

November 29, 2018

Mr. Greg Hamilton
Senior Staff HSE Representative
Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**RE: Sump Closure Report
State of Colorado AL #1
API # 05-123-09634
Location ID # 318659
Remediation # 12132
NENE Sec 16-T1N-R68W
Weld County, Colorado**

Dear Mr. Hamilton:

LT Environmental, Inc. (LTE) was contracted by Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) to conduct environmental oversight activities at the above-referenced site. The oversight activities included documenting field activities, collecting soil samples, and reviewing laboratory analytical results.

The objective of the soil sampling was to determine if petroleum hydrocarbon impact to subsurface soil is present as a result of operating a produced water sump at the site. The soil sampling activities, laboratory analytical results, and conclusions are summarized below. The general site layout, soil sample location, and sump excavation dimensions are depicted on the Excavation Site Map provided as Figure 1.

On July 12, 2018, following removal of the produced water sump, soil samples were collected from the sidewalls and base of the excavation. The soil samples were field-screened for volatile organic compounds using a photoionization detector (PID). Soil staining, odor, and/or elevated headspace readings were not observed or identified through PID screening; the highest PID reading recorded was 5.4 parts per million. Based on field screening results, the excavation base soil sample (B01@6') was submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, TPH-diesel range organics (DRO) and oil range organics (ORO) by USEPA Method 8015C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results for soil sample B01@6' indicated that BTEX, TPH, pH, and EC concentrations and levels were in full compliance with Colorado Oil and Gas Conservation Commission Table 910-1 allowable levels.



The soil sample analytical results are summarized in Table 1, and the laboratory analytical report is attached.

The sump excavation extent measured approximately 11 feet north to south by 15 feet east to west to an approximate depth of 6 feet below ground surface. Groundwater and impacted soil were not encountered in the excavation. A liner was not present beneath the sump at this site. The produced water sump at this facility has been permanently removed. The excavation area was backfilled and contoured to match pre-existing site conditions.

LTE appreciates the opportunity to provide environmental services to Kerr-McGee. Please contact LTE at (303) 433-9788 if you have any questions regarding this Sump Closure Report or if you require additional information.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read 'Daniel Thomas'.

Daniel Thomas, GIT
Staff Geologist

A handwritten signature in blue ink, appearing to read 'Brian Sulzberger'.

Brian Sulzberger, P.E., P.G.
Senior Engineer

Attachments







LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT
- FORMER BERM

AST: ABOVEGROUND STORAGE TANK

IMAGE COURTESY OF GOOGLE EARTH 2018

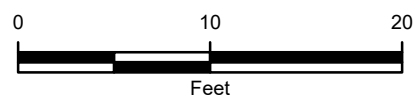


FIGURE 1
EXCAVATION SITE MAP
 STATE OF COLORADO AL #1
 NENE SEC 16-T1N-R68W
 WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
STATE OF COLORADO AL 1
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	pH (su)	Specific Conductance (mmhos/cm)
B01@6'	6'	07/12/2018	<0.002	0.002	0.002	0.013	<25.0	<0.200	<100	8.83	0.0844
COGCC Allowable Levels			0.17	85	100	175	500*	500*	500*	6-9	4

Notes: bgs - below ground surface

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

NA - not analyzed/not available

ORO - oil range organics

su - standard units

* - Standard applies to combined DRO-GRO-ORO

< - less than laboratory reporting limit

Bold indicates result exceeds allowable level





July 13, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - State of Colorado AL #1

Project Number - 014218147

Attached are your analytical results for KMG - State of Colorado AL #1 received by Origins Laboratory, Inc. July 12, 2018. This project is associated with Origins project number Y807152-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@6'	Y807152-01	Soil	July 12, 2018 15:10	07/12/2018 16:47

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

ORIGINS

LABORATORY, INC

www.originslaboratory.com

Client: LT Environmental

Address: 4600 W 60th Ave

Project Manager: B Sulzberger

Project Name: State of Colorado AL #1

Project Number: 014218147

page 1 of 1

Telephone Number: 303 433 9788

Email Address: KN6 TEAM

Samples Collected By: Glenn Thompson

Sample ID Description	Date Sampled	Time Sampled	# of Containers				Preservative			Matrix			Analysis				Sample Instructions			
							Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summation Canister #	Other	GC/MS	Duplicate		PV	EC	
B01e6'	7/12/08	1510	2	X							X			X	X	X			Hold SAR	1
N01o4'	↓	1515	2	X							X			X	X	X			Hold	2
E01e4'		1520	2	X							X			X	X	X				3
S01e4'		1525	2	X							X			X	X	X				4
N01e4'		1530	2	X							X			X	X	X			↓	5
B601	1535	2	X							X			X	X	X					6
																			7	
																			8	
																			9	
																			10	
Relinquished By:	Date: 7/12/08	Time: 1647					Received By:						Date: 7/12/08	Time: 1647					Tumaround Time: <input checked="" type="checkbox"/> Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard	
Relinquished By:	Date:	Time:					Received By:						Date:	Time:						

Temp Received: 16.6 Date Results Needed

Origins Laboratory, Inc.

Jeff Pellipini

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 7807152

Client: LTE

Client Project ID: KMG - State of Colorado AL #1

Checklist Completed by: JG

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 7/12/2018

Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____ (Describe)

Cooler Number/Temperature: 1 / 16.6 °C / _____ °C / _____ °C / _____ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

[Signature]
Reviewed by (Project Manager)

7/12/18
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

B01@6'
7/12/2018 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807152-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B8G1202	07/12/2018	07/12/2018	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 167 % 59-131 " " " S-07

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B8G1201	"	07/12/2018	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	0.002	0.002	"	"	"	"	"	
Ethylbenzene	0.002	0.002	"	"	"	"	"	
Xylenes, total	0.013	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "

Surrogate: Toluene-d8 97.0 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.83		pH Units	1	B8G1205	07/12/2018	07/12/2018	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0844	0.00500	mmhos/cm	"	B8G1206	07/12/2018	"	
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Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1201 - EPA 5030 (soil)										
Blank (B8G1201-BLK1)					Prepared: 07/12/2018 Analyzed: 07/12/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1201 - EPA 5030 (soil)										
Blank (B8G1201-BLK2)					Prepared: 07/12/2018 Analyzed: 07/12/2018					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1201 - EPA 5030 (soil)										
LCS (B8G1201-BS1)					Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.103	0.002	mg/kg	0.100		103	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.116	0.002	"	0.100		116	66.4-127			
m,p-Xylene	0.206	0.004	"	0.200		103	76.6-124			
o-Xylene	0.110	0.002	"	0.100		110	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.6	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1201 - EPA 5030 (soil)										
LCS (B8G1201-BS2)					Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.090	0.002	mg/kg	0.100		89.6	77.1-124			
Toluene	0.092	0.002	"	0.100		91.8	74.5-128			
Ethylbenzene	0.099	0.002	"	0.100		98.7	66.4-127			
m,p-Xylene	0.173	0.004	"	0.200		86.6	76.6-124			
o-Xylene	0.094	0.002	"	0.100		94.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.8	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.9	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.7	70-130			

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4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8G1201 - EPA 5030 (soil)

Matrix Spike (B8G1201-MS1)		Source: Y807140-02			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.086	0.002	mg/kg	0.100	ND	85.9	71.8-126			
Toluene	0.086	0.002	"	0.100	ND	86.4	65.1-130			
Ethylbenzene	0.093	0.002	"	0.100	ND	92.8	62.2-130			
m,p-Xylene	0.162	0.004	"	0.200	ND	81.2	46.5-137			
o-Xylene	0.089	0.002	"	0.100	ND	88.9	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8G1201 - EPA 5030 (soil)

Matrix Spike (B8G1201-MS2)		Source: Y807144-03			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.104	0.002	mg/kg	0.100	ND	104	71.8-126			
Toluene	0.096	0.002	"	0.100	ND	96.0	65.1-130			
Ethylbenzene	0.101	0.002	"	0.100	ND	101	62.2-130			
m,p-Xylene	0.179	0.004	"	0.200	ND	89.6	46.5-137			
o-Xylene	0.099	0.002	"	0.100	ND	99.0	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	70-130			

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Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8G1201 - EPA 5030 (soil)

Matrix Spike Dup (B8G1201-MSD1)		Source: Y807140-02			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.092	0.002	mg/kg	0.100	ND	92.2	71.8-126	7.07	11.3	
Toluene	0.093	0.002	"	0.100	ND	93.4	65.1-130	7.81	15.4	
Ethylbenzene	0.100	0.002	"	0.100	ND	100	62.2-130	7.77	19.6	
m,p-Xylene	0.176	0.004	"	0.200	ND	87.8	46.5-137	7.89	19.2	
o-Xylene	0.097	0.002	"	0.100	ND	97.2	54.2-134	8.92	17.9	
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	70-130			

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8G1201 - EPA 5030 (soil)

Matrix Spike Dup (B8G1201-MSD2)		Source: Y807144-03			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Benzene	0.103	0.002	mg/kg	0.100	ND	103	71.8-126	0.829	11.3	
Toluene	0.094	0.002	"	0.100	ND	94.0	65.1-130	2.11	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	98.6	62.2-130	2.68	19.6	
m,p-Xylene	0.174	0.004	"	0.200	ND	86.8	46.5-137	3.15	19.2	
o-Xylene	0.097	0.002	"	0.100	ND	97.2	54.2-134	1.79	17.9	
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	70-130			

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8G1202 - EPA 3580

Blank (B8G1202-BLK1)

Prepared: 07/12/2018 Analyzed: 07/12/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	41		"	50.0		81.9	59-131			

Blank (B8G1202-BLK2)

Prepared: 07/12/2018 Analyzed: 07/12/2018

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	41		"	50.0		82.1	59-131			

LCS (B8G1202-BS1)

Prepared: 07/12/2018 Analyzed: 07/12/2018

Diesel (C10-C28)	921	50.0	mg/kg	1000		92.1	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		110	58-124			
Surrogate: o-Terphenyl	53		"	50.0		106	59-131			

LCS (B8G1202-BS2)

Prepared: 07/12/2018 Analyzed: 07/12/2018

Diesel (C10-C28)	874	50.0	mg/kg	1000		87.4	64-121			
Residual Range Organics (C28-C40)	1010	200	"	1000		101	58-124			
Surrogate: o-Terphenyl	48		"	50.0		96.6	59-131			

Matrix Spike (B8G1202-MS1)

Source: Y807140-02

Prepared: 07/12/2018 Analyzed: 07/12/2018

Diesel (C10-C28)	876	50.0	mg/kg	1000	24.5	85.2	53-125			
Residual Range Organics (C28-C40)	1050	200	"	1000	61.2	99.0	47-133			

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014218147
Project: KMG - State of Colorado AL #1

Extractable Petroleum Hydrocarbons by 8015C - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1202 - EPA 3580										
Matrix Spike (B8G1202-MS1)		Source: Y807140-02			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Surrogate: o-Terphenyl	49		mg/kg	50.0		97.5	59-131			
Matrix Spike (B8G1202-MS2)		Source: Y807152-01			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Diesel (C10-C28)	857	50.0	mg/kg	1000	ND	85.7	53-125			
Residual Range Organics (C28-C40)	986	200	"	1000	9.46	97.6	47-133			
Surrogate: o-Terphenyl	49		"	50.0		97.2	59-131			
Matrix Spike Dup (B8G1202-MSD1)		Source: Y807140-02			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Diesel (C10-C28)	887	50.0	mg/kg	1000	24.5	86.2	53-125	1.26	20	
Residual Range Organics (C28-C40)	1020	200	"	1000	61.2	96.2	47-133	2.90	20	
Surrogate: o-Terphenyl	48		"	50.0		96.5	59-131			
Matrix Spike Dup (B8G1202-MSD2)		Source: Y807152-01			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Diesel (C10-C28)	855	50.0	mg/kg	1000	ND	85.5	53-125	0.203	20	
Residual Range Organics (C28-C40)	1010	200	"	1000	9.46	100	47-133	2.54	20	
Surrogate: o-Terphenyl	49		"	50.0		98.8	59-131			

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Project: KMG - State of Colorado AL #1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8G1205 - NO PREP										
Duplicate (B8G1205-DUP1)		Source: Y807151-01			Prepared: 07/12/2018 Analyzed: 07/12/2018					
pH	7.55		pH Units		8.56			12.5	25	
Batch B8G1206 - NO PREP										
Blank (B8G1206-BLK1)		Prepared: 07/12/2018 Analyzed: 07/12/2018								
Specific Conductance (EC)	0.00310	0.00500	mmhos/cm							
Duplicate (B8G1206-DUP1)		Source: Y807151-01			Prepared: 07/12/2018 Analyzed: 07/12/2018					
Specific Conductance (EC)	0.713	0.00505	mmhos/cm		0.674			5.61	25	

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Notes and Definitions

U Sample is Non-Detect.

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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