

TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
HATCH UPRR 42-11 #1
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE, LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
COGCC Allowable Levels		5	560	700	1400		
GW01	2/12/2018	167	772	130	2,180	17	NM
MW01	7/2/2018	Not Sampled				14.96	82.64
	7/23/2018	Not Sampled				14.97	82.63
	10/5/2018	<1.00	<1.00	<1.00	<1.00	14.64	82.96
	1/23/2019	<1.00	<1.00	<1.00	<1.00	15.63	81.97
	4/16/2019	<1.00	<1.00	<1.00	<1.00	15.80	81.80
	7/22/2019	<1.00	<1.00	<1.00	<1.00	15.54	82.06
	10/30/2019	<1.00	<1.00	<1.00	<1.00	15.47	82.13
	1/13/2020	<1.00	<1.00	<1.00	<1.00	15.87	81.73
MW02	7/2/2018	Not Sampled				13.36	82.44
	7/23/2018	Not Sampled				13.37	82.43
	10/5/2018	510	<20.0	<20.0	241	13.44	82.36
	1/23/2019	556	18.4	19.9	1,400	13.93	81.87
	4/16/2019	154	<10.0	<10.0	1,100	14.25	81.55
	7/22/2019	239	<10.0	55.6	1,080	13.79	82.01
	10/30/2019	215	<1.00	26.8	268	13.66	82.14
	1/13/2020	141	<10.0	<10.0	785	14.18	81.62
MW03	7/2/2018	Not Sampled				12.26	82.27
	7/23/2018	Not Sampled				12.27	82.26
	10/5/2018	2,440	13,600	658	11,400	12.28	82.25
	1/23/2019	2,450	14,300	908	16,800	12.87	81.66
	4/16/2019	1,330	8,800	590	11,600	13.03	81.50
	7/22/2019	1,350	7,720	569	10,700	12.49	82.04
	10/30/2019	1,540	7,110	646	12,100	12.55	81.98
	1/13/2020	830	3,710	304	12,600	12.98	81.55
MW04	7/2/2018	Not Sampled				14.95	82.64
	7/23/2018	Not Sampled				15.07	82.52
	10/5/2018	4.68	<4.00	203	2,860	15.13	82.46
	1/23/2019	5.59	6.27	248	2,780	15.54	82.05
	4/16/2019	<20.0	<20.0	222	1,990	15.78	81.81
	7/22/2019	<4.00	<4.00	206	1,530	15.25	82.34
	10/30/2019	3.05	2.33	268	1,550	15.29	82.30
	1/13/2020	<4.00	<4.00	122	<4.00	15.73	81.86
MW05	7/23/2018	<1.00	<1.00	<1.00	<1.00	13.45	82.22
	10/5/2018	<1.00	<1.00	<1.00	<1.00	13.51	82.16



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COGCC Allowable Levels		5	560	700	1400		
	1/23/2019	<1.00	<1.00	<1.00	<1.00	13.99	81.68
	4/16/2019	<1.00	<1.00	<1.00	<1.00	13.96	81.71
	7/22/2019	<1.00	<1.00	<1.00	<1.00	13.62	82.05
	10/30/2019	<1.00	<1.00	<1.00	<1.00	13.63	82.04
	1/13/2020	<1.00	<1.00	<1.00	<1.00	14.11	81.56
MW06	7/23/2018	3,200	<20.0	171	6,630	11.56	81.92
	10/5/2018	2,590	<20.0	27.8	4,160	10.59	82.89
	1/23/2019	1,210	1.47	123	2,580	12.12	81.36
	4/16/2019	1,190	<50.0	64.0	1,780	12.24	81.24
	7/22/2019	993	<20.0	82.0	1,940	11.72	81.76
	10/30/2019	846	<1.00	132	1,880	11.79	81.69
	1/13/2020	Frozen - Not Sampled				NM	NA
MW07	7/23/2018	<1.00	<1.00	<1.00	<1.00	11.31	82.06
	10/5/2018	<1.00	<1.00	<1.00	<1.00	11.39	81.98
	1/23/2019	<1.00	<1.00	<1.00	4.94	11.88	81.49
	4/16/2019	<1.00	<1.00	<1.00	<1.00	12.02	81.35
	7/22/2019	<1.00	<1.00	<1.00	<1.00	11.63	81.74
	10/30/2019	<1.00	<1.00	<1.00	<1.00	11.64	81.73
	1/13/2020	<1.00	<1.00	<1.00	<1.00	12.05	81.32
MW08	7/23/2018	<1.00	<1.00	<1.00	<1.00	13.32	82.35
	10/5/2018	<1.00	<1.00	<1.00	<1.00	13.33	82.34
	1/23/2019	<1.00	<1.00	<1.00	<1.00	13.85	81.82
	4/16/2019	<1.00	<1.00	<1.00	<1.00	14.07	81.60
	7/22/2019	<1.00	<1.00	<1.00	<1.00	13.73	81.94
	10/30/2019	<1.00	<1.00	<1.00	<1.00	13.65	82.02
	1/13/2020	<1.00	<1.00	<1.00	<1.00	14.06	81.61
MW09	7/23/2018	<1.00	<1.00	<1.00	<1.00	15.55	82.61
	10/5/2018	<1.00	<1.00	<1.00	<1.00	15.58	82.58
	1/23/2019	<1.00	<1.00	<1.00	<1.00	16.17	81.99
	4/16/2019	<1.00	<1.00	<1.00	<1.00	16.29	81.87
	7/22/2019	<1.00	<1.00	<1.00	<1.00	15.80	82.36
	10/30/2019	<1.00	<1.00	<1.00	<1.00	15.77	82.39
	1/13/2020	<1.00	<1.00	<1.00	<1.00	16.22	81.94
MW10	11/13/2019	<1.00	<1.00	<1.00	<1.00	14.05	81.70
	1/13/2020	<1.00	<1.00	<1.00	<1.00	14.57	81.18



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COGCC Allowable Levels		5	560	700	1400		
MW11	11/13/2019	<1.00	<1.00	<1.00	<1.00	12.06	81.35
	1/13/2020	<1.00	<1.00	<1.00	<1.00	12.40	81.01
MW12	11/13/2019	<1.00	<1.00	<1.00	<1.00	11.75	81.32
	1/13/2020	<1.00	<1.00	<1.00	<1.00	12.03	81.04

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





January 20, 2020

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Hatch UPRR 42-11 #1

Project Number - 014218028/WO #894941

Attached are your analytical results for KMG - Hatch UPRR 42-11 #1 received by Origins Laboratory, Inc. January 13, 2020. This project is associated with Origins project number Y001161-01.

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: 014218028/WO #89494143
Project: KMG - Hatch UPRR 42-11 #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y001161-01	Water	January 13, 2020 13:28	01/13/2020 15:15
MW02	Y001161-02	Water	January 13, 2020 13:22	01/13/2020 15:15
MW03	Y001161-03	Water	January 13, 2020 13:13	01/13/2020 15:15
MW04	Y001161-04	Water	January 13, 2020 14:11	01/13/2020 15:15
MW05	Y001161-05	Water	January 13, 2020 13:48	01/13/2020 15:15
MW07	Y001161-06	Water	January 13, 2020 13:38	01/13/2020 15:15
MW08	Y001161-07	Water	January 13, 2020 13:34	01/13/2020 15:15
MW09	Y001161-08	Water	January 13, 2020 13:59	01/13/2020 15:15
MW10	Y001161-09	Water	January 13, 2020 14:02	01/13/2020 15:15
MW11	Y001161-10	Water	January 13, 2020 13:52	01/13/2020 15:15
MW12	Y001161-11	Water	January 13, 2020 13:45	01/13/2020 15:15

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: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1



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

112

Client: LT Environmental, Inc. Project Manager: Brian Sulzberger
 Project: KMG - Hatch UPRR 42-11 #1 Project Number: 014218028/WO #89494143

Number	Sample Identification	Matrix	Sample Date	Sample Time	Sampled By	Container	Qty	Analyses
01-001	MW01	Water	1/15/2026	1328	1811441 RN	40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
02-001	MW02	Water		1322		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
03-001	MW03	Water		1315		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
04-001	MW04	Water		1411		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
05-001	MW05	Water		1340		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
06-001	MW06	Water				40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
07-001	MW07	Water		1328		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
08-001	MW08	Water		1324		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
09-001	MW09	Water		1359		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
10-001	MW10	Water		1402		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
11-001	MW11	Water		1352		40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C

Relinquished By: [Signature] Date/Time: 1/15/2026 1514
 Relinquished By: [Signature] Date/Time: 1/15/20 1515
 Received By: [Signature] Date/Time: [Blank]
 Received By: [Signature] Date/Time: [Blank]

Temperature on Receipt: 5.8
 Turn Around Time: 72-hr Standard 48-hr

Origins Laboratory, Inc.

Jefe Pellegrini

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LT Environmental, Inc.
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 Arvada CO 80003

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

HW

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

17001161

12-001	MW12	Water	11/21/2026	1345	HEAVY METALS - 40mL Clear Vial Cool to 4°	3	BTEX by EPA 8260C
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Relinquished By GAA	Date / Time 11/20/2026 1611	Relinquished By (Signature)	Date / Time 11/20/2026 1515
Received By	Date / Time	Received By	Date / Time

Temperature on Receipt: 58

Turn Around Time: 24-hr 48-hr Standard

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y001161

Client: LTE

Client Project ID: Hatch UPRR 42-11 #1

Checklist Completed by: JG

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

Date/time completed: 1 / 13 / 2020

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.8 °C / °C / °C / °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"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input 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) [Signature]

Date/Time Reviewed 1/14/20

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW01

1/13/2020 1:28:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-01 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	99.5 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.7 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
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 Arvada CO 80003

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW02

1/13/2020 1:22:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-02 (Water)

BTEX by EPA 8260D

Benzene	141	10.0	ug/L	10	B0A1401	ZZZ	01/14/2020	01/14/2020	
Toluene	ND	10.0	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	10.0	"	"	"	ZZZ	"	"	U
Xylenes, total	785	10.0	"	"	"	ZZZ	"	"	

Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	92.7 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW03

1/13/2020 1:13:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-03 (Water)

BTEX by EPA 8260D

Benzene	830	10.0	ug/L	10	B0A1401	ZZZ	01/14/2020	01/14/2020	
Toluene	3710	50.0	"	50	"	ZZZ	"	01/14/2020	
Ethylbenzene	304	10.0	"	10	"	ZZZ	"	01/14/2020	
Xylenes, total	12600	50.0	"	50	"	ZZZ	"	01/14/2020	
Surrogate: 1,2-Dichloroethane-d4	101 %			70-130		"	"	01/14/2020	
Surrogate: Toluene-d8	116 %			70-130		"	"	"	
Surrogate: 4-Bromofluorobenzene	88.7 %			70-130		"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW04

1/13/2020 2:11:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-04 (Water)

BTEX by EPA 8260D

Benzene	ND	4.00	ug/L	4	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	4.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	122	10.0	"	10	"	ZZZ	"	01/14/2020	
Xylenes, total	ND	4.00	"	4	"	ZZZ	"	01/14/2020	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"		01/14/2020	
Surrogate: Toluene-d8	99.0 %	70-130			"	"		"	
Surrogate: 4-Bromofluorobenzene	96.4 %	70-130			"	"		"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW05

1/13/2020 1:48:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-05 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	92.5 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW07

1/13/2020 1:38:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-06 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	99.9 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	92.6 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW08

1/13/2020 1:34:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-07 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	91.1 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW09

1/13/2020 1:59:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-08 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	99.7 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	103 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	91.8 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW10
1/13/2020 2:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-09 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	99.8 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	93.1 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW11

1/13/2020 1:52:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-10 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	99.8 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	105 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	90.7 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
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Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW12
1/13/2020 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y001161-11 (Water)

BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B0A1401	ZZZ	01/14/2020	01/14/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	99.0 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
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Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B0A1401 - EPA 5030B (Water)

Blank (B0A1401-BLK1)

Prepared: 01/14/2020 Analyzed: 01/14/2020

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.9	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		93.3	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B0A1401 - EPA 5030B (Water)

LCS (B0A1401-BS1)

Prepared: 01/14/2020 Analyzed: 01/14/2020

Benzene	48.0	1.00	ug/L	50.0		96.1	70-130			
Toluene	47.8	1.00	"	50.0		95.6	70-130			
Ethylbenzene	48.4	1.00	"	50.0		96.8	70-130			
m,p-Xylene	107	2.00	"	100		107	70-130			
o-Xylene	47.8	1.00	"	50.0		95.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.6	70-130			

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

Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B0A1401 - EPA 5030B (Water)

Matrix Spike (B0A1401-MS1)	Source: Y001161-01			Prepared: 01/14/2020 Analyzed: 01/14/2020						
Benzene	42.5	1.00	ug/L	50.0	ND	84.9	70-130			
Toluene	41.8	1.00	"	50.0	0.130	83.3	70-130			
Ethylbenzene	41.1	1.00	"	50.0	ND	82.3	70-130			
m,p-Xylene	92.4	2.00	"	100	0.330	92.0	70-130			
o-Xylene	43.5	1.00	"	50.0	ND	87.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.3	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.2	70-130			

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Brian Sulzberger
 Project Number: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B0A1401 - EPA 5030B (Water)

Matrix Spike Dup (B0A1401-MSD1)	Source: Y001161-01			Prepared: 01/14/2020 Analyzed: 01/14/2020						
Benzene	65.0	1.00	ug/L	50.0	ND	130	70-130	41.9	20	QR-03
Toluene	64.6	1.00	"	50.0	0.130	129	70-130	42.8	20	QR-03
Ethylbenzene	65.3	1.00	"	50.0	ND	131	70-130	45.5	20	QM-07, QR-03
m,p-Xylene	143	2.00	"	100	0.330	143	70-130	43.3	20	QM-07, QR-03
o-Xylene	65.1	1.00	"	50.0	ND	130	70-130	39.7	20	QR-03
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.2	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.9	70-130			

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Arvada CO 80003

Brian Sulzberger
Project Number: 014218028/WO #89494143
Project: KMG - Hatch UPRR 42-11 #1

Notes and Definitions

U Sample is Non-Detect.

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

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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