

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
DORIS SMITH 41D-21 #1
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

COGCC Allowable Concentration (Soil) -->				Organics (mg/kg)										4	(6-9)	12
				500	0.17	85	100	175	23							
Sample ID:	Sample Date:	Sample Depth (feet bgs):	Photoionization Detector Reading (ppm):	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	TPH-RRO (C28-C40) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Naphthalene	EC (<4 mmhos/cm or 2x background)	pH (unit)	SAR		
B01@8'	05/16/2019	8'	NA	<0.200	<25.0	<100	<0.002	<0.002	<0.002	<0.002	<0.008	0.292	7.34	4.41		
E01@6'	05/16/2019	6'	NA	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200	NA	NA	NA		
N01@6'	05/16/2019	6'	NA	<5.00	40.8	<100	<0.050	<0.050	<0.050	<0.050	<0.200	NA	NA	NA		
S01@5'	05/16/2019	5'	NA	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200	NA	NA	NA		
W01@7'	05/16/2019	7'	NA	30.4	181	565	<0.050	<0.050	<0.050	<0.050	<0.200	NA	NA	NA		
B02@8'	05/17/2019	8'	NA	<0.200	<25.0	<100	<0.002	<0.002	<0.002	<0.002	<0.008	0.826	7.11	6.69		
N02@6'	05/17/2019	6'	NA	<0.200	<25.0	<100	<0.002	<0.002	<0.002	<0.002	<0.008	NA	NA	NA		
S02@3'	05/17/2019	3'	NA	<0.200	<25.0	<100	<0.002	<0.002	<0.002	<0.002	<0.008	NA	NA	NA		
W02@6'	05/17/2019	6'	NA	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200	NA	NA	NA		

Notes: mg/kg - milligrams per kilogram
COGCC - Colorado Oil and Gas Conservation Commission
bgs - below ground surface
ppm - parts per million
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
RRO - residual range organics
mmhos/cm - millimhos per centimeter
NA - not analyzed
Bold indicates result exceeds allowable level



TABLE 2
GROUNDWATER ANALYTICAL AND FIELD RESULTS
DORIS SMITH 41D-21 #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)
GW01	05/16/2019	<4.00	<4.00	<4.00	<4.00	8.00

COGCC Allowable Levels **5** **1000** **700** **1400**

Notes: COGCC - Colorado Oil and Gas Conservation Commission
ft bgs - feet below ground surface
NA - not analyzed/not available
NM - not measured

µg/L - micrograms per liter
< - less than laboratory reporting limit
Bold indicates result exceeds allowable level
Excavation groundwater depth is approximate





May 20, 2019

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Doris Smith 41D-21 #1

Project Number - [none]

Attached are your analytical results for KMG - Doris Smith 41D-21 #1 received by Origins Laboratory, Inc. May 16, 2019. This project is associated with Origins project number Y905256-01.

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: [none]
Project: KMG - Doris Smith 41D-21 #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@8'	Y905256-01	Soil	May 16, 2019 15:03	05/16/2019 17:10
N01@6'	Y905256-02	Soil	May 16, 2019 15:05	05/16/2019 17:10
E01@6'	Y905256-03	Soil	May 16, 2019 15:10	05/16/2019 17:10
S01@5'	Y905256-04	Soil	May 16, 2019 15:25	05/16/2019 17:10
W01@7'	Y905256-05	Soil	May 16, 2019 15:30	05/16/2019 17:10
GW01	Y905256-06	Water	May 16, 2019 15:00	05/16/2019 17:10

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4905256

Client: LTE

Client Project ID: Doris Smith 41D-21 #1

Checklist Completed by: JG

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

Date/time completed: 5/16/2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 18.7 °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>Same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preservation that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)		<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) [Signature]

Date/Time Reviewed 5/16/19

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

B01@8'

5/16/2019 3:03:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905256-01 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1607	JTD	05/16/2019	05/16/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 91.8 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9E1606	JTD	05/16/2019	05/16/2019	U
Benzene	ND	0.002	"	"	"	JTD	"	"	U
Toluene	ND	0.002	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.002	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.002	"	"	"	JTD	"	"	U
Naphthalene	ND	0.008	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 104 % 70-130 " " "
 Surrogate: Toluene-d8 95.9 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

Metals (Saturated Paste Prep)

Calcium	25.90		me/L	1	'[none]'		05/20/2019	05/20/2019	
Magnesium	17.10		"	"	"		"	"	
Sodium	20.43		"	"	"		"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
Project Number: [none]
Project: KMG - Doris Smith 41D-21 #1

B01@8'

5/16/2019 3:03:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905256-01 (Soil)

pH in Soil by EPA 9045D

pH	7.34		pH Units	1	B9E1610	OLAB	05/16/2019	05/16/2019	
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SAR by 20B Saturated Paste

SAR	4.41			1	'[none]'		05/20/2019	05/20/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.292	0.00500	mmhos/cm	1	B9E1611	OLAB	05/16/2019	05/16/2019	
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Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

N01@6'

5/16/2019 3:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y905256-02 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	40.8	25.0	mg/kg	1	B9E1607	JTD	05/16/2019	05/16/2019	
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U
<i>Surrogate: o-Terphenyl</i>	89.7 %	50-150			"	"	"	"	

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9E1606	JTD	05/16/2019	05/16/2019	U
Benzene	ND	0.050	"	"	"	JTD	"	"	U
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.050	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.050	"	"	"	JTD	"	"	U
Naphthalene	ND	0.200	"	"	"	JTD	"	"	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	106 %	70-130			"	"	"	"	
<i>Surrogate: Toluene-d8</i>	96.9 %	70-130			"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

E01@6'

5/16/2019 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y905256-03 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1607	JTD	05/16/2019	05/16/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: o-Terphenyl 88.9 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9E1606	JTD	05/16/2019	05/16/2019	U
Benzene	ND	0.050	"	"	"	JTD	"	"	U
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.050	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.050	"	"	"	JTD	"	"	U
Naphthalene	ND	0.200	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "
 Surrogate: Toluene-d8 97.4 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

S01@5'

5/16/2019 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905256-04 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1607	JTD	05/16/2019	05/16/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: o-Terphenyl 94.8 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9E1606	JTD	05/16/2019	05/16/2019	U
Benzene	ND	0.050	"	"	"	JTD	"	"	U
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.050	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.050	"	"	"	JTD	"	"	U
Naphthalene	ND	0.200	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 101 % 70-130 " " "
Surrogate: Toluene-d8 97.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

W01@7'

5/16/2019 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y905256-05 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	181	25.0	mg/kg	1	B9E1607	JTD	05/16/2019	05/16/2019	
Residual Range Organics (C28-C40)	565	100	"	"	"	JTD	"	"	

Surrogate: o-Terphenyl 97.7 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	30.4	5.00	mg/kg	25	B9E1606	JTD	05/16/2019	05/16/2019	
Benzene	ND	0.050	"	"	"	JTD	"	"	U
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.050	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.050	"	"	"	JTD	"	"	U
Naphthalene	ND	0.200	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 104 % 70-130 " " "
 Surrogate: Toluene-d8 95.6 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 105 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

GW01

5/16/2019 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905256-06 (Water)

BTEX by EPA 8260D

Benzene	ND	4.00	ug/L	4	B9E1608	JTD	05/16/2019	05/16/2019	U
Toluene	ND	4.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	4.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	4.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	96.6 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1606 - EPA 5030 (soil)

Blank (B9E1606-BLK1)

Prepared: 05/16/2019 Analyzed: 05/16/2019

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125	101		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	98.1		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	105		70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1606 - EPA 5030 (soil)

LCS (B9E1606-BS1)

Prepared: 05/16/2019 Analyzed: 05/16/2019

Benzene	0.109	0.002	mg/kg	0.100		109	70-130			
Toluene	0.111	0.002	"	0.100		111	70-130			
Ethylbenzene	0.119	0.002	"	0.100		119	70-130			
m,p-Xylene	0.193	0.004	"	0.200		96.5	70-130			
o-Xylene	0.106	0.002	"	0.100		106	70-130			
Naphthalene	0.096	0.008	"	0.100		96.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		104	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1606 - EPA 5030 (soil)

Matrix Spike (B9E1606-MS1)	Source: Y905238-01			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	0.096	0.002	mg/kg	0.100	ND	96.2	70-130			
Toluene	0.101	0.002	"	0.100	ND	101	70-130			
Ethylbenzene	0.112	0.002	"	0.100	ND	112	70-130			
m,p-Xylene	0.187	0.004	"	0.200	0.001	93.0	70-130			
o-Xylene	0.100	0.002	"	0.100	0.002	98.9	70-130			
Naphthalene	0.113	0.008	"	0.100	0.006	107	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		107	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1606 - EPA 5030 (soil)

Matrix Spike Dup (B9E1606-MSD1)	Source: Y905238-01			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	0.096	0.002	mg/kg	0.100	ND	96.0	70-130	0.187	20	
Toluene	0.101	0.002	"	0.100	ND	101	70-130	0.0795	20	
Ethylbenzene	0.110	0.002	"	0.100	ND	110	70-130	1.77	20	
m,p-Xylene	0.178	0.004	"	0.200	0.001	88.5	70-130	4.95	20	
o-Xylene	0.098	0.002	"	0.100	0.002	96.9	70-130	2.01	20	
Naphthalene	0.098	0.008	"	0.100	0.006	91.9	70-130	14.1	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		101	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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: [none]
 Project: KMG - Doris Smith 41D-21 #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
Batch B9E1607 - EPA 3550B										
Blank (B9E1607-BLK1)										
					Prepared: 05/16/2019 Analyzed: 05/16/2019					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	65		"	50.0		129	50-150			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - 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 B9E1607 - EPA 3550B

LCS (B9E1607-BS1)

Prepared: 05/16/2019 Analyzed: 05/16/2019

Diesel (C10-C28)	1000	50.0	mg/kg	1000		100	70-130			
Residual Range Organics (C28-C40)	995	200	"	1000		99.5	70-130			
Surrogate: o-Terphenyl	57		"	50.0		114	50-150			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - 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 B9E1607 - EPA 3550B

Matrix Spike (B9E1607-MS1)	Source: Y905238-01			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Diesel (C10-C28)	937	50.0	mg/kg	1000	ND	93.7	70-130			
Residual Range Organics (C28-C40)	908	200	"	1000	ND	90.8	70-130			
Surrogate: o-Terphenyl	50		"	50.0		99.2	50-150			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - 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 B9E1607 - EPA 3550B

Matrix Spike Dup (B9E1607-MSD1)	Source: Y905238-01		Prepared: 05/16/2019 Analyzed: 05/16/2019							
Diesel (C10-C28)	968	50.0	mg/kg	1000	ND	96.8	70-130	3.33	35	
Residual Range Organics (C28-C40)	918	200	"	1000	ND	91.8	70-130	1.06	35	
Surrogate: o-Terphenyl	51		"	50.0		103	50-150			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - 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 B9E1608 - EPA 5030B (Water)

Blank (B9E1608-BLK1)

Prepared: 05/16/2019 Analyzed: 05/16/2019

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	64		"	62.5		103	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

Blank (B9E1608-BLK2)

Prepared: 05/16/2019 Analyzed: 05/16/2019

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	62		"	62.5		99.0	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		100	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

LCS (B9E1608-BS1)

Prepared: 05/16/2019 Analyzed: 05/16/2019

Benzene	48.9	1.00	ug/L	50.0		97.8	70-130			
Toluene	50.9	1.00	"	50.0		102	70-130			
Ethylbenzene	50.2	1.00	"	50.0		100	70-130			
m,p-Xylene	97.0	2.00	"	100		97.0	70-130			
o-Xylene	48.3	1.00	"	50.0		96.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.5	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

LCS (B9E1608-BS2)

Prepared: 05/16/2019 Analyzed: 05/16/2019

Benzene	52.1	1.00	ug/L	50.0		104	70-130			
Toluene	54.6	1.00	"	50.0		109	70-130			
Ethylbenzene	55.0	1.00	"	50.0		110	70-130			
m,p-Xylene	106	2.00	"	100		106	70-130			
o-Xylene	52.2	1.00	"	50.0		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

Matrix Spike (B9E1608-MS1)	Source: Y905244-01			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	58.1	1.00	ug/L	50.0	5.05	106	70-130			
Toluene	56.3	1.00	"	50.0	ND	113	70-130			
Ethylbenzene	56.3	1.00	"	50.0	ND	113	70-130			
m,p-Xylene	108	2.00	"	100	0.260	108	70-130			
o-Xylene	53.2	1.00	"	50.0	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.5	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

Matrix Spike (B9E1608-MS2)	Source: Y905244-02			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	105	1.00	ug/L	50.0	159	NR	70-130			QM-07
Toluene	51.3	1.00	"	50.0	ND	103	70-130			
Ethylbenzene	90.9	1.00	"	50.0	1.83	178	70-130			QM-07
m,p-Xylene	111	2.00	"	100	29.6	81.4	70-130			
o-Xylene	50.3	1.00	"	50.0	0.660	99.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.5	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

Matrix Spike Dup (B9E1608-MSD1)	Source: Y905244-01			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	56.3	1.00	ug/L	50.0	5.05	102	70-130	3.17	20	
Toluene	54.4	1.00	"	50.0	ND	109	70-130	3.41	20	
Ethylbenzene	55.6	1.00	"	50.0	ND	111	70-130	1.20	20	
m,p-Xylene	107	2.00	"	100	0.260	107	70-130	1.44	20	
o-Xylene	53.2	1.00	"	50.0	ND	106	70-130	0.0188	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.4	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.4	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: [none]
 Project: KMG - Doris Smith 41D-21 #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 B9E1608 - EPA 5030B (Water)

Matrix Spike Dup (B9E1608-MSD2)	Source: Y905244-02			Prepared: 05/16/2019 Analyzed: 05/16/2019						
Benzene	108	1.00	ug/L	50.0	159	NR	70-130	2.85	20	QM-07
Toluene	52.1	1.00	"	50.0	ND	104	70-130	1.57	20	
Ethylbenzene	93.4	1.00	"	50.0	1.83	183	70-130	2.62	20	QM-07
m,p-Xylene	112	2.00	"	100	29.6	82.3	70-130	0.735	20	
o-Xylene	49.6	1.00	"	50.0	0.660	97.9	70-130	1.38	20	
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.4	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

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

Brian Sulzberger
Project Number: [none]
Project: KMG - Doris Smith 41D-21 #1

Notes and Definitions

U Sample is Non-Detect.

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.



May 22, 2019

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Doris Smith 41D-21 #1

Project Number - 014219118

Attached are your analytical results for KMG - Doris Smith 41D-21 #1 received by Origins Laboratory, Inc. May 17, 2019. This project is associated with Origins project number Y905277-01.

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: 014219118
Project: KMG - Doris Smith 41D-21 #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02@8'	Y905277-01	Soil	May 17, 2019 11:29	05/17/2019 15:35
N02@6'	Y905277-02	Soil	May 17, 2019 11:32	05/17/2019 15:35
S02@3'	Y905277-03	Soil	May 17, 2019 11:48	05/17/2019 15:35
W02@6'	Y905277-04	Soil	May 17, 2019 11:42	05/17/2019 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: 014219118
 Project: KMG - Doris Smith 41D-21 #1

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

Sample Receipt Checklist

Origins Work Order: Y905277 Client: LTE
 Client Project ID: Doris Smith

Checklist Completed by: JG Shipped Via: HD
 Date/time completed: 5/17/2019 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A

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

Cooler Number/Temperature: 1 / 12.0 °C _____ °C _____ °C (Describe) _____ °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>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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+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) [Signature] Date/Time Reviewed 5/17/19

Origins Laboratory, Inc.

Jefe Pellegrini

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

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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

B02@8'

5/17/2019 11:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905277-01 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1703	JTD	05/17/2019	05/17/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 96.8 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9E1702	JTD	05/17/2019	05/17/2019	U
Benzene	ND	0.002	"	"	"	JTD	"	"	U
Toluene	ND	0.002	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.002	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.002	"	"	"	JTD	"	"	U
Naphthalene	ND	0.008	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "
 Surrogate: Toluene-d8 94.7 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 107 % 70-130 " " "

Metals (Saturated Paste Prep)

Calcium	29.15		me/L	1	'[none]'		05/20/2019	05/22/2019	
Magnesium	15.27		"	"	"		"	"	
Sodium	31.52		"	"	"		"	"	

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

B02@8'

5/17/2019 11:29:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905277-01 (Soil)

pH in Soil by EPA 9045D

pH	7.11		pH Units	1	B9E1708	KDK	05/17/2019	05/17/2019	
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SAR by 20B Saturated Paste

SAR	6.69			1	'[none]'		05/20/2019	05/22/2019	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.826	0.00502	mmhos/cm	1	B9E1709	KDK	05/17/2019	05/17/2019	
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Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

N02@6'

5/17/2019 11:32:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905277-02 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1703	JTD	05/17/2019	05/17/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 90.2 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9E1702	JTD	05/17/2019	05/17/2019	U
Benzene	ND	0.002	"	"	"	JTD	"	"	U
Toluene	ND	0.002	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.002	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.002	"	"	"	JTD	"	"	U
Naphthalene	ND	0.008	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "
 Surrogate: Toluene-d8 94.0 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

S02@3'

5/17/2019 11:48:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y905277-03 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1703	JTD	05/17/2019	05/17/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 81.7 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B9E1702	JTD	05/17/2019	05/17/2019	U
Benzene	ND	0.002	"	"	"	JTD	"	"	U
Toluene	ND	0.002	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.002	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.002	"	"	"	JTD	"	"	U
Naphthalene	ND	0.008	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "
 Surrogate: Toluene-d8 95.4 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

W02@6'

5/17/2019 11:42:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y905277-04 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9E1703	JTD	05/17/2019	05/17/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: o-Terphenyl 87.3 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9E1702	JTD	05/17/2019	05/20/2019	U
Benzene	ND	0.050	"	"	"	JTD	"	"	U
Toluene	ND	0.050	"	"	"	JTD	"	"	U
Ethylbenzene	ND	0.050	"	"	"	JTD	"	"	U
Xylenes, total	ND	0.050	"	"	"	JTD	"	"	U
Naphthalene	ND	0.200	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4 97.4 % 70-130 " " "
 Surrogate: Toluene-d8 98.5 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 96.5 % 70-130 " " "

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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #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 B9E1702 - EPA 5030 (soil)

Blank (B9E1702-BLK1)

Prepared: 05/17/2019 Analyzed: 05/17/2019

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #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 B9E1702 - EPA 5030 (soil)

LCS (B9E1702-BS1)

Prepared: 05/17/2019 Analyzed: 05/17/2019

Benzene	0.093	0.002	mg/kg	0.100		93.1	70-130			
Toluene	0.096	0.002	"	0.100		95.5	70-130			
Ethylbenzene	0.105	0.002	"	0.100		105	70-130			
m,p-Xylene	0.166	0.004	"	0.200		83.0	70-130			
o-Xylene	0.093	0.002	"	0.100		93.4	70-130			
Naphthalene	0.090	0.008	"	0.100		89.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #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 B9E1702 - EPA 5030 (soil)

Matrix Spike (B9E1702-MS1)	Source: Y905261-01			Prepared: 05/17/2019 Analyzed: 05/17/2019						
Benzene	0.095	0.002	mg/kg	0.100	0.001	93.5	70-130			
Toluene	0.091	0.002	"	0.100	ND	91.4	70-130			
Ethylbenzene	0.093	0.002	"	0.100	ND	93.1	70-130			
m,p-Xylene	0.146	0.004	"	0.200	ND	72.8	70-130			
o-Xylene	0.085	0.002	"	0.100	0.001	83.1	70-130			
Naphthalene	0.080	0.008	"	0.100	0.006	74.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.3	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #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 B9E1702 - EPA 5030 (soil)

Matrix Spike Dup (B9E1702-MSD1)	Source: Y905261-01			Prepared: 05/17/2019 Analyzed: 05/17/2019						
Benzene	0.085	0.002	mg/kg	0.100	0.001	83.9	70-130	10.7	20	
Toluene	0.084	0.002	"	0.100	ND	84.0	70-130	8.51	20	
Ethylbenzene	0.087	0.002	"	0.100	ND	87.5	70-130	6.20	20	
m,p-Xylene	0.136	0.004	"	0.200	ND	67.8	70-130	7.17	20	QM-07
o-Xylene	0.079	0.002	"	0.100	0.001	77.4	70-130	7.02	20	
Naphthalene	0.080	0.008	"	0.100	0.006	73.5	70-130	0.950	20	
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		110	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #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
Batch B9E1703 - EPA 3580										
Blank (B9E1703-BLK1)										
					Prepared: 05/17/2019 Analyzed: 05/17/2019					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	46		"	50.0		92.6	50-150			

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Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9E1703 - EPA 3580										
LCS (B9E1703-BS1)					Prepared: 05/17/2019 Analyzed: 05/17/2019					
Diesel (C10-C28)	1060	50.0	mg/kg	1000		106	70-130			
Residual Range Organics (C28-C40)	1000	200	"	1000		100	70-130			
Surrogate: o-Terphenyl	59		"	50.0		117	50-150			

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LT Environmental, Inc.
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Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9E1703 - EPA 3580										
Matrix Spike (B9E1703-MS1)		Source: Y905261-01			Prepared: 05/17/2019 Analyzed: 05/17/2019					
Diesel (C10-C28)	982	50.0	mg/kg	1000	ND	98.2	70-130			
Residual Range Organics (C28-C40)	1110	200	"	1000	114	99.3	70-130			
Surrogate: o-Terphenyl	57		"	50.0		115	50-150			

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

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

Brian Sulzberger
 Project Number: 014219118
 Project: KMG - Doris Smith 41D-21 #1

Extractable Petroleum Hydrocarbons by 8015D - 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 B9E1703 - EPA 3580

Matrix Spike Dup (B9E1703-MSD1)	Source: Y905261-01		Prepared: 05/17/2019 Analyzed: 05/17/2019							
Diesel (C10-C28)	1080	50.0	mg/kg	1000	ND	108	70-130	9.77	35	
Residual Range Organics (C28-C40)	1210	200	"	1000	114	109	70-130	9.38	35	
Surrogate: o-Terphenyl	66		"	50.0		133	50-150			

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

Brian Sulzberger
Project Number: 014219118
Project: KMG - Doris Smith 41D-21 #1

Notes and Definitions

U Sample is Non-Detect.

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.



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Jen Pellegrini For Noelle Doyle Mathis, President