

TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
AUGUST LAMBRECHT GU #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 Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
GW01	9/8/2017	18.7	18.6	2.28	16.5	4	NA
GW02	9/15/2017	<4.00	<4.00	<4.00	<4.00	4	NA
MW01	8/15/2018	10.8	<1.00	<1.00	<1.00	5.67	94.76
MW02	8/15/2018	<1.00	<1.00	<1.00	<1.00	6.29	91.64
MW03	8/15/2018	<1.00	<1.00	<1.00	<1.00	3.90	94.90
MW04	8/15/2018	<1.00	<1.00	<1.00	<1.00	6.00	92.78
MW05	8/15/2018	<1.00	<1.00	<1.00	<1.00	4.52	93.65
MW06	8/15/2018	<1.00	<1.00	<1.00	<1.00	5.57	91.26
COGCC Allowable Levels		5	1000	700	1400		

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





August 20, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Lambrecht August

Project Number - 014217197

Attached are your analytical results for KMG - Lambrecht August received by Origins Laboratory, Inc. August 15, 2018. This project is associated with Origins project number Y808204-01.

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: 014217197
Project: KMG - Lambrecht August

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y808204-01	Water	August 15, 2018 14:45	08/15/2018 16:20
MW02	Y808204-02	Water	August 15, 2018 14:40	08/15/2018 16:20
MW03	Y808204-03	Water	August 15, 2018 15:00	08/15/2018 16:20
MW04	Y808204-04	Water	August 15, 2018 14:30	08/15/2018 16:20
MW05	Y808204-05	Water	August 15, 2018 15:00	08/15/2018 16:20
MW06	Y808204-06	Water	August 15, 2018 15:15	08/15/2018 16:20

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1808204 Client: LTE
 Client Project ID: KMG-Lambrecht
 Checklist Completed by: JP Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Date/time completed: 8/15/18 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)
 Cooler Number/Temperature: 1 / 20.1 °C _____ / _____ °C _____ / _____ °C
 Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		X		sampled 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 HNO3, HCL, H2SO4) / (pH > 10 for samples preserved with NaAsO2+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: [Signature] (Project Manager) Date/Time Reviewed: 8-16-18

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger
Project Number: 014217197
Project: KMG - Lambrecht August

MW01

8/15/2018 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-01 (Water)

BTEX by EPA 8260C

Benzene	10.8	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	90.8 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	94.8 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.7 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

MW02

8/15/2018 2:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	93.9 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	96.1 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

MW03

8/15/2018 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.4 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.9 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

MW04

8/15/2018 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.1 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	93.6 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	94.1 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

MW05

8/15/2018 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.3 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	95.5 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.0 %	84-114			"	"	"	"	

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

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

MW06

8/15/2018 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y808204-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H1604	JTD	08/16/2018	08/16/2018	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.4 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	95.5 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.6 %	84-114			"	"	"	"	

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

Brian Sulzberger
 Project Number: 014217197
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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 B8H1604 - EPA 5030B (Water)

Blank (B8H1604-BLK1)

Prepared: 08/16/2018 Analyzed: 08/16/2018

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	61		"	62.5		97.3	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.3	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.2	84-114			

Origins Laboratory, Inc.



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Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

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 B8H1604 - EPA 5030B (Water)

LCS (B8H1604-BS1)

Prepared: 08/16/2018 Analyzed: 08/16/2018

Benzene	53.7	1.00	ug/L	50.0		107	73.3-129			
Toluene	45.9	1.00	"	50.0		91.7	76.2-123			
Ethylbenzene	52.8	1.00	"	50.0		106	73.6-130			
m,p-Xylene	99.9	2.00	"	100		99.9	76.1-126			
o-Xylene	49.1	1.00	"	50.0		98.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	54		"	62.5		87.0	84-121			
Surrogate: Toluene-d8	61		"	62.5		96.9	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	84-114			

Origins Laboratory, Inc.



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 Project: KMG - Lambrecht August

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 B8H1604 - EPA 5030B (Water)

Matrix Spike (B8H1604-MS1)	Source: Y808205-02			Prepared: 08/16/2018 Analyzed: 08/16/2018						
Benzene	51.3	1.00	ug/L	50.0	ND	103	74-130			
Toluene	44.7	1.00	"	50.0	ND	89.4	73-131			
Ethylbenzene	55.4	1.00	"	50.0	0.090	111	76-132			
m,p-Xylene	105	2.00	"	100	ND	105	69-139			
o-Xylene	51.4	1.00	"	50.0	ND	103	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.5	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.1	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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 Arvada CO 80003

Brian Sulzberger
 Project Number: 014217197
 Project: KMG - Lambrecht August

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 B8H1604 - EPA 5030B (Water)

Matrix Spike Dup (B8H1604-MSD1)	Source: Y808205-02			Prepared: 08/16/2018 Analyzed: 08/16/2018						
Benzene	50.4	1.00	ug/L	50.0	ND	101	74-130	1.87	20	
Toluene	42.5	1.00	"	50.0	ND	85.0	73-131	5.05	20	
Ethylbenzene	52.6	1.00	"	50.0	0.090	105	76-132	5.15	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	3.71	20	
o-Xylene	49.5	1.00	"	50.0	ND	99.0	74-131	3.69	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.3	84-121			
Surrogate: Toluene-d8	59		"	62.5		93.9	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.6	84-114			

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

Brian Sulzberger
Project Number: 014217197
Project: KMG - Lambrecht August

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 For Noelle Doyle Mathis, President