



July 20, 2016

Mr. Erik Mickelson
Senior HSE Representative
Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**RE: Sump Closure Report
Fields-62N65W/8SESW
Spill/Release Point ID # 446122
NESW SEC 8-T2N-R65W
Weld County, Colorado**

Dear Mr. Mickelson:

LT Environmental, Inc. (LTE) was contracted by Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) to conduct environmental oversight activities at the above-referenced site. The oversight activities included field screening of soil, confirmation soil sampling, documenting field activities, and reviewing laboratory analytical results.

On June 7, 2016, the produced water sump was removed during tank battery deconstruction activities. Soil with historical petroleum hydrocarbon impacts were encountered beneath the produced water sump (Spill/Release Point ID 446122). The soil sampling activities, laboratory analytical results, and excavation outcome are summarized below.

On June 7 and 8, 2016, following removal of the produced water sump, six representative sidewall soil samples (N01@16', E01@16', E02@16', S01@16', W01@16', and W02@16') and two base soil samples (B01@18' and B02@18') were collected from the sump excavation. The soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, TPH-diesel range and oil range organics (DRO and ORO) by USEPA Method 8015C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results indicated that TPH concentrations in eastern sidewall soil sample E01@16' and TPH and benzene concentrations in eastern sidewall soil sample E02@16' and base soil sample B02@18' exceeded COGCC Table 910-1 allowable levels.

On June 9, 2016, following removal of additional impacted soil from the eastern sidewall and the base of the excavation, two sidewall soil samples (E03@18' and E04@16') and one base soil sample (B03@20') were collected from the excavation. Laboratory analytical results indicated that the TPH concentration in base soil sample B03@20' exceeded the COGCC Table 910-1 allowable level for TPH. Laboratory analytical results for the confirmation sidewall soil samples



indicated that BTEX, TPH, pH, and EC levels were compliant with the COGCC allowable levels at the extent of the eastern sidewall.

In order to remove additional impacted soil from the southern half of the excavation base, the excavation sidewalls were sloped for stability per Occupational Safety and Health Administration (OSHA) regulations. On June 17, 2016, following the removal of additional impacted soil from the excavation base, one additional soil sample (B04@25') was collected from the excavation base. Laboratory analytical results indicated that TPH, BTEX, pH, and EC levels were in compliance with COGCC Table 910-1 allowable levels at the extent of the excavation. The general site layout, release location, excavation extent, sloped excavation access, and soil sample locations are depicted on the Excavation Site Map provided as Figure 1. The soil sample analytical results are summarized in Table 1 and the laboratory analytical reports are attached.

The sump excavation measured approximately 54 feet north to south by 32 feet east to west to depths of 18 feet to 25 feet below ground surface. Approximately 1,790 cubic yards of soil were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado, for disposal. The produced water sump at this facility has been decommissioned, and the excavation area was backfilled and contoured to match pre-existing site conditions.

Please contact LTE at (303) 433-9788 if you have any questions regarding this Sump Closure Report or if you require additional information.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads "Michael J. Furtaw".

Michael J. Furtaw, P.G.
Project Geologist

A handwritten signature in black ink that reads "Justin Solomon".

Justin Solomon
Senior Environmental Scientist

Attachments



IMAGE COURTESY OF GOOGLE EARTH 2015

LEGEND

X RELEASE LOCATION

● SOIL SAMPLE

M METER HOUSE

SLOPED EXCAVATION ACCESS

EXCAVATION EXTENT

FORMER BERM

ECD: EMISSION CONTROL DEVICE

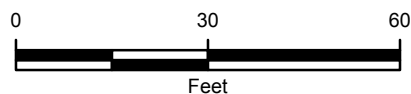


FIGURE 1
EXCAVATION SITE MAP
FIELDS-62N65W/8SESW
NE-SW SEC 8-T2N-R65W
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
FIELDS-62N65W/8SESW
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)	pH (su)	Specific Conductance (mmhos/cm)
B01 @ 18'	18'	06/07/2016	<0.050	<0.050	0.178	0.741	96.0	50.9	<100	8.03	0.211
B02 @ 18'	18'	06/08/2016	0.332	<0.050	1.58	15.1	2340	412	593	7.74	0.402
E01 @ 16'	16'	06/08/2016	0.068	<0.050	0.167	1.43	449	124	131	7.80	0.302
E02 @ 16'	16'	06/08/2016	0.853	0.164	8.09	70.6	7230	1710	1820	8.02	0.302
N01 @ 16'	16'	06/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	8.12	0.290
S01 @ 16'	16'	06/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	10.1	<100	8.35	0.152
W01 @ 16'	16'	06/08/2016	<0.050	<0.050	0.308	1.48	124	104	<100	8.08	0.164
W02 @ 16'	16'	06/08/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	8.04	0.203
B03 @ 20'	20'	06/09/2016	0.142	<0.050	0.637	4.40	1020	117	203	8.18	0.203
E03 @ 18'	18'	06/09/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	8.26	0.327
E04 @ 16'	16'	06/09/2016	<0.002	<0.002	<0.002	<0.002	<25.0	<0.200	<100	7.96	0.373
B04 @ 25'	25'	06/17/2016	<0.002	<0.002	<0.002	<0.002	<25.0	<0.200	<100	8.60	0.256
COGCC Allowable Levels			0.17	85	100	175	500*	500*	500*	6-9	4

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

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





June 08, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Fields 62N65W 8SESW

Project Number - 014216100/WO#890537

Attached are your analytical results for KMG - Fields 62N65W 8SESW received by Origins Laboratory, Inc. June 07, 2016. This project is associated with Origins project number X606079-01.

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

John Cocroft

Project Number: 014216100/WO#89053743

Project: KMG - Fields 62N65W 8SESW

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01 @ 18'	X606079-01	Soil	June 7, 2016 13:30	06/07/2016 15:30

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.

Origins Laboratory, Inc.

Jeff Pelligrini

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X606079

Client: LTE

Client Project ID: Fields 62N65W 8SESW

Checklist Completed by: Jeff Smith

Shipped Via: H&D

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

Date/time completed: 6/7/16

Airbill #: NA

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

(Describe)

Cooler Number/Temperature: 1 16.1 °C 1 °C 1 °C 1 °C

Thermometer ID: 7003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		X		Sampled Same Day
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X	X		PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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)			X	
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) Jeff Smith

Date/Time Reviewed 6/7/16

Origins Laboratory, Inc.

Jeff 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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

B01 @ 18'
6/7/2016 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606079-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	96.0	25.0	mg/kg	1	B6F0705	06/07/2016	06/07/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 79.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	50.9	5.00	mg/kg	25	B6F0703	06/07/2016	06/07/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.178	0.050	"	"	"	"	"	
Xylenes, total	0.741	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 98.2 % 70-130 " " "
Surrogate: Toluene-d8 111 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.03		pH Units	1	B6F0707	06/07/2016	06/07/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.211		mmhos/cm	"	B6F0708	"	06/07/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0703 - EPA 5030 (soil)										
Blank (B6F0703-BLK1)					Prepared: 06/07/2016 Analyzed: 06/07/2016					
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
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0703 - EPA 5030 (soil)										
LCS (B6F0703-BS1)					Prepared: 06/07/2016 Analyzed: 06/07/2016					
Benzene	0.118	0.002	mg/kg	0.100		118	77.1-124			
Toluene	0.118	0.002	"	0.100		118	74.5-128			
Ethylbenzene	0.111	0.002	"	0.100		111	66.4-127			
m,p-Xylene	0.225	0.004	"	0.200		112	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0703 - EPA 5030 (soil)

Matrix Spike (B6F0703-MS1)		Source: X606038-02			Prepared: 06/07/2016 Analyzed: 06/07/2016					
Benzene	0.118	0.002	mg/kg	0.100	ND	118	71.8-126			
Toluene	0.120	0.002	"	0.100	ND	120	65.1-130			
Ethylbenzene	0.114	0.002	"	0.100	ND	114	62.2-130			
m,p-Xylene	0.235	0.004	"	0.200	ND	118	46.5-137			
o-Xylene	0.133	0.002	"	0.100	ND	133	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0703 - EPA 5030 (soil)										
Matrix Spike Dup (B6F0703-MSD1)					Source: X606038-02					
										Prepared: 06/07/2016 Analyzed: 06/07/2016
Benzene	0.115	0.002	mg/kg	0.100	ND	115	71.8-126	2.91	11.3	
Toluene	0.107	0.002	"	0.100	ND	107	65.1-130	11.6	15.4	
Ethylbenzene	0.087	0.002	"	0.100	ND	87.3	62.2-130	26.7	19.6	QR-02
m,p-Xylene	0.175	0.004	"	0.200	ND	87.7	46.5-137	29.2	19.2	QR-02
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	27.4	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.9	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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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Extractable Petroleum Hydrocarbons by 8015C - 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 B6F0705 - EPA 3580

Blank (B6F0705-BLK1)

Prepared: 06/07/2016 Analyzed: 06/07/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	38		"	50.0		75.0	59-131			

LCS (B6F0705-BS1)

Prepared: 06/07/2016 Analyzed: 06/07/2016

Diesel (C10-C28)	952	50.0	mg/kg	1000		95.2	64-121			
Residual Range Organics (C28-C40)	863	200	"	1000		86.3	58-124			
Surrogate: o-Terphenyl	45		"	50.0		89.6	59-131			

Matrix Spike (B6F0705-MS1)

Source: X606069-01

Prepared: 06/07/2016 Analyzed: 06/07/2016

Diesel (C10-C28)	882	50.0	mg/kg	1000	ND	88.2	53-125			
Residual Range Organics (C28-C40)	761	200	"	1000	13.1	74.8	47-133			
Surrogate: o-Terphenyl	41		"	50.0		82.7	59-131			

Matrix Spike Dup (B6F0705-MSD1)

Source: X606069-01

Prepared: 06/07/2016 Analyzed: 06/07/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	53-125	15.3	20	
Residual Range Organics (C28-C40)	885	200	"	1000	13.1	87.2	47-133	15.3	20	
Surrogate: o-Terphenyl	47		"	50.0		94.6	59-131			

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0707 - NO PREP										
Duplicate (B6F0707-DUP1)		Source: X606079-01			Prepared: 06/07/2016 Analyzed: 06/07/2016					
pH	7.71		pH Units		8.03			4.07	25	
Batch B6F0708 - NO PREP										
Blank (B6F0708-BLK1)		Prepared: 06/07/2016 Analyzed: 06/07/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6F0708-DUP1)		Source: X606079-01			Prepared: 06/07/2016 Analyzed: 06/07/2016					
Specific Conductance (EC)	0.250		mmhos/cm		0.211			16.9	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Notes and Definitions

U Sample is Non-Detect.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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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June 09, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Fields 62N65W 8SESW

Project Number - 014216100/WO#890537

Attached are your analytical results for KMG - Fields 62N65W 8SESW received by Origins Laboratory, Inc. June 08, 2016. This project is associated with Origins project number X606107-01.

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.

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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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02 @ 18'	X606107-01	Soil	June 8, 2016 15:30	06/08/2016 17:42
E01 @ 16'	X606107-02	Soil	June 8, 2016 15:35	06/08/2016 17:42
E02 @ 16'	X606107-03	Soil	June 8, 2016 15:40	06/08/2016 17:42
N01 @ 16'	X606107-04	Soil	June 8, 2016 15:45	06/08/2016 17:42
W02 @ 16'	X606107-05	Soil	June 8, 2016 15:50	06/08/2016 17:42
W01 @ 16'	X606107-06	Soil	June 8, 2016 16:00	06/08/2016 17:42
S01 @ 16'	X606107-07	Soil	June 8, 2016 16:05	06/08/2016 17:42

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X60407

Client: LTE

Client Project ID: Fields 62N65W 8SESW

Checklist Completed by: Jeff Smith

Shipped Via: HTD

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

Date/time completed: 6/8/16

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.5 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: 7003

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"/>			
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"/>			PH
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) Jeff Smith

Date/Time Reviewed 6/8/16

Origins Laboratory, Inc.

Jeff Pellegrini

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

B02 @ 18'
6/8/2016 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	2340	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	
Residual Range Organics (C28-C40)	593	100	"	"	"	"	"	

Surrogate: o-Terphenyl	112 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	412	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016	
Benzene	0.332	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	1.58	0.050	"	"	"	"	"	
Xylenes, total	15.1	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.3 %	70-130			"	"	06/09/2016	
Surrogate: Toluene-d8	109 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.74		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.402		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

E01 @ 16'
6/8/2016 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	449	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016
Residual Range Organics (C28-C40)	131	100	"	"	"	"	"

Surrogate: o-Terphenyl	85.3 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	124	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016
Benzene	0.068	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	" U
Ethylbenzene	0.167	0.050	"	"	"	"	"
Xylenes, total	1.43	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.0 %	70-130			"	"	"
Surrogate: Toluene-d8	116 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	7.80		pH Units	1	B6F0803	06/08/2016	06/08/2016
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.302		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

E02 @ 16'
6/8/2016 3:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	7230	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016
Residual Range Organics (C28-C40)	1820	100	"	"	"	"	"

Surrogate: o-Terphenyl	119 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1710	50.0	mg/kg	250	B6F0801	06/08/2016	06/09/2016
Benzene	0.853	0.050	"	25	"	"	06/08/2016
Toluene	0.164	0.050	"	"	"	"	"
Ethylbenzene	8.09	0.050	"	"	"	"	"
Xylenes, total	70.6	0.498	"	250	"	"	06/09/2016

Surrogate: 1,2-Dichloroethane-d4	92.5 %	70-130			"	"	"
Surrogate: Toluene-d8	121 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	108 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.02		pH Units	1	B6F0803	06/08/2016	06/08/2016
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.302		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

N01 @ 16'
6/8/2016 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 92.1 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.12		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.290		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

W02 @ 16'
6/8/2016 3:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 74.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 93.0 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 107 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.04		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.203		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

W01 @ 16'
6/8/2016 4:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	124	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.2 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	104	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.308	0.050	"	"	"	"	"	
Xylenes, total	1.48	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	91.9 %	70-130			"	"	"	
Surrogate: Toluene-d8	115 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	107 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.08		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.164		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

S01 @ 16'
6/8/2016 4:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606107-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F0802	06/08/2016	06/09/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 86.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	10.1	5.00	mg/kg	25	B6F0801	06/08/2016	06/08/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 95.1 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.35		pH Units	1	B6F0803	06/08/2016	06/08/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.152		mmhos/cm	"	B6F0804	06/08/2016	06/08/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)										
Blank (B6F0801-BLK1)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
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
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.7	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)										
Blank (B6F0801-BLK2)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
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
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)										
LCS (B6F0801-BS1)					Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.111	0.002	mg/kg	0.100		111	77.1-124			
Toluene	0.111	0.002	"	0.100		111	74.5-128			
Ethylbenzene	0.109	0.002	"	0.100		109	66.4-127			
m,p-Xylene	0.215	0.004	"	0.200		107	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)

LCS (B6F0801-BS2)

Prepared: 06/08/2016 Analyzed: 06/08/2016

Benzene	0.106	0.002	mg/kg	0.100	106	77.1-124
Toluene	0.109	0.002	"	0.100	109	74.5-128
Ethylbenzene	0.110	0.002	"	0.100	110	66.4-127
m,p-Xylene	0.222	0.004	"	0.200	111	76.6-124
o-Xylene	0.107	0.002	"	0.100	107	76.6-124
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5	106	70-130
Surrogate: Toluene-d8	63		"	62.5	101	70-130
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.1	70-130

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)

Matrix Spike (B6F0801-MS1)		Source: X606061-01			Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.114	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.115	0.002	"	0.100	ND	115	65.1-130			
Ethylbenzene	0.113	0.002	"	0.100	ND	113	62.2-130			
m,p-Xylene	0.225	0.004	"	0.200	ND	113	46.5-137			
o-Xylene	0.111	0.002	"	0.100	ND	111	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)

Matrix Spike (B6F0801-MS2)		Source: X606105-09			Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.113	0.002	mg/kg	0.100	ND	113	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.106	0.002	"	0.100	ND	106	62.2-130			
m,p-Xylene	0.220	0.004	"	0.200	ND	110	46.5-137			
o-Xylene	0.107	0.002	"	0.100	ND	107	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.2	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)										
Matrix Spike Dup (B6F0801-MSD1)					Source: X606061-01					Prepared: 06/08/2016 Analyzed: 06/08/2016
Benzene	0.108	0.002	mg/kg	0.100	ND	108	71.8-126	5.88	11.3	
Toluene	0.111	0.002	"	0.100	ND	111	65.1-130	3.51	15.4	
Ethylbenzene	0.107	0.002	"	0.100	ND	107	62.2-130	5.29	19.6	
m,p-Xylene	0.215	0.004	"	0.200	ND	107	46.5-137	4.70	19.2	
o-Xylene	0.106	0.002	"	0.100	ND	106	54.2-134	4.66	17.9	
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0801 - EPA 5030 (soil)

Matrix Spike Dup (B6F0801-MSD2)		Source: X606105-09			Prepared: 06/08/2016 Analyzed: 06/08/2016					
Benzene	0.099	0.002	mg/kg	0.100	ND	99.0	71.8-126	12.9	11.3	QR-02
Toluene	0.101	0.002	"	0.100	ND	101	65.1-130	10.1	15.4	
Ethylbenzene	0.095	0.002	"	0.100	ND	95.0	62.2-130	11.3	19.6	
m,p-Xylene	0.191	0.004	"	0.200	ND	95.5	46.5-137	14.0	19.2	
o-Xylene	0.098	0.002	"	0.100	ND	98.0	54.2-134	8.84	17.9	
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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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Extractable Petroleum Hydrocarbons by 8015C - 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 B6F0802 - EPA 3580

Blank (B6F0802-BLK1)

Prepared: 06/08/2016 Analyzed: 06/08/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	48		"	50.0		96.3	59-131			

Blank (B6F0802-BLK2)

Prepared: 06/08/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	49		"	50.0		97.0	59-131			

LCS (B6F0802-BS1)

Prepared: 06/08/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	1110	50.0	mg/kg	1000		111	64-121			
Residual Range Organics (C28-C40)	1010	200	"	1000		101	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.2	59-131			

LCS (B6F0802-BS2)

Prepared: 06/08/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	998	50.0	mg/kg	1000		99.8	64-121			
Residual Range Organics (C28-C40)	922	200	"	1000		92.2	58-124			
Surrogate: o-Terphenyl	45		"	50.0		90.3	59-131			

Matrix Spike (B6F0802-MS1)

Source: X606061-01

Prepared: 06/08/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	1070	50.0	mg/kg	1000	ND	107	53-125			
Residual Range Organics (C28-C40)	973	200	"	1000	17.1	95.6	47-133			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0802 - EPA 3580										
Matrix Spike (B6F0802-MS1)		Source: X606061-01			Prepared: 06/08/2016 Analyzed: 06/09/2016					
Surrogate: o-Terphenyl	48		mg/kg	50.0		95.7	59-131			
Matrix Spike (B6F0802-MS2)		Source: X606105-09			Prepared: 06/08/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	951	50.0	mg/kg	1000	ND	95.1	53-125			
Residual Range Organics (C28-C40)	913	200	"	1000	20.6	89.2	47-133			
Surrogate: o-Terphenyl	44		"	50.0		88.0	59-131			
Matrix Spike Dup (B6F0802-MSD1)		Source: X606061-01			Prepared: 06/08/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	53-125	3.62	20	
Residual Range Organics (C28-C40)	964	200	"	1000	17.1	94.7	47-133	0.998	20	
Surrogate: o-Terphenyl	48		"	50.0		95.1	59-131			
Matrix Spike Dup (B6F0802-MSD2)		Source: X606105-09			Prepared: 06/08/2016 Analyzed: 06/09/2016					
Diesel (C10-C28)	1010	50.0	mg/kg	1000	ND	101	53-125	6.29	20	
Residual Range Organics (C28-C40)	948	200	"	1000	20.6	92.7	47-133	3.87	20	
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0803 - NO PREP										
Duplicate (B6F0803-DUP1)		Source: X606106-01			Prepared: 06/08/2016 Analyzed: 06/08/2016					
pH	7.28		pH Units		7.26			0.275	25	
Batch B6F0804 - NO PREP										
Blank (B6F0804-BLK1)		Prepared: 06/08/2016 Analyzed: 06/08/2016								
Specific Conductance (EC)	0.00250		mmhos/cm							
Duplicate (B6F0804-DUP1)		Source: X606106-01			Prepared: 06/08/2016 Analyzed: 06/08/2016					
Specific Conductance (EC)	0.210		mmhos/cm		0.207			1.44	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Notes and Definitions

U Sample is Non-Detect.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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.



June 10, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Fields 62N65W 8SESW

Project Number - 014216100/WO#890537

Attached are your analytical results for KMG - Fields 62N65W 8SESW received by Origins Laboratory, Inc. June 09, 2016. This project is associated with Origins project number X606123-01.

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B03 @ 20'	X606123-01	Soil	June 9, 2016 16:05	06/09/2016 17:49
E03 @ 18'	X606123-02	Soil	June 9, 2016 16:10	06/09/2016 17:49
E04 @ 16'	X606123-03	Soil	June 9, 2016 16:15	06/09/2016 17:49

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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page 1 of 1

X606123

ORIGINS LABORATORY, INC

Client: LTE
Address: 4100 W 60th
Arvada CO
Telephone Number: 303.433.9708
Email Address: J.cocroft@LTEN.com

Project Manager: John Cocroft
Project Name: Fields 62N65W 8SESW
Project Number: 014216100
Samples Collected By: J2
ATT: Sam LaFue WO# 89053743

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	As	Pb	Cd		Se
B03 @ 20'	6/9/16	1605	2	X					X				X	X	Hard Sare	1
E03 @ 18'	↓	1610	2	X					X				X	X	Hard Sare	2
E04 @ 16'	↓	1615	2	X					X				X	X	Hard Sare	3
																4
																5
																6
																7
																8
																9
																10
Relinquished By: J.cocroft	Date: 6/9/16	Time: 1700		Received By: J.cocroft	Date: 6/9/16	Time: 5:00		Received By: J.cocroft	Date: 6/9/16	Time: 1749		Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>				
Relinquished By: J.cocroft	Date: 6/9/16	Time: 5:49		Received By: J.cocroft	Date: 6/9/16	Time: 1749		Received By: J.cocroft	Date: 6/9/16	Time: 1749						

Temp Received: 6.0 Date Results Needed

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X606123

Client: LTE

Client Project ID: Fields 62N65W/8SESW

Checklist Completed by: Jeff Smith

Shipped Via: HRD

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

Date/time completed: 6/19/16

Airbill #: N/A

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

Cooler Number/Temperature: 1 16.0 °C 1 °C 1 °C 1 °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"/>			
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"/>	<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)

Date/Time Reviewed 6/19/16

Origins Laboratory, Inc.

Jen Pellegrini

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

B03 @ 20'
6/9/2016 4:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606123-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1020	25.0	mg/kg	1	B6F0905	06/09/2016	06/10/2016	
Residual Range Organics (C28-C40)	203	100	"	"	"	"	"	

Surrogate: o-Terphenyl	87.9 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	117	5.00	mg/kg	25	B6F0903	06/09/2016	06/09/2016	
Benzene	0.142	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.637	0.050	"	"	"	"	"	
Xylenes, total	4.40	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"	
Surrogate: Toluene-d8	106 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.18		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.203		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

E03 @ 18'
6/9/2016 4:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606123-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F0905	06/09/2016	06/10/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6F0903	06/09/2016	06/09/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "
Surrogate: Toluene-d8 95.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.5 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.26		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.327		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

E04 @ 16'
6/9/2016 4:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606123-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F0905	06/09/2016	06/10/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 72.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6F0903	06/09/2016	06/09/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 117 % 70-130 " " "
Surrogate: Toluene-d8 98.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.96		pH Units	1	B6F0906	06/09/2016	06/09/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.373		mmhos/cm	"	B6F0907	06/09/2016	06/09/2016	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)										
Blank (B6F0903-BLK1)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
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
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		98.4	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)										
Blank (B6F0903-BLK2)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
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
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)

LCS (B6F0903-BS1)

Prepared: 06/09/2016 Analyzed: 06/09/2016

Benzene	0.102	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.110	0.002	"	0.100		110	66.4-127			
m,p-Xylene	0.220	0.004	"	0.200		110	76.6-124			
o-Xylene	0.108	0.002	"	0.100		108	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Jen Pellegrini For Noelle Doyle Mathis, President

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)										
LCS (B6F0903-BS2)					Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.085	0.002	mg/kg	0.100		84.9	77.1-124			
Toluene	0.086	0.002	"	0.100		86.4	74.5-128			
Ethylbenzene	0.087	0.002	"	0.100		87.4	66.4-127			
m,p-Xylene	0.176	0.004	"	0.200		87.8	76.6-124			
o-Xylene	0.085	0.002	"	0.100		85.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.8	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)

Matrix Spike (B6F0903-MS1)		Source: X606098-01			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.099	0.002	mg/kg	0.100	ND	98.7	71.8-126			
Toluene	0.101	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.102	0.002	"	0.100	ND	102	62.2-130			
m,p-Xylene	0.208	0.004	"	0.200	ND	104	46.5-137			
o-Xylene	0.100	0.002	"	0.100	ND	99.6	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.1	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)

Matrix Spike (B6F0903-MS2)		Source: X606118-02			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.098	0.002	mg/kg	0.100	0.0009	96.8	71.8-126			
Toluene	0.096	0.002	"	0.100	0.001	94.6	65.1-130			
Ethylbenzene	0.099	0.002	"	0.100	ND	99.1	62.2-130			
m,p-Xylene	0.201	0.004	"	0.200	ND	100	46.5-137			
o-Xylene	0.098	0.002	"	0.100	ND	98.1	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)

Matrix Spike Dup (B6F0903-MSD1)		Source: X606098-01			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.093	0.002	mg/kg	0.100	ND	93.3	71.8-126	5.60	11.3	
Toluene	0.094	0.002	"	0.100	ND	94.2	65.1-130	7.01	15.4	
Ethylbenzene	0.095	0.002	"	0.100	ND	94.7	62.2-130	7.26	19.6	
m,p-Xylene	0.191	0.004	"	0.200	ND	95.6	46.5-137	8.35	19.2	
o-Xylene	0.094	0.002	"	0.100	ND	93.6	54.2-134	6.13	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F0903 - EPA 5030 (soil)

Matrix Spike Dup (B6F0903-MSD2)		Source: X606118-02			Prepared: 06/09/2016 Analyzed: 06/09/2016					
Benzene	0.098	0.002	mg/kg	0.100	0.0009	97.1	71.8-126	0.286	11.3	
Toluene	0.096	0.002	"	0.100	0.001	95.2	65.1-130	0.604	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	99.0	62.2-130	0.121	19.6	
m,p-Xylene	0.203	0.004	"	0.200	ND	102	46.5-137	1.07	19.2	
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	2.50	17.9	
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			
Surrogate: Toluene-d8	62		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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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Extractable Petroleum Hydrocarbons by 8015C - 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 B6F0905 - EPA 3580

Blank (B6F0905-BLK1)

Prepared: 06/09/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	35		"	50.0		70.4	59-131			

LCS (B6F0905-BS1)

Prepared: 06/09/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	925	50.0	mg/kg	1000		92.5	64-121			
Residual Range Organics (C28-C40)	832	200	"	1000		83.2	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.1	59-131			

Matrix Spike (B6F0905-MS1)

Source: X606098-01

Prepared: 06/09/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	870	50.0	mg/kg	1000	29.3	84.1	53-125			
Residual Range Organics (C28-C40)	744	200	"	1000	ND	74.4	47-133			
Surrogate: o-Terphenyl	45		"	50.0		89.6	59-131			

Matrix Spike Dup (B6F0905-MSD1)

Source: X606098-01

Prepared: 06/09/2016 Analyzed: 06/09/2016

Diesel (C10-C28)	921	50.0	mg/kg	1000	29.3	89.2	53-125	5.88	20	
Residual Range Organics (C28-C40)	856	200	"	1000	ND	85.6	47-133	14.0	20	
Surrogate: o-Terphenyl	44		"	50.0		88.8	59-131			

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F0906 - NO PREP										
Duplicate (B6F0906-DUP1)	Source: X606086-01				Prepared: 06/09/2016 Analyzed: 06/09/2016					
pH	8.13		pH Units		8.16			0.368	25	
Duplicate (B6F0906-DUP2)	Source: X606086-02				Prepared: 06/09/2016 Analyzed: 06/09/2016					
pH	7.48		pH Units		7.42			0.805	25	
Batch B6F0907 - NO PREP										
Blank (B6F0907-BLK1)	Prepared: 06/09/2016 Analyzed: 06/09/2016									
Specific Conductance (EC)	0.00310		mmhos/cm							
Blank (B6F0907-BLK2)	Prepared: 06/09/2016 Analyzed: 06/09/2016									
Specific Conductance (EC)	0.00260		mmhos/cm							
Duplicate (B6F0907-DUP1)	Source: X606086-01				Prepared: 06/09/2016 Analyzed: 06/09/2016					
Specific Conductance (EC)	0.764		mmhos/cm		0.769			0.652	25	
Duplicate (B6F0907-DUP2)	Source: X606086-02				Prepared: 06/09/2016 Analyzed: 06/09/2016					
Specific Conductance (EC)	0.744		mmhos/cm		0.736			1.08	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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



June 22, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Fields 62N65W 8SESW

Project Number - 014216100/WO#890537

Attached are your analytical results for KMG - Fields 62N65W 8SESW received by Origins Laboratory, Inc. June 17, 2016. This project is associated with Origins project number X606218-01.

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B04 @ 25'	X606218-01	Soil	June 17, 2016 11:45	06/17/2016 16:30

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

www.originslaboratory.com

X606218

page 1 of 1

ORIGINS
LABORATORY, INC

Client: LTE

Address: 4600 W 60th Ave Arvada CO 80003

Telephone Number: (303)433-9788

Email Address: APC Team

Project Manager: J. Cocroft

Project Name: Fields 62N65W 8SESW

Project Number: 014216100 WO#89053743

Samples Collected By: KS

Attn: Sam Labbe

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	As	Pb	
B04 @ 25'	6/17/16	11:45	2	X				X		X	X	X		Hold SAR
B05 @ 27.5'		12:30	2	X				X		X	X	X		Hold SAR
B06 @ 30'		12:50	2	X				X						Hold All
Relinquished By: <i>[Signature]</i>	Date: 6/17/16	Time: 10:05		Received By: <i>[Signature]</i>	Date: 6/17/16	Time: 16:05		Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>						
Relinquished By: <i>[Signature]</i>	Date: 6/17/16	Time: 16:53		Received By: <i>[Signature]</i>	Date: 6/17/16	Time: 16:54		Standard: <input checked="" type="checkbox"/> 15						

Date Results Needed: 6/20/2016 (0400)

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X606218

Client: LTE

Client Project ID: Fields 62N65W 8SESW

Checklist Completed by: Jef S. M.

Shipped Via: HQD

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

Date/time completed: 6/17/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 1.3 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
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.				
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)				
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) Jef S. M.

Date/Time Reviewed 6/17/16

Origins Laboratory, Inc.

Jef Pellegrini

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

B04 @ 25'

6/17/2016 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X606218-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6F1704	06/17/2016	06/17/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 100 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6F1703	06/17/2016	06/17/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 120 % 70-130 " " "
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.60		pH Units	1	B6F1707	06/17/2016	06/17/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.256		mmhos/cm	"	B6F1708	"	06/17/2016	
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F1703 - EPA 5030 (soil)										
Blank (B6F1703-BLK1)					Prepared: 06/17/2016 Analyzed: 06/17/2016					
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
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.4	70-130			

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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F1703 - EPA 5030 (soil)

LCS (B6F1703-BS1)

Prepared: 06/17/2016 Analyzed: 06/17/2016

Benzene	0.097	0.002	mg/kg	0.100		96.7	77.1-124			
Toluene	0.090	0.002	"	0.100		89.6	74.5-128			
Ethylbenzene	0.098	0.002	"	0.100		98.3	66.4-127			
m,p-Xylene	0.199	0.004	"	0.200		99.4	76.6-124			
o-Xylene	0.087	0.002	"	0.100		87.5	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.2	70-130			
Surrogate: Toluene-d8	58		"	62.5		92.6	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

John Cocroft
Project Number: 014216100/WO#89053743
Project: KMG - Fields 62N65W 8SESW

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 B6F1703 - EPA 5030 (soil)

Matrix Spike (B6F1703-MS1)		Source: X606180-01			Prepared: 06/17/2016 Analyzed: 06/17/2016					
Benzene	0.100	0.002	mg/kg	0.100	ND	99.9	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	96.8	65.1-130			
Ethylbenzene	0.108	0.002	"	0.100	ND	108	62.2-130			
m,p-Xylene	0.213	0.004	"	0.200	ND	106	46.5-137			
o-Xylene	0.097	0.002	"	0.100	ND	96.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.4	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	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 B6F1703 - EPA 5030 (soil)

Matrix Spike Dup (B6F1703-MSD1)		Source: X606180-01			Prepared: 06/17/2016 Analyzed: 06/17/2016					
Benzene	0.091	0.002	mg/kg	0.100	ND	90.8	71.8-126	9.52	11.3	
Toluene	0.098	0.002	"	0.100	ND	98.3	65.1-130	1.56	15.4	
Ethylbenzene	0.096	0.002	"	0.100	ND	96.0	62.2-130	11.5	19.6	
m,p-Xylene	0.193	0.004	"	0.200	ND	96.4	46.5-137	9.79	19.2	
o-Xylene	0.086	0.002	"	0.100	ND	85.8	54.2-134	12.1	17.9	
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	65		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.7	70-130			

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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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Extractable Petroleum Hydrocarbons by 8015C - 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 B6F1704 - EPA 3580

Blank (B6F1704-BLK1)

Prepared: 06/17/2016 Analyzed: 06/17/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	34		"	50.0		68.8	59-131			

LCS (B6F1704-BS1)

Prepared: 06/17/2016 Analyzed: 06/17/2016

Diesel (C10-C28)	863	50.0	mg/kg	1000		86.3	64-121			
Residual Range Organics (C28-C40)	874	200	"	1000		87.4	58-124			
Surrogate: o-Terphenyl	43		"	50.0		86.2	59-131			

Matrix Spike (B6F1704-MS1)

Source: X606180-01

Prepared: 06/17/2016 Analyzed: 06/17/2016

Diesel (C10-C28)	834	50.0	mg/kg	1000	20.1	81.4	53-125			
Residual Range Organics (C28-C40)	775	200	"	1000	17.4	75.8	47-133			
Surrogate: o-Terphenyl	40		"	50.0		79.8	59-131			

Matrix Spike Dup (B6F1704-MSD1)

Source: X606180-01

Prepared: 06/17/2016 Analyzed: 06/17/2016

Diesel (C10-C28)	827	50.0	mg/kg	1000	20.1	80.7	53-125	0.815	20	
Residual Range Organics (C28-C40)	807	200	"	1000	17.4	79.0	47-133	4.19	20	
Surrogate: o-Terphenyl	44		"	50.0		88.7	59-131			

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Project: KMG - Fields 62N65W 8SESW

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6F1707 - NO PREP										
Duplicate (B6F1707-DUP1)		Source: X606218-01			Prepared: 06/17/2016 Analyzed: 06/17/2016					
pH	8.98		pH Units		8.60			4.32	25	
Batch B6F1708 - NO PREP										
Blank (B6F1708-BLK1)		Prepared: 06/17/2016 Analyzed: 06/17/2016								
Specific Conductance (EC)	0.00200		mmhos/cm							
Duplicate (B6F1708-DUP1)		Source: X606218-01			Prepared: 06/17/2016 Analyzed: 06/17/2016					
Specific Conductance (EC)	0.272		mmhos/cm		0.256			6.06	25	

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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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