



February 26, 2015

LT Environmental, Inc.

Justin Solomon

4600 West 60th Avenue

Arvada

CO 80003

Project Name - KMG - Howard 37N-33Hz

Project Number - 014211290-246

Attached are your analytical results for KMG - Howard 37N-33Hz received by Origins Laboratory, Inc. February 17, 2015. This project is associated with Origins project number X502196-01.

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

Justin Solomon  
Project Number: 014211290-246  
Project: KMG - Howard 37N-33Hz

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Off S	X502196-01	Soil	February 13, 2015 10:10	02/17/2015 16:45
Off E	X502196-02	Soil	February 13, 2015 10:15	02/17/2015 16:45
Off N	X502196-03	Soil	February 13, 2015 10:20	02/17/2015 16:45
Off W	X502196-04	Soil	February 13, 2015 10:25	02/17/2015 16:45
Off Comp	X502196-05	Soil	February 13, 2015 10:30	02/17/2015 16:45
Pad Comp	X502196-06	Soil	February 13, 2015 10:35	02/17/2015 16:45

Origins Laboratory, Inc.



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Justin Solomon  
Project Number: 014211290-246  
Project: KMG - Howard 37N-33Hz

<b>ORIGINS</b> LABORATORY, INC.		www.originslaboratory.com	
Client: LT Environmental Inc.		page 1 of 1	
Address: 4600 W. 60th Ave Avada CO 80002		Project Manager: Justin Solomon	
Telephone Number: 303.433.7988		Project Name: KMG - <del>WAZD</del> 37N-34E	
Email Address: jsolomon@ltenv.com		Project Number: 014211290- 246	
		Samples Collected By: RZ	

[illegible]

Date Results Needed

91

Origins Laboratory, Inc.

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4600 West 60th Avenue  
Arvada CO 80003

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Project Number: 014211290-246  
Project: KMG - Howard 37N-33Hz

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: XS02196

Client: LTE

Client Project ID: Howard 37N-33Hz

Checklist Completed by: Jeff Smith

Shipped Via: H/D - Courier  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 2/1/8/15

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 1.9 °C 1 / \_\_\_\_\_ °C 1 / \_\_\_\_\_ °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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed

Origins Laboratory, Inc.

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Arvada CO 80003

Justin Solomon

Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

Off S

2/13/2015 10:10:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

GEL Laboratories, LLC

X502196-01 (Soil)

## Total Metals by SW846 3050B/6010C

Arsenic	7.14	3.03	mg/kg dry	1	1458941	02/19/2015	02/20/2015
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Origins Laboratory, Inc.



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Arvada CO 80003

Justin Solomon

Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

Off E

2/13/2015 10:15:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

GEL Laboratories, LLC

X502196-02 (Soil)

## Total Metals by SW846 3050B/6010C

Arsenic	7.41	3.39	mg/kg dry	1	1458941	02/19/2015	02/20/2015
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Origins Laboratory, Inc.



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4600 West 60th Avenue

Arvada CO 80003

Justin Solomon

Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

Off N

2/13/2015 10:20:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

GEL Laboratories, LLC

X502196-03 (Soil)

## Total Metals by SW846 3050B/6010C

Arsenic	8.25	3.07	mg/kg dry	1	1458941	02/19/2015	02/20/2015
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Origins Laboratory, Inc.



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4600 West 60th Avenue

Arvada CO 80003

Justin Solomon

Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

Off W

2/13/2015 10:25:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

GEL Laboratories, LLC

X502196-04 (Soil)

## Total Metals by SW846 3050B/6010C

Arsenic	7.16	3.14	mg/kg dry	1	1458941	02/19/2015	02/20/2015
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

## Off Comp

2/13/2015 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. X502196-05 (Soil)

### pH in Soil by EPA 9045D

pH	7.13		pH Units	1	5B18008	02/18/2015	02/18/2015
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### SAR Metals by SW846 3050B/6010C

Calcium	1810	25.6	mg/kg dry	1	1458942	02/19/2015	02/20/2015
Magnesium	1830	30.8	"	"	"	"	"
Sodium	93.5	25.6	"	"	"	"	"

### Sodium Adsorption Ratio

Sodium Adsorption Ratio	0.371		none	1	1459665		02/24/2015
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### Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0703		mmhos/cm	1	5B18007	02/18/2015	02/18/2015
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### Total Metals by SW846 3050B/6010C

Arsenic	6.49	3.08	mg/kg dry	1	1458941	02/19/2015	02/20/2015
Barium	79.0	0.513	"	"	"	"	"

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Project Number: 014211290-246

Project: KMG - Howard 37N-33Hz

**Pad Comp**

**2/13/2015 10:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X502196-06 (Soil)**

**BTEX by EPA 8260C**

Benzene	ND	0.002	mg/kg	1	5B18006	02/18/2015	02/19/2015
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"
Surrogate: Toluene-d8	107 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	90.5 %	70-130			"	"	"

**pH in Soil by EPA 9045D**

pH	8.55		pH Units	1	5B18008	02/18/2015	02/18/2015
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**SAR Metals by SW846 3050B/6010C**

Calcium	30700	26.2	mg/kg dry	1	1458942	02/19/2015	02/20/2015
Magnesium	5090	31.4	"	"	"	"	"
Sodium	790	26.2	"	"	"	"	"

**Sodium Adsorption Ratio**

Sodium Adsorption Ratio	1.10		none	1	1459665		02/24/2015
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.428		mmhos/cm	1	5B18007	02/18/2015	02/18/2015
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Pad Comp

2/13/2015 10:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X502196-06 (Soil)**TCLP Metals by 1311/3010A/6010C**

Arsenic	ND	0.300	mg/L	1	1459121	02/20/2015	02/20/2015	U
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**Total Metals by SW846 3050B/6010C**

Arsenic	8.41	3.14	mg/kg dry	1	1458941	02/19/2015	02/20/2015	
Barium	989	0.523	"	"	"	"	"	

**TPH-Carbon Chain by EPA Method 8015C**

Gasoline (C6-C10)	ND	50	mg/kg	1	5B18005	02/18/2015	02/18/2015	
Diesel (C10-C28)	120	50	"	"	"	"	"	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl	84.7 %	65-146			"	"	"	
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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5B18006 - EPA 5030 (soil)

Blank (5B18006-BLK1)

Prepared: 02/18/2015 Analyzed: 02/19/2015

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.8	70-130			
Surrogate: Toluene-d8	69		"	62.5		110	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.2	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5B18006 - EPA 5030 (soil)

LCS (5B18006-BS1)

Prepared: 02/18/2015 Analyzed: 02/19/2015

Benzene	0.098	0.002	mg/kg	0.100		97.5	77.1-124			
Toluene	0.104	0.002	"	0.100		104	74.5-128			
Ethylbenzene	0.087	0.002	"	0.100		86.8	66.4-127			
m,p-Xylene	0.179	0.004	"	0.200		89.4	76.6-124			
o-Xylene	0.086	0.002	"	0.100		85.7	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.4	70-130			
Surrogate: Toluene-d8	69		"	62.5		111	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5B18006 - EPA 5030 (soil)

Matrix Spike (5B18006-MS1)		Source: X502194-06			Prepared: 02/18/2015 Analyzed: 02/19/2015					
Benzene	0.098	0.002	mg/kg	0.100	ND	97.5	71.8-126			
Toluene	0.106	0.002	"	0.100	ND	106	65.1-130			
Ethylbenzene	0.090	0.002	"	0.100	ND	90.0	62.2-130			
m,p-Xylene	0.180	0.004	"	0.200	ND	90.2	46.5-137			
o-Xylene	0.089	0.002	"	0.100	ND	88.9	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.1	70-130			
Surrogate: Toluene-d8	69		"	62.5		110	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		93.7	70-130			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5B18006 - EPA 5030 (soil)

Matrix Spike Dup (5B18006-MSD1)		Source: X502194-06			Prepared: 02/18/2015 Analyzed: 02/19/2015					
Benzene	0.099	0.002	mg/kg	0.100	ND	98.6	71.8-126	1.12	11.3	
Toluene	0.109	0.002	"	0.100	ND	109	65.1-130	2.73	15.4	
Ethylbenzene	0.093	0.002	"	0.100	ND	93.3	62.2-130	3.64	19.6	
m,p-Xylene	0.184	0.004	"	0.200	ND	92.2	46.5-137	2.20	19.2	
o-Xylene	0.093	0.002	"	0.100	ND	93.1	54.2-134	4.57	17.9	
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.3	70-130			
Surrogate: Toluene-d8	71		"	62.5		114	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.6	70-130			

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## Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

### Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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## Extractable Petroleum Hydrocarbons by 8015M - 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 5B18005 - EPA 3580

#### Blank (5B18005-BLK1)

Prepared: 02/18/2015 Analyzed: 02/18/2015

Gasoline (C6-C10)	ND	50	mg/kg
Diesel (C10-C28)	ND	50	"
Residual Range Organics (C28-C36)	ND	200	"

Surrogate: o-Terphenyl

61.2

"

50.0

122

65-146

#### LCS (5B18005-BS1)

Prepared: 02/18/2015 Analyzed: 02/18/2015

Gasoline (C6-C10)	920	50	mg/kg	1000	91.6	66.7-119
Diesel (C10-C28)	990	50	"	1000	98.6	70.1-127
Residual Range Organics (C28-C36)	1100	200	"	1000	107	54.5-139

Surrogate: o-Terphenyl

53.3

"

50.0

107

65-146

#### Matrix Spike (5B18005-MS1)

Source: X502194-06

Prepared: 02/18/2015 Analyzed: 02/18/2015

Gasoline (C6-C10)	930	50	mg/kg	1000	25	90.7	56.4-132
Diesel (C10-C28)	950	50	"	1000	23	92.4	57.4-138
Residual Range Organics (C28-C36)	1100	200	"	1000	20	106	47.7-129

Surrogate: o-Terphenyl

48.5

"

50.0

96.9

65-146

#### Matrix Spike Dup (5B18005-MSD1)

Source: X502194-06

Prepared: 02/18/2015 Analyzed: 02/18/2015

Gasoline (C6-C10)	920	50	mg/kg	1000	25	89.8	56.4-132	0.939	22
Diesel (C10-C28)	980	50	"	1000	23	95.4	57.4-138	3.12	18.3
Residual Range Organics (C28-C36)	1100	200	"	1000	20	106	47.7-129	0.136	30.1

Surrogate: o-Terphenyl

48.5

"

50.0

97.0

65-146

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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 5B18007 - NO PREP										
Blank (5B18007-BLK1)					Prepared: 02/18/2015 Analyzed: 02/18/2015					
Specific Conductance (EC)	0.00240		mmhos/cm							
Duplicate (5B18007-DUP1)					Source: X502194-05 Prepared: 02/18/2015 Analyzed: 02/18/2015					
Specific Conductance (EC)	0.0976		mmhos/cm		0.0969			0.720	25	
Batch 5B18008 - NO PREP										
Duplicate (5B18008-DUP1)					Source: X502194-05 Prepared: 02/18/2015 Analyzed: 02/18/2015					
pH	8.25		pH Units		8.23			0.243	25	

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Project Number: 014211290-246  
Project: KMG - Howard 37N-33Hz

TCLP Metals by 1311/3010A/6010C - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1459121 - SW846 3010A										
MS (1203267996 S)	Source: 367361006				Prepared: 02/20/2015 Analyzed: 02/20/2015					
Arsenic	4.90	0.300	mg/L	5.00	<0.050	97.9	75-125			
TB (1203267997-BLK)	Prepared: 02/20/2015 Analyzed: 02/20/2015									
Arsenic	ND	0.300	mg/L				-			U
BLANK (1203268419-BLK)	Prepared: 02/20/2015 Analyzed: 02/20/2015									
Arsenic	ND	0.300	mg/L				-			U
LCS (1203268420-BKS)	Prepared: 02/20/2015 Analyzed: 02/20/2015									
Arsenic	5.16	0.300	mg/L	5.00		103	80-120			
DUP (1203268421 D)	Source: 367361006				Prepared: 02/20/2015 Analyzed: 02/20/2015					
Arsenic	ND	0.300	mg/L		<0.050		0-20	NR	20	U

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

Justin Solomon  
Project Number: 014211290-246  
Project: KMG - Howard 37N-33Hz

**Total Metals by SW846 3050B/6010C - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1458941 - SW846 3050B										
<b>BLANK (1203267991-BLK)</b>					Prepared: 02/19/2015 Analyzed: 02/20/2015					
Barium	ND	0.495	mg/kg				-			U
Arsenic	ND	2.97	"				-			U
<b>LCS (1203267992-BKS)</b>					Prepared: 02/19/2015 Analyzed: 02/20/2015					
Barium	48.4	0.476	mg/kg	47.6		102	80-120			
Arsenic	48.5	2.86	"	47.6		102	80-120			
<b>DUP (1203267993 D)</b>					Source: 367361001 Prepared: 02/19/2015 Analyzed: 02/20/2015					
Barium	105	0.553	mg/kg dry		119		0-20	11.8	20	
Arsenic	6.50	3.32	"		7.19		0-20	10.0	20	
<b>MS (1203267994 S)</b>					Source: 367361001 Prepared: 02/19/2015 Analyzed: 02/20/2015					
Arsenic	60.5	3.29	mg/kg dry	54.8	7.19	97.2	75-125			
Barium	169	0.548	"	54.8	119	92.3	75-125			

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### Notes and Definitions

- U Result not detected above the detection limit
- J Greater than the detection limit but less than the reporting limit
- 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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Noelle Doyle Mathis, President