

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BENSON FARMS 32C-23HZ
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE, LP

COGCC Allowable Concentration (Soil) -->				Organics (mg/kg)							
				500			0.17	85	100	175	23
Sample ID:	Sample Date:	Sample Depth (inches 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
SS01@4"	04/25/2019	4"	24.0	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS02@4"	04/25/2019	4"	0.7	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS03@6"	04/25/2019	6"	1.3	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS04@9"	04/25/2019	9"	135.8	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS05@6"	04/25/2019	6"	2.3	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS06@6"	04/25/2019	6"	0.6	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200
SS07@8"	04/25/2019	8"	3.4	<5.00	<25.0	<100	<0.050	<0.050	<0.050	<0.050	<0.200

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





April 26, 2019

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Benson Farms 32C-23HZ Project Number - 014219104

Attached are your analytical results for KMG - Benson Farms 32C-23HZ received by Origins Laboratory, Inc. April 25, 2019. This project is associated with Origins project number Y904438-01.

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: 014219104
Project: KMG - Benson Farms 32C-23HZ

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@4"	Y904438-01	Soil	April 25, 2019 11:37	04/25/2019 17:19
SS02@4"	Y904438-02	Soil	April 25, 2019 11:40	04/25/2019 17:19
SS03@6"	Y904438-03	Soil	April 25, 2019 11:43	04/25/2019 17:19
SS04@9"	Y904438-04	Soil	April 25, 2019 11:47	04/25/2019 17:19
SS05@6"	Y904438-05	Soil	April 25, 2019 11:51	04/25/2019 17:19
SS06@6"	Y904438-06	Soil	April 25, 2019 11:57	04/25/2019 17:19
SS07@8"	Y904438-07	Soil	April 25, 2019 12:02	04/25/2019 17:19

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y904438

Client: LTE

Client Project ID: Benson Farm 32C-23HZ

Checklist Completed by: JG

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

Date/time completed: 4/25/2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 14.4 °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>Same Day</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ^{(1)?}	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ^{(1)?}	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ^{(1)?}		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ^{(1)?}	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ^{(1)?}	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ^{(1)?}	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ^{(1)?}	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ^{(1)?} (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature] Date/Time Reviewed 4/25/19

Origins Laboratory, Inc.

Jefe Pellegrini

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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS01@4"

4/25/2019 11:37:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-01 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 114 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/25/2019	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 92.2 % 70-130 " " "
 Surrogate: Toluene-d8 99.7 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 97.0 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS02@4"

4/25/2019 11:40:00AM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-02 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 111 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/25/2019	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 93.6 % 70-130 " " "
 Surrogate: Toluene-d8 100 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS03@6"

4/25/2019 11:43:00AM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-03 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 123 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/25/2019	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 91.8 % 70-130 " " "
 Surrogate: Toluene-d8 98.5 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS04@9"

4/25/2019 11:47:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-04 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 123 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/26/2019	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 92.6 % 70-130 " " "
 Surrogate: Toluene-d8 100 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS05@6"

4/25/2019 11:51:00AM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-05 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 117 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/26/2019	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 93.0 % 70-130 " " "
 Surrogate: Toluene-d8 97.7 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS06@6"

4/25/2019 11:57:00AM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-06 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 104 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/26/2019	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 94.0 % 70-130 " " "
 Surrogate: Toluene-d8 100 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

SS07@8"

4/25/2019 12:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y904438-07 (Soil)

DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B9D2512	JTD	04/25/2019	04/26/2019	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	JTD	"	"	U

Surrogate: *o*-Terphenyl 96.5 % 50-150 " " "

GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B9D2511	JTD	04/25/2019	04/26/2019	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 88.7 % 70-130 " " "
 Surrogate: Toluene-d8 99.0 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 98.6 % 70-130 " " "

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)										
Blank (B9D2511-BLK1)										
					Prepared: 04/25/2019 Analyzed: 04/25/2019					
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	0.12		"	0.125		99.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)

Blank (B9D2511-BLK2)

Prepared: 04/25/2019 Analyzed: 04/25/2019

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	0.12		"	0.125		98.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)

LCS (B9D2511-BS1)

Prepared: 04/25/2019 Analyzed: 04/25/2019

Benzene	0.082	0.002	mg/kg	0.100		82.1	70-130			
Toluene	0.080	0.002	"	0.100		80.0	70-130			
Ethylbenzene	0.083	0.002	"	0.100		82.7	70-130			
m,p-Xylene	0.163	0.004	"	0.200		81.7	70-130			
o-Xylene	0.086	0.002	"	0.100		86.1	70-130			
Naphthalene	0.090	0.008	"	0.100		90.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.6	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)

LCS (B9D2511-BS2)

Prepared: 04/25/2019 Analyzed: 04/25/2019

Benzene	0.094	0.002	mg/kg	0.100		94.3	70-130			
Toluene	0.095	0.002	"	0.100		95.2	70-130			
Ethylbenzene	0.096	0.002	"	0.100		96.0	70-130			
m,p-Xylene	0.191	0.004	"	0.200		95.5	70-130			
o-Xylene	0.097	0.002	"	0.100		96.7	70-130			
Naphthalene	0.081	0.008	"	0.100		81.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		97.3	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		100	70-130			

Origins Laboratory, Inc.



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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)

Matrix Spike (B9D2511-MS1)	Source: Y904430-01			Prepared: 04/25/2019 Analyzed: 04/25/2019						
Benzene	0.087	0.002	mg/kg	0.100	ND	86.9	70-130			
Toluene	0.089	0.002	"	0.100	ND	89.4	70-130			
Ethylbenzene	0.094	0.002	"	0.100	ND	94.0	70-130			
m,p-Xylene	0.186	0.004	"	0.200	ND	92.8	70-130			
o-Xylene	0.094	0.002	"	0.100	ND	93.8	70-130			
Naphthalene	0.062	0.008	"	0.100	0.003	59.2	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		92.0	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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

Brian Sulzberger
 Project Number: 014219104
 Project: KMG - Benson Farms 32C-23HZ

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 B9D2511 - EPA 5030 (soil)

Matrix Spike (B9D2511-MS2)	Source: Y904430-02			Prepared: 04/25/2019 Analyzed: 04/25/2019						
Benzene	0.075	0.002	mg/kg	0.100	ND	74.6	70-130			
Toluene	0.073	0.002	"	0.100	ND	73.0	70-130			
Ethylbenzene	0.071	0.002	"	0.100	ND	71.3	70-130			
m,p-Xylene	0.140	0.004	"	0.200	ND	70.1	70-130			
o-Xylene	0.074	0.002	"	0.100	0.0007	73.1	70-130			
Naphthalene	0.065	0.008	"	0.100	0.002	63.4	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		102	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		101	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9D2511 - EPA 5030 (soil)

Matrix Spike Dup (B9D2511-MSD1)	Source: Y904430-01			Prepared: 04/25/2019 Analyzed: 04/25/2019						
Benzene	0.069	0.002	mg/kg	0.100	ND	69.0	70-130	23.0	20	QM-07, QR-01
Toluene	0.069	0.002	"	0.100	ND	69.0	70-130	25.8	20	QM-07, QR-01
Ethylbenzene	0.068	0.002	"	0.100	ND	68.2	70-130	31.9	20	QM-07, QR-01
m,p-Xylene	0.133	0.004	"	0.200	ND	66.6	70-130	32.8	20	QM-07, QR-01
o-Xylene	0.069	0.002	"	0.100	ND	69.0	70-130	30.5	20	QM-07, QR-01
Naphthalene	0.050	0.008	"	0.100	0.003	47.8	70-130	20.4	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.2	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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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 B9D2511 - EPA 5030 (soil)

Matrix Spike Dup (B9D2511-MSD2)	Source: Y904430-02			Prepared: 04/25/2019 Analyzed: 04/25/2019						
Benzene	0.068	0.002	mg/kg	0.100	ND	68.1	70-130	9.14	20	QM-07
Toluene	0.068	0.002	"	0.100	ND	68.1	70-130	6.91	20	QM-07
Ethylbenzene	0.067	0.002	"	0.100	ND	67.4	70-130	5.57	20	QM-07
m,p-Xylene	0.132	0.004	"	0.200	ND	65.8	70-130	6.38	20	QM-07
o-Xylene	0.070	0.002	"	0.100	0.0007	69.2	70-130	5.43	20	QM-07
Naphthalene	0.059	0.008	"	0.100	0.002	57.2	70-130	10.0	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		99.3	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9D2512 - EPA 3580										
Blank (B9D2512-BLK1)										
					Prepared: 04/25/2019 Analyzed: 04/25/2019					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		87.3	50-150			

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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 B9D2512 - EPA 3580										
Blank (B9D2512-BLK2)										
					Prepared: 04/25/2019 Analyzed: 04/25/2019					
Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	47		"	50.0		94.9	50-150			

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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 B9D2512 - EPA 3580

LCS (B9D2512-BS1)

Prepared: 04/25/2019 Analyzed: 04/25/2019

Diesel (C10-C28)	1090	50.0	mg/kg	1000		109	70-130			
Residual Range Organics (C28-C40)	1090	200	"	1000		109	70-130			
Surrogate: o-Terphenyl	54		"	50.0		107	50-150			

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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 B9D2512 - EPA 3580

LCS (B9D2512-BS2)

Prepared: 04/25/2019 Analyzed: 04/25/2019

Diesel (C10-C28)	1060	50.0	mg/kg	1000		106	70-130			
Residual Range Organics (C28-C40)	1050	200	"	1000		105	70-130			
Surrogate: o-Terphenyl	52		"	50.0		104	50-150			

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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 B9D2512 - EPA 3580

Matrix Spike (B9D2512-MS1)	Source: Y904430-01		Prepared: 04/25/2019 Analyzed: 04/25/2019							
Diesel (C10-C28)	1070	50.0	mg/kg	1000	ND	107	70-130			
Residual Range Organics (C28-C40)	1070	200	"	1000	ND	107	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.4	50-150			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9D2512 - EPA 3580

Matrix Spike (B9D2512-MS2)	Source: Y904430-02			Prepared: 04/25/2019 Analyzed: 04/25/2019						
Diesel (C10-C28)	1060	50.0	mg/kg	1000	ND	106	70-130			
Residual Range Organics (C28-C40)	1070	200	"	1000	ND	107	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.9	50-150			

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Jen Pellegrini For Noelle Doyle Mathis, President

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9D2512 - EPA 3580										
Matrix Spike Dup (B9D2512-MSD1)		Source: Y904430-01			Prepared: 04/25/2019 Analyzed: 04/25/2019					
Diesel (C10-C28)	1070	50.0	mg/kg	1000	ND	107	70-130	0.805	35	
Residual Range Organics (C28-C40)	1100	200	"	1000	ND	110	70-130	3.19	35	
Surrogate: o-Terphenyl	47		"	50.0		94.2	50-150			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9D2512 - EPA 3580										
Matrix Spike Dup (B9D2512-MSD2)					Source: Y904430-02					Prepared: 04/25/2019 Analyzed: 04/25/2019
Diesel (C10-C28)	1070	50.0	mg/kg	1000	ND	107	70-130	1.12	35	
Residual Range Organics (C28-C40)	1060	200	"	1000	ND	106	70-130	0.750	35	
Surrogate: o-Terphenyl	47		"	50.0		93.8	50-150			

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Notes and Definitions

U Sample is Non-Detect.

QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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