

TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
HUETT, JOSEPH UNIT #2
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)	Relative GW Elev. (ft)
COGCC Allowable Levels		5	560	700	1400		
GW01	2/14/2019	792	<4.00	17.4	35.5	32.0	NA
GW02	2/21/2019	208	15.7	<4.00	75.6	32.0	NA
MW01	12/16/2019	6.24	<1.00	4.72	4.11	20.31	79.97
	3/9/2020	1.16	<1.00	3.81	2.83	23.30	76.98
MW02	12/16/2019	4.09	<1.00	<1.00	<1.00	19.98	80.43
	3/9/2020	24.1	<1.00	4.12	12.6	22.03	78.38
MW03	12/16/2019	<1.00	<1.00	<1.00	<1.00	20.66	80.16
	3/9/2020	<1.00	<1.00	<1.00	<1.00	23.86	76.96
MW04	12/16/2019	9.10	<1.00	7.88	10.7	20.17	80.50
	3/9/2020	24.4	<1.00	33.2	73.1	22.41	78.26
MW05	12/16/2019	45.4	<1.00	<1.00	<1.00	20.29	80.30
	3/9/2020	65.4	<1.00	<1.00	<1.00	22.27	78.32

Notes: COGCC - Colorado Oil and Gas Conservation Commission µg/L - micrograms per liter
ft bgs - feet below ground surface < - less than laboratory reporting limit
NA - not analyzed/not available Excavation groundwater depth is approximate
NM - not measured
BOLD = Analytical result is in exceedance of COGCC Table 910-1 groundwater standards.





March 16, 2020

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Joseph Huett Unit #2

Project Number - 14219004/WO #8974211

Attached are your analytical results for KMG - Joseph Huett Unit #2 received by Origins Laboratory, Inc. March 09, 2020. This project is associated with Origins project number Y003165-01.

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: 14219004/WO #89742119
Project: KMG - Joseph Huett Unit #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y003165-01	Water	March 9, 2020 10:58	03/09/2020 17:05
MW02	Y003165-02	Water	March 9, 2020 11:32	03/09/2020 17:05
MW03	Y003165-03	Water	March 9, 2020 11:15	03/09/2020 17:05
MW04	Y003165-04	Water	March 9, 2020 11:16	03/09/2020 17:05
MW05	Y003165-05	Water	March 9, 2020 11:26	03/09/2020 17:05

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y003115

Client: LTE

Client Project ID: Joseph Huett

Checklist Completed by: Jm

Shipped Via: HD

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

Date/time completed: 3-10-20

Airbill #: n/a

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

Cooler Number/Temperature: 1 / 9.4 °C / _____ °C / _____ °C (Describe) _____ °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⁾ ?		X		collected same day
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 ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?			X	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	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 ⁽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)		X		
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.

Reviewed by: Jm (Project Manager)

Date/Time Reviewed: 3/11/20

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

MW01

3/9/2020 10:58:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y003165-01 (Water)

BTEX by EPA 8260D

Benzene	1.16	1.00	ug/L	1	BOC1105	KDK	03/11/2020	03/11/2020	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	3.81	1.00	"	"	"	KDK	"	"	
Xylenes, total	2.83	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	81.9 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

MW02

3/9/2020 11:32:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y003165-02 (Water)

BTEX by EPA 8260D

Benzene	24.1	1.00	ug/L	1	BOC1105	KDK	03/11/2020	03/11/2020	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	4.12	1.00	"	"	"	KDK	"	"	
Xylenes, total	12.6	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	74.6 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

MW03

3/9/2020 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y003165-03 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0C1105	KDK	03/11/2020	03/13/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	114 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	105 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

MW04

3/9/2020 11:16:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y003165-04 (Water)

BTEX by EPA 8260D

Benzene	24.4	1.00	ug/L	1	BOC1105	KDK	03/11/2020	03/13/2020	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	33.2	1.00	"	"	"	KDK	"	"	
Xylenes, total	73.1	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	97.1 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	84.5 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

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 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

MW05

3/9/2020 11:26:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y003165-05 (Water)

BTEX by EPA 8260D

Benzene	65.4	1.00	ug/L	1	B0C1105	KDK	03/11/2020	03/11/2020	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	76.1 %	70-130			"	"		"	
Surrogate: Toluene-d8	105 %	70-130			"	"		"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"		"	

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 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

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 B0C1105 - EPA 5030B (Water)

Blank (B0C1105-BLK1)

Prepared: 03/11/2020 Analyzed: 03/11/2020

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	58		"	62.5		93.3	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	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 B0C1105 - EPA 5030B (Water)

LCS (B0C1105-BS1)

Prepared: 03/11/2020 Analyzed: 03/11/2020

Benzene	51.0	1.00	ug/L	50.0		102	70-130			
Toluene	53.6	1.00	"	50.0		107	70-130			
Ethylbenzene	56.5	1.00	"	50.0		113	70-130			
m,p-Xylene	115	2.00	"	100		115	70-130			
o-Xylene	58.2	1.00	"	50.0		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.2	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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

Brian Sulzberger
 Project Number: 14219004/WO #89742119
 Project: KMG - Joseph Huett Unit #2

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 B0C1105 - EPA 5030B (Water)

Matrix Spike (B0C1105-MS1)	Source: Y003169-03			Prepared: 03/11/2020 Analyzed: 03/11/2020						
Benzene	52.4	1.00	ug/L	50.0	0.310	104	70-130			
Toluene	60.3	1.00	"	50.0	0.270	120	70-130			
Ethylbenzene	92.3	1.00	"	50.0	38.6	108	70-130			
m,p-Xylene	131	2.00	"	100	1.64	129	70-130			
o-Xylene	64.4	1.00	"	50.0	0.360	128	70-130			
Surrogate: 1,2-Dichloroethane-d4	51		"	62.5		81.6	70-130			
Surrogate: Toluene-d8	65		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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 Project: KMG - Joseph Huett Unit #2

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
Batch B0C1105 - EPA 5030B (Water)										
Matrix Spike Dup (B0C1105-MSD1)		Source: Y003169-03			Prepared: 03/11/2020 Analyzed: 03/11/2020					
Benzene	46.1	1.00	ug/L	50.0	0.310	91.6	70-130	12.8	20	
Toluene	44.9	1.00	"	50.0	0.270	89.2	70-130	29.4	20	QR-03
Ethylbenzene	78.0	1.00	"	50.0	38.6	78.9	70-130	16.8	20	
m,p-Xylene	69.8	2.00	"	100	1.64	68.1	70-130	60.7	20	QM-07, QR-03
o-Xylene	34.5	1.00	"	50.0	0.360	68.2	70-130	60.5	20	QM-07, QR-03
Surrogate: 1,2-Dichloroethane-d4	53		"	62.5		84.7	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Arvada CO 80003

Brian Sulzberger
Project Number: 14219004/WO #89742119
Project: KMG - Joseph Huett Unit #2

Notes and Definitions

U Sample is Non-Detect.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

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.

Origins Laboratory, Inc.



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