

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
MW02	12/16/2019	4.09	<1.00	<1.00	<1.00	19.98	80.43
MW03	12/16/2019	<1.00	<1.00	<1.00	<1.00	20.66	80.16
MW04	12/16/2019	9.10	<1.00	7.88	10.7	20.17	80.50
MW05	12/16/2019	45.4	<1.00	<1.00	<1.00	20.29	80.30

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.



December 24, 2019

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Joseph Huett Unit 2

Project Number - 014219004/89742119

Attached are your analytical results for KMG - Joseph Huett Unit 2 received by Origins Laboratory, Inc. December 17, 2019. This project is associated with Origins project number Y912278-01.

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: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y912278-01	Water	December 16, 2019 12:40	12/17/2019 09:45
MW02	Y912278-02	Water	December 16, 2019 12:55	12/17/2019 09:45
MW03	Y912278-03	Water	December 16, 2019 13:10	12/17/2019 09:45
MW04	Y912278-04	Water	December 16, 2019 13:25	12/17/2019 09:45
MW05	Y912278-05	Water	December 16, 2019 13:40	12/17/2019 09:45

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: 014219004/89742119
Project: KMG - Joseph Huett Unit 2


ORIGINS
LABORATORY, INC



Y912278

1725 Elk Place, Denver, CO 80211
Laboratory # - 303.433.1322

Client: LT Environmental, Inc.		Project Manager: Brian Sulzberger						
Project: KMG - Joseph Huett Unit 2		Project Number: 014219004/89742119						
Number	Sample Identification	Matrix	Sample Date	Sample Time	Sampled By	Container	Qty	Analyses
01-001	MW01	Water	12/16/19	12:46	DB	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260D
02-001	MW02	Water	12/16/19	12:55	DB	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260D
03-001	MW03	Water	12/16/19	13:10	DB	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260D
04-001	MW04	Water	12/16/19	13:25	DB	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260D
05-001	MW05	Water	12/16/19	13:46	DB	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260D

Temperature on Receipt: 56
Turn Around Time:
Same Day: ☐ 72-hr: ☐ Standard: ☒
24-hr: ☐ 48-hr: ☐

Relinquished By:  Date / Time: 12/17/19 0945
Received By:  Date / Time: 12/17/19 0945

Relinquished By:  Date / Time: 12/17/19 0945
Received By:  Date / Time: 12/17/19 0945

Origins Laboratory, Inc.



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

Brian Sulzberger
Project Number: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4912278

Client: LTE

Client Project ID: KMG - Joseph Huett

Checklist Completed by: JP

Shipped Via: 4b
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12/17/19

Airbill #: NA

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

Cooler Number/Temperature: 1 5.6 °C / °C / °C / °C

Thermometer ID: TO03

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

Reviewed by [Signature] (Project Manager)

12-17-19
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: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

MW01

12/16/2019 12:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912278-01 (Water)

BTEX by EPA 8260D

Benzene	6.24	1.00	ug/L	1	B9L1806	KDK	12/18/2019	12/20/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	4.72	1.00	"	"	"	KDK	"	"	
Xylenes, total	4.11	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"		12/20/2019	
Surrogate: Toluene-d8	101 %	70-130			"	"		"	
Surrogate: 4-Bromofluorobenzene	105 %	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: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

MW02

12/16/2019 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y912278-02 (Water)

BTEX by EPA 8260D

Benzene	4.09	1.00	ug/L	1	B9L1806	KDK	12/18/2019	12/20/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	12/20/2019
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

Origins Laboratory, Inc.



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

Brian Sulzberger
Project Number: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

MW03

12/16/2019 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912278-03 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B9L1806	KDK	12/18/2019	12/20/2019	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	101 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130	"	"	"

Origins Laboratory, Inc.



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

Brian Sulzberger
Project Number: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

MW04

12/16/2019 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912278-04 (Water)

BTEX by EPA 8260D

Benzene	9.10	1.00	ug/L	1	B9L1806	KDK	12/18/2019	12/20/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	7.88	1.00	"	"	"	KDK	"	"	
Xylenes, total	10.7	1.00	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	105 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

MW05

12/16/2019 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y912278-05 (Water)

BTEX by EPA 8260D

Benzene	45.4	1.00	ug/L	1	B9L1806	KDK	12/18/2019	12/20/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"
Surrogate: Toluene-d8	104 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	107 %	70-130			"	"	"

Origins Laboratory, Inc.



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

Brian Sulzberger
Project Number: 014219004/89742119
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 B9L1806 - EPA 5030B (Water)

Blank (B9L1806-BLK1)

Prepared: 12/18/2019 Analyzed: 12/19/2019

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	72		"	62.5	115		70-130			
Surrogate: Toluene-d8	57		"	62.5	91.6		70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		70-130			

Origins Laboratory, Inc.



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Arvada CO 80003

Brian Sulzberger
Project Number: 014219004/89742119
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
Batch B9L1806 - EPA 5030B (Water)										
LCS (B9L1806-BS1)					Prepared: 12/18/2019 Analyzed: 12/19/2019					
Benzene	57.6	1.00	ug/L	50.0		115	70-130			
Toluene	48.4	1.00	"	50.0		96.8	70-130			
Ethylbenzene	46.6	1.00	"	50.0		93.2	70-130			
m,p-Xylene	95.1	2.00	"	100		95.1	70-130			
o-Xylene	48.0	1.00	"	50.0		96.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	72		"	62.5		116	70-130			
Surrogate: Toluene-d8	58		"	62.5		92.6	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.7	70-130			

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Arvada CO 80003

Brian Sulzberger
Project Number: 014219004/89742119
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 B9L1806 - EPA 5030B (Water)

Matrix Spike (B9L1806-MS1)		Source: Y912306-01			Prepared: 12/18/2019 Analyzed: 12/20/2019					
Benzene	49.1	1.00	ug/L	50.0	ND	98.1	70-130			
Toluene	49.9	1.00	"	50.0	ND	99.9	70-130			
Ethylbenzene	47.6	1.00	"	50.0	ND	95.2	70-130			
m,p-Xylene	95.6	2.00	"	100	ND	95.6	70-130			
o-Xylene	48.0	1.00	"	50.0	ND	96.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		96.9	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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LT Environmental, Inc.
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Arvada CO 80003

Brian Sulzberger
Project Number: 014219004/89742119
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 B9L1806 - EPA 5030B (Water)

Matrix Spike Dup (B9L1806-MSD1)		Source: Y912306-01			Prepared: 12/18/2019 Analyzed: 12/20/2019					
Benzene	54.9	1.00	ug/L	50.0	ND	110	70-130	11.2	20	
Toluene	55.9	1.00	"	50.0	ND	112	70-130	11.3	20	
Ethylbenzene	54.1	1.00	"	50.0	ND	108	70-130	12.8	20	
m,p-Xylene	109	2.00	"	100	ND	109	70-130	12.8	20	
o-Xylene	53.4	1.00	"	50.0	ND	107	70-130	10.5	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	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: 014219004/89742119
Project: KMG - Joseph Huett Unit 2

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.

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager