

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
CLACK 1-2A, OLSON 2-2
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)
SB01 @ 5'	5'	08/04/2015	<0.050	<0.050	<0.050	<0.050	67	<25	<100
SB02 @ 1'	1'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB02 @ 5'	5'	08/04/2015	<0.050	<0.050	<0.050	<0.050	38	<25	<100
SB03 @ 1'	1'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB04 @ 3'	3'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB05 @ 3'	3'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB05 @ 5'	5'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB06 @ 3'	3'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	45	<100
SB06 @ 5'	5'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB07 @ 3'	3'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB07 @ 5'	5'	08/04/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
UTSB01 West@3'	3'	08/04/2015	2.61	<0.050	1.21	8.48	150	100	<100
UTSB02 East@3'	3'	08/04/2015	9.05	4.90	4.83	63.6	730	880	140
SB08 @ 1'	1'	08/06/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
SB08 @ 3'	3'	08/06/2015	<0.002	<0.002	<0.002	<0.002	<25	<25	<100
COGCC Allowable Levels			0.17	85	100	175	500*	500*	500*

Notes: bgs - below ground surface
COGCC - Colorado Oil and Gas Conservation Commission
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilogram

NA - not analyzed/not available
ORO - oil range organics
* - Standard applies to combined DRO-GRO-ORO
< - less than laboratory reporting limit
Bold indicates result exceeds allowable level



TABLE 2
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 to 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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	4.09	<1.00	<1.00	<1.00	5.77	94.55
	8/22/2018	<1.00	<1.00	<1.00	<1.00	6.51	93.81
	11/6/2018	<1.00	<1.00	<1.00	<1.00	6.10	94.22
	2/5/2019	2.19	<1.00	<1.00	<1.00	6.44	93.88
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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	5.23	94.71
	8/22/2018	<1.00	<1.00	<1.00	<1.00	5.93	94.01
	11/6/2018	<1.00	<1.00	<1.00	<1.00	5.51	94.43
	2/5/2019	<1.00	<1.00	<1.00	<1.00	5.94	94.00
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



TABLE 2
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 to Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	4.62	94.57
	8/22/2018	<1.00	<1.00	<1.00	<1.00	5.30	93.89
	11/6/2018	<1.00	<1.00	<1.00	<1.00	4.88	94.31
	2/5/2019	<1.00	<1.00	<1.00	<1.00	5.29	93.90
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
	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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	2.47	<1.00	<1.00	<1.00	4.32	94.49
	8/22/2018	<1.00	<1.00	<1.00	<1.00	5.02	93.79
	11/6/2018	<1.00	<1.00	<1.00	<1.00	4.60	94.21
	2/5/2019	<1.00	<1.00	<1.00	<1.00	4.98	93.83
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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	4.90	94.45
	8/22/2018	<1.00	<1.00	<1.00	<1.00	5.60	93.75



TABLE 2
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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 to Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	11/6/2018	<1.00	<1.00	<1.00	<1.00	5.21	94.14
	2/5/2019	<1.00	<1.00	<1.00	<1.00	5.55	93.80
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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	5.54	94.50
	8/22/2018	<1.00	<1.00	<1.00	<1.00	6.27	93.77
	11/6/2018	<1.00	<1.00	<1.00	<1.00	5.86	94.18
	2/5/2019	<1.00	<1.00	<1.00	<1.00	6.24	93.80
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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	5.47	94.58
	8/22/2018	<1.00	<1.00	<1.00	<1.00	6.18	93.87
	11/6/2018	<1.00	<1.00	<1.00	<1.00	5.79	94.26
	2/5/2019	<1.00	<1.00	<1.00	<1.00	6.18	93.87
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
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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)
	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
	4/11/2018	Surveyed - Not Sampled				NM	NA
	5/15/2018	<1.00	<1.00	<1.00	<1.00	3.27	94.45
	8/22/2018	<1.00	<1.00	<1.00	<1.00	3.98	93.74
	11/6/2018	<1.00	<1.00	<1.00	<1.00	3.56	94.16
	2/5/2019	<1.00	<1.00	<1.00	<1.00	3.92	93.80
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





May 21, 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. May 15, 2018. This project is associated with Origins project number Y805228-01.

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	Y805228-01	Water	May 15, 2018 11:30	05/15/2018 16:26
MW02	Y805228-02	Water	May 15, 2018 11:35	05/15/2018 16:26
MW03	Y805228-03	Water	May 15, 2018 11:40	05/15/2018 16:26
MW04	Y805228-04	Water	May 15, 2018 11:45	05/15/2018 16:26
MW05	Y805228-05	Water	May 15, 2018 11:50	05/15/2018 16:26
MW06	Y805228-06	Water	May 15, 2018 11:55	05/15/2018 16:26
MW07	Y805228-07	Water	May 15, 2018 12:00	05/15/2018 16:26
MW08	Y805228-08	Water	May 15, 2018 12:05	05/15/2018 16:26

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jen Pellegrini, Project Manager

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, INC

Y805228

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 Date		Sample Time	
Number	Sample Identification	Matrix	Sample Date	Sample Time	Container
01-001	MM01	Water	5-15-18	1130	12_40mL Amber VOA Vial - HCL
02-001	MM02	Water		1135	12_40mL Amber VOA Vial - HCL
03-001	MM03	Water		1140	12_40mL Amber VOA Vial - HCL
04-001	MM04	Water		1145	12_40mL Amber VOA Vial - HCL
05-001	MM05	Water		1150	12_40mL Amber VOA Vial - HCL
06-001	MM06	Water		1155	12_40mL Amber VOA Vial - HCL
07-001	MM07	Water		1200	12_40mL Amber VOA Vial - HCL
08-001	MM08	Water		1205	12_40mL Amber VOA Vial - HCL
				Qty	Analyses
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C
				3	BTEX by EPA 8260C

Requisitioned By: [Signature] Date / Time: 5-15-18 / 1624

Received By: [Signature] Date / Time: 5-15-18 / 1626

Temperature on Receipt: 24.9

Turn Around Time: ☐ 72-hr ☒ Standard ☐ 24-hr ☐ 48-hr

Origins Laboratory, Inc.

Jefe Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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: Y805728

Client: LT Environmental
Client Project ID: Clack 1-2A, Olson 2-2

Checklist Completed by: KDK
Date/time completed: 05-16-18 11:03

Shipped Via: Hand Delivered
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: ☐
Cooler Number/Temperature: 1 24.9 °C 1 °C 1 °C 1 °C (Describe)
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 ⁽¹⁾ ?		<input checked="" type="checkbox"/>		same day sampling
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"/>	<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		NO
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 (Project Manager)

5-17-18
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

5/15/2018 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y805228-01 (Water)

BTEX by EPA 8260C

Benzene	4.09	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	111 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	110 %	84-114			"	"	"	

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

MW02

5/15/2018 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y805228-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	119 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	84-114			"	"	"	

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

MW03

5/15/2018 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y805228-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	121 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	109 %	84-114			"	"	"	

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

MW04

5/15/2018 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y805228-04 (Water)

BTEX by EPA 8260C

Benzene	2.47	1.00	ug/L	1	B8E1603	05/16/2018	05/17/2018	
Toluene	ND	1.00	"	"	"	"	05/16/2018	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	05/17/2018
Surrogate: Toluene-d8	102 %	85-115			"	"	05/16/2018
Surrogate: 4-Bromofluorobenzene	112 %	84-114			"	"	"

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

MW05

5/15/2018 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y805228-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	124 %	84-121			"	"	"	S-07
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	84-114			"	"	"	

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jen Pellegrini, Project Manager

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

MW06

5/15/2018 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y805228-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	121 %	84-121			"	"	"
Surrogate: Toluene-d8	101 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	113 %	84-114			"	"	"

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

MW07

5/15/2018 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y805228-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	124 %	84-121			"	"	"	S-07
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	112 %	84-114			"	"	"	

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

MW08**5/15/2018 12:05:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y805228-08 (Water)**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B8E1603	05/16/2018	05/16/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	123 %	84-121			"	"	"	S-07
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	110 %	84-114			"	"	"	

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: 014213044/WO #88337562
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 B8E1603 - EPA 5030B (Water)

Blank (B8E1603-BLK1)

Prepared: 05/16/2018 Analyzed: 05/16/2018

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	67		"	62.5	107		84-121			
Surrogate: Toluene-d8	62		"	62.5	99.4		85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5	108		84-114			

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: 014213044/WO #88337562
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
Batch B8E1603 - EPA 5030B (Water)										
Blank (B8E1603-BLK2)					Prepared: 05/16/2018 Analyzed: 05/16/2018					
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	72		"	62.5	116		84-121			
Surrogate: Toluene-d8	63		"	62.5	102		85-115			
Surrogate: 4-Bromofluorobenzene	69		"	62.5	111		84-114			

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: 014213044/WO #88337562
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
Batch B8E1603 - EPA 5030B (Water)										
LCS (B8E1603-BS1)					Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	44.4	1.00	ug/L	50.0		88.9	73.3-129			
Toluene	48.9	1.00	"	50.0		97.8	76.2-123			
Ethylbenzene	50.1	1.00	"	50.0		100	73.6-130			
m,p-Xylene	101	2.00	"	100		101	76.1-126			
o-Xylene	48.7	1.00	"	50.0		97.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		"	62.5		111	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	84-114			

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: 014213044/WO #88337562
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
Batch B8E1603 - EPA 5030B (Water)										
LCS (B8E1603-BS2)					Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	38.3	1.00	ug/L	50.0		76.5	73.3-129			
Toluene	42.1	1.00	"	50.0		84.1	76.2-123			
Ethylbenzene	42.8	1.00	"	50.0		85.5	73.6-130			
m,p-Xylene	88.5	2.00	"	100		88.5	76.1-126			
o-Xylene	43.9	1.00	"	50.0		87.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.2	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	85-115			
Surrogate: 4-Bromofluorobenzene	69		"	62.5		110	84-114			

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: 014213044/WO #88337562
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 B8E1603 - EPA 5030B (Water)

Matrix Spike (B8E1603-MS1)		Source: Y805227-01			Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	41.3	1.00	ug/L	50.0	ND	82.6	74-130			
Toluene	44.4	1.00	"	50.0	ND	88.9	73-131			
Ethylbenzene	46.8	1.00	"	50.0	0.090	93.3	76-132			
m,p-Xylene	94.2	2.00	"	100	ND	94.2	69-139			
o-Xylene	45.2	1.00	"	50.0	ND	90.4	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	84-121			
Surrogate: Toluene-d8	62		"	62.5		98.8	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	84-114			

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: 014213044/WO #88337562
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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B8E1603 - EPA 5030B (Water)

Matrix Spike (B8E1603-MS2)		Source: Y805228-01			Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	43.4	1.00	ug/L	50.0	4.09	78.5	74-130			
Toluene	44.5	1.00	"	50.0	ND	89.1	73-131			
Ethylbenzene	45.1	1.00	"	50.0	0.100	90.0	76-132			
m,p-Xylene	91.7	2.00	"	100	ND	91.7	69-139			
o-Xylene	44.4	1.00	"	50.0	ND	88.8	74-131			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	69		"	62.5		110	84-114			

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: 014213044/WO #88337562
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
Batch B8E1603 - EPA 5030B (Water)										
Matrix Spike Dup (B8E1603-MSD1)		Source: Y805227-01			Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	40.2	1.00	ug/L	50.0	ND	80.4	74-130	2.70	20	
Toluene	44.5	1.00	"	50.0	ND	89.0	73-131	0.0900	20	
Ethylbenzene	45.6	1.00	"	50.0	0.090	91.0	76-132	2.51	20	
m,p-Xylene	92.9	2.00	"	100	ND	92.9	69-139	1.38	20	
o-Xylene	44.6	1.00	"	50.0	ND	89.2	74-131	1.34	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	70		"	62.5		112	84-114			

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: 014213044/WO #88337562
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 B8E1603 - EPA 5030B (Water)

Matrix Spike Dup (B8E1603-MSD2)		Source: Y805228-01			Prepared: 05/16/2018 Analyzed: 05/16/2018					
Benzene	42.9	1.00	ug/L	50.0	4.09	77.7	74-130	0.950	20	
Toluene	44.8	1.00	"	50.0	ND	89.7	73-131	0.649	20	
Ethylbenzene	45.7	1.00	"	50.0	0.100	91.3	76-132	1.39	20	
m,p-Xylene	92.8	2.00	"	100	ND	92.8	69-139	1.13	20	
o-Xylene	45.4	1.00	"	50.0	ND	90.8	74-131	2.18	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	69		"	62.5		111	84-114			

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

Notes and Definitions

U Sample is Non-Detect.

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

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.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jen Pellegrini, Project Manager



August 27, 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. August 22, 2018. This project is associated with Origins project number Y808315-01.

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	Y808315-01	Water	August 22, 2018 10:00	08/22/2018 16:52
MW02	Y808315-02	Water	August 22, 2018 10:05	08/22/2018 16:52
MW03	Y808315-03	Water	August 22, 2018 10:10	08/22/2018 16:52
MW04	Y808315-04	Water	August 22, 2018 10:15	08/22/2018 16:52
MW05	Y808315-05	Water	August 22, 2018 10:20	08/22/2018 16:52
MW06	Y808315-06	Water	August 22, 2018 10:25	08/22/2018 16:52
MW07	Y808315-07	Water	August 22, 2018 10:30	08/22/2018 16:52
MW08	Y808315-08	Water	August 22, 2018 10:35	08/22/2018 16:52

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

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 160315

Client: LTE

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

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 8/23/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 27.5 °C / / °C / / °C / / °C (Describe)

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⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Same Day</u>
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 checked="" type="checkbox"/>	<input 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 (Project Manager) JAP

Date/Time Reviewed 8/24/18

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

8/22/2018 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	112 %	84-121	"	"	"
Surrogate: Toluene-d8	92.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	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

MW02

8/22/2018 10:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	111 %	84-121	"	"	"
Surrogate: Toluene-d8	92.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	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

MW03

8/22/2018 10:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	112 %	84-121	"	"	"
Surrogate: Toluene-d8	90.7 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	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

MW04

8/22/2018 10:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	111 %	84-121	"	"	"
Surrogate: Toluene-d8	91.3 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	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

8/22/2018 10:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	111 %	84-121	"	"	"
Surrogate: Toluene-d8	91.8 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	84-114	"	"	"

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Arvada CO 80003

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

MW06

8/22/2018 10:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	JTD	08/23/2018	08/24/2018	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	113 %	84-121	"	"	"
Surrogate: Toluene-d8	92.0 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	84-114	"	"	"

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Arvada CO 80003

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

MW07

8/22/2018 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	KDK	08/23/2018	08/24/2018	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	107 %	84-121	"	"	"
Surrogate: Toluene-d8	91.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	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

MW08

8/22/2018 10:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y808315-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8H2304	KDK	08/23/2018	08/24/2018	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	110 %	84-121	"	"	"
Surrogate: Toluene-d8	90.1 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	109 %	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

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
Batch B8H2304 - EPA 5030B (Water)										
Blank (B8H2304-BLK1)					Prepared: 08/23/2018 Analyzed: 08/23/2018					
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	68		"	62.5	109		84-121			
Surrogate: Toluene-d8	58		"	62.5	92.3		85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5	106		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

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
Batch B8H2304 - EPA 5030B (Water)										
Blank (B8H2304-BLK2)					Prepared: 08/23/2018 Analyzed: 08/23/2018					
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	69		"	62.5	110		84-121			
Surrogate: Toluene-d8	58		"	62.5	93.2		85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5	106		84-114			

Origins Laboratory, Inc.



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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
Batch B8H2304 - EPA 5030B (Water)										
LCS (B8H2304-BS1)					Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	55.3	1.00	ug/L	50.0		111	73.3-129			
Toluene	49.1	1.00	"	50.0		98.2	76.2-123			
Ethylbenzene	50.8	1.00	"	50.0		102	73.6-130			
m,p-Xylene	101	2.00	"	100		101	76.1-126			
o-Xylene	49.7	1.00	"	50.0		99.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	84-121			
Surrogate: Toluene-d8	58		"	62.5		93.1	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

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

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
Batch B8H2304 - EPA 5030B (Water)										
LCS (B8H2304-BS2)					Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	56.0	1.00	ug/L	50.0		112	73.3-129			
Toluene	51.3	1.00	"	50.0		103	76.2-123			
Ethylbenzene	52.7	1.00	"	50.0		105	73.6-130			
m,p-Xylene	104	2.00	"	100		104	76.1-126			
o-Xylene	50.6	1.00	"	50.0		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	84-121			
Surrogate: Toluene-d8	59		"	62.5		94.4	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

Origins Laboratory, Inc.



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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 B8H2304 - EPA 5030B (Water)

Matrix Spike (B8H2304-MS1)		Source: Y808314-02			Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	54.3	1.00	ug/L	50.0	ND	109	74-130			
Toluene	48.6	1.00	"	50.0	ND	97.2	73-131			
Ethylbenzene	49.5	1.00	"	50.0	0.080	98.8	76-132			
m,p-Xylene	97.4	2.00	"	100	0.220	97.1	69-139			
o-Xylene	49.4	1.00	"	50.0	ND	98.8	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	58		"	62.5		93.5	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Arvada CO 80003

Brian Sulzberger
Project Number: 014213044/WO #88337562
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 B8H2304 - EPA 5030B (Water)

Matrix Spike (B8H2304-MS2)		Source: Y808314-05			Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	56.4	1.00	ug/L	50.0	ND	113	74-130			
Toluene	50.1	1.00	"	50.0	ND	100	73-131			
Ethylbenzene	51.4	1.00	"	50.0	ND	103	76-132			
m,p-Xylene	102	2.00	"	100	ND	102	69-139			
o-Xylene	50.7	1.00	"	50.0	ND	101	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	58		"	62.5		93.3	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	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

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 B8H2304 - EPA 5030B (Water)

Matrix Spike Dup (B8H2304-MSD1)		Source: Y808314-02			Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	54.1	1.00	ug/L	50.0	ND	108	74-130	0.314	20	
Toluene	48.6	1.00	"	50.0	ND	97.3	73-131	0.0617	20	
Ethylbenzene	49.2	1.00	"	50.0	0.080	98.2	76-132	0.669	20	
m,p-Xylene	97.2	2.00	"	100	0.220	97.0	69-139	0.195	20	
o-Xylene	48.9	1.00	"	50.0	ND	97.9	74-131	0.915	20	
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	59		"	62.5		93.7	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	84-114			

Origins Laboratory, 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

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
Batch B8H2304 - EPA 5030B (Water)										
Matrix Spike Dup (B8H2304-MSD2)			Source: Y808314-05		Prepared: 08/23/2018 Analyzed: 08/23/2018					
Benzene	57.5	1.00	ug/L	50.0	ND	115	74-130	2.04	20	
Toluene	51.4	1.00	"	50.0	ND	103	73-131	2.48	20	
Ethylbenzene	52.7	1.00	"	50.0	ND	105	76-132	2.48	20	
m,p-Xylene	103	2.00	"	100	ND	103	69-139	1.60	20	
o-Xylene	51.9	1.00	"	50.0	ND	104	74-131	2.44	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		103	84-121			
Surrogate: Toluene-d8	58		"	62.5		93.6	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



November 09, 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. November 06, 2018. This project is associated with Origins project number Y811096-01.

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	Y811096-01	Water	November 6, 2018 12:55	11/06/2018 16:47
MW02	Y811096-02	Water	November 6, 2018 13:00	11/06/2018 16:47
MW03	Y811096-03	Water	November 6, 2018 13:05	11/06/2018 16:47
MW04	Y811096-04	Water	November 6, 2018 13:10	11/06/2018 16:47
MW05	Y811096-05	Water	November 6, 2018 13:15	11/06/2018 16:47
MW06	Y811096-06	Water	November 6, 2018 13:20	11/06/2018 16:47
MW07	Y811096-07	Water	November 6, 2018 13:25	11/06/2018 16:47
MW08	Y811096-08	Water	November 6, 2018 13:30	11/06/2018 16:47

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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, INC

Y811096

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	Analysis
01-001	MM01	Water	11-6-18	1255	3 BTEX by EPA 8260C
02-001	MM02	Water		1300	3 BTEX by EPA 8260C
03-001	MM03	Water		1305	3 BTEX by EPA 8260C
04-001	MM04	Water		1310	3 BTEX by EPA 8260C
05-001	MM05	Water		1315	3 BTEX by EPA 8260C
06-001	MM06	Water		1320	3 BTEX by EPA 8260C
07-001	MM07	Water		1325	3 BTEX by EPA 8260C
08-001	MM08	Water		1330	3 BTEX by EPA 8260C

Relinquished By: [Signature] Date / Time: 11-6-18 1647

Received By: [Signature] Date / Time: 11-6-18 1647

Temperature on Receipt: 94

Turn Around Time: ☐ 72-hr ☒ Standard

Same Day: ☐ 24-hr ☐ 48-hr

Origins Laboratory, Inc.

Jefe Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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: Y811096

Client: LTE

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

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 11 / 7 / 2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 9.4 °C 1 / 1 °C 1 / 1 °C 1 / 1 °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⁾ ?		<input checked="" type="checkbox"/>		<u>Same Day</u>
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽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 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 (Project Manager) JG

Date/Time Reviewed 11/8/18

Origins Laboratory, Inc.

Jen Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

11/6/2018 12:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	103 %	84-121	"	"	"
Surrogate: Toluene-d8	98.8 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.8 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

MW02

11/6/2018 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	101 %	84-121	"	"	"
Surrogate: Toluene-d8	100 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.4 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

MW03

11/6/2018 1:05:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	101 %	84-121	"	"	"
Surrogate: Toluene-d8	99.0 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.1 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

MW04

11/6/2018 1:10:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	101 %	84-121	"	"	"
Surrogate: Toluene-d8	99.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.5 %	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

11/6/2018 1:15:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	104 %	84-121	"	"	"
Surrogate: Toluene-d8	97.7 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.0 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

MW06

11/6/2018 1:20:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	103 %	84-121	"	"	"
Surrogate: Toluene-d8	99.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.2 %	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

MW07

11/6/2018 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	103 %	84-121	"	"	"
Surrogate: Toluene-d8	98.0 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.2 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

MW08

11/6/2018 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y811096-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8K0709	JTD	11/07/2018	11/08/2018	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	104 %	84-121	"	"	"
Surrogate: Toluene-d8	98.8 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	84-114	"	"	"

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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 B8K0709 - EPA 5030B (Water)

Blank (B8K0709-BLK1)

Prepared: 11/07/2018 Analyzed: 11/07/2018

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	66		"	62.5	105		84-121			
Surrogate: Toluene-d8	61		"	62.5	98.0		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.3		84-114			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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
Batch B8K0709 - EPA 5030B (Water)										
LCS (B8K0709-BS1)					Prepared: 11/07/2018 Analyzed: 11/07/2018					
Benzene	46.1	1.00	ug/L	50.0		92.2	73.3-129			
Toluene	49.0	1.00	"	50.0		97.9	76.2-123			
Ethylbenzene	51.4	1.00	"	50.0		103	73.6-130			
m,p-Xylene	105	2.00	"	100		105	76.1-126			
o-Xylene	49.8	1.00	"	50.0		99.6	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.3	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.2	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	84-114			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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 B8K0709 - EPA 5030B (Water)

Matrix Spike (B8K0709-MS1)		Source: Y811080-01			Prepared: 11/07/2018 Analyzed: 11/08/2018					
Benzene	43.8	1.00	ug/L	50.0	ND	87.6	74-130			
Toluene	46.8	1.00	"	50.0	ND	93.7	73-131			
Ethylbenzene	48.9	1.00	"	50.0	0.100	97.5	76-132			
m,p-Xylene	101	2.00	"	100	0.170	101	69-139			
o-Xylene	48.1	1.00	"	50.0	ND	96.3	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	84-114			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B8K0709 - EPA 5030B (Water)

Matrix Spike Dup (B8K0709-MSD1)		Source: Y811080-01			Prepared: 11/07/2018 Analyzed: 11/08/2018					
Benzene	48.9	1.00	ug/L	50.0	ND	97.9	74-130	11.1	20	
Toluene	53.0	1.00	"	50.0	ND	106	73-131	12.3	20	
Ethylbenzene	56.4	1.00	"	50.0	0.100	113	76-132	14.2	20	
m,p-Xylene	115	2.00	"	100	0.170	115	69-139	12.6	20	
o-Xylene	53.0	1.00	"	50.0	ND	106	74-131	9.57	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.8	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	84-114			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



February 12, 2019

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 05, 2019. This project is associated with Origins project number Y902061-01.

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	Y902061-01	Water	February 5, 2019 12:05	02/05/2019 15:25
MW02	Y902061-02	Water	February 5, 2019 12:11	02/05/2019 15:25
MW03	Y902061-03	Water	February 5, 2019 12:15	02/05/2019 15:25
MW04	Y902061-04	Water	February 5, 2019 12:19	02/05/2019 15:25
MW05	Y902061-05	Water	February 5, 2019 12:26	02/05/2019 15:25
MW06	Y902061-06	Water	February 5, 2019 12:30	02/05/2019 15:25
MW07	Y902061-07	Water	February 5, 2019 12:34	02/05/2019 15:25
MW08	Y902061-08	Water	February 5, 2019 12:40	02/05/2019 15:25

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

ORIGINS
LABORATORY, INC

7900061


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

Client: LT Environmental, Inc. Project Manager: Brian Sulzberger
Project: KMG - Clack 1-2A, Olson 2-2 Project Number: 014213044/WO #88337562

Number	Sample Identification	Matrix	Sample Date	Sample Time	Sampled By	Container	Qty	Analyses
01-001	MW01	Water	2-5-19	1205	TS	40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
02-001	MW02	Water		1211		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
03-001	MW03	Water		1215		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
04-001	MW04	Water		1219		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
05-001	MW05	Water		1226		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
06-001	MW06	Water		1236		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
07-001	MW07	Water		1234		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C
08-001	MW08	Water		1246		40mL Amber VOA Vial - HC	3/2	BTEX by EPA 8260C

Relinquished By  Date / Time 2-5-19 1523

Received By _____ Date / Time _____

Relinquished By  Date / Time 2/5/19 1525

Received By _____ Date / Time _____

Temperature on Receipt: 76

Turn Around Time:

Same Day ☐ 72-hr ☐ Standard ☒
24-hr ☐

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

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y 902061

Client: LTE

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

Checklist Completed by: JG

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

Date/time completed: 2 / 6 / 2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 7.6 °C 1 / 1 °C 1 / 1 °C 1 / 1 °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⁾ ?		<input checked="" type="checkbox"/>		<u>Same Day</u>
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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"/>	<input checked="" 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 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 (Project Manager) JG

2/7/19
Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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

2/5/2019 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y902061-01 (Water)

BTEX by EPA 8260C

Benzene	2.19	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.9 %	84-121			"	"	"
Surrogate: Toluene-d8	97.3 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	95.6 %	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

MW02**2/5/2019 12:11:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y902061-02 (Water)**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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	98.8 %	84-121	"	"	"
Surrogate: Toluene-d8	99.4 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	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

MW03

2/5/2019 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y902061-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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 %	84-121	"	"	"
Surrogate: Toluene-d8	99.0 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.0 %	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

MW04

2/5/2019 12:19:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y902061-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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	96.4 %	84-121	"	"	"
Surrogate: Toluene-d8	97.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	97.9 %	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

2/5/2019 12:26:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y902061-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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	98.4 %	84-121	"	"	"
Surrogate: Toluene-d8	98.5 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	96.9 %	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

MW06

2/5/2019 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y902061-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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 %	84-121	"	"	"
Surrogate: Toluene-d8	99.3 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.2 %	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

MW07

2/5/2019 12:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y902061-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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	103 %	84-121	"	"	"
Surrogate: Toluene-d8	99.2 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	98.8 %	84-114	"	"	"

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Arvada CO 80003

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

MW08

2/5/2019 12:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y902061-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9B0608	KDK	02/06/2019	02/08/2019	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 %	84-121	"	"	"
Surrogate: Toluene-d8	99.7 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	84-114	"	"	"

Origins Laboratory, Inc.



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Brian Sulzberger
Project Number: 014213044/WO #88337562
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
Batch B9B0608 - EPA 5030B (Water)										
Blank (B9B0608-BLK1)					Prepared: 02/06/2019 Analyzed: 02/07/2019					
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	63		"	62.5		101	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 B9B0608 - EPA 5030B (Water)

LCS (B9B0608-BS1)

Prepared: 02/06/2019 Analyzed: 02/07/2019

Benzene	51.3	1.00	ug/L	50.0	103	73.3-129
Toluene	50.6	1.00	"	50.0	101	76.2-123
Ethylbenzene	52.1	1.00	"	50.0	104	73.6-130
m,p-Xylene	102	2.00	"	100	102	76.1-126
o-Xylene	50.9	1.00	"	50.0	102	76.6-124
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5	97.7	84-121
Surrogate: Toluene-d8	62		"	62.5	99.9	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 B9B0608 - EPA 5030B (Water)

Matrix Spike (B9B0608-MS1)		Source: Y902056-01			Prepared: 02/06/2019 Analyzed: 02/07/2019					
Benzene	54.7	1.00	ug/L	50.0	ND	109	74-130			
Toluene	55.8	1.00	"	50.0	0.630	110	73-131			
Ethylbenzene	55.9	1.00	"	50.0	ND	112	76-132			
m,p-Xylene	110	2.00	"	100	ND	110	69-139			
o-Xylene	54.1	1.00	"	50.0	ND	108	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.9	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

Origins Laboratory, Inc.



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Brian Sulzberger
Project Number: 014213044/WO #88337562
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 B9B0608 - EPA 5030B (Water)

Matrix Spike Dup (B9B0608-MSD1)		Source: Y902056-01			Prepared: 02/06/2019 Analyzed: 02/07/2019					
Benzene	53.9	1.00	ug/L	50.0	ND	108	74-130	1.40	20	
Toluene	56.3	1.00	"	50.0	0.630	111	73-131	0.838	20	
Ethylbenzene	56.5	1.00	"	50.0	ND	113	76-132	1.09	20	
m,p-Xylene	112	2.00	"	100	ND	112	69-139	1.13	20	
o-Xylene	54.4	1.00	"	50.0	ND	109	74-131	0.553	20	
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.1	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	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

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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