



November 2, 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
Powers 21-22, X 22-02, 41-22, Robert Powers X 22-07
API# 05-123-09950
API# 05-123-32259
API# 05-123-07669
API# 05-123-27031
Spill/Release Point ID# 447774
NENE Sec 22-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 documenting field activities, collecting soil samples, and reviewing laboratory analytical results.

In September 2016, while performing an emissions upgrade at the Powers 21-22, X 22-02, 41-22, Robert Powers X 22-07 tank battery, soil with historical petroleum hydrocarbon impact was encountered beneath the tank battery. There were no indications that the dumplines or production tanks were leaking. The volume of the release is unknown. The release became reportable on September 14, 2016, due to the volume of impacted soil removed (Spill/Release Point ID# 447774).

After removing three produced water sumps, fourteen soil samples were collected from the sidewalls and base of the sump excavation between September 14 and 23, 2016. The soil samples were field-screened for volatile organic compounds using a photoionization detector. 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 organics (DRO) and oil range organics (ORO) by USEPA Method 8015C, pH by USEPA Method 9045D, and specific conductance (EC) by USEPA Method 9050A. Laboratory analytical results indicated that BTEX, TPH, and EC concentrations and levels were in compliance with COGCC Table 910-1 allowable levels at the final extent of the excavation. Laboratory analytical results indicated that the pH level in base soil sample B02@19', which was collected beneath the root zone, exceeded COGCC Table 910-1 allowable level for pH at 9.01.



The general site layout 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 extent measured approximately 72 feet north to south by 63 feet east to west to an approximate depth of 19 feet below ground surface. The three produced water sumps at this facility have been permanently removed and replaced with a single centralized produced water sump. 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 black ink that reads 'RYAN ZERNIS'. The signature is stylized, with the first letter 'R' being particularly large and prominent.

Ryan Zernis
Staff Geologist

A handwritten signature in black ink that reads 'Justin Solomon'. The signature is written in a cursive, flowing style.

Justin Solomon
Senior Environmental Scientist

Attachments



LEGEND

- X RELEASE LOCATION
- SOIL SAMPLE
- EXCAVATION EXTENT
- BERM
- FORMER BERM
- AST: ABOVEGROUND STORAGE TANK

IMAGE COURTESY OF GOOGLE EARTH 2015

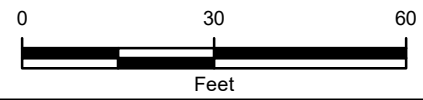


FIGURE 1
EXCAVATION SITE MAP
 POWERS 21-22, X 22-02, 41-22,
 ROBERT POWERS X 22-07
 NENE SEC 22-T2N-R65W
 WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
POWERS 21-22, X 22-02, 41-22, ROBERT POWERS X 22-07
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 @ 19'	19'	09/14/2016	<0.050	<0.050	<0.050	0.228	<25.0	7.25	<100	7.37	0.0996
N01 @ 17'	17'	09/14/2016	<0.050	<0.050	<0.050	1.17	48.6	21.2	<100	7.95	0.145
W01 @ 17'	17'	09/14/2016	0.444	<0.050	0.962	20.6	62.0	129	<100	7.87	0.0500
B02 @ 19'	19'	09/16/2016	<0.050	<0.050	<0.050	<0.050	<25.0	<5.00	<100	9.01 †	0.289
E01 @ 17'	17'	09/16/2016	0.164	<0.050	0.116	0.694	29.1	18.1	<100	8.83	0.350
N02 @ 17'	17'	09/16/2016	0.584	0.057	2.14	48.3	143	625	<100	8.21	0.163
N03 @ 17'	17'	09/19/2016	<0.050	<0.050	0.060	0.513	143	104	<100	7.92	0.0783
B03 @ 19'	19'	09/20/2016	0.080	<0.050	0.555	0.746	27.0	6.59	<100	8.50	0.0288
B04 @ 19'	19'	09/20/2016	<0.050	<0.050	0.350	0.472	25.7	5.92	<100	8.89	0.131
S01 @ 17'	17'	09/20/2016	0.148	<0.050	0.276	8.52	30.0	91.6	<100	7.54	0.0534
S02 @ 17'	17'	09/20/2016	<0.050	<0.050	0.187	5.42	70.0	76.2	<100	8.23	0.135
E02 @ 17'	17'	09/21/2016	<0.050	<0.050	1.45	2.07	46.9	25.6	<100	7.96	0.276
W02 @ 17'	17'	09/23/2016	<0.050	<0.050	0.200	0.268	<25.0	5.43	<100	7.68	0.110
W03 @ 17'	17'	09/23/2016	<0.050	<0.050	1.42	1.92	<25.0	32.3	<100	7.90	0.0919
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

† - Sample was collected below the designated root zone (>3' bgs)

* - Standard applies to combined DRO-GRO-ORO

< - less than laboratory reporting limit

Bold indicates result exceeds allowable level





September 15, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Roberts X22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Roberts X22-07 received by Origins Laboratory, Inc. September 14, 2016. This project is associated with Origins project number X609164-01.

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01 @ 17'	X609164-01	Soil	September 14, 2016 14:10	09/14/2016 17:35
W01 @ 17'	X609164-04	Soil	September 14, 2016 14:25	09/14/2016 17:35
B01 @ 19'	X609164-05	Soil	September 14, 2016 14:30	09/14/2016 17:35

Origins Laboratory, Inc.



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

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

www.originslaboratory.com

page 1 of 2

X609164

ORIGINS
LABORATORY, INC

Client: LT Environmental

Address: _____

Telephone Number: _____

Email Address: _____

Project Manager: J. Cocroft

Project Name: Powers Roberts X22-07

Project Number: 014216161 WO# 89123782

Samples Collected By: C. Terry

APC = Mike Albright

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	6 BTX	TPH	OC		PC
N01@17'	9/14/16	1410	2					X			X	X	X	X		
E01@17'	9/14/16	1415	2					X			X	X	X	X		HOLD
S01@17'	9/14/16	1420	2					X			X	X	X	X		HOLD
W01@17'	9/14/16	1425	2					X			X	X	X	X		
B01@19'	9/14/16	1430	2					X			X	X	X	X		
BG	9/14/16	1435	2					X			X	X	X	X		HOLD
B02@5'	9/14/16	1510	2					X			X	X	X	X		HOLD
B03@5'	9/14/16	1515	2					X			X	X	X	X		HOLD
N02@3'	9/14/16	1520	2					X			X	X	X	X		HOLD
E02@3'	9/14/16	1525	2					X			X	X	X	X		HOLD
Relinquished By: <i>[Signature]</i>	Date: 9/14/16	Time: 1735		Received By: <i>[Signature]</i>	Date: 9/14/16	Time: 1735		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"/>								

Date Results Needed: _____

Temp Received: _____

Origins Laboratory, Inc.

Jefe Pellegrini

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X209164

Client: LTE

Client Project ID: Powers Roberts X22-07

Checklist Completed by: Jeff Smith

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

Date/time completed: 9/14/12

Airbill #: NA

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

Cooler Number/Temperature: 1 123.4 °C 1 °C 1 °C (Describe) °C

Thermometer ID: 7253

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)		1		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		1		
Were all samples received intact ⁽¹⁾ ?	1			
Was adequate sample volume provided ⁽¹⁾ ?	1			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	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⁾ ?	1			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<			
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+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.

Jeff Smith
 Reviewed by (Project Manager)

9/14/12
 Date/Time Reviewed

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

N01 @ 17'
9/14/2016 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609164-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	48.6	25.0	mg/kg	1	B6I1405	09/14/2016	09/15/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 70.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	21.2	5.00	mg/kg	25	B6I1408	09/14/2016	09/15/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	1.17	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 70-130 " " 09/14/2016
 Surrogate: Toluene-d8 100 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 97.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.95		pH Units	1	B6I1409	09/14/2016	09/14/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.145		mmhos/cm	"	B6I1410	"	09/14/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

B01 @ 19'
9/14/2016 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609164-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6I1405	09/14/2016	09/14/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 63.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	7.25	5.00	mg/kg	25	B6I1408	09/14/2016	09/15/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	0.228	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 110 % 70-130 " " 09/14/2016
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.6 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.37		pH Units	1	B6I1409	09/14/2016	09/14/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0996		mmhos/cm	"	B6I1410	"	09/14/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611408 - EPA 5030 (soil)										
Blank (B611408-BLK1)										
					Prepared: 09/14/2016 Analyzed: 09/14/2016					
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	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	63		"	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611408 - EPA 5030 (soil)

LCS (B611408-BS1)

Prepared: 09/14/2016 Analyzed: 09/14/2016

Benzene	0.106	0.002	mg/kg	0.100		106	77.1-124			
Toluene	0.102	0.002	"	0.100		102	74.5-128			
Ethylbenzene	0.100	0.002	"	0.100		99.8	66.4-127			
m,p-Xylene	0.201	0.004	"	0.200		101	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		106	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	70-130			

Origins Laboratory, Inc.



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 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611408 - EPA 5030 (soil)

Matrix Spike (B611408-MS1)	Source: X609163-01			Prepared: 09/14/2016 Analyzed: 09/14/2016						
Benzene	0.309	0.002	mg/kg	0.100	0.283	25.7	71.8-126			QM-07
Toluene	0.099	0.002	"	0.100	ND	98.7	65.1-130			
Ethylbenzene	0.092	0.002	"	0.100	ND	91.5	62.2-130			
m,p-Xylene	0.183	0.004	"	0.200	ND	91.6	46.5-137			
o-Xylene	0.093	0.002	"	0.100	ND	93.3	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	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.
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 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611408 - EPA 5030 (soil)

Matrix Spike Dup (B611408-MSD1)	Source: X609163-01			Prepared: 09/14/2016 Analyzed: 09/14/2016						
Benzene	0.294	0.002	mg/kg	0.100	0.283	10.4	71.8-126	5.05	11.3	QM-07
Toluene	0.098	0.002	"	0.100	ND	97.9	65.1-130	0.895	15.4	
Ethylbenzene	0.088	0.002	"	0.100	ND	88.4	62.2-130	3.44	19.6	
m,p-Xylene	0.180	0.004	"	0.200	ND	90.2	46.5-137	1.53	19.2	
o-Xylene	0.091	0.002	"	0.100	ND	91.3	54.2-134	2.14	17.9	
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611405 - EPA 3580

Blank (B611405-BLK1)

Prepared: 09/14/2016 Analyzed: 09/14/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	43		"	50.0		85.8	59-131			

LCS (B611405-BS1)

Prepared: 09/14/2016 Analyzed: 09/14/2016

Diesel (C10-C28)	1040	50.0	mg/kg	1000		104	64-121			
Residual Range Organics (C28-C40)	1010	200	"	1000		101	58-124			
Surrogate: o-Terphenyl	46		"	50.0		92.0	59-131			

LCS Dup (B611405-BSD1)

Prepared: 09/14/2016 Analyzed: 09/14/2016

Diesel (C10-C28)	1080	50.0	mg/kg	1000		108	64-121	3.07	20	
Residual Range Organics (C28-C40)	1010	200	"	1000		101	58-124	0.166	20	
Surrogate: o-Terphenyl	48		"	50.0		96.3	59-131			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I1409 - NO PREP										
Duplicate (B6I1409-DUP1)		Source: X609163-01			Prepared: 09/14/2016 Analyzed: 09/14/2016					
pH	7.69		pH Units		7.82			1.68	25	
Batch B6I1410 - NO PREP										
Blank (B6I1410-BLK1)					Prepared: 09/14/2016 Analyzed: 09/14/2016					
Specific Conductance (EC)	0.00290		mmhos/cm							
Duplicate (B6I1410-DUP1)		Source: X609163-01			Prepared: 09/14/2016 Analyzed: 09/14/2016					
Specific Conductance (EC)	0.0925		mmhos/cm		0.0940			1.61	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

Notes and Definitions

U Sample is Non-Detect.

S-DUP Duplicate analysis confirmed surrogate failure due to matrix effects.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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September 19, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Roberts X22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Roberts X22-07 received by Origins Laboratory, Inc. September 16, 2016. This project is associated with Origins project number X609203-01.

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N02 @ 17'	X609203-01	Soil	September 16, 2016 14:05	09/16/2016 17:13
E01 @ 17'	X609203-02	Soil	September 16, 2016 14:10	09/16/2016 17:13
B02 @ 19'	X609203-03	Soil	September 16, 2016 14:15	09/16/2016 17:13

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X609203

Client: LTE

Client Project ID: Powers Roberts X 22-07

Checklist Completed by: Jeff Smith

Shipped Via: HTD

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

Date/time completed: 9/16/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 1.2 °C _____ / _____ °C _____ / _____ °C (Describe) _____ °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			
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			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.

Jeff Smith
 Reviewed By (Project Manager)

9/16/16
 Date/Time Reviewed

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

N02 @ 17'
9/16/2016 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609203-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	143	25.0	mg/kg	1	B6I1602	09/16/2016	09/16/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 34.0 % 59-131 " " " S-04

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	625	50.0	mg/kg	250	B6I1601	09/16/2016	09/18/2016	
Benzene	0.584	0.050	"	25	"	"	09/18/2016	
Toluene	0.057	0.050	"	"	"	"	"	
Ethylbenzene	2.14	0.050	"	"	"	"	"	
Xylenes, total	48.3	0.498	"	250	"	"	09/18/2016	

Surrogate: 1,2-Dichloroethane-d4 91.5 % 70-130 " " "

Surrogate: Toluene-d8 105 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.21		pH Units	1	B6I1603	09/16/2016	09/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.163		mmhos/cm	"	B6I1604	"	09/16/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

E01 @ 17'
9/16/2016 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609203-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	29.1	25.0	mg/kg	1	B6I1602	09/16/2016	09/16/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 66.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	18.1	5.00	mg/kg	25	B6I1601	09/16/2016	09/18/2016	
Benzene	0.164	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.116	0.050	"	"	"	"	"	
Xylenes, total	0.694	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 88.6 % 70-130 " " "
 Surrogate: Toluene-d8 103 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.83		pH Units	1	B6I1603	09/16/2016	09/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.350		mmhos/cm	"	B6I1604	"	09/16/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

B02 @ 19'
9/16/2016 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609203-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6I1602	09/16/2016	09/16/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 64.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6I1601	09/16/2016	09/18/2016	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 89.5 % 70-130 " " "
 Surrogate: Toluene-d8 102 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.01		pH Units	1	B6I1603	09/16/2016	09/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.289		mmhos/cm	"	B6I1604	"	09/16/2016	
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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)										
Blank (B611601-BLK1)										
					Prepared: 09/16/2016 Analyzed: 09/16/2016					
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	58		ug/kg	62.5		92.5	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	41		"	62.5		65.2	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)										
Blank (B611601-BLK2)										
					Prepared: 09/16/2016 Analyzed: 09/18/2016					
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	59		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)

LCS (B611601-BS1)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Benzene	0.099	0.002	mg/kg	0.100		98.5	77.1-124			
Toluene	0.095	0.002	"	0.100		95.1	74.5-128			
Ethylbenzene	0.113	0.002	"	0.100		113	66.4-127			
m,p-Xylene	0.221	0.004	"	0.200		111	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.1	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	38		"	62.5		60.8	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)

LCS (B611601-BS2)

Prepared: 09/16/2016 Analyzed: 09/18/2016

Benzene	0.105	0.002	mg/kg	0.100		105	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.108	0.002	"	0.100		108	66.4-127			
m,p-Xylene	0.219	0.004	"	0.200		109	76.6-124			
o-Xylene	0.104	0.002	"	0.100		104	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)

Matrix Spike (B611601-MS1)	Source: X609172-06			Prepared: 09/16/2016 Analyzed: 09/18/2016						
Benzene	0.109	0.002	mg/kg	0.100	ND	109	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.119	0.002	"	0.100	ND	119	62.2-130			
m,p-Xylene	0.239	0.004	"	0.200	ND	119	46.5-137			
o-Xylene	0.108	0.002	"	0.100	ND	108	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		93.2	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)

Matrix Spike (B611601-MS2)	Source: X609199-01			Prepared: 09/16/2016 Analyzed: 09/16/2016						
Benzene	0.094	0.002	mg/kg	0.100	ND	94.4	71.8-126			
Toluene	0.091	0.002	"	0.100	ND	91.4	65.1-130			
Ethylbenzene	0.088	0.002	"	0.100	ND	87.9	62.2-130			
m,p-Xylene	0.174	0.004	"	0.200	ND	87.2	46.5-137			
o-Xylene	0.094	0.002	"	0.100	ND	94.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	55		"	62.5		87.9	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)

Matrix Spike Dup (B611601-MSD1)	Source: X609172-06			Prepared: 09/16/2016 Analyzed: 09/18/2016						
Benzene	0.112	0.002	mg/kg	0.100	ND	112	71.8-126	2.12	11.3	
Toluene	0.113	0.002	"	0.100	ND	113	65.1-130	1.21	15.4	
Ethylbenzene	0.120	0.002	"	0.100	ND	120	62.2-130	0.752	19.6	
m,p-Xylene	0.241	0.004	"	0.200	ND	121	46.5-137	1.05	19.2	
o-Xylene	0.109	0.002	"	0.100	ND	109	54.2-134	1.10	17.9	
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.2	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611601 - EPA 5030 (soil)										
Matrix Spike Dup (B611601-MSD2)					Source: X609199-01					Prepared: 09/16/2016 Analyzed: 09/16/2016
Benzene	0.071	0.002	mg/kg	0.100	ND	71.1	71.8-126	28.3	11.3	QM-07, QR-03
Toluene	0.067	0.002	"	0.100	ND	66.8	65.1-130	31.2	15.4	QR-02
Ethylbenzene	0.066	0.002	"	0.100	ND	66.0	62.2-130	28.4	19.6	QR-02
m,p-Xylene	0.131	0.004	"	0.200	ND	65.6	46.5-137	28.4	19.2	QR-02
o-Xylene	0.069	0.002	"	0.100	ND	69.3	54.2-134	30.4	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		90.9	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611602 - EPA 3580

Blank (B611602-BLK1)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	40		"	50.0		80.6	59-131			

Blank (B611602-BLK2)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	39		"	50.0		78.5	59-131			

LCS (B611602-BS1)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Diesel (C10-C28)	924	50.0	mg/kg	1000		92.4	64-121			
Residual Range Organics (C28-C40)	897	200	"	1000		89.7	58-124			
Surrogate: o-Terphenyl	42		"	50.0		83.1	59-131			

LCS (B611602-BS2)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Diesel (C10-C28)	1000	50.0	mg/kg	1000		100	64-121			
Residual Range Organics (C28-C40)	948	200	"	1000		94.8	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.0	59-131			

LCS Dup (B611602-BSD1)

Prepared: 09/16/2016 Analyzed: 09/16/2016

Diesel (C10-C28)	931	50.0	mg/kg	1000		93.1	64-121	0.806	20	
Residual Range Organics (C28-C40)	855	200	"	1000		85.5	58-124	4.79	20	

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611602 - EPA 3580										
LCS Dup (B611602-BSD1)					Prepared: 09/16/2016 Analyzed: 09/16/2016					
Surrogate: o-Terphenyl	46		mg/kg	50.0		92.5	59-131			
Matrix Spike (B611602-MS2)		Source: X609199-01			Prepared: 09/16/2016 Analyzed: 09/16/2016					
Diesel (C10-C28)	898	50.0	mg/kg	1000	26.3	87.1	53-125			
Residual Range Organics (C28-C40)	806	200	"	1000	15.3	79.1	47-133			
Surrogate: o-Terphenyl	36		"	50.0		72.1	59-131			
Matrix Spike Dup (B611602-MSD2)		Source: X609199-01			Prepared: 09/16/2016 Analyzed: 09/16/2016					
Diesel (C10-C28)	861	50.0	mg/kg	1000	26.3	83.4	53-125	4.35	20	
Residual Range Organics (C28-C40)	786	200	"	1000	15.3	77.1	47-133	2.61	20	
Surrogate: o-Terphenyl	33		"	50.0		66.0	59-131			

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I1603 - NO PREP										
Duplicate (B6I1603-DUP1)		Source: X609172-06			Prepared: 09/16/2016 Analyzed: 09/16/2016					
pH	7.83		pH Units		7.65			2.33	25	
Batch B6I1604 - NO PREP										
Blank (B6I1604-BLK1)		Prepared: 09/16/2016 Analyzed: 09/16/2016								
Specific Conductance (EC)	0.00330		mmhos/cm							
Duplicate (B6I1604-DUP1)		Source: X609172-06			Prepared: 09/16/2016 Analyzed: 09/16/2016					
Specific Conductance (EC)	0.627		mmhos/cm		0.601			4.23	25	

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

Notes and Definitions

- U Sample is Non-Detect.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- 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.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



September 20, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Roberts X22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Roberts X22-07 received by Origins Laboratory, Inc. September 19, 2016. This project is associated with Origins project number X609223-01.

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N03 @ 17'	X609223-01	Soil	September 19, 2016 14:55	09/19/2016 17:25

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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

Sample Receipt Checklist

Origins Work Order: X609223 Client: LTE
 Client Project ID: Powers Robert X 22-07

Checklist Completed by: Jeff Smith Shipped Via: HTD
 Date/time completed: 9/19/12 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 15.1 °C _____ / _____ °C _____ / _____ °C (Describe)
 Thermometer ID: T1003

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 Some Deg
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)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X			PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	✓			
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: [Signature] (Project Manager) Date/Time Reviewed: 9/19/12

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

N03 @ 17'

9/19/2016 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609223-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	143	25.0	mg/kg	1	B61906	09/19/2016	09/19/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 48.2 % 59-131 " " " S-04

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	104	5.00	mg/kg	25	B61905	09/19/2016	09/19/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.060	0.050	"	"	"	"	"	
Xylenes, total	0.513	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 93.7 % 70-130 " " " "
 Surrogate: Toluene-d8 106 % 70-130 " " " "
 Surrogate: 4-Bromofluorobenzene 99.1 % 70-130 " " " "

pH in Soil by EPA 9045D

pH	7.92		pH Units	1	B61907	09/19/2016	09/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0783		mmhos/cm	"	B61908	09/19/2016	09/20/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611905 - EPA 5030 (soil)										
Blank (B611905-BLK1)										
					Prepared: 09/19/2016 Analyzed: 09/19/2016					
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	58		ug/kg	62.5		92.3	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I1905 - EPA 5030 (soil)

LCS (B6I1905-BS1)

Prepared: 09/19/2016 Analyzed: 09/19/2016

Benzene	0.108	0.002	mg/kg	0.100		108	77.1-124			
Toluene	0.108	0.002	"	0.100		108	74.5-128			
Ethylbenzene	0.106	0.002	"	0.100		106	66.4-127			
m,p-Xylene	0.213	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	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611905 - EPA 5030 (soil)

Matrix Spike (B611905-MS1)	Source: X609185-06			Prepared: 09/19/2016 Analyzed: 09/19/2016						
Benzene	0.106	0.002	mg/kg	0.100	ND	106	71.8-126			
Toluene	0.106	0.002	"	0.100	ND	106	65.1-130			
Ethylbenzene	0.101	0.002	"	0.100	ND	101	62.2-130			
m,p-Xylene	0.207	0.004	"	0.200	ND	104	46.5-137			
o-Xylene	0.106	0.002	"	0.100	0.0003	106	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.1	70-130			
Surrogate: Toluene-d8	66		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611905 - EPA 5030 (soil)

Matrix Spike Dup (B611905-MSD1)	Source: X609185-06			Prepared: 09/19/2016 Analyzed: 09/19/2016						
Benzene	0.101	0.002	mg/kg	0.100	ND	101	71.8-126	4.52	11.3	
Toluene	0.099	0.002	"	0.100	ND	99.2	65.1-130	6.49	15.4	
Ethylbenzene	0.095	0.002	"	0.100	ND	95.0	62.2-130	6.24	19.6	
m,p-Xylene	0.196	0.004	"	0.200	ND	98.0	46.5-137	5.60	19.2	
o-Xylene	0.100	0.002	"	0.100	0.0003	99.8	54.2-134	5.59	17.9	
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.3	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B611906 - EPA 3580

Blank (B611906-BLK1)

Prepared: 09/19/2016 Analyzed: 09/19/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	40		"	50.0		80.6	59-131			

LCS (B611906-BS1)

Prepared: 09/19/2016 Analyzed: 09/19/2016

Diesel (C10-C28)	909	50.0	mg/kg	1000		90.9	64-121			
Residual Range Organics (C28-C40)	829	200	"	1000		82.9	58-124			
Surrogate: o-Terphenyl	36		"	50.0		72.2	59-131			

Matrix Spike (B611906-MS1)

Source: X609185-06

Prepared: 09/19/2016 Analyzed: 09/19/2016

Diesel (C10-C28)	1110	50.0	mg/kg	1000	498	61.3	53-125			
Residual Range Organics (C28-C40)	926	200	"	1000	226	70.1	47-133			
Surrogate: o-Terphenyl	39		"	50.0		78.9	59-131			

Matrix Spike Dup (B611906-MSD1)

Source: X609185-06

Prepared: 09/19/2016 Analyzed: 09/19/2016

Diesel (C10-C28)	1160	50.0	mg/kg	1000	498	65.8	53-125	7.09	20	
Residual Range Organics (C28-C40)	1010	200	"	1000	226	78.3	47-133	11.1	20	
Surrogate: o-Terphenyl	48		"	50.0		95.4	59-131			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I1907 - NO PREP										
Duplicate (B6I1907-DUP1)		Source: X609185-05			Prepared: 09/19/2016 Analyzed: 09/20/2016					
pH	7.81		pH Units		7.62			2.46	25	
Batch B6I1908 - NO PREP										
Blank (B6I1908-BLK1)		Prepared: 09/19/2016 Analyzed: 09/20/2016								
Specific Conductance (EC)	0.00320		mmhos/cm							
Duplicate (B6I1908-DUP1)		Source: X609185-05			Prepared: 09/19/2016 Analyzed: 09/20/2016					
Specific Conductance (EC)	0.0299		mmhos/cm		0.0334			11.1	25	

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

Notes and Definitions

U Sample is Non-Detect.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

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



September 21, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Roberts X22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Roberts X22-07 received by Origins Laboratory, Inc. September 20, 2016. This project is associated with Origins project number X609231-01.

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: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01 @ 17'	X609231-01	Soil	September 20, 2016 15:15	09/20/2016 17:20
S02 @ 17'	X609231-02	Soil	September 20, 2016 15:20	09/20/2016 17:20
B03 @ 19'	X609231-03	Soil	September 20, 2016 15:25	09/20/2016 17:20
B04 @ 19'	X609231-04	Soil	September 20, 2016 15:30	09/20/2016 17:20

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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

Sample Receipt Checklist

Origins Work Order: X609231 Client: LTE
 Client Project ID: Powers + Roberts X22-07
 Checklist Completed by: Jen Pellegrini Shipped Via: HD
 Date/time completed: 9/20/16 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 4.3 °C _____ / _____ °C _____ / _____ °C (Describe)
 Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
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)		Y		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		Y		
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			PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	Y			
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			Y	
Additional Comments (if any):				

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

Reviewed by [Signature] Project Manager Date/Time Reviewed 9/20/16

Origins Laboratory, Inc.

Jen Pellegrini

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

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

S01 @ 17'
9/20/2016 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609231-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	30.0	25.0	mg/kg	1	B6I2005	09/20/2016	09/21/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 72.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	91.6	5.00	mg/kg	25	B6I2004	09/20/2016	09/20/2016	
Benzene	0.148	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.276	0.050	"	"	"	"	"	
Xylenes, total	8.52	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 89.3 % 70-130 " " "
 Surrogate: Toluene-d8 108 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.54		pH Units	1	B6I2006	09/20/2016	09/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0534		mmhos/cm	"	B6I2007	09/20/2016	"	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

S02 @ 17'

9/20/2016 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609231-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	70.0	25.0	mg/kg	1	B6I2005	09/20/2016	09/21/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 73.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	76.2	5.00	mg/kg	25	B6I2004	09/20/2016	09/20/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.187	0.050	"	"	"	"	"	
Xylenes, total	5.42	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 88.7 % 70-130 " " "
 Surrogate: Toluene-d8 104 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.23		pH Units	1	B6I2006	09/20/2016	09/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.135		mmhos/cm	"	B6I2007	09/20/2016	"	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

B03 @ 19'
9/20/2016 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609231-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	27.0	25.0	mg/kg	1	B6I2005	09/20/2016	09/21/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 74.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	6.59	5.00	mg/kg	25	B6I2004	09/20/2016	09/20/2016	
Benzene	0.080	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.555	0.050	"	"	"	"	"	
Xylenes, total	0.746	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 88.0 % 70-130 " " "
 Surrogate: Toluene-d8 98.5 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.50		pH Units	1	B6I2006	09/20/2016	09/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0288		mmhos/cm	"	B6I2007	09/20/2016	"	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

B04 @ 19'
9/20/2016 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609231-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	25.7	25.0	mg/kg	1	B6I2005	09/20/2016	09/21/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 73.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	5.92	5.00	mg/kg	25	B6I2004	09/20/2016	09/20/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.350	0.050	"	"	"	"	"	
Xylenes, total	0.472	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 88.1 % 70-130 " " "
 Surrogate: Toluene-d8 98.7 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.89		pH Units	1	B6I2006	09/20/2016	09/20/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.131		mmhos/cm	"	B6I2007	09/20/2016	"	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2004 - EPA 5030 (soil)										
Blank (B6I2004-BLK1)										
					Prepared: 09/20/2016 Analyzed: 09/20/2016					
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		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2004 - EPA 5030 (soil)

LCS (B6I2004-BS1)

Prepared: 09/20/2016 Analyzed: 09/20/2016

Benzene	0.099	0.002	mg/kg	0.100		98.9	77.1-124			
Toluene	0.098	0.002	"	0.100		97.9	74.5-128			
Ethylbenzene	0.096	0.002	"	0.100		96.0	66.4-127			
m,p-Xylene	0.196	0.004	"	0.200		97.8	76.6-124			
o-Xylene	0.096	0.002	"	0.100		95.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2004 - EPA 5030 (soil)

Matrix Spike (B6I2004-MS1)	Source: X609162-13			Prepared: 09/20/2016 Analyzed: 09/20/2016						
Benzene	0.094	0.002	mg/kg	0.100	ND	93.5	71.8-126			
Toluene	0.090	0.002	"	0.100	ND	90.3	65.1-130			
Ethylbenzene	0.087	0.002	"	0.100	ND	87.4	62.2-130			
m,p-Xylene	0.178	0.004	"	0.200	ND	88.8	46.5-137			
o-Xylene	0.088	0.002	"	0.100	ND	88.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2004 - EPA 5030 (soil)

Matrix Spike Dup (B6I2004-MSD1)	Source: X609162-13			Prepared: 09/20/2016 Analyzed: 09/20/2016						
Benzene	0.092	0.002	mg/kg	0.100	ND	92.0	71.8-126	1.62	11.3	
Toluene	0.089	0.002	"	0.100	ND	88.9	65.1-130	1.61	15.4	
Ethylbenzene	0.084	0.002	"	0.100	ND	84.3	62.2-130	3.59	19.6	
m,p-Xylene	0.172	0.004	"	0.200	ND	86.0	46.5-137	3.15	19.2	
o-Xylene	0.086	0.002	"	0.100	ND	85.7	54.2-134	2.92	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2005 - EPA 3580

Blank (B6I2005-BLK1)

Prepared: 09/20/2016 Analyzed: 09/20/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	37		"	50.0		74.9	59-131			

LCS (B6I2005-BS1)

Prepared: 09/20/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	1030	50.0	mg/kg	1000		103	64-121			
Residual Range Organics (C28-C40)	1040	200	"	1000		104	58-124			
Surrogate: o-Terphenyl	50		"	50.0		99.1	59-131			

Matrix Spike (B6I2005-MS1)

Source: X609230-01

Prepared: 09/20/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	976	50.0	mg/kg	1000	23.9	95.2	53-125			
Residual Range Organics (C28-C40)	998	200	"	1000	8.23	98.9	47-133			
Surrogate: o-Terphenyl	45		"	50.0		89.6	59-131			

Matrix Spike Dup (B6I2005-MSD1)

Source: X609230-01

Prepared: 09/20/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	952	50.0	mg/kg	1000	23.9	92.8	53-125	2.61	20	
Residual Range Organics (C28-C40)	979	200	"	1000	8.23	97.0	47-133	1.94	20	
Surrogate: o-Terphenyl	45		"	50.0		90.7	59-131			

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2006 - NO PREP										
Duplicate (B6I2006-DUP1)		Source: X609231-01			Prepared: 09/20/2016 Analyzed: 09/20/2016					
pH	7.48		pH Units		7.54			0.799	25	
Batch B6I2007 - NO PREP										
Blank (B6I2007-BLK1)		Prepared: 09/20/2016 Analyzed: 09/20/2016								
Specific Conductance (EC)	0.00320		mmhos/cm							
Duplicate (B6I2007-DUP1)		Source: X609230-01			Prepared: 09/20/2016 Analyzed: 09/20/2016					
Specific Conductance (EC)	0.0575		mmhos/cm		0.0655			13.0	25	

Origins Laboratory, Inc.



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

John Cocroft
Project Number: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

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.

September 22, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Roberts X22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Roberts X22-07 received by Origins Laboratory, Inc. September 21, 2016. This project is associated with Origins project number X609243-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



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

John Cocroft
Project Number: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E02 @ 17'	X609243-01	Soil	September 21, 2016 14:30	09/21/2016 17:05

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X609243

Client: LIE

Client Project ID: Powers Roberts

Checklist Completed by: Jeff Smith

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

Date/time completed: 9/21/16

Airbill #: NA

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

Cooler Number/Temperature: 1 / 4.3 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T063

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

Jeff Smith
 Reviewed by/(Project Manager)

9/21/16
 Date/Time Reviewed

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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

E02 @ 17'

9/21/2016 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609243-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	46.9	25.0	mg/kg	1	B6I2101	09/21/2016	09/22/2016	
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	81.7 %	59-131			"	"	"	
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	25.6	5.00	mg/kg	25	B6I2106	09/21/2016	09/22/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	1.45	0.050	"	"	"	"	"	
Xylenes, total	2.07	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	86.7 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.96		pH Units	1	B6I2108	09/21/2016	09/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.276		mmhos/cm	"	B6I2109	09/21/2016	09/21/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B612106 - EPA 5030 (soil)

LCS (B612106-BS1)

Prepared: 09/21/2016 Analyzed: 09/21/2016

Benzene	0.098	0.002	mg/kg	0.100		97.7	77.1-124			
Toluene	0.096	0.002	"	0.100		95.8	74.5-128			
Ethylbenzene	0.095	0.002	"	0.100		94.6	66.4-127			
m,p-Xylene	0.191	0.004	"	0.200		95.4	76.6-124			
o-Xylene	0.094	0.002	"	0.100		93.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.8	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	70-130			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2106 - EPA 5030 (soil)

Matrix Spike (B6I2106-MS1)	Source: X609245-03			Prepared: 09/21/2016 Analyzed: 09/21/2016						
Benzene	0.101	0.002	mg/kg	0.100	ND	101	71.8-126			
Toluene	0.099	0.002	"	0.100	ND	98.8	65.1-130			
Ethylbenzene	0.098	0.002	"	0.100	ND	98.4	62.2-130			
m,p-Xylene	0.200	0.004	"	0.200	ND	100	46.5-137			
o-Xylene	0.099	0.002	"	0.100	ND	98.6	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		93.5	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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 4600 West 60th Avenue
 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2106 - EPA 5030 (soil)

Matrix Spike Dup (B6I2106-MSD1)	Source: X609245-03			Prepared: 09/21/2016 Analyzed: 09/21/2016						
Benzene	0.096	0.002	mg/kg	0.100	ND	95.9	71.8-126	5.40	11.3	
Toluene	0.095	0.002	"	0.100	ND	95.1	65.1-130	3.82	15.4	
Ethylbenzene	0.096	0.002	"	0.100	ND	95.6	62.2-130	2.91	19.6	
m,p-Xylene	0.192	0.004	"	0.200	ND	95.8	46.5-137	4.30	19.2	
o-Xylene	0.094	0.002	"	0.100	ND	93.9	54.2-134	4.90	17.9	
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.1	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2101 - EPA 3580

Blank (B6I2101-BLK1)

Prepared: 09/21/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	37		"	50.0		73.7	59-131			

LCS (B6I2101-BS1)

Prepared: 09/21/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	926	50.0	mg/kg	1000		92.6	64-121			
Residual Range Organics (C28-C40)	940	200	"	1000		94.0	58-124			
Surrogate: o-Terphenyl	44		"	50.0		87.4	59-131			

Matrix Spike (B6I2101-MS1)

Source: X609175-01

Prepared: 09/21/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	895	50.0	mg/kg	1000	37.0	85.8	53-125			
Residual Range Organics (C28-C40)	1030	200	"	1000	167	85.9	47-133			
Surrogate: o-Terphenyl	43		"	50.0		86.9	59-131			

Matrix Spike Dup (B6I2101-MSD1)

Source: X609175-01

Prepared: 09/21/2016 Analyzed: 09/21/2016

Diesel (C10-C28)	848	50.0	mg/kg	1000	37.0	81.1	53-125	5.63	20	
Residual Range Organics (C28-C40)	1110	200	"	1000	167	94.1	47-133	9.14	20	
Surrogate: o-Terphenyl	45		"	50.0		89.3	59-131			

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Roberts X22-07

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 B6I2108 - NO PREP										
Duplicate (B6I2108-DUP1)		Source: X609245-03			Prepared: 09/21/2016 Analyzed: 09/21/2016					
pH	8.06		pH Units		8.08			0.248	25	
Batch B6I2109 - NO PREP										
Blank (B6I2109-BLK1)		Prepared: 09/21/2016 Analyzed: 09/21/2016								
Specific Conductance (EC)	0.00330		mmhos/cm							
Duplicate (B6I2109-DUP1)		Source: X609245-03			Prepared: 09/21/2016 Analyzed: 09/21/2016					
Specific Conductance (EC)	0.0644		mmhos/cm		0.0735			13.2	25	

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

John Cocroft
Project Number: 014216161/WO#89123782
Project: KMG - Powers Roberts X22-07

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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October 26, 2016

LT Environmental, Inc.

John Cocroft

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Powers Robert X 22-07

Project Number - 014216161/WO#8912371

Attached are your analytical results for KMG - Powers Robert X 22-07 received by Origins Laboratory, Inc. September 23, 2016. This project is associated with Origins project number X609277-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



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

John Cocroft
Project Number: 014216161/WO#89123782
Project: KMG - Powers Robert X 22-07

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W03@17'	X609277-01	Soil	September 23, 2016 15:00	09/23/2016 16:18
W02@17'	X609277-02	Soil	September 23, 2016 15:05	09/23/2016 16:18

Per the email from Mike Furtaw on 10/26/16, sample W01@17' was changed to W03@17'.

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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

Sample Receipt Checklist

Origins Work Order: 1609277 Client: LT Environmental
 Client Project ID: Powers Robert X 22-07
 Checklist Completed by: Joe Henderson Shipped Via: H/D
 Date/time completed: 9/23/16 1623 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 17.6 °C _____ / _____ °C _____ / _____ °C (Describe)
 Thermometer ID: TC03

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 <u>immediately</u>
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			P ¹¹
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) [Signature] Date/Time Reviewed 9/23/16

Origins Laboratory, Inc.

Joe Pellegrini

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

W03@17'
9/23/2016 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609277-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6I2306	09/23/2016	09/23/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 61.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	32.3	5.00	mg/kg	25	B6I2302	09/23/2016	09/24/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	1.42	0.050	"	"	"	"	"	
Xylenes, total	1.92	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 85.1 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.7 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.90		pH Units	1	B6I2309	09/23/2016	09/23/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0919		mmhos/cm	"	B6I2310	09/23/2016	09/23/2016	
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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: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

W02@17'
9/23/2016 3:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X609277-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6I2306	09/23/2016	09/23/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 71.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	5.43	5.00	mg/kg	25	B6I2302	09/23/2016	09/24/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.200	0.050	"	"	"	"	"	
Xylenes, total	0.268	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 83.8 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.68		pH Units	1	B6I2309	09/23/2016	09/23/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.110		mmhos/cm	"	B6I2310	09/23/2016	09/23/2016	
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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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 B612302 - EPA 5030 (soil)										
Blank (B612302-BLK1)										
					Prepared: 09/23/2016 Analyzed: 09/23/2016					
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	62		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	70-130			

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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 B612302 - EPA 5030 (soil)

LCS (B612302-BS1)

Prepared: 09/23/2016 Analyzed: 09/23/2016

Benzene	0.096	0.002	mg/kg	0.100		96.5	77.1-124			
Toluene	0.096	0.002	"	0.100		96.2	74.5-128			
Ethylbenzene	0.089	0.002	"	0.100		88.7	66.4-127			
m,p-Xylene	0.181	0.004	"	0.200		90.3	76.6-124			
o-Xylene	0.090	0.002	"	0.100		90.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.9	70-130			

Origins Laboratory, Inc.



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John Cocroft
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 Project: KMG - Powers Robert X 22-07

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 B612302 - EPA 5030 (soil)

Matrix Spike (B612302-MS1)	Source: X609246-01			Prepared: 09/23/2016 Analyzed: 09/23/2016						
Benzene	0.099	0.002	mg/kg	0.100	ND	99.3	71.8-126			
Toluene	0.098	0.002	"	0.100	ND	98.2	65.1-130			
Ethylbenzene	0.092	0.002	"	0.100	ND	91.8	62.2-130			
m,p-Xylene	0.188	0.004	"	0.200	ND	93.9	46.5-137			
o-Xylene	0.092	0.002	"	0.100	ND	91.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.1	70-130			

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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 B6I2302 - EPA 5030 (soil)

Matrix Spike Dup (B6I2302-MSD1)	Source: X609246-01			Prepared: 09/23/2016 Analyzed: 09/23/2016						
Benzene	0.097	0.002	mg/kg	0.100	ND	97.0	71.8-126	2.32	11.3	
Toluene	0.097	0.002	"	0.100	ND	97.4	65.1-130	0.777	15.4	
Ethylbenzene	0.090	0.002	"	0.100	ND	89.7	62.2-130	2.31	19.6	
m,p-Xylene	0.184	0.004	"	0.200	ND	91.9	46.5-137	2.11	19.2	
o-Xylene	0.089	0.002	"	0.100	ND	89.4	54.2-134	2.56	17.9	
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.0	70-130			

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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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 B6I2306 - EPA 3580

Blank (B6I2306-BLK1)

Prepared: 09/23/2016 Analyzed: 09/23/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	36		"	50.0		72.0	59-131			

LCS (B6I2306-BS1)

Prepared: 09/23/2016 Analyzed: 09/23/2016

Diesel (C10-C28)	832	50.0	mg/kg	1000		83.2	64-121			
Residual Range Organics (C28-C40)	978	200	"	1000		97.8	58-124			
Surrogate: o-Terphenyl	42		"	50.0		84.0	59-131			

LCS Dup (B6I2306-BSD1)

Prepared: 09/23/2016 Analyzed: 09/23/2016

Diesel (C10-C28)	855	50.0	mg/kg	1000		85.5	64-121	2.74	20	
Residual Range Organics (C28-C40)	982	200	"	1000		98.2	58-124	0.409	20	
Surrogate: o-Terphenyl	43		"	50.0		85.5	59-131			

Origins Laboratory, Inc.



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

John Cocroft
 Project Number: 014216161/WO#89123782
 Project: KMG - Powers Robert X 22-07

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 B6I2309 - NO PREP										
Duplicate (B6I2309-DUP1)		Source: X609277-01			Prepared: 09/23/2016 Analyzed: 09/23/2016					
pH	7.82		pH Units		7.90			1.02	25	
Batch B6I2310 - NO PREP										
Blank (B6I2310-BLK1)		Prepared: 09/23/2016 Analyzed: 09/23/2016								
Specific Conductance (EC)	0.00250		mmhos/cm							
Duplicate (B6I2310-DUP1)		Source: X609277-01			Prepared: 09/23/2016 Analyzed: 09/23/2016					
Specific Conductance (EC)	0.0917		mmhos/cm		0.0919			0.218	25	

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: 014216161/WO#89123782
Project: KMG - Powers Robert X 22-07

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.

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Jen Pellegrini For Noelle Doyle Mathis, President