

**TABLE 1**  
**GROUNDWATER ANALYTICAL AND FIELD RESULTS**  
**CLACK 1-2A, OLSON 2-2**  
**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)
MW01	8/5/2015	17.8	<4.0	<4.0	16.4	6.03	94.29
	11/10/2015	22.2	<1.0	<1.0	<1.0	5.72	94.60
	2/11/2016	1.7	<1.0	<1.0	<1.0	5.77	94.55
	5/16/2016	21.5	<1.0	<1.0	1.1	5.27	95.05
	8/3/2016	15.9	<1.00	<1.00	<1.00	6.44	93.88
	11/3/2016	<1.00	<1.00	<1.00	<1.00	6.26	94.06
	2/7/2017	17.1	<1.00	<1.00	<1.00	6.34	93.98
	5/3/2017	45.9	<1.00	<1.00	<1.00	6.12	94.20
	8/23/2017	8.67	<1.00	<1.00	<1.00	6.02	94.30
	11/9/2017	6.84	<1.00	<1.00	<1.00	5.92	94.40
	2/23/2018	22.8	<1.00	<1.00	<1.00	6.17	94.15
MW02	8/5/2015	<4.0	<4.0	<4.0	<4.0	5.49	94.45
	11/10/2015	1.5	<1.0	<1.0	<1.0	5.20	94.74
	2/11/2016	1.0	<1.0	<1.0	<1.0	5.27	94.67
	5/16/2016	1,100	<1.0	29.4	279	4.76	95.18
	8/3/2016	<1.00	<1.00	<1.00	<1.00	5.91	94.03
	11/3/2016	1.69	<1.00	<1.00	<1.00	5.73	94.21
	2/7/2017	<1.00	<1.00	<1.00	<1.00	5.82	94.12
	5/3/2017	1.14	<1.00	<1.00	<1.00	5.58	94.36
	8/23/2017	410	<1.00	<1.00	<1.00	5.55	94.39
	11/9/2017	23.7	<4.00	<4.00	<4.00	5.36	94.58
	2/23/2018	26.2	<1.00	<1.00	<1.00	5.66	94.28
MW03	8/5/2015	<4.0	<4.0	<4.0	<4.0	4.88	94.32
	11/10/2015	<1.0	<1.0	<1.0	<1.0	4.57	94.63
	2/11/2016	<1.0	<1.0	<1.0	<1.0	4.61	94.59
	5/16/2016	<1.0	<1.0	<1.0	<1.0	4.11	95.09
	8/3/2016	<1.00	<1.00	<1.00	<1.00	5.28	93.92
	11/3/2016	<1.00	<1.00	<1.00	<1.00	5.09	94.11
	2/7/2017	<1.00	<1.00	<1.00	<1.00	5.18	94.02
	5/3/2017	<1.00	<1.00	<1.00	<1.00	4.95	94.25
	8/23/2017	<1.00	<1.00	<1.00	<1.00	5.90	93.30
	11/9/2017	<1.00	<1.00	<1.00	<1.00	4.72	94.48
	2/23/2018	<1.00	<1.00	<1.00	<1.00	5.01	94.19
MW04	8/5/2015	54.6	<4.0	6.3	<4.0	4.58	94.24
	11/10/2015	<1.0	<1.0	<1.0	<1.0	4.29	94.53
	2/11/2016	<1.0	<1.0	<1.0	<1.0	4.31	94.51
	5/16/2016	2.9	<1.0	<1.0	<1.0	3.80	95.02
	8/3/2016	<1.00	<1.00	<1.00	<1.00	5.02	93.80
	11/3/2016	<1.00	<1.00	<1.00	<1.00	4.82	94.00
	2/7/2017	<1.00	<1.00	<1.00	<1.00	4.91	93.91
	5/3/2017	6.19	<1.00	<1.00	<1.00	4.68	94.14



**TABLE 1**  
**GROUNDWATER ANALYTICAL AND FIELD RESULTS**  
**CLACK 1-2A, OLSON 2-2**  
**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)
	8/23/2017	<1.00	<1.00	<1.00	<1.00	4.62	94.20
	11/9/2017	<1.00	<1.00	<1.00	<1.00	4.45	94.37
	2/23/2018	5.60	<1.00	<1.00	<1.00	4.73	94.09
MW05	8/5/2015	<1.0	<1.0	<1.0	<1.0	5.14	93.22
	11/10/2015	<1.0	<1.0	<1.0	<1.0	4.85	93.51
	2/11/2016	<1.0	<1.0	<1.0	<1.0	4.86	93.50
	5/16/2016	<1.0	<1.0	<1.0	<1.0	4.37	93.99
	8/3/2016	<1.00	<1.00	<1.00	<1.00	5.59	92.77
	11/3/2016	<1.00	<1.00	<1.00	<1.00	5.38	92.98
	2/7/2017	<1.00	<1.00	<1.00	<1.00	5.49	92.87
	5/3/2017	<1.00	<1.00	<1.00	<1.00	5.25	93.11
	8/23/2017	<1.00	<1.00	<1.00	<1.00	5.21	93.15
	11/9/2017	<1.00	<1.00	<1.00	<1.00	5.03	93.33
	2/23/2018	<1.00	<1.00	<1.00	<1.00	5.29	93.07
MW06	8/5/2015	<1.0	<1.0	<1.0	<1.0	5.81	94.21
	11/10/2015	<1.0	<1.0	<1.0	<1.0	5.53	94.49
	2/11/2016	<1.0	<1.0	<1.0	<1.0	5.56	94.46
	5/16/2016	<1.0	<1.0	<1.0	<1.0	5.06	94.96
	8/3/2016	<1.00	<1.00	<1.00	<1.00	6.26	93.76
	11/3/2016	<1.00	<1.00	<1.00	<1.00	6.06	93.96
	2/7/2017	<1.00	<1.00	<1.00	<1.00	6.17	93.85
	5/3/2017	<1.00	<1.00	<1.00	<1.00	5.92	94.10
	8/23/2017	<1.00	<1.00	<1.00	<1.00	5.89	94.13
	11/9/2017	<1.00	<1.00	<1.00	<1.00	5.68	94.34
	2/23/2018	<1.00	<1.00	<1.00	<1.00	5.97	94.05
MW07	8/5/2015	<1.0	<1.0	<1.0	<1.0	5.77	94.29
	11/10/2015	<1.0	<1.0	<1.0	<1.0	5.45	94.61
	2/11/2016	<1.0	<1.0	<1.0	<1.0	5.50	94.56
	5/16/2016	<1.0	<1.0	<1.0	<1.0	5.01	95.05
	8/3/2016	<1.00	<1.00	<1.00	<1.00	6.18	93.88
	11/3/2016	<1.00	<1.00	<1.00	<1.00	5.99	94.07
	2/7/2017	<1.00	<1.00	<1.00	<1.00	6.09	93.97
	5/3/2017	<1.00	<1.00	<1.00	<1.00	5.85	94.21
	8/23/2017	<1.00	<1.00	<1.00	<1.00	6.79	93.27
	11/9/2017	<1.00	<1.00	<1.00	<1.00	5.59	94.47
	2/23/2018	<1.00	<1.00	<1.00	<1.00	5.91	94.15
MW08	8/17/2015	<1.0	<1.0	<1.0	<1.0	3.42	NA
	11/10/2015	<1.0	<1.0	<1.0	<1.0	2.90	NA
	2/11/2016	<1.0	<1.0	<1.0	<1.0	4.87	NA
	5/16/2016	<1.0	<1.0	<1.0	<1.0	2.42	NA



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**CLACK 1-2A, OLSON 2-2**  
**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)
	8/3/2016	<1.00	<1.00	<1.00	<1.00	3.65	NA
	11/3/2016	<1.00	<1.00	<1.00	<1.00	3.72	NA
	2/7/2017	<1.00	<1.00	<1.00	<1.00	3.83	NA
	5/3/2017	<1.00	<1.00	<1.00	<1.00	3.60	NA
	8/23/2017	<1.00	<1.00	<1.00	<1.00	3.54	NA
	11/9/2017	<1.00	<1.00	<1.00	<1.00	3.37	NA
	2/23/2018	<1.00	<1.00	<1.00	<1.00	3.66	NA
<b>COGCC Allowable Levels</b>		<b>5</b>	<b>1000</b>	<b>700</b>	<b>1400</b>		

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





February 28, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada

CO 80003

**Project Name - KMG - Clack 1-2A, Olson 2-2**

**Project Number - 014213044/WO #883375**

Attached are your analytical results for KMG - Clack 1-2A, Olson 2-2 received by Origins Laboratory, Inc. February 23, 2018. This project is associated with Origins project number Y802297-01.

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: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y802297-01	Water	February 23, 2018 11:00	02/23/2018 14:23
MW02	Y802297-02	Water	February 23, 2018 11:05	02/23/2018 14:23
MW03	Y802297-03	Water	February 23, 2018 11:10	02/23/2018 14:23
MW04	Y802297-04	Water	February 23, 2018 11:15	02/23/2018 14:23
MW05	Y802297-05	Water	February 23, 2018 11:20	02/23/2018 14:23
MW06	Y802297-06	Water	February 23, 2018 11:25	02/23/2018 14:23
MW07	Y802297-07	Water	February 23, 2018 11:30	02/23/2018 14:23
MW08	Y802297-08	Water	February 23, 2018 11:35	02/23/2018 14:23

Origins Laboratory, Inc.



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4600 West 60th Avenue  
Arvada CO 80003

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

ORIGINS  
LABORATORY, INC

1602297  
1725 Elk Place, Denver, CO 80211  
Laboratory # - 303.433.1322

Client: LT Environmental, Inc.		Project Manager: Brian Sulzberger		Project Number: 014213044/WO #88337562	
Project: KMG - Clack 1-2A, Olson 2-2		Sample Time		Container	
Number	Sample Identification	Matrix	Sample Date	Sample Time	Analyses
01-001	MM01	Water	2/23/18	1100	3 BTEX by EPA 8260C
02-001	MM02	Water		1105	3 BTEX by EPA 8260C
03-001	MM03	Water		1110	3 BTEX by EPA 8260C
04-001	MM04	Water		1115	3 BTEX by EPA 8260C
05-001	MM05	Water		1120	3 BTEX by EPA 8260C
06-001	MM06	Water		1125	3 BTEX by EPA 8260C
07-001	MM07	Water		1130	3 BTEX by EPA 8260C
08-001	MM08	Water		1135	3 BTEX by EPA 8260C

Relinquished By: [Signature] Date / Time: 2-23-18 1423  
Received By: [Signature] Date / Time: 2-23-18 1423

Relinquished By: [Signature] Date / Time: [Blank]  
Received By: [Signature] Date / Time: [Blank]

Temperature on Receipt: 54  
Turn Around Time: [Blank] 72-hr [Blank] Standard [Blank] 24-hr [Blank] 48-hr

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

Origins Laboratory

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

### Sample Receipt Checklist

Origins Work Order: Y202297

Client: LTE

Client Project ID: KMG - Clack 1-2A, Olson 2-2

Checklist Completed by: Dan Lee

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

Date/time completed: 2-23-16

Airbill #: NB

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

Cooler Number/Temperature: 1 5.4 °C 1 °C 1 °C 1 °C

Thermometer ID: 6003

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"/>		
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? If yes, contact client and note in narrative.		<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 JP (Project Manager)

Date/Time Reviewed 2/26/18

Origins Laboratory, Inc.

*Jefe Pellegrini*

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

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

## MW01

2/23/2018 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y802297-01 (Water)

### BTEX by EPA 8260C

Benzene	22.8	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Arvada CO 80003

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

**MW02**

**2/23/2018 11:05:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y802297-02 (Water)**

**BTEX by EPA 8260C**

Benzene	26.2	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"
Surrogate: Toluene-d8	100 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	84-114			"	"	"

Origins Laboratory, Inc.



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Arvada CO 80003

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Project: KMG - Clack 1-2A, Olson 2-2

MW03

2/23/2018 11:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y802297-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4  
Surrogate: Toluene-d8  
Surrogate: 4-Bromofluorobenzene

105 % 84-121  
101 % 85-115  
102 % 84-114

" " "  
" " "  
" " "

Origins Laboratory, Inc.



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LT Environmental, Inc.  
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Arvada CO 80003

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Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

**MW04**

**2/23/2018 11:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y802297-04 (Water)**

**BTEX by EPA 8260C**

Benzene	5.60	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"
Surrogate: Toluene-d8	100 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"

Origins Laboratory, Inc.



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

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

## MW05

2/23/2018 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y802297-05 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"
Surrogate: Toluene-d8	101 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	84-114			"	"	"

Origins Laboratory, Inc.



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Project: KMG - Clack 1-2A, Olson 2-2

## MW06

2/23/2018 11:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y802297-06 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"
Surrogate: Toluene-d8	98.7 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	84-114			"	"	"

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

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

MW07

2/23/2018 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y802297-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	84-121	"	"	"
Surrogate: Toluene-d8	101 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.6 %	84-114	"	"	"

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Arvada CO 80003

Brian Sulzberger  
Project Number: 014213044/WO #88337562  
Project: KMG - Clack 1-2A, Olson 2-2

MW08

2/23/2018 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
Y802297-08 (Water)

## BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8B2603	02/26/2018	02/26/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.3 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.8 %	84-114			"	"	"	

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Arvada CO 80003

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Project: KMG - Clack 1-2A, Olson 2-2

**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 B8B2603 - EPA 5030B (Water)**

**Blank (B8B2603-BLK1)**

Prepared: 02/26/2018 Analyzed: 02/26/2018

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	64		"	62.5	102		84-121			
Surrogate: Toluene-d8	62		"	62.5	98.5		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

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Brian Sulzberger  
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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 B8B2603 - EPA 5030B (Water)**

**LCS (B8B2603-BS1)**

Prepared: 02/26/2018 Analyzed: 02/26/2018

Benzene	48.3	1.00	ug/L	50.0		96.6	73.3-129			
Toluene	47.2	1.00	"	50.0		94.4	76.2-123			
Ethylbenzene	47.7	1.00	"	50.0		95.5	73.6-130			
m,p-Xylene	95.6	2.00	"	100		95.6	76.1-126			
o-Xylene	47.5	1.00	"	50.0		95.0	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		95.9	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

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Project: KMG - Clack 1-2A, Olson 2-2

**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 B8B2603 - EPA 5030B (Water)**

Matrix Spike (B8B2603-MS1)		Source: Y802277-03			Prepared: 02/26/2018 Analyzed: 02/26/2018					
Benzene	56.6	1.00	ug/L	50.0	0.280	113	74-130			
Toluene	54.7	1.00	"	50.0	ND	109	73-131			
Ethylbenzene	56.4	1.00	"	50.0	ND	113	76-132			
m,p-Xylene	112	2.00	"	100	ND	112	69-139			
o-Xylene	54.7	1.00	"	50.0	ND	109	74-131			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		108	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Project: KMG - Clack 1-2A, Olson 2-2

**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 B8B2603 - EPA 5030B (Water)**

Matrix Spike Dup (B8B2603-MSD1)		Source: Y802277-03			Prepared: 02/26/2018 Analyzed: 02/26/2018					
Benzene	58.1	1.00	ug/L	50.0	0.280	116	74-130	2.63	20	
Toluene	55.8	1.00	"	50.0	ND	112	73-131	1.92	20	
Ethylbenzene	58.0	1.00	"	50.0	ND	116	76-132	2.75	20	
m,p-Xylene	114	2.00	"	100	ND	114	69-139	2.00	20	
o-Xylene	55.4	1.00	"	50.0	ND	111	74-131	1.23	20	
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Project: KMG - Clack 1-2A, Olson 2-2

### 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.

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