

November 21, 2017

Mr. Phil Hamlin, REM, CSEM  
Senior HSE Representative  
Kerr-McGee Oil & Gas Onshore LP  
1099 18<sup>th</sup> Street, Suite 1800  
Denver, Colorado 80202

**RE: Sump Closure Report**  
**Avey 31-9**  
**API #05-123-25957**  
**Location ID #310136**  
**Remediation #10713**  
**SESW SEC 9-T1N-R66W**  
**Weld County, Colorado**

Dear Mr. Hamlin:

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 field-screening soil, collecting soil samples, documenting field activities, and reviewing laboratory analytical results.

The objective of the soil sampling was to determine if petroleum hydrocarbon impact to subsurface soil resulted from Kerr-McGee 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 April 26, 2017, following removal of the produced water sump, soil samples were collected from the sidewalls and base of the sump excavation. The soil samples were field-screened for volatile organic compounds using a photoionization detector (PID). Soil staining, odor, and/or elevated PID headspace readings were not observed or identified through PID screening; the highest PID reading recorded was 8.6 parts per million. Based on the field-screening results, the excavation base soil sample (B01@5') 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 modified Method 9050A. Laboratory analytical results for soil sample B01@5' indicated that BTEX, TPH, pH, and EC levels were compliant with Colorado Oil and Gas Conservation Commission (COGCC) 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 measured approximately 9 feet north to south by 12 feet east to west and completed to a depth of 5 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, and the excavation area was backfilled with clean fill and contoured to match pre-existing site conditions.

LTE appreciates the opportunity to provide environmental services to Kerr-McGee. Please contact us 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 cursive script that reads 'Floyd Ott'.

Floyd Ott  
Environmental Field Technician

A handwritten signature in cursive script that reads 'Brian Sulzberger'.

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

Attachments



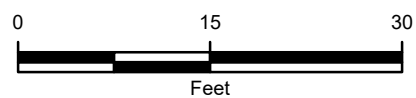
## ATTACHMENTS



# **LEGEND**

- SOIL SAMPLE
- EXCAVATION EXTENT
- BERM
- FORMER BERM

IMAGE COURTESY OF ESRI



**FIGURE 1**  
**EXCAVATION SITE MAP**  
 KMG-AVEY 31-9  
 SESW SEC 9-T1N-R66W  
 WELD COUNTY, COLORADO  
 KERR-MCGEE OIL & GAS ONSHORE LP



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
**AVEY 31-9**  
**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@5'	5'	04/26/2017	<0.002	<0.002	<0.002	<0.002	<25.0	<0.200	<100	8.74	0.156
<b>COGCC Allowable Levels</b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>500*</b>	<b>500*</b>	<b>500*</b>	<b>6-9</b>	<b>4</b>

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

TPH - total petroleum hydrocarbons

\* - TPH standard applies to combined DRO-GRO-ORO

< - less than laboratory reporting limit

Bold indicates result exceeds allowable level.





April 27, 2017

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada

CO 80003

**Project Name - KMG - Avey 31-9**

**Project Number - 014217083**

Attached are your analytical results for KMG - Avey 31-9 received by Origins Laboratory, Inc. April 26, 2017. This project is associated with Origins project number Y704320-01.

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: 014217083

Project: KMG - Avey 31-9

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@5'	Y704320-01	Soil	April 26, 2017 14:10	04/26/2017 17:15

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: 014217083  
Project: KMG - Avey 31-9

# ORIGINS

LABORATORY, INC

www.originslaboratory.com

Client: LT ENVIRONMENTAL  
Address: 4100 W. GARDEN AVE  
ARIZONA CO 85003

Project Manager: B. Sulzberger  
Project Name: AVEY 31-9  
Project Number: 014217083

Telephone Number: \_\_\_\_\_  
Email Address: KMB GROUP

Samples Collected By: PD  
WCH TSD  
APC CONTACT MIKE ALORECHY

page of

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #			Other
B01@5	4/26/17	1410	2						X	X	X	1	
N01@4		1435	3						X	X	X	2	HOLD
S01@4		1420	2						X			3	HOLD
E01@4		1425	2						X			4	HOLD
W01@4		1430	2						X			5	HOLD
B6	1405	4:26:17	2						X			6	HOLD
												7	
												8	
												9	
												10	
Relinquished By: <u>[Signature]</u>	Date: <u>4/26/17</u>	Time: <u>1715</u>	Received By: <u>[Signature]</u>	Date: <u>4-26-17</u>	Time: <u>1715</u>	Turnaround 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: _____								

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

Temp Received- 9.8°C

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellgrini

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

Brian Sulzberger  
Project Number: 014217083  
Project: KMG - Avey 31-9

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 1704320

Client: LTE

Client Project ID: KMG - Avey 31-9

Checklist Completed by: De Lee

Shipped Via: 40

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4-26-17 1738

Airbill #: 4A

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

Cooler Number/Temperature: 1 / 9.8 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °C (Describe)

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		sampled same Day
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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			pH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, 2NaAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

<sup>(1)</sup>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.

Reviewed by (Project Manager) De Lee

Date/Time Reviewed 4-26-17 1738

Origins Laboratory, Inc.

*Jefe Pellegrini*

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

Brian Sulzberger  
Project Number: 014217083  
Project: KMG - Avey 31-9

**B01@5'**  
**4/26/2017 2:10:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y704320-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B7D2602	04/26/2017	04/27/2017	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.4 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7D2601	04/26/2017	04/27/2017	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 122 % 70-130 " " "  
Surrogate: Toluene-d8 94.6 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.74		pH Units	1	B7D2606	04/26/2017	04/26/2017	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.156		mmhos/cm	"	B7D2607	04/26/2017	04/26/2017	
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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: 014217083  
Project: KMG - Avey 31-9

**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
<b>Batch B7D2601 - EPA 5030 (soil)</b>										
<b>Blank (B7D2601-BLK1)</b>					Prepared: 04/26/2017 Analyzed: 04/26/2017					
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	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Project: KMG - Avey 31-9

**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
<b>Batch B7D2601 - EPA 5030 (soil)</b>										
<b>Blank (B7D2601-BLK2)</b>					Prepared: 04/26/2017 Analyzed: 04/26/2017					
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	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

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Project: KMG - Avey 31-9

**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
<b>Batch B7D2601 - EPA 5030 (soil)</b>										
<b>LCS (B7D2601-BS1)</b>					Prepared: 04/26/2017 Analyzed: 04/26/2017					
Benzene	0.095	0.002	mg/kg	0.100		95.4	77.1-124			
Toluene	0.097	0.002	"	0.100		97.1	74.5-128			
Ethylbenzene	0.113	0.002	"	0.100		113	66.4-127			
m,p-Xylene	0.231	0.004	"	0.200		115	76.6-124			
o-Xylene	0.111	0.002	"	0.100		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		119	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	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
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Batch B7D2601 - EPA 5030 (soil)

**LCS (B7D2601-BS2)**

Prepared: 04/26/2017 Analyzed: 04/26/2017

Benzene	0.092	0.002	mg/kg	0.100		91.8	77.1-124			
Toluene	0.093	0.002	"	0.100		93.0	74.5-128			
Ethylbenzene	0.107	0.002	"	0.100		107	66.4-127			
m,p-Xylene	0.219	0.004	"	0.200		110	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	55		ug/kg	62.5		87.6	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	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
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**Batch B7D2601 - EPA 5030 (soil)**

Matrix Spike (B7D2601-MS1)		Source: Y704310-01			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Benzene	0.086	0.002	mg/kg	0.100	0.005	80.8	71.8-126			
Toluene	0.082	0.002	"	0.100	ND	81.6	65.1-130			
Ethylbenzene	0.093	0.002	"	0.100	0.005	88.7	62.2-130			
m,p-Xylene	0.191	0.004	"	0.200	0.004	93.4	46.5-137			
o-Xylene	0.094	0.002	"	0.100	ND	93.9	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	75		ug/kg	62.5		120	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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Brian Sulzberger  
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Project: KMG - Avey 31-9

**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 B7D2601 - EPA 5030 (soil)**

Matrix Spike (B7D2601-MS2)		Source: Y704310-02			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Benzene	0.089	0.002	mg/kg	0.100	ND	89.4	71.8-126			
Toluene	0.090	0.002	"	0.100	ND	89.5	65.1-130			
Ethylbenzene	0.101	0.002	"	0.100	ND	101	62.2-130			
m,p-Xylene	0.206	0.004	"	0.200	ND	103	46.5-137			
o-Xylene	0.102	0.002	"	0.100	ND	102	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	56		ug/kg	62.5		89.6	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	70-130			

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**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7D2601 - EPA 5030 (soil)**

Matrix Spike Dup (B7D2601-MSD1)		Source: Y704310-01			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Benzene	0.085	0.002	mg/kg	0.100	0.005	79.4	71.8-126	1.62	11.3	
Toluene	0.077	0.002	"	0.100	ND	77.0	65.1-130	5.85	15.4	
Ethylbenzene	0.093	0.002	"	0.100	0.005	88.7	62.2-130	0.00	19.6	
m,p-Xylene	0.188	0.004	"	0.200	0.004	92.0	46.5-137	1.48	19.2	
o-Xylene	0.093	0.002	"	0.100	ND	93.0	54.2-134	0.942	17.9	
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		119	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.8	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

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4600 West 60th Avenue  
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Brian Sulzberger  
Project Number: 014217083  
Project: KMG - Avey 31-9

**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 B7D2601 - EPA 5030 (soil)**

Matrix Spike Dup (B7D2601-MSD2)		Source: Y704310-02			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Benzene	0.084	0.002	mg/kg	0.100	ND	83.6	71.8-126	6.70	11.3	
Toluene	0.084	0.002	"	0.100	ND	83.7	65.1-130	6.65	15.4	
Ethylbenzene	0.094	0.002	"	0.100	ND	93.6	62.2-130	7.65	19.6	
m,p-Xylene	0.192	0.004	"	0.200	ND	95.9	46.5-137	7.37	19.2	
o-Xylene	0.095	0.002	"	0.100	ND	94.8	54.2-134	7.20	17.9	
Surrogate: 1,2-Dichloroethane-d4	75		ug/kg	62.5		120	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger  
Project Number: 014217083  
Project: KMG - Avey 31-9

## 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 B7D2602 - EPA 3550B

#### Blank (B7D2602-BLK1)

Prepared: 04/26/2017 Analyzed: 04/26/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.9	59-131			

#### Blank (B7D2602-BLK2)

Prepared: 04/26/2017 Analyzed: 04/26/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.6	59-131			

#### LCS (B7D2602-BS1)

Prepared: 04/26/2017 Analyzed: 04/26/2017

Diesel (C10-C28)	1020	50.0	mg/kg	1000		102	64-121			
Residual Range Organics (C28-C40)	1140	200	"	1000		114	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.3	59-131			

#### LCS (B7D2602-BS2)

Prepared: 04/26/2017 Analyzed: 04/26/2017

Diesel (C10-C28)	959	50.0	mg/kg	1000		95.9	64-121			
Residual Range Organics (C28-C40)	1040	200	"	1000		104	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.9	59-131			

#### Matrix Spike (B7D2602-MS1)

Source: Y704310-01

Prepared: 04/26/2017 Analyzed: 04/26/2017

Diesel (C10-C28)	973	50.0	mg/kg	1000	22.4	95.0	53-125			
Residual Range Organics (C28-C40)	1050	200	"	1000	18.3	103	47-133			

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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
<b>Batch B7D2602 - EPA 3550B</b>										
<b>Matrix Spike (B7D2602-MS1)</b>		<b>Source: Y704310-01</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Surrogate: o-Terphenyl	46		mg/kg	50.0		92.0	59-131			
<b>Matrix Spike (B7D2602-MS2)</b>		<b>Source: Y704310-02</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Diesel (C10-C28)	909	50.0	mg/kg	1000	23.7	88.6	53-125			
Residual Range Organics (C28-C40)	1040	200	"	1000	18.0	103	47-133			
Surrogate: o-Terphenyl	45		"	50.0		90.1	59-131			
<b>Matrix Spike Dup (B7D2602-MSD1)</b>		<b>Source: Y704310-01</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Diesel (C10-C28)	964	50.0	mg/kg	1000	22.4	94.2	53-125	0.918	20	
Residual Range Organics (C28-C40)	1010	200	"	1000	18.3	98.8	47-133	4.36	20	
Surrogate: o-Terphenyl	45		"	50.0		89.5	59-131			
<b>Matrix Spike Dup (B7D2602-MSD2)</b>		<b>Source: Y704310-02</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Diesel (C10-C28)	923	50.0	mg/kg	1000	23.7	89.9	53-125	1.49	20	
Residual Range Organics (C28-C40)	1010	200	"	1000	18.0	99.0	47-133	3.63	20	
Surrogate: o-Terphenyl	44		"	50.0		89.0	59-131			

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**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B7D2606 - NO PREP</b>										
<b>Duplicate (B7D2606-DUP1)</b>		<b>Source: Y704317-01</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
pH	8.75		pH Units		8.79			0.456	25	
<b>Batch B7D2607 - NO PREP</b>										
<b>Blank (B7D2607-BLK1)</b>		Prepared: 04/26/2017 Analyzed: 04/26/2017								
Specific Conductance (EC)	0.00320		mmhos/cm							
<b>Duplicate (B7D2607-DUP1)</b>		<b>Source: Y704317-01</b>			Prepared: 04/26/2017 Analyzed: 04/26/2017					
Specific Conductance (EC)	1.16		mmhos/cm		1.07			7.91	25	

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Project: KMG - Avey 31-9

### Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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