

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)
GW01	2/12/2018	167	772	130	2,180	17.00	
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
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
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
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
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
	1/23/2019	<1.00	<1.00	<1.00	<1.00	13.99	81.68
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
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
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
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



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HATCH UPRR 42-11 #1
WELD COUNTY, COLORADO
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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)
	1/23/2019	<1.00	<1.00	<1.00	<1.00	16.17	81.99
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





July 03, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

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

Project Number - 014218028

Attached are your analytical results for KMG - Hatch UPRR 42-11 #1 received by Origins Laboratory, Inc. July 02, 2018. This project is associated with Origins project number Y807031-01.

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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y807031-01	Water	July 2, 2018 11:00	07/02/2018 15:45
MW02	Y807031-02	Water	July 2, 2018 11:20	07/02/2018 15:45
MW03	Y807031-03	Water	July 2, 2018 11:40	07/02/2018 15:45
MW04	Y807031-04	Water	July 2, 2018 12:00	07/02/2018 15:45

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
 Project: KMG - Hatch UPRR 42-11 #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4867031

Client: LTE

Client Project ID: KMG - Hatch UPRR 42-11 #1

Checklist Completed by: JG

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

Date/time completed: 7/2/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.3 °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"/>	
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 checked="" 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 7/3/18

Origins Laboratory, Inc.

[Signature: 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: 014218028
Project: KMG - Hatch UPRR 42-11 #1

MW01
7/2/2018 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807031-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8G0205	07/02/2018	07/02/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	89.6 %	84-121			"	"	"	
Surrogate: Toluene-d8	123 %	85-115			"	"	"	S-07
Surrogate: 4-Bromofluorobenzene	95.1 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW02
7/2/2018 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807031-02 (Water)

BTEX by EPA 8260C

Benzene	3210	50.0	ug/L	50	B8G0205	07/02/2018	07/03/2018	
Toluene	158	50.0	"	"	"	"	"	
Ethylbenzene	376	50.0	"	"	"	"	"	
Xylenes, total	5740	50.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	100 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW03
7/2/2018 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807031-03 (Water)

BTEX by EPA 8260C

Benzene	2720	200	ug/L	200	B8G0205	07/02/2018	07/03/2018	
Toluene	16900	200	"	"	"	"	"	
Ethylbenzene	1050	200	"	"	"	"	"	
Xylenes, total	16500	200	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	100 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.7 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW04
7/2/2018 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807031-04 (Water)

BTEX by EPA 8260C

Benzene	7.32	4.00	ug/L	4	B8G0205	07/02/2018	07/03/2018	
Toluene	6.96	4.00	"	"	"	"	"	
Ethylbenzene	616	4.00	"	"	"	"	"	
Xylenes, total	8760	50.0	"	50	"	"	07/03/2018	
Surrogate: 1,2-Dichloroethane-d4	99.3 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

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 B8G0205 - EPA 5030B (Water)

Blank (B8G0205-BLK1)

Prepared: 07/02/2018 Analyzed: 07/02/2018

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	55		"	62.5		88.2	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.0	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.0	84-114			

Origins Laboratory, Inc.



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

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

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 B8G0205 - EPA 5030B (Water)

LCS (B8G0205-BS1)

Prepared: 07/02/2018 Analyzed: 07/02/2018

Benzene	56.6	1.00	ug/L	50.0		113	73.3-129			
Toluene	51.3	1.00	"	50.0		103	76.2-123			
Ethylbenzene	53.1	1.00	"	50.0		106	73.6-130			
m,p-Xylene	103	2.00	"	100		103	76.1-126			
o-Xylene	54.9	1.00	"	50.0		110	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	54		"	62.5		86.1	84-121			
Surrogate: Toluene-d8	62		"	62.5		98.5	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

Origins Laboratory, Inc.



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

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

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 B8G0205 - EPA 5030B (Water)

Matrix Spike (B8G0205-MS1)	Source: Y807023-01			Prepared: 07/02/2018 Analyzed: 07/02/2018						
Benzene	46.2	1.00	ug/L	50.0	ND	92.3	74-130			
Toluene	57.8	1.00	"	50.0	ND	116	73-131			
Ethylbenzene	61.1	1.00	"	50.0	ND	122	76-132			
m,p-Xylene	118	2.00	"	100	ND	118	69-139			
o-Xylene	62.9	1.00	"	50.0	ND	126	74-131			
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.4	84-121			
Surrogate: Toluene-d8	69		"	62.5		110	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		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: 014218028
 Project: KMG - Hatch UPRR 42-11 #1

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 B8G0205 - EPA 5030B (Water)

Matrix Spike Dup (B8G0205-MSD1)	Source: Y807023-01			Prepared: 07/02/2018 Analyzed: 07/02/2018						
Benzene	44.1	1.00	ug/L	50.0	ND	88.2	74-130	4.59	20	
Toluene	59.8	1.00	"	50.0	ND	120	73-131	3.47	20	
Ethylbenzene	64.6	1.00	"	50.0	ND	129	76-132	5.65	20	
m,p-Xylene	125	2.00	"	100	ND	125	69-139	5.59	20	
o-Xylene	66.6	1.00	"	50.0	ND	133	74-131	5.73	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5		89.4	84-121			
Surrogate: Toluene-d8	72		"	62.5		115	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.6	84-114			

Origins Laboratory, Inc.



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

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

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.
- 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.

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.



July 26, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

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

Project Number - 014218028

Attached are your analytical results for KMG - Hatch UPRR 42-11 #1 received by Origins Laboratory, Inc. July 23, 2018. This project is associated with Origins project number Y807304-01.

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

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

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW05	Y807304-01	Water	July 23, 2018 11:30	07/23/2018 16:02
MW06	Y807304-02	Water	July 23, 2018 11:45	07/23/2018 16:02
MW07	Y807304-03	Water	July 23, 2018 12:00	07/23/2018 16:02
MW08	Y807304-04	Water	July 23, 2018 12:15	07/23/2018 16:02
MW09	Y807304-05	Water	July 23, 2018 12:30	07/23/2018 16:02

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
 Project: KMG - Hatch UPRR 42-11 #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7807304

Client: LTE

Client Project ID: KMG - Hatch UPRR 42-11 #1

Checklist Completed by: JG

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

Date/time completed: 7/23/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 17.9 °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"/>		<u>Come 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 7/24/18

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
Project: KMG - Hatch UPRR 42-11 #1

MW05
7/23/2018 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807304-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8G2307	07/23/2018	07/24/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	97.0 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW06
7/23/2018 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807304-02 (Water)

BTEX by EPA 8260C

Benzene	3200	20.0	ug/L	20	B8G2307	07/23/2018	07/24/2018	
Toluene	ND	20.0	"	"	"	"	"	U
Ethylbenzene	171	20.0	"	"	"	"	"	
Xylenes, total	6630	20.0	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	96.5 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW07
7/23/2018 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807304-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8G2307	07/23/2018	07/24/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.2 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW08
7/23/2018 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807304-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8G2307	07/23/2018	07/24/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	97.2 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

MW09
7/23/2018 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y807304-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8G2307	07/23/2018	07/24/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	96.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

Blank (B8G2307-BLK1)

Prepared: 07/23/2018 Analyzed: 07/23/2018

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	60		"	62.5	96.1		84-121			
Surrogate: Toluene-d8	59		"	62.5	94.8		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: 014218028
 Project: KMG - Hatch UPRR 42-11 #1

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 B8G2307 - EPA 5030B (Water)

Blank (B8G2307-BLK2)

Prepared: 07/23/2018 Analyzed: 07/24/2018

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	59		"	62.5	95.0		84-121			
Surrogate: Toluene-d8	64		"	62.5	103		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

LCS (B8G2307-BS1)

Prepared: 07/23/2018 Analyzed: 07/23/2018

Benzene	56.8	1.00	ug/L	50.0		114	73.3-129			
Toluene	54.7	1.00	"	50.0		109	76.2-123			
Ethylbenzene	54.6	1.00	"	50.0		109	73.6-130			
m,p-Xylene	106	2.00	"	100		106	76.1-126			
o-Xylene	50.1	1.00	"	50.0		100	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.9	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.6	85-115			
Surrogate: 4-Bromofluorobenzene	70		"	62.5		112	84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

LCS (B8G2307-BS2)

Prepared: 07/23/2018 Analyzed: 07/24/2018

Benzene	57.7	1.00	ug/L	50.0		115	73.3-129			
Toluene	61.5	1.00	"	50.0		123	76.2-123			
Ethylbenzene	59.8	1.00	"	50.0		120	73.6-130			
m,p-Xylene	121	2.00	"	100		121	76.1-126			
o-Xylene	60.1	1.00	"	50.0		120	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.3	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

Matrix Spike (B8G2307-MS1)	Source: Y807292-02			Prepared: 07/23/2018 Analyzed: 07/24/2018						
Benzene	49.2	1.00	ug/L	50.0	ND	98.5	74-130			
Toluene	51.5	1.00	"	50.0	ND	103	73-131			
Ethylbenzene	50.8	1.00	"	50.0	ND	102	76-132			
m,p-Xylene	102	2.00	"	100	0.220	101	69-139			
o-Xylene	53.1	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.8	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

Matrix Spike (B8G2307-MS2)	Source: Y807292-05			Prepared: 07/23/2018 Analyzed: 07/24/2018						
Benzene	49.2	1.00	ug/L	50.0	ND	98.5	74-130			
Toluene	51.4	1.00	"	50.0	ND	103	73-131			
Ethylbenzene	51.1	1.00	"	50.0	ND	102	76-132			
m,p-Xylene	103	2.00	"	100	ND	103	69-139			
o-Xylene	53.1	1.00	"	50.0	ND	106	74-131			
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.2	84-121			
Surrogate: Toluene-d8	64		"	62.5		103	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

Matrix Spike Dup (B8G2307-MSD1)	Source: Y807292-02			Prepared: 07/23/2018 Analyzed: 07/24/2018						
Benzene	52.3	1.00	ug/L	50.0	ND	105	74-130	6.05	20	
Toluene	54.0	1.00	"	50.0	ND	108	73-131	4.74	20	
Ethylbenzene	52.7	1.00	"	50.0	ND	105	76-132	3.58	20	
m,p-Xylene	107	2.00	"	100	0.220	107	69-139	5.20	20	
o-Xylene	56.1	1.00	"	50.0	ND	112	74-131	5.52	20	
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		93.1	84-121			
Surrogate: Toluene-d8	64		"	62.5		103	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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

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

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 B8G2307 - EPA 5030B (Water)

Matrix Spike Dup (B8G2307-MSD2)	Source: Y807292-05			Prepared: 07/23/2018 Analyzed: 07/24/2018						
Benzene	53.8	1.00	ug/L	50.0	ND	108	74-130	8.74	20	
Toluene	57.2	1.00	"	50.0	ND	114	73-131	10.7	20	
Ethylbenzene	56.2	1.00	"	50.0	ND	112	76-132	9.56	20	
m,p-Xylene	114	2.00	"	100	ND	114	69-139	10.0	20	
o-Xylene	58.8	1.00	"	50.0	ND	118	74-131	10.1	20	
Surrogate: 1,2-Dichloroethane-d4	58		"	62.5		92.1	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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

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

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.

Jen Pellegrini For Noelle Doyle Mathis, President

October 11, 2018

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. October 05, 2018. This project is associated with Origins project number Y810119-01.

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



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	Y810119-01	Water	October 5, 2018 13:10	10/05/2018 16:00
MW02	Y810119-02	Water	October 5, 2018 13:15	10/05/2018 16:00
MW03	Y810119-03	Water	October 5, 2018 13:22	10/05/2018 16:00
MW04	Y810119-04	Water	October 5, 2018 13:29	10/05/2018 16:00
MW05	Y810119-05	Water	October 5, 2018 13:37	10/05/2018 16:00
MW06	Y810119-06	Water	October 5, 2018 13:45	10/05/2018 16:00
MW07	Y810119-07	Water	October 5, 2018 13:53	10/05/2018 16:00
MW08	Y810119-08	Water	October 5, 2018 14:00	10/05/2018 16:00
MW09	Y810119-09	Water	October 5, 2018 14:10	10/05/2018 16:00

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



YAD0119

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

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
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01-001	MW01	Water	10-5-18	1310	GT	12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
02-001	MW02	Water		1315		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
03-001	MW03	Water		1322		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
04-001	MW04	Water		1329		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
05-001	MW05	Water		1337		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
06-001	MW06	Water		1345		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
07-001	MW07	Water		1353		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
08-001	MW08	Water		1400		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
09-001	MW09	Water		1410		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C

Relinquished By: Date / Time: 10-5-18 1600

Relinquished By: Date / Time: 10/5/18 1600

Received By: _____ Date / Time: _____

Received By: _____ Date / Time: _____

Temperature on Receipt: 5.1

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

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

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1610119

Client: LTE

Client Project ID: KMG - Hatch UPRR 42-11 #1

Checklist Completed by: JG

Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A

Date/time completed: 10/8/2018

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

Cooler Number/Temperature: 1 / 5.1 °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"/>	
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.

[Signature]
 Reviewed by (Project Manager)

10/9/18
 Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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

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

MW01

10/5/2018 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8J0807	KDK	10/08/2018	10/09/2018	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	93.1 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	"	

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

MW02

10/5/2018 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-02 (Water)

BTEX by EPA 8260C

Benzene	510	20.0	ug/L	20	B8J0807	KDK	10/08/2018	10/09/2018	
Toluene	ND	20.0	"	"	"	KDK	"	"	U
Ethylbenzene	ND	20.0	"	"	"	KDK	"	"	U
Xylenes, total	241	20.0	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	111 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	93.9 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	"	

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

10/5/2018 1:22:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-03 (Water)

BTEX by EPA 8260C

Benzene	2440	100	ug/L	100	B8J0807	KDK	10/08/2018	10/09/2018	
Toluene	13600	100	"	"	"	KDK	"	"	
Ethylbenzene	658	100	"	"	"	KDK	"	"	
Xylenes, total	11400	100	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	109 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	94.3 %	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: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW04

10/5/2018 1:29:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-04 (Water)

BTEX by EPA 8260C

Benzene	4.68	4.00	ug/L	4	B8J0807	KDK	10/08/2018	10/09/2018	
Toluene	ND	4.00	"	"	"	KDK	"	"	U
Ethylbenzene	203	4.00	"	"	"	KDK	"	"	
Xylenes, total	2860	50.0	"	50	"	KDK	"	10/10/2018	

Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"		10/09/2018	
Surrogate: Toluene-d8	93.9 %	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: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW05

10/5/2018 1:37:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8J0807	KDK	10/08/2018	10/09/2018	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	108 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	93.8 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	"	

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

MW06

10/5/2018 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-06 (Water)

BTEX by EPA 8260C

Benzene	2590	20.0	ug/L	20	B8J0807	KDK	10/08/2018	10/09/2018	
Toluene	ND	20.0	"	"	"	KDK	"	"	U
Ethylbenzene	27.8	20.0	"	"	"	KDK	"	"	
Xylenes, total	4160	20.0	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	110 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	94.5 %	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: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

MW07

10/5/2018 1:53:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8J0807	KDK	10/08/2018	10/09/2018	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	111 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	94.4 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	84-114			"	"	"	"	

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

10/5/2018 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8J0807	KDK	10/08/2018	10/09/2018	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	111 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	94.1 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	"	

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

10/5/2018 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y810119-09 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8J0807	KDK	10/08/2018	10/09/2018	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	112 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	92.3 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	84-114			"	"	"	"	

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 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 B8J0807 - EPA 5030B (Water)

Blank (B8J0807-BLK1)

Prepared: 10/08/2018 Analyzed: 10/09/2018

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	59		"	62.5	94.8		85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5	108		84-114			

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 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 B8J0807 - EPA 5030B (Water)

Blank (B8J0807-BLK2)

Prepared: 10/08/2018 Analyzed: 10/09/2018

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	59		"	62.5	94.4		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: 014218028/WO #89494143
 Project: KMG - Hatch UPRR 42-11 #1

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 B8J0807 - EPA 5030B (Water)

LCS (B8J0807-BS1)

Prepared: 10/08/2018 Analyzed: 10/09/2018

Benzene	54.8	1.00	ug/L	50.0		110	73.3-129			
Toluene	50.1	1.00	"	50.0		100	76.2-123			
Ethylbenzene	50.4	1.00	"	50.0		101	73.6-130			
m,p-Xylene	99.3	2.00	"	100		99.3	76.1-126			
o-Xylene	47.5	1.00	"	50.0		95.0	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.7	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

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 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 B8J0807 - EPA 5030B (Water)

LCS (B8J0807-BS2)

Prepared: 10/08/2018 Analyzed: 10/09/2018

Benzene	52.6	1.00	ug/L	50.0		105	73.3-129			
Toluene	47.0	1.00	"	50.0		94.1	76.2-123			
Ethylbenzene	47.4	1.00	"	50.0		94.8	73.6-130			
m,p-Xylene	93.8	2.00	"	100		93.8	76.1-126			
o-Xylene	45.0	1.00	"	50.0		90.1	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.9	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

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 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 B8J0807 - EPA 5030B (Water)

Matrix Spike (B8J0807-MS1)	Source: Y810118-02			Prepared: 10/08/2018 Analyzed: 10/09/2018						
Benzene	54.4	1.00	ug/L	50.0	ND	109	74-130			
Toluene	49.3	1.00	"	50.0	ND	98.6	73-131			
Ethylbenzene	50.1	1.00	"	50.0	ND	100	76-132			
m,p-Xylene	97.6	2.00	"	100	ND	97.6	69-139			
o-Xylene	46.7	1.00	"	50.0	ND	93.4	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.7	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

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 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 B8J0807 - EPA 5030B (Water)

Matrix Spike (B8J0807-MS2)	Source: Y810118-03			Prepared: 10/08/2018 Analyzed: 10/09/2018						
Benzene	56.6	1.00	ug/L	50.0	ND	113	74-130			
Toluene	51.0	1.00	"	50.0	ND	102	73-131			
Ethylbenzene	52.1	1.00	"	50.0	ND	104	76-132			
m,p-Xylene	102	2.00	"	100	0.280	102	69-139			
o-Xylene	49.5	1.00	"	50.0	ND	99.0	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.3	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	84-114			

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 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 B8J0807 - EPA 5030B (Water)

Matrix Spike Dup (B8J0807-MSD1)	Source: Y810118-02			Prepared: 10/08/2018 Analyzed: 10/09/2018						
Benzene	56.5	1.00	ug/L	50.0	ND	113	74-130	3.71	20	
Toluene	50.9	1.00	"	50.0	ND	102	73-131	3.23	20	
Ethylbenzene	52.1	1.00	"	50.0	ND	104	76-132	4.01	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	3.31	20	
o-Xylene	48.5	1.00	"	50.0	ND	97.1	74-131	3.89	20	
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	59		"	62.5		94.7	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	84-114			

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 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 B8J0807 - EPA 5030B (Water)

Matrix Spike Dup (B8J0807-MSD2)	Source: Y810118-03			Prepared: 10/08/2018 Analyzed: 10/09/2018						
Benzene	54.0	1.00	ug/L	50.0	ND	108	74-130	4.81	20	
Toluene	49.0	1.00	"	50.0	ND	98.0	73-131	4.06	20	
Ethylbenzene	49.8	1.00	"	50.0	ND	99.5	76-132	4.56	20	
m,p-Xylene	98.3	2.00	"	100	0.280	98.0	69-139	3.99	20	
o-Xylene	47.2	1.00	"	50.0	ND	94.3	74-131	4.90	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		103	84-121			
Surrogate: Toluene-d8	60		"	62.5		95.5	85-115			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	84-114			

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

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



January 29, 2019

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 23, 2019. This project is associated with Origins project number Y901308-01.

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	Y901308-01	Water	January 23, 2019 12:00	01/23/2019 15:35
MW02	Y901308-02	Water	January 23, 2019 12:10	01/23/2019 15:35
MW03	Y901308-03	Water	January 23, 2019 12:20	01/23/2019 15:35
MW04	Y901308-04	Water	January 23, 2019 12:30	01/23/2019 15:35
MW05	Y901308-05	Water	January 23, 2019 12:40	01/23/2019 15:35
MW06	Y901308-06	Water	January 23, 2019 12:50	01/23/2019 15:35
MW07	Y901308-07	Water	January 23, 2019 13:00	01/23/2019 15:35
MW08	Y901308-08	Water	January 23, 2019 13:10	01/23/2019 15:35
MW09	Y901308-09	Water	January 23, 2019 13:20	01/23/2019 15:35

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

ORIGINS
 LABORATORY, INC

1901308

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

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	11/23/19	1200	JSB	01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
02-001	MW02	Water		1210		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
03-001	MW03	Water		1220		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
04-001	MW04	Water		1230		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
05-001	MW05	Water		1240		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
06-001	MW06	Water		1250		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
07-001	MW07	Water		1300		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
08-001	MW08	Water		1310		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C
09-001	MW09	Water		1320		01_40mL Clear Vial Cool to 4° C	3	BTEX by EPA 8260C

Relinquished By:  Date / Time: 11/23/19 15:55
 Relinquished By: _____ Date / Time: _____
 Received By:  Date / Time: 11/23/19 15:36
 Received By: _____ Date / Time: _____

Temperature on Receipt: 14.6
 Turn Around Time: 72-hr Standard
 Same Day: 24-hr 48-hr

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: Y901308

Client: LTE

Client Project ID: KMG Hatch UPRR 42-11 #1

Checklist Completed by: JG

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

Date/time completed: 1/24/2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 24 ^{14.6} °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"/>		<u>Some Dry</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 Na ₂ SO 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: [Signature]
 (Project Manager)

Date/Time Reviewed: 1/25/19

Origins Laboratory, Inc.

[Signature: Jen 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

1/23/2019 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	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	105 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	98.9 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	97.4 %	84-114			"	"	"	"	

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

MW02

1/23/2019 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-02 (Water)

BTEX by EPA 8260C

Benzene	556	50.0	ug/L	50	B9A2403	KDK	01/24/2019	01/24/2019	
Toluene	18.4	1.00	"	1	"	KDK	"	01/24/2019	
Ethylbenzene	19.9	1.00	"	"	"	KDK	"	"	
Xylenes, total	1400	50.0	"	50	"	KDK	"	01/24/2019	
Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"		01/24/2019	
Surrogate: Toluene-d8	101 %	85-115			"	"		"	
Surrogate: 4-Bromofluorobenzene	99.3 %	84-114			"	"		"	

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

1/23/2019 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-03 (Water)

BTEX by EPA 8260C

Benzene	2450	200	ug/L	200	B9A2403	KDK	01/24/2019	01/24/2019	
Toluene	14300	200	"	"	"	KDK	"	"	
Ethylbenzene	908	200	"	"	"	KDK	"	"	
Xylenes, total	16800	200	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	108 %			84-121		"	"	"	
Surrogate: Toluene-d8	99.4 %			85-115		"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %			84-114		"	"	"	

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

1/23/2019 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-04 (Water)

BTEX by EPA 8260C

Benzene	5.59	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	
Toluene	6.27	1.00	"	"	"	KDK	"	"	
Ethylbenzene	248	50.0	"	50	"	KDK	"	01/24/2019	
Xylenes, total	2780	50.0	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	96.2 %			84-121		"	"	01/24/2019	
Surrogate: Toluene-d8	101 %			85-115		"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %			84-114		"	"	"	

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

1/23/2019 12:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	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	107 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	98.2 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

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

MW06

1/23/2019 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-06 (Water)

BTEX by EPA 8260C

Benzene	1210	50.0	ug/L	50	B9A2403	KDK	01/24/2019	01/24/2019	
Toluene	1.47	1.00	"	1	"	KDK	"	"	
Ethylbenzene	123	1.00	"	"	"	KDK	"	01/24/2019	
Xylenes, total	2580	50.0	"	50	"	KDK	"	01/24/2019	
Surrogate: 1,2-Dichloroethane-d4	103 %			84-121		"	"	01/24/2019	
Surrogate: Toluene-d8	101 %			85-115		"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %			84-114		"	"	"	

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

1/23/2019 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	4.94	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	92.3 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	99.3 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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

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

MW08

1/23/2019 1:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	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	111 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	99.3 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	"	

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

1/23/2019 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901308-09 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A2403	KDK	01/24/2019	01/24/2019	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	99.1 %	85-115			"	"		"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"		"	

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 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 B9A2403 - EPA 5030B (Water)

Blank (B9A2403-BLK1)

Prepared: 01/24/2019 Analyzed: 01/24/2019

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	67		"	62.5	108		84-121			
Surrogate: Toluene-d8	61		"	62.5	98.2		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

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 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 B9A2403 - EPA 5030B (Water)

LCS (B9A2403-BS1)

Prepared: 01/24/2019 Analyzed: 01/24/2019

Benzene	57.9	1.00	ug/L	50.0		116	73.3-129			
Toluene	58.0	1.00	"	50.0		116	76.2-123			
Ethylbenzene	55.8	1.00	"	50.0		112	73.6-130			
m,p-Xylene	102	2.00	"	100		102	76.1-126			
o-Xylene	55.5	1.00	"	50.0		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		103	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.9	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		93.7	84-114			

Origins Laboratory, Inc.



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

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

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 B9A2403 - EPA 5030B (Water)

Matrix Spike (B9A2403-MS1)	Source: Y901307-01			Prepared: 01/24/2019 Analyzed: 01/24/2019						
Benzene	59.4	1.00	ug/L	50.0	ND	119	74-130			
Toluene	48.1	1.00	"	50.0	ND	96.2	73-131			
Ethylbenzene	62.4	1.00	"	50.0	ND	125	76-132			
m,p-Xylene	125	2.00	"	100	ND	125	69-139			
o-Xylene	61.2	1.00	"	50.0	ND	122	74-131			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	84-121			
Surrogate: Toluene-d8	50		"	62.5		80.7	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

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 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B9A2403 - EPA 5030B (Water)

Matrix Spike Dup (B9A2403-MSD1)	Source: Y901307-01			Prepared: 01/24/2019 Analyzed: 01/24/2019						
Benzene	57.7	1.00	ug/L	50.0	ND	115	74-130	2.80	20	
Toluene	57.4	1.00	"	50.0	ND	115	73-131	17.5	20	
Ethylbenzene	60.6	1.00	"	50.0	ND	121	76-132	2.97	20	
m,p-Xylene	121	2.00	"	100	ND	121	69-139	2.64	20	
o-Xylene	59.8	1.00	"	50.0	ND	120	74-131	2.30	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.8	85-115			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.6	84-114			

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

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.

Jen Pellegrini For Noelle Doyle Mathis, President