

**TABLE 1**  
**GROUNDWATER ANALYTICAL AND FIELD RESULTS**  
**CAMP 13-19A**  
**WELD COUNTY, COLORADO**  
**KERR-MCGEE OIL & GAS ONSHORE, LP**

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water/ (Product Thickness) (ft bgs)
<b>COGCC Allowable Levels</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1400</b>	
GW01	12/10/2019	37.8	<4.00	4.44	<4.00	5.00

Notes: COGCC - Colorado Oil and Gas Conservation Commission  
ft bgs - feet below ground surface  
NA - not analyzed/not available  
NM - not measured

µg/L - micrograms per liter  
< - less than laboratory reporting limit  
Bold indicates result exceeds allowable level  
Excavation groundwater depth is approximate





December 12, 2019

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

**Project Name - KMG - Camp 13-19A (Dumpline)      Project Number - 014219247**

Attached are your analytical results for KMG - Camp 13-19A (Dumpline) received by Origins Laboratory, Inc. December 10, 2019. This project is associated with Origins project number Y912144-06.

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: 014219247  
Project: KMG - Camp 13-19A (Dumpline)

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	Y912144-06	Water	December 10, 2019 8:05	12/10/2019 16:00

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



LT Environmental, Inc.  
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 Arvada CO 80003

Brian Sulzberger  
 Project Number: 014219247  
 Project: KMG - Camp 13-19A (Dumpline)

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 4912144

Client: LRE

Client Project ID: KMG - Camp 13-19A (Dumpline)

Checklist Completed by: D. Lee

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

Date/time completed: 12-10-19

Airbill #: N/A

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

Cooler Number/Temperature:  / 4.1 °C  / \_\_\_\_\_ °C  / \_\_\_\_\_ °C  / \_\_\_\_\_ °C

Thermometer ID: 1003

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"/>			
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"/>			<u>pH</u>
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? <b>If yes, contact client and note in narrative.</b>		<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, ZnAc+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) [Signature] Date/Time Reviewed 12-10-19

Origins Laboratory, Inc.

*Jefe Pellegrini*

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 Arvada CO 80003

Brian Sulzberger  
 Project Number: 014219247  
 Project: KMG - Camp 13-19A (Dumpline)

**GW01**

**12/10/2019 8:05:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912144-06 (Water)**

**BTEX by EPA 8260D**

Benzene	37.8	4.00	ug/L	4	B9L0515	KDK	12/10/2019	12/11/2019	
Toluene	ND	4.00	"	"	"	KDK	"	"	U
Ethylbenzene	4.44	4.00	"	"	"	KDK	"	"	
Xylenes, total	ND	4.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	87.9 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	90.2 %	70-130			"	"	"	"	

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Brian Sulzberger  
 Project Number: 014219247  
 Project: KMG - Camp 13-19A (Dumpline)

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9L0515 - EPA 5030B (Water)**

**Blank (B9L0515-BLK1)**

Prepared: 12/05/2019 Analyzed: 12/10/2019

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5	90.6		70-130			
Surrogate: Toluene-d8	60		"	62.5	95.2		70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5	92.5		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 B9L0515 - EPA 5030B (Water)**

**LCS (B9L0515-BS1)**

Prepared: 12/05/2019 Analyzed: 12/10/2019

Benzene	51.5	1.00	ug/L	50.0		103	70-130			
Toluene	48.6	1.00	"	50.0		97.2	70-130			
Ethylbenzene	48.0	1.00	"	50.0		95.9	70-130			
m,p-Xylene	93.6	2.00	"	100		93.6	70-130			
o-Xylene	48.0	1.00	"	50.0		96.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	54		"	62.5		87.1	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		92.0	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9L0515 - EPA 5030B (Water)**

Matrix Spike (B9L0515-MS1)	Source: Y912055-07			Prepared: 12/05/2019 Analyzed: 12/10/2019						
Benzene	110	1.00	ug/L	50.0	ND	219	70-130			QM-07
Toluene	44.1	1.00	"	50.0	ND	88.2	70-130			
Ethylbenzene	42.6	1.00	"	50.0	ND	85.2	70-130			
m,p-Xylene	83.6	2.00	"	100	ND	83.6	70-130			
o-Xylene	48.6	1.00	"	50.0	ND	97.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	53		"	62.5		85.0	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.3	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 B9L0515 - EPA 5030B (Water)**

Matrix Spike Dup (B9L0515-MSD1)	Source: Y912055-07			Prepared: 12/05/2019 Analyzed: 12/10/2019						
Benzene	106	1.00	ug/L	50.0	ND	213	70-130	3.05	20	QM-07
Toluene	45.8	1.00	"	50.0	ND	91.5	70-130	3.74	20	
Ethylbenzene	43.8	1.00	"	50.0	ND	87.6	70-130	2.80	20	
m,p-Xylene	83.5	2.00	"	100	ND	83.5	70-130	0.0598	20	
o-Xylene	48.5	1.00	"	50.0	ND	97.0	70-130	0.185	20	
Surrogate: 1,2-Dichloroethane-d4	52		"	62.5		82.6	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.6	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.7	70-130			

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**Notes and Definitions**

U Sample is Non-Detect.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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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