

June 30, 2018

Crestone Peak Resources

Sample Delivery Group: L1004263
Samples Received: 06/23/2018
Project Number:
Description: Foster E
Site: FOSTER E
Report To: Lonnie Dent
10188 E. Interstate 25 Frontage Rd.
Firestone, CO 80504

Entire Report Reviewed By:



Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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B1 L1004263-01 Solid

Collected by
John Gardner

Collected date/time
06/21/18 13:25

Received date/time
06/23/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1130288	25	06/26/18 11:11	06/28/18 05:07	JAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130256	1	06/26/18 11:11	06/27/18 11:34	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1130545	1	06/27/18 13:21	06/27/18 16:34	MTJ

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

S1 L1004263-02 Solid

Collected by
John Gardner

Collected date/time
06/21/18 13:30

Received date/time
06/23/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1130288	50	06/26/18 11:11	06/28/18 05:30	JAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130256	1	06/26/18 11:11	06/27/18 11:55	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1130545	1	06/27/18 13:21	06/27/18 18:02	MTJ

B2 L1004263-03 Solid

Collected by
John Gardner

Collected date/time
06/21/18 14:25

Received date/time
06/23/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1130288	1	06/26/18 11:11	06/28/18 05:52	JAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1130256	1	06/26/18 11:11	06/27/18 12:16	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1130545	1	06/27/18 13:21	06/27/18 16:45	MTJ



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jason Romer
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Collected date/time: 06/21/18 13:25

L1004263

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	18.2		2.50	25	06/28/2018 05:07	WG1130288
(S) a,a,a-Trifluorotoluene(FID)	95.3		77.0-120		06/28/2018 05:07	WG1130288

¹ Cp² Tc³ Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00152		0.00100	1	06/27/2018 11:34	WG1130256
Toluene	ND		0.00500	1	06/27/2018 11:34	WG1130256
Ethylbenzene	ND		0.00250	1	06/27/2018 11:34	WG1130256
Total Xylenes	0.0149		0.00650	1	06/27/2018 11:34	WG1130256
(S) Toluene-d8	118		80.0-120		06/27/2018 11:34	WG1130256
(S) Dibromofluoromethane	99.7		74.0-131		06/27/2018 11:34	WG1130256
(S) a,a,a-Trifluorotoluene	100		80.0-120		06/27/2018 11:34	WG1130256
(S) 4-Bromofluorobenzene	106		64.0-132		06/27/2018 11:34	WG1130256

⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	5.04		4.00	1	06/27/2018 16:34	WG1130545
(S) o-Terphenyl	37.7		18.0-148		06/27/2018 16:34	WG1130545

⁹ Sc



Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	17.6		5.00	50	06/28/2018 05:30	WG1130288
(S) a,a,a-Trifluorotoluene(FID)	92.7		77.0-120		06/28/2018 05:30	WG1130288

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/27/2018 11:55	WG1130256
Toluene	ND		0.00500	1	06/27/2018 11:55	WG1130256
Ethylbenzene	ND		0.00250	1	06/27/2018 11:55	WG1130256
Total Xylenes	0.0124		0.00650	1	06/27/2018 11:55	WG1130256
(S) Toluene-d8	122	J1	80.0-120		06/27/2018 11:55	WG1130256
(S) Dibromofluoromethane	91.1		74.0-131		06/27/2018 11:55	WG1130256
(S) a,a,a-Trifluorotoluene	101		80.0-120		06/27/2018 11:55	WG1130256
(S) 4-Bromofluorobenzene	102		64.0-132		06/27/2018 11:55	WG1130256

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	29.9		4.00	1	06/27/2018 18:02	WG1130545
(S) o-Terphenyl	46.4		18.0-148		06/27/2018 18:02	WG1130545

9 Sc



Collected date/time: 06/21/18 14:25

L1004263

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.832		0.100	1	06/28/2018 05:52	WG1130288
(S) a,a,a-Trifluorotoluene(FID)	87.9		77.0-120		06/28/2018 05:52	WG1130288

¹ Cp² Tc³ Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	06/27/2018 12:16	WG1130256
Toluene	ND		0.00500	1	06/27/2018 12:16	WG1130256
Ethylbenzene	ND		0.00250	1	06/27/2018 12:16	WG1130256
Total Xylenes	ND		0.00650	1	06/27/2018 12:16	WG1130256
(S) Toluene-d8	117		80.0-120		06/27/2018 12:16	WG1130256
(S) Dibromofluoromethane	98.2		74.0-131		06/27/2018 12:16	WG1130256
(S) a,a,a-Trifluorotoluene	102		80.0-120		06/27/2018 12:16	WG1130256
(S) 4-Bromofluorobenzene	99.3		64.0-132		06/27/2018 12:16	WG1130256

⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	4.89		4.00	1	06/27/2018 16:45	WG1130545
(S) o-Terphenyl	57.7		18.0-148		06/27/2018 16:45	WG1130545

⁹ Sc



Method Blank (MB)

(MB) R3321568-5 06/28/18 03:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	96.9			77.0-120

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321568-3 06/28/18 02:07 • (LCSD) R3321568-4 06/28/18 02:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.04	5.91	110	107	70.0-136			2.10	20
(S) a,a,a-Trifluorotoluene(FID)				113	112	77.0-120				



Method Blank (MB)

(MB) R3322028-3 06/27/18 11:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	120			80.0-120
(S) Dibromofluoromethane	98.9			74.0-131
(S) a,a,a-Trifluorotoluene	101			80.0-120
(S) 4-Bromofluorobenzene	100			64.0-132

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3322028-1 06/27/18 09:50 • (LCSD) R3322028-2 06/27/18 10:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.131	0.139	104	111	71.0-124			6.27	20
Ethylbenzene	0.125	0.121	0.134	96.7	107	77.0-120			10.5	20
Toluene	0.125	0.132	0.140	106	112	70.0-120			6.02	20
Xylenes, Total	0.375	0.394	0.431	105	115	77.0-120			8.97	20
(S) Toluene-d8				103	105	80.0-120				
(S) Dibromofluoromethane				99.0	102	74.0-131				
(S) a,a,a-Trifluorotoluene				108	105	80.0-120				
(S) 4-Bromofluorobenzene				108	106	64.0-132				

L1004352-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1004352-07 06/27/18 18:09 • (MS) R3322028-4 06/27/18 18:30 • (MSD) R3322028-5 06/27/18 18:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.131	0.131	105	105	1	13.0-146			0.131	27
Ethylbenzene	0.125	ND	0.129	0.132	103	105	1	10.0-147			2.01	31
Toluene	0.125	ND	0.136	0.136	109	109	1	10.0-144			0.195	28
Xylenes, Total	0.375	ND	0.419	0.411	112	110	1	10.0-150			1.93	31
(S) Toluene-d8					108	107		80.0-120				
(S) Dibromofluoromethane					105	106		74.0-131				
(S) a,a,a-Trifluorotoluene					105	104		80.0-120				
(S) 4-Bromofluorobenzene					101	98.3		64.0-132				



Method Blank (MB)

(MB) R3321391-1 06/27/18 15:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	50.8			18.0-148

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3321391-2 06/27/18 15:14 • (LCSD) R3321391-3 06/27/18 15:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	50.0	34.8	30.9	69.6	61.7	50.0-150			12.0	20
(S) o-Terphenyl				81.6	72.8	18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN2000002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



ESC LAB SCIENCES Cooler Receipt Form

Client: <u>CREPEAFLO</u>	SDG# <u>1004263</u>		
Cooler Received/Opened On: <u>6/13</u> /18	Temperature: <u>0.6</u>		
Received By: Kathryn Cason			
Signature: <u>Kathryn Cason</u>			
	NP	Yes	No
Receipt Check List			
COC Seal Present / Intact?	/	/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?			
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			