



December 29, 2015

Mr. Sam LaRue  
Senior HSE Representative  
Kerr-McGee Oil & Gas Onshore LP  
501 North Division Boulevard  
Platteville, Colorado 80651

**RE: Sump Excavation Report  
Berry P 08-18D  
Weld County, Colorado  
NENW SEC 8-T3N-R67W  
API #05-123-31085  
Location ID #329006  
Remediation #8961**

Dear Mr. LaRue:

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 using a photo-ionization detector (PID), collecting confirmation soil samples from two sump excavations, documenting field activities, and reviewing laboratory analytical results.

The objective of the soil sampling was to determine if petroleum hydrocarbon impacts to subsurface soil resulted from Kerr-McGee operating four produced water sumps at the site. The soil sampling activities, laboratory analytical results, and conclusions are summarized below. The general site layout, sump excavation dimensions, and soil sample locations are depicted on the Excavation Site Map provided as Figure 1.

On October 28, 2015, following the removal of four produced water sumps, confirmation soil samples were collected from two separate excavations at the site. Confirmation sidewall soil samples were collected at 4 feet below ground surface (bgs) and four excavation base soil samples were collected at 6 feet bgs under the footprint of each respective produced water sump, per the direction of Kerr-McGee. Soil samples were field screened for volatile organic compounds using a PID. LTE personnel did not observe soil staining or odor in the confirmation soil samples. The confirmation base soil samples (Former Tank 1 B01@6', Former Tank 2 B01@6', Former Tank 3 B01@6', and Former Tank 4 B01@6') were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260C, total petroleum hydrocarbons (TPH) by USEPA Methods 8015C and 8260C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results for confirmation soil samples Former Tank 1 B01@6', Former Tank 2 B01@6', Former Tank 3 B01@6', and Former Tank 4 B01@6' indicated that BTEX, TPH, pH, and EC levels were less than or within Colorado



Oil and Gas Conservation Commission (COGCC) Table 910-1 allowable levels. The soil sample laboratory analytical results are summarized in Table 1 and the laboratory analytical report is attached.

The two respective sump excavations each measured approximately 20 feet northwest to southeast by 10 feet southwest to northeast to an approximate depth of 6 feet bgs. No soil was excavated during the process of removing the produced water sumps. One of the produced water sumps at this facility will be replaced.

Please contact LTE at (303) 433-9788 if you have any questions regarding this Sump Excavation Report or if you require additional information.

Sincerely,

LT ENVIRONMENTAL, INC.

A blue ink signature of Kristofer Shepherd, written in a cursive style.

Kristofer Shepherd  
Staff Geologist

A blue ink signature of Michael J. Furtaw, written in a cursive style.

Michael J. Furtaw, P.G.  
Project Geologist

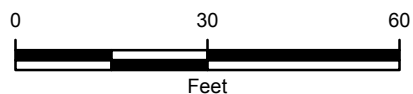
Attachments



# **LEGEND**

- SOIL SAMPLE
- M METER HOUSE
- EXCAVATION EXTENT
- BERM
- ECD: EMISSION CONTROL DEVICE

IMAGE COURTESY OF GOOGLE EARTH 2015



**FIGURE 1**  
**EXCAVATION SITE MAP**  
 BERRY P 08-18D  
 NENW SEC 8-T3N-R67W  
 WELD COUNTY, COLORADO  
 KERR-MCGEE OIL & GAS ONSHORE LP



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
**BERRY P 08-18D**  
**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)
Former Tank 1 B01 @ 6'	6'	10/28/2015	<0.002	<0.002	<0.002	<0.002	<25	<0.200	<100	7.87	0.128
Former Tank 2 B01 @ 6'	6'	10/28/2015	<0.002	<0.002	<0.002	<0.002	<25	<0.200	<100	8.29	0.0594
Former Tank 3 B01 @ 6'	6'	10/28/2015	<0.002	<0.002	<0.002	<0.002	<25	<0.200	<100	8.03	0.363
Former Tank 4 B01 @ 6'	6'	10/28/2015	<0.002	<0.002	<0.002	<0.002	<25	<0.200	<100	8.00	0.301
<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

\* - Standard applies to combined DRO-GRO-ORO

< - less than laboratory reporting limit

Bold indicates result exceeds allowable level





November 04, 2015

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

**Project Name - KMG - Berry P 08-18D**

**Project Number - 014215193**

Attached are your analytical results for KMG - Berry P 08-18D received by Origins Laboratory, Inc. October 28, 2015. This project is associated with Origins project number X510338-01.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Former Tank 1 B01 @ 6'	X510338-01	Soil	October 28, 2015 15:00	10/28/2015 18:57
Former Tank 2 B01 @ 6'	X510338-02	Soil	October 28, 2015 15:05	10/28/2015 18:57
Former Tank 3 B01 @ 6'	X510338-03	Soil	October 28, 2015 15:10	10/28/2015 18:57
Former Tank 4 B01 @ 6'	X510338-04	Soil	October 28, 2015 15:15	10/28/2015 18:57

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.*



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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

www.originslaboratory.com

page 1 of 2

**ORIGINS** LABORATORY, INC

**X510338**

Client: LTE  
Address: 4600 W 60TH AVE  
ARVADA CO 80003  
Telephone Number: 303-433-9188  
Email Address: Jcocroft@LTENV.com

Project Manager: John Cocroft  
Project Name: BERRY P 8-18D  
Project Number: 014215193  
Samples Collected By: RZ  
ATTN: Sam Larue

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	GC/MS	FTIR	FT	IC	
Former Tank 1 B01@6'	10/28/15	1500	2	X					X			X	X	X	HOLD SAR	
Former Tank 2 B01@6'		1505	2	X					X			X	X	X	HOLD SAR	
Former Tank 3 B01@6'		1510	2	X					X			X	X	X	HOLD SAR	
Former Tank 4 B01@6'		1515	2	X					X			X	X	X	HOLD SAR	
Former Tank 1 E01@4'		1520	2	X					X						HOLD	
Former Tank 1 W01@4'		1525	2	X					X						HOLD	
Former Tank 2 E01@4'		1530	2	X					X						HOLD	
Former Tank 2 W01@4'		1535	2	X					X						HOLD	
Former Tank 3 E01@4'		1540	2	X					X						HOLD	
Former Tank 3 W01@4'		1545	2	X					X						HOLD	
Relinquished By: J. E. Davis	Date: 10/28/15	Time: 1015		Received By: [Signature]	Date: 10/28/15	Time: 1857		Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>								
Relinquished By:	Date:	Time:		Received By: [Signature]	Date: 10/28/15	Time: 1857										

Date Results Needed 10/29/15 8am  
Temp Received: \_\_\_\_\_

Origins Laboratory, Inc.

*Jefe Pellegrini*

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.

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**ORIGINS**

LABORATORY, INC

X570338

www.originslaboratory.com

page 2 of 2

Client: LGE

Project Manager: John Coccaft

Address: 4600 W 60TH AVE

Project Name: BERRY P 8-18D

AR141DA-CO

Project Number: 014215193

Telephone Number: 303-433-9788

Samples Collected By: RZ

Email Address: Jcocaft@LGEinc.com

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 Canister #	Other	PH		EC
FORAMER TANK 4 ES@4'	10/28	1550	2	X				X					Hold	1
FORAMER TANK 4 W@4'		1555	2	X				X					Hold	2
FORAMER TANK 3 FORAMER TANK 2 NO1@4'		1600	2	X				X					Hold	3
FORAMER TANK 1 FORAMER TANK 2 SOLE@4'		1605	2	X				X					Hold	4
FORAMER TANK 3 FORAMER TANK 4 NO1@4'		1610	2	X				X					Hold	5
FORAMER TANK 3 FORAMER TANK 4 SOLE@4' ✓		1615	2	X				X					Hold	6
Bq01		1620	2	X				X					Hold	7
														8
														9
														10
Relinquished By: R. Egan	Date: 10/28/15	Time: 1615	Received By: [Signature]	Date: 10/28/15	Time: 1652	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>								
Relinquished By: [Signature]	Date: 10/28/15	Time: 1615	Received By: [Signature]	Date: 01/28/15	Time: 1857	48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>								

Temp Received:

Date Results Needed

10/29/15 8 AM

Origins Laboratory, Inc.

Jeff Pellipini

*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.*



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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: AS10338

Client: LTE

Client Project ID: Berry P 8-18D

Checklist Completed by: Jeff Smith

Shipped Via: H/D  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/28/15

Airbill #: NA

Matrix(s) Received: (Check all that apply): X Soil/Solid        Water        Other:       

Cooler Number/Temperature: 1 / 12.5 °C        /        °C        /        °C (Describe)

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 <sup>(1)</sup> ?		X		Sample
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	X			PH
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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, ZnAc+NaOH)			X	
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)

10/28/15  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jeff Pellegrini*

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**Former Tank 1 B01 @ 6'****10/28/2015 3:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**X510338-01 (Soil)****DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	5J28009	10/28/2015	10/28/2015
Residual Range Organics (C28-C36)	ND	100	"	"	"	"	"

Surrogate: o-Terphenyl	83.8 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J28008	10/28/2015	10/29/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	108 %	70-130			"	"	"
Surrogate: Toluene-d8	99.9 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"

**pH in Soil by EPA 9045D**

pH	7.87		pH Units	1	5J28010	10/28/2015	10/28/2015
----	------	--	----------	---	---------	------------	------------

**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.128		mmhos/cm	"	5J28017	10/28/2015	10/28/2015
---------------------------	-------	--	----------	---	---------	------------	------------

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

## Former Tank 2 B01 @ 6'

10/28/2015 3:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

## Origins Laboratory, Inc. X510338-02 (Soil)

### DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	5J28009	10/28/2015	10/28/2015
Residual Range Organics (C28-C36)	ND	100	"	"	"	"	"

Surrogate: o-Terphenyl 95.0 % 59-131 " " "

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J28008	10/28/2015	10/29/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "  
Surrogate: Toluene-d8 101 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

### pH in Soil by EPA 9045D

pH	8.29		pH Units	1	5J28010	10/28/2015	10/28/2015
----	------	--	----------	---	---------	------------	------------

### Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0594		mmhos/cm	"	5J28017	10/28/2015	10/28/2015
---------------------------	--------	--	----------	---	---------	------------	------------

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

## Former Tank 3 B01 @ 6'

10/28/2015 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

## Origins Laboratory, Inc. X510338-03 (Soil)

### DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	5J28009	10/28/2015	10/28/2015
Residual Range Organics (C28-C36)	ND	100	"	"	"	"	"

Surrogate: o-Terphenyl 94.8 % 59-131 " " "

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J28008	10/28/2015	10/29/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "  
Surrogate: Toluene-d8 102 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

### pH in Soil by EPA 9045D

pH	8.03		pH Units	1	5J28010	10/28/2015	10/28/2015
----	------	--	----------	---	---------	------------	------------

### Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.363		mmhos/cm	"	5J28017	10/28/2015	10/28/2015
---------------------------	-------	--	----------	---	---------	------------	------------

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

## Former Tank 4 B01 @ 6'

10/28/2015 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

## Origins Laboratory, Inc. X510338-04 (Soil)

### DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25	mg/kg	1	5J28009	10/28/2015	10/28/2015
Residual Range Organics (C28-C36)	ND	100	"	"	"	"	"

Surrogate: o-Terphenyl 93.4 % 59-131 " " "

### GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J28008	10/28/2015	10/29/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 108 % 70-130 " " "  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

### pH in Soil by EPA 9045D

pH	8.00		pH Units	1	5J28010	10/28/2015	10/28/2015
----	------	--	----------	---	---------	------------	------------

### Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.301		mmhos/cm	"	5J28017	10/28/2015	10/28/2015
---------------------------	-------	--	----------	---	---------	------------	------------

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.



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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**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 5J28008 - EPA 5030 (soil)</b>										
<b>Blank (5J28008-BLK1)</b>					Prepared: 10/28/2015 Analyzed: 10/28/2015					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	64.2		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	62.6		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	63.0		"	62.5		101	70-130			

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.*

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**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 5J28008 - EPA 5030 (soil)</b>										
<b>LCS (5J28008-BS1)</b>					Prepared: 10/28/2015 Analyzed: 10/28/2015					
Benzene	0.099	0.002	mg/kg	0.100		99.0	77.1-124			
Toluene	0.096	0.002	"	0.100		96.1	74.5-128			
Ethylbenzene	0.101	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.206	0.004	"	0.200		103	76.6-124			
o-Xylene	0.108	0.002	"	0.100		108	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63.3		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	64.4		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	63.8		"	62.5		102	70-130			

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.*

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**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 5J28008 - EPA 5030 (soil)**

Matrix Spike (5J28008-MS1)		Source: X510310-01			Prepared: 10/28/2015 Analyzed: 10/28/2015					
Benzene	0.094	0.002	mg/kg	0.100	ND	94.3	71.8-126			
Toluene	0.098	0.002	"	0.100	ND	97.7	65.1-130			
Ethylbenzene	0.094	0.002	"	0.100	ND	94.0	62.2-130			
m,p-Xylene	0.189	0.004	"	0.200	ND	94.5	46.5-137			
o-Xylene	0.097	0.002	"	0.100	ND	96.6	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64.0		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	63.7		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	60.8		"	62.5		97.3	70-130			

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**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 5J28008 - EPA 5030 (soil)**

Matrix Spike Dup (5J28008-MSD1)		Source: X510310-01			Prepared: 10/28/2015 Analyzed: 10/28/2015					
Benzene	0.093	0.002	mg/kg	0.100	ND	93.2	71.8-126	1.17	11.3	
Toluene	0.095	0.002	"	0.100	ND	95.1	65.1-130	2.63	15.4	
Ethylbenzene	0.094	0.002	"	0.100	ND	93.9	62.2-130	0.106	19.6	
m,p-Xylene	0.188	0.004	"	0.200	ND	93.9	46.5-137	0.637	19.2	
o-Xylene	0.094	0.002	"	0.100	ND	93.9	54.2-134	2.86	17.9	
Surrogate: 1,2-Dichloroethane-d4	63.8		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62.8		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	62.8		"	62.5		101	70-130			

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.

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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

## 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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

## 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 5J28009 - EPA 3580

#### Blank (5J28009-BLK1)

Prepared: 10/28/2015 Analyzed: 10/28/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	49		"	50.0		97.4	59-131			

#### LCS (5J28009-BS1)

Prepared: 10/28/2015 Analyzed: 10/28/2015

Diesel (C10-C28)	760	50	mg/kg	1000		75.9	64-121			
Residual Range Organics (C28-C36)	740	200	"	1000		74.5	58-124			
Surrogate: o-Terphenyl	46		"	50.0		91.7	59-131			

#### LCS Dup (5J28009-BSD1)

Prepared: 10/28/2015 Analyzed: 10/28/2015

Diesel (C10-C28)	820	50	mg/kg	1000		82.1	64-121	7.81	20	
Residual Range Organics (C28-C36)	790	200	"	1000		79.4	58-124	6.34	20	
Surrogate: o-Terphenyl	46		"	50.0		92.0	59-131			

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.



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

John Cocroft  
Project Number: 014215193  
Project: KMG - Berry P 08-18D

**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 5J28010 - NO PREP</b>										
<b>Duplicate (5J28010-DUP1)</b>		<b>Source: X510260-06</b>			Prepared: 10/28/2015 Analyzed: 10/28/2015					
pH	6.89		pH Units		6.98			1.30	25	
<b>Batch 5J28017 - NO PREP</b>										
<b>Blank (5J28017-BLK1)</b>		Prepared: 10/28/2015 Analyzed: 10/28/2015								
Specific Conductance (EC)	0.00240		mmhos/cm							
<b>Duplicate (5J28017-DUP1)</b>		<b>Source: X510331-01</b>			Prepared: 10/28/2015 Analyzed: 10/28/2015					
Specific Conductance (EC)	0.136		mmhos/cm		0.114			17.3	25	

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.*

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

John Cocroft

Project Number: 014215193

Project: KMG - Berry P 08-18D

### Notes and Definitions

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.



*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.*

Jen Pellegrini For Noelle Doyle Mathis, President