-Jul-16	9:21



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1607364

Project Manager: ARW

Initials: SDM Date: 7-20-16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	<u>YES</u>	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u>X</u> < green pea _____ > green pea	<u>N/A</u>	YES	<u>NO</u>
15. Do any water samples contain sediment? Amount Amount of sediment: _____ dusting _____ moderate _____ heavy	<u>N/A</u>	YES	<u>NO</u>
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <u>#2</u> #4	<u>RAD ONLY</u>	<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>5.0</u>			
No. of custody seals on cooler: <u>2</u>			
DOT Survey/ Acceptance Information	External µR/hr reading: <u>N/A</u>		
	Background µR/hr reading: <u>11</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <u>NA</u> (If no, see Form 008.)			

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

14.) Sample 1 bottles 2 & 3 have a headspace X green pea.

sdm >

Sample 1 bottle 1 has a headspace < green pea.

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

Project Manager Signature / Date: [Signature] 7/20/16

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002

Diesel Range Organics

Method SW8015M_MOD

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: HC160721-100MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: HC160721-100

QCBatchID: HC160721-100-2

Run ID: HC160721-8A

Cleanup: NONE

Basis: N/A

File Name: 02714.dat

Sample Aliquot: 38.2 ml

Final Volume: 1 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
68334-30-5	DIESEL RANGE ORGANICS	1	0.47	0.47	0.14	U	
	MOTOR OIL RANGE ORGANICS	1	0.47	0.47	0.14	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	0.622		0.654	95	63 - 126

Data Package ID: HCD1607364-1

Date Printed: Tuesday, July 26, 2016

ALS -- Fort Collins

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LIMS Version: 6.820

Diesel Range Organics

Method SW8015M_MOD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID:	754914 Sump
Lab ID:	1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Method: METHOD

Prep Batch: HC160721-100

QCBatchID: HC160721-100-2

Run ID: HC160721-8A

Cleanup: NONE

Basis: As Received

File Name: 02717.dat

Analyst: Joel F. Nolte

Sample Aliquot: 37 ml

Final Volume: 2 ml

Result Units: MG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
68334-30-5	DIESEL RANGE ORGANICS	40	2800	39	12	Z	
	MOTOR OIL RANGE ORGANICS	40	1500	39	12	Z	

The chromatogram for DIESEL RANGE ORGANICS indicates the presence of hydrocarbons in the range of C12-C20.

The chromatogram for MOTOR OIL RANGE ORGANICS indicates the presence of hydrocarbons in the range of >C20-C34.

Data Package ID: HCD1607364-1

Date Printed: Tuesday, July 26, 2016

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LIMS Version: 6.820

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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: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: HC160721-100LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: METHOD

Prep Batch: HC160721-100

QCBatchID: HC160721-100-2

Run ID: HC160721-8A

Cleanup: NONE

Basis: N/A

File Name: 02718.dat

Sample Aliquot: 37.8 ml

Final Volume: 1 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	13.2	11.7	0.476		88	36 - 150%

Lab ID: HC160721-100LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: METHOD

Prep Batch: HC160721-100

QCBatchID: HC160721-100-2

Run ID: HC160721-8A

Cleanup: NONE

Basis: N/A

File Name: 02719.dat

Sample Aliquot: 37.8 ml

Final Volume: 1 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	13.2	11.9	0.476		90	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	0.661	95		96		63 - 126

Data Package ID: HCD1607364-1

Date Printed: Tuesday, July 26, 2016

ALS -- Fort Collins

LIMS Version: 6.820

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Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC160721-100MB

Filename : \\gcserver\gcdata\Projects\GC8\Data\2016\dromo160721\02714.dat

Acquisition Date : 7/21/2016 1:24:45 PM

Instrument : GC8

Quantitation Date : 7/22/2016 9:08:15 AM

Data Acquired By : noltej

Last Method Update : 7/22/2016 9:05:31 AM

Data Processed By : noltej

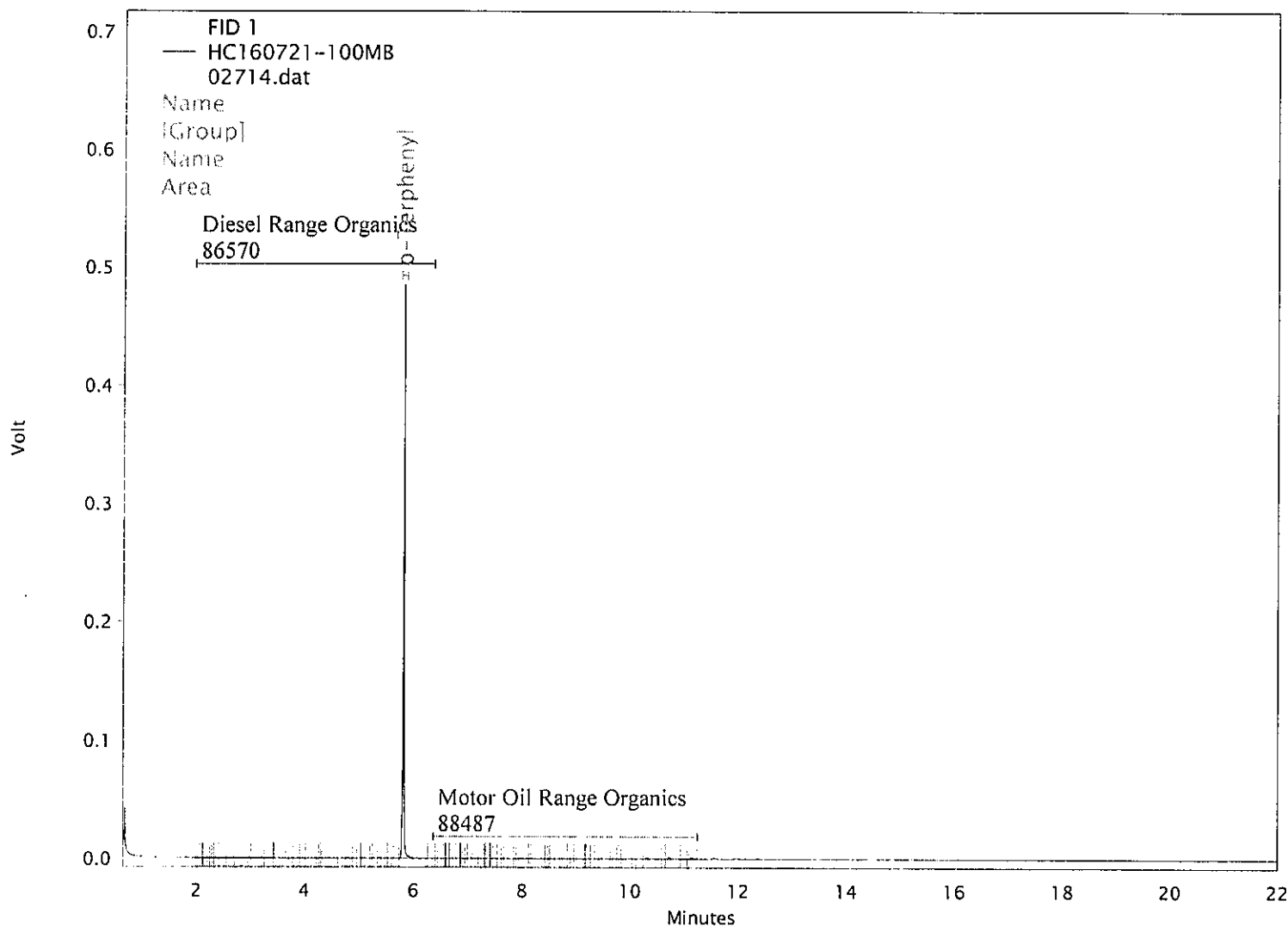
Method : \\gcserver\gcdata\Projects\GC8\Method\2016\dromo160715b.met Inj. Vol. (uL) : 2

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2016\dromo160721.seq Vial : 2

Data Description : water

FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.81	5.81	595647	LL	23.754	ug/mL
Diesel Range Organics			86570		1.798	ug/mL
Motor Oil Range Organics			88487		4.353	ug/mL



Column : Rxi-5Sil MS (30M x 0.32mm x 1.0u)

(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 : 7/22/2016 9:08:16 AM

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : 1607364-1 40x

Filename : \\gcserver\gcdata\Projects\GC8\Data\2016\dromo160721\02717.dat

Acquisition Date : 7/21/2016 3:05:31 PM

Quantitation Date : 7/22/2016 9:08:26 AM

Last Method Update : 7/22/2016 9:05:31 AM

Method : \\gcserver\gcdata\Projects\GC8\Method\2016\dromo160715b.met Inj. Vol. (uL) : 2

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2016\dromo160721.seq

Vial : 5

Data Description : water, 25uL/1mL

Instrument : GC8

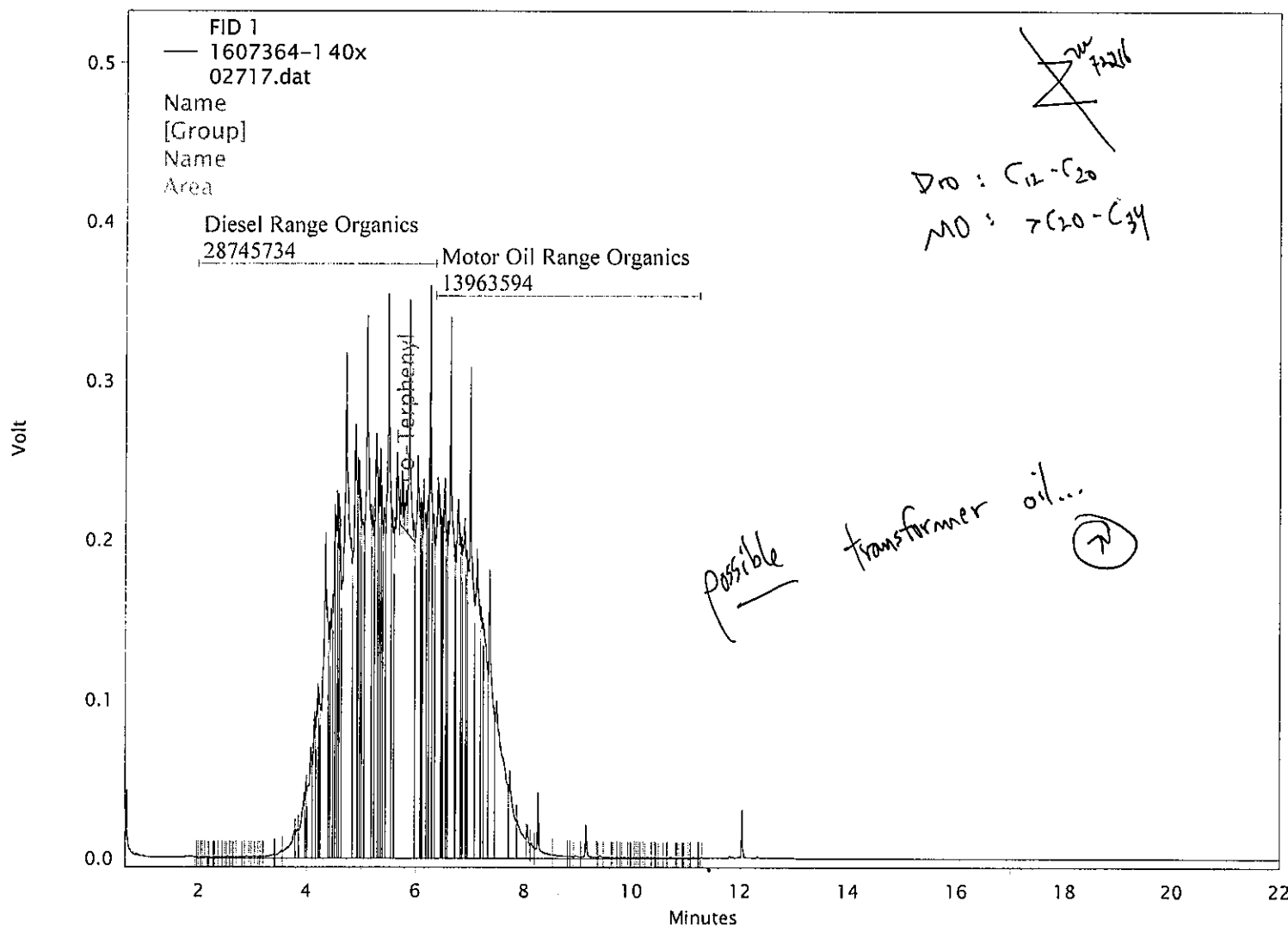
Data Acquired By : noltej

Data Processed By : noltej

FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.81	5.81	60562	LT	2.448	ug/mL
Diesel Range Organics			28745734		1301.749	ug/mL
Motor Oil Range Organics			13963594		712.840	ug/mL

sur
Diluted out



Column : Rxi-5Sil MS (30M x 0.32mm x 1.0u)

(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 : 7/22/2016 9:08:27 AM

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC160721-100LCS

Filename : \\gcserver\gcdata\Projects\GC8\Data\2016\dromo160721\02718.dat

Acquisition Date : 7/21/2016 3:38:58 PM

Quantitation Date : 7/22/2016 9:08:30 AM

Last Method Update : 7/22/2016 9:05:31 AM

Method : \\gcserver\gcdata\Projects\GC8\Method\2016\dromo160715b.met

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2016\dromo160721.seq

Data Description : water, 500ppm

Instrument : GC8

Data Acquired By : noltej

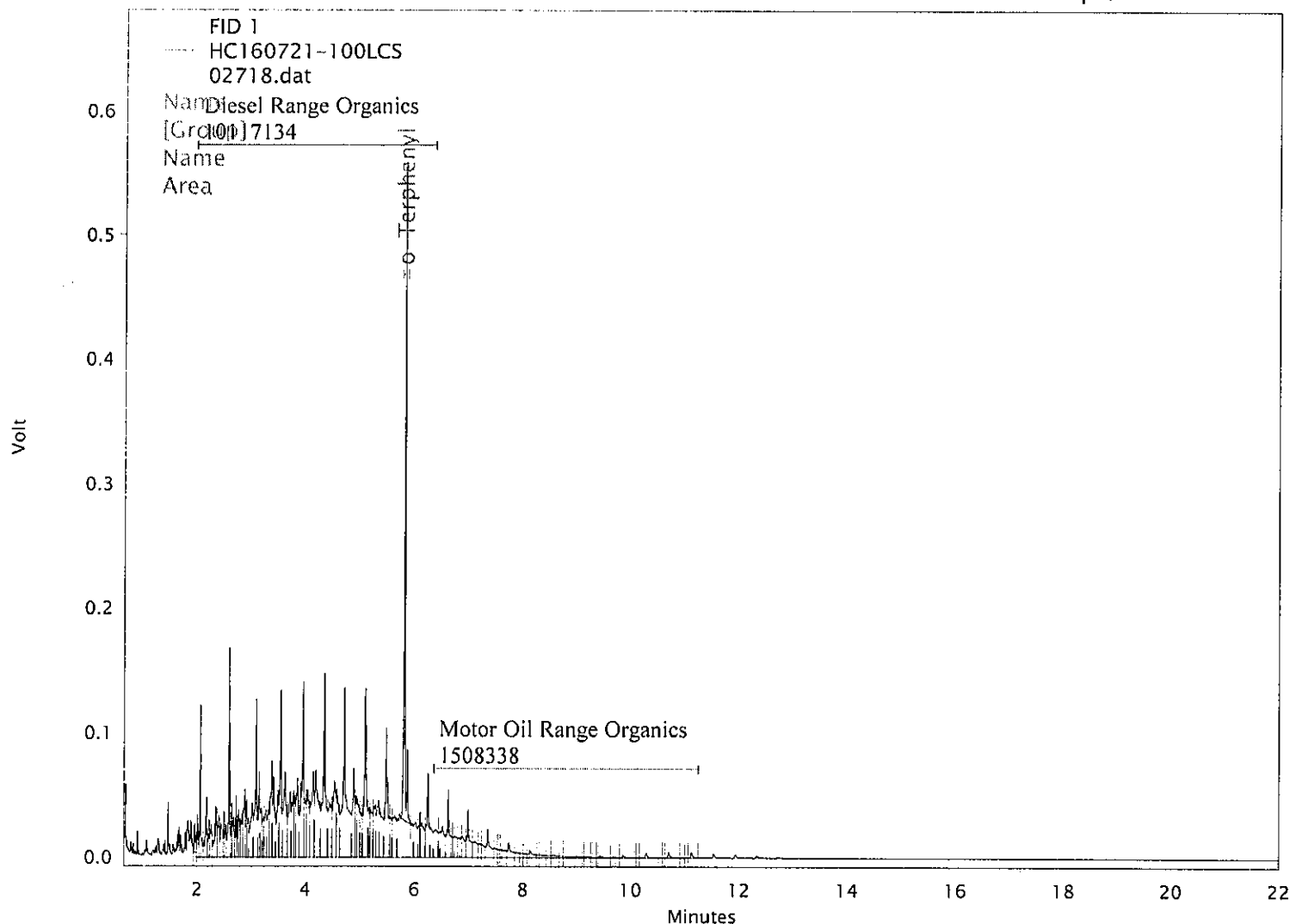
Data Processed By : noltej

Inj. Vol. (uL) : 2

Vial : 6

FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.81	5.81	598203	LL	23.859	ug/mL
Diesel Range Organics			10117134		442.390	ug/mL
Motor Oil Range Organics			1508338		74.944	ug/mL



Column : Rxi-5Sil MS (30M x 0.32mm x 1.0u)

(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 : 7/22/2016 9:08:31 AM

Total Extractable Petroleum Hydrocarbons / DRO (8015) Quantitation Report

ALSLG-Fort Collins

Sample : HC160721-100LCSD

Filename : \\gcserver\gcdata\Projects\GC8\Data\2016\dromo160721\02719.dat

Acquisition Date : 7/21/2016 4:12:07 PM

Quantitation Date : 7/22/2016 9:08:34 AM

Last Method Update : 7/22/2016 9:05:31 AM

Method : \\gcserver\gcdata\Projects\GC8\Method\2016\dromo160715b.met

Sequence : \\gcserver\gcdata\Projects\GC8\Sequence\2016\dromo160721.seq

Data Description : water, 500ppm

Instrument : GC8

Data Acquired By : noltej

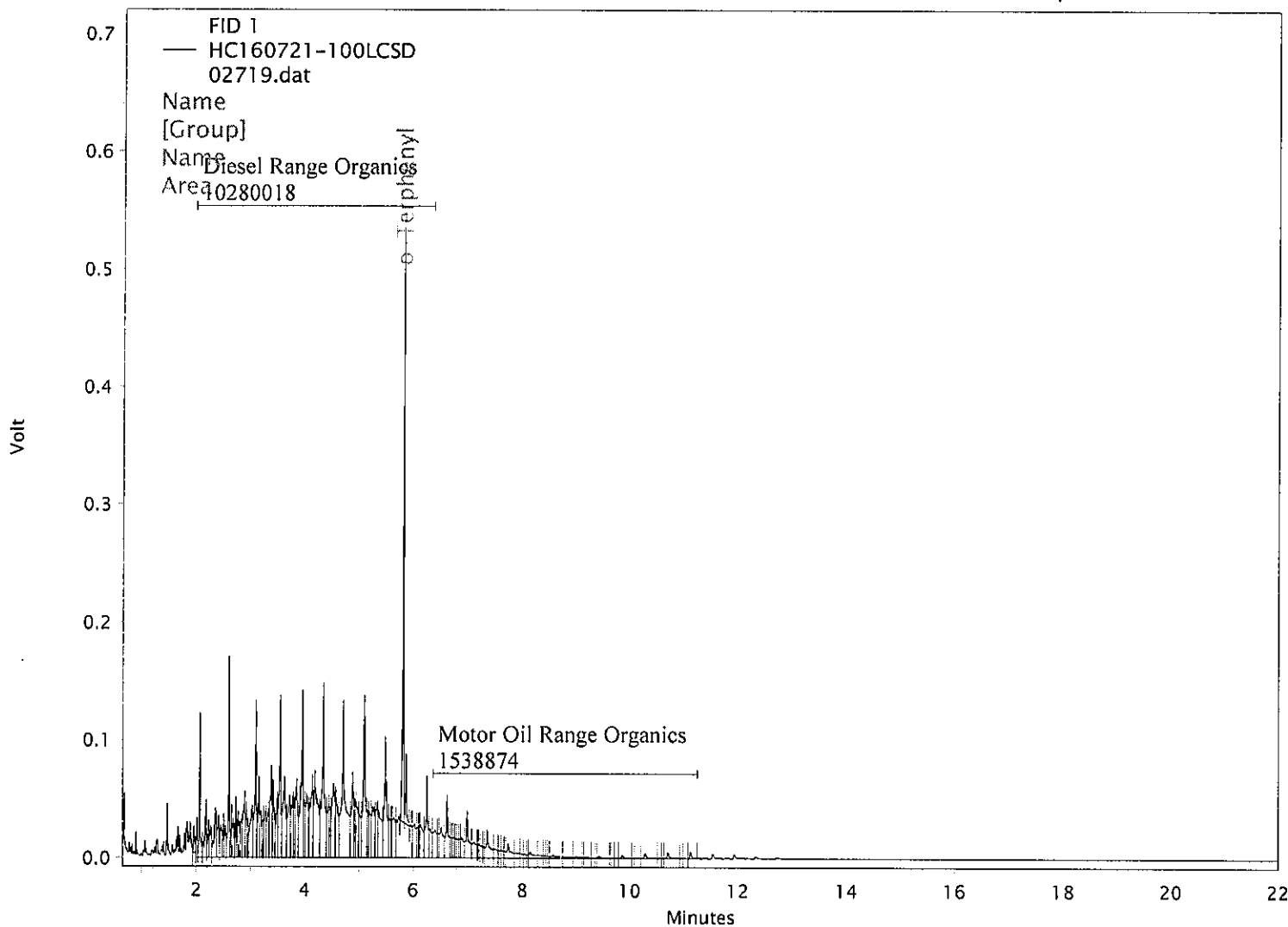
Data Processed By : noltej

Inj. Vol. (uL) : 2

Vial : 7

FID 1 Results

Compound Name	RT	Expected RT	Peak Area	Integration Codes	Conc.	Conc. Units
o-Terphenyl	5.81	5.81	599867	LL	96% 23.927	ug/mL
Diesel Range Organics			10280018		90% 449.665	ug/mL
Motor Oil Range Organics			1538874		76.467 NA	ug/mL



Column : Rxi-5Sil MS (30M x 0.32mm x 1.0u)

(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 : 7/22/2016 9:08:34 AM