



February 26, 2014

Mr. Robert Davis  
Mustang Creek Operating, LLC  
5251 DTC Parkway, Suite 800  
Greenwood Village, Colorado 80111

**RE: Sample Results and Drilling Pit Closure Report  
Mustang Creek Operating, LLC  
Graham 1-13  
El Paso County, Colorado**

Dear Mr. Davis:

LT Environmental, Inc. (LTE) was contracted by Mustang Creek Operating, LLC (Mustang Creek) to provide environmental sampling activities at the above-referenced site. The scope of work consisted of background and confirmation soil sampling for pit closure.

On December 30, 2013, an LTE representative collected four discrete soil samples north, east, south, and west (BG01, BG02, BG03 and BG04, respectively) of the Graham 1-13 production pad and one discrete soil sample (BG05) from the pit floor to establish background levels. Soil samples BG01 through BG04 were collected at zero to 6 inches below ground surface (bgs) and soil sample BG05 was collected at the pit floor at 6 feet bgs. Samples were submitted to Origins Laboratory, Inc. (Origins) in Denver, Colorado, for analysis of arsenic by Environmental Protection Agency (EPA) Method SW846 3050B/6020A for samples BG01, BG02, BG03, and BG04. Sample BG05 was analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8260C; total volatile petroleum hydrocarbons-gasoline range organics (TVPH-GRO) and total extractable petroleum hydrocarbons-diesel range organics (TEPH-DRO) by EPA Method 8015C; acenaphthene, anthracene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (a) pyrene, chrysene, dibenz (a,h) anthracene, fluoranthene, fluorene, indeno (1,2,3-cd) pyrene, naphthalene, and pyrene by EPA Method SW846 3541/8270D SIM; arsenic by EPA Method SW846 3050B/6020A, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc by EPA Method SW846 3050B/6010C; mercury by EPA Method SW846 7471A; hexavalent chromium by EPA Method SW846 7196A; calcium, magnesium, and sodium by EPA Method SW846 3050B/6010C, sodium adsorption ratio (SAR) by laboratory calculation method; specific conductance (EC) by EPA Method 120.1; and pH by EPA Method 9045D.

Laboratory analytical results for the background samples from BG01 through BG05 indicated compliance with the Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 allowable concentration levels with the exception of arsenic for all samples and EC and pH for BG05. The arsenic concentrations for the background samples exceeded the COGCC Table 910-1 allowable concentration level of 0.39 milligrams per kilogram (mg/kg) in which



the highest concentration was 1.47 mg/kg in sample BG01. The EC concentration for BG05 was 16 millimhos per centimeter (mmhos/cm) and pH was 9.35 standard units (SU).

On February 14, 2014 an LTE representative collected two samples (SS01 and SS02) of the pit contents from representative areas of the pit. The pit contents were sampled at zero to 2 feet below the top of the cuttings in the pit. Samples were submitted to Origins for analysis of BTEX by EPA Method 8260C; TVPH-GRO and TEPH-DRO by EPA Method 8015C; acenaphthene, anthracene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (a) pyrene, chrysene, dibenz (a,h) anthracene, fluoranthene, fluorene, indeno (1,2,3-cd) pyrene, naphthalene, and pyrene by EPA Method SW846 3541/8270D SIM; arsenic by EPA Method SW846 3050B/6020A, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc by EPA Method SW846 3050B/6010C; mercury by EPA Method SW846 7471A; hexavalent chromium by EPA Method SW846 7196A; calcium, magnesium, and sodium by EPA Method SW846 3050B/6010C, SAR by laboratory calculation method; EC by EPA Method 120.1; and pH by EPA Method 9045D.

Laboratory analytical results of the pit contents from samples SS01 and SS02 indicated compliance with the COGCC Table 910-1 allowable concentration levels with the exception of arsenic for SS01 and SS02. The arsenic concentrations for the pit contents samples exceeded the COGCC Table 910-1 allowable concentration level of 0.39 milligrams per kilogram (mg/kg). However, arsenic was 0.623 mg/kg in SS01 and 0.848 mg/kg in SS02, which were below the background levels established on December 30, 2013.

Due to the laboratory results, LTE believes that the arsenic concentration documented during baseline sampling is within an acceptable range of naturally-occurring arsenic background values and likely does not represent a significant change in risk to human health or the environment. Although this concentration exceeds the COGCC concentration level, it remains below the highest arsenic background concentration which was 1.47 mg/kg in BG01.

The site and sample locations are depicted on the attached figures. The laboratory analytical results are summarized in Table 1 and are attached to this letter.



Please call LTE at (303) 433-9788 if you have any questions regarding this letter report or require additional information.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read "B Forkner".

Brett Forkner, CISEC  
Client Manager

Attachments:

Figure 1 - Site Location Map

Figure 2 - Site Map

Table 1 - Soil Analytical Results

Attachment - Laboratory Analytical Reports

## FIGURES

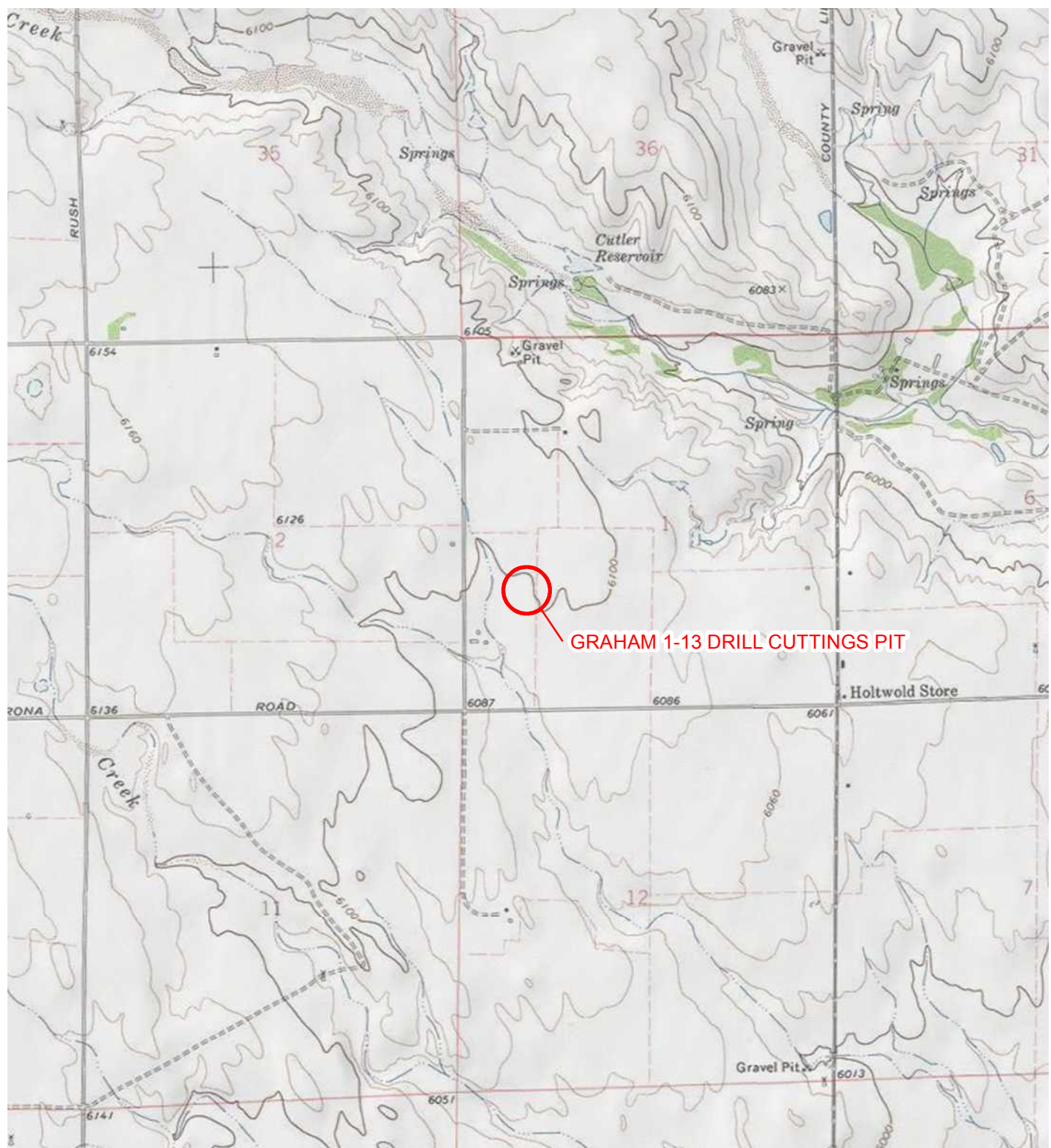


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION

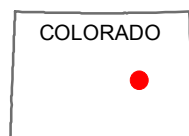
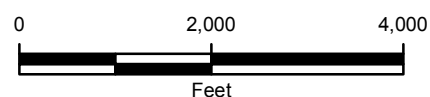
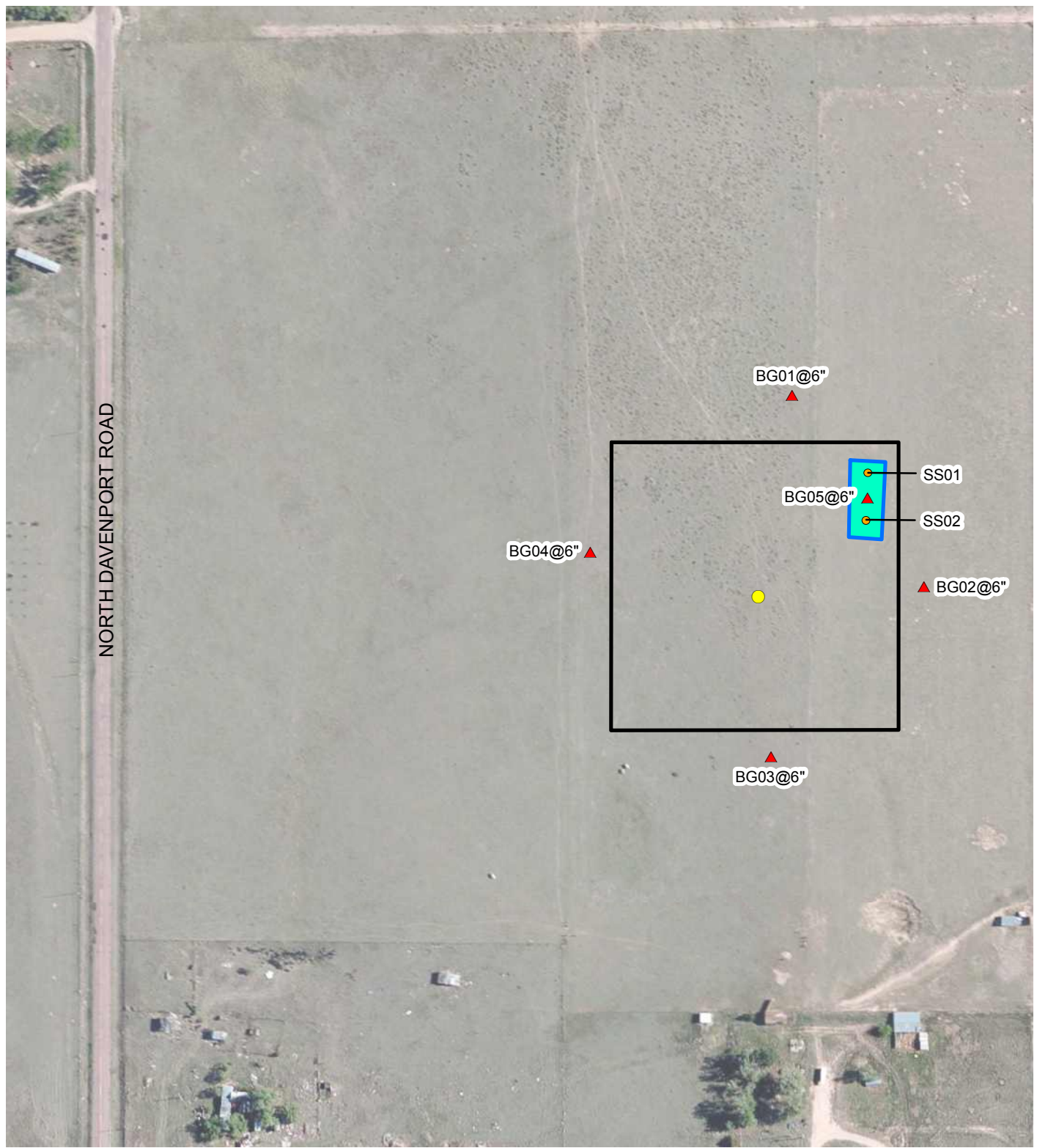


FIGURE 1  
SITE LOCATION MAP  
GRAHAM 1-13 DRILL CUTTINGS PIT  
EL PASO COUNTY, COLORADO

MUSTANG CREEK OPERATING, LLC

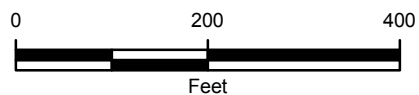






# **LEGEND**

- SOIL SAMPLE
- ▲ BACKGROUND SOIL SAMPLE
- WELLHEAD
- DRILL PAD BOUNDARY
- PIT BOUNDARY



**FIGURE 2**  
**SITE MAP**  
 GRAHAM 1-13 DRILL CUTTINGS PIT  
 EL PASO COUNTY, COLORADO

**MUSTANG CREEK OPERATING, LLC**



## TABLES

**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
**GRAHAM 1-13 DRILLING PIT**  
**EL PASO COUNTY, COLORADO**  
**MUSTANG CREEK OPERATING LLC**

Parameter	COGCC Table 910-1 Concentration Levels	Units	BG01	BG02	BG03	BG04	BG05	SS01	SS02
Sample Date			12/30/2013	12/30/2013	12/30/2013	12/30/2013	12/30/2013	2/14/2014	2/14/2014
Sample Type			Surface - Background	Surface - Background	Surface - Background	Surface - Background	Pit Floor - Background	Pit - Drill Cuttings	Pit - Drill Cuttings
Depth (feet bgs)			0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0-2	0-2
Benzene	0.17	mg/kg	--	--	--	--	<0.0040	<0.002	<0.002
Toluene	85	mg/kg	--	--	--	--	<0.0040	<0.002	<0.002
Ethylbenzene	100	mg/kg	--	--	--	--	<0.0040	<0.002	<0.002
Total Xylenes	175	mg/kg	--	--	--	--	<0.0040	<0.002	<0.002
TEPH-DRO	--	mg/kg	--	--	--	--	<50.0	<50.0	<50.0
TVPH-GRO	--	mg/kg	--	--	--	--	<50.0	<50.0	<50.0
TPH Total	500	mg/kg	--	--	--	--	<100.0	<100.0	<100.0
Arsenic	0.39	mg/kg	<b>1.47</b>	<b>0.891</b>	<b>1.32</b>	<b>1.37</b>	<b>0.644</b>	<b>0.623</b>	<b>0.848</b>
Barium	15,000	mg/kg	--	--	--	--	33.2	51.4	36.9
Cadmium	70	mg/kg	--	--	--	--	<0.510	<0.473	<0.513
Chromium (III)	120,000	mg/kg	--	--	--	--	2.51	3.42	2.67
Chromium (VI)	23	mg/kg	--	--	--	--	<0.405	<0.413	<0.398
Copper	3,100	mg/kg	--	--	--	--	2.92	4.30	2.98
Lead	400	mg/kg	--	--	--	--	3.01	4.74	4.17
Mercury	23	mg/kg	--	--	--	--	<0.0122	<0.0112	0.00549
Nickel	1,600	mg/kg	--	--	--	--	3.24	3.95	2.47
Selenium	390	mg/kg	--	--	--	--	<3.06	0.663	<3.08
Silver	390	mg/kg	--	--	--	--	<0.510	<0.473	<0.513
Zinc	23,000	mg/kg	--	--	--	--	11.0	12.4	14.5
Acenaphthene	1,000	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Anthracene	1,000	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Benzo (A) anthracene	0.22	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Benzo (B) fluoranthene	0.22	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Benzo (K) fluoranthene	2.2	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Benzo (A) pyrene	0.022	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Chrysene	22	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Dibenzo (A,H) anthracene	0.022	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Fluoranthene	1,000	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Fluorene	1,000	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Indeno (1,2,3,C,D) pyrene	0.22	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Napthalene	23	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
Pyrene	1,000	mg/kg	--	--	--	--	<0.00683	<0.00693	<0.00693
EC	4	mmhos/cm	--	--	--	--	<b>16</b>	0.0271	0.0754
pH	6 - 9	SU	--	--	--	--	<b>9.35</b>	7.16	8.55
SAR	12	unitless	--	--	--	--	0.0688	0.081	0.113

**NOTES:**

bgs - below ground surface

COGCC - colorado oil and gas conservation commission

EC - electrical conductivity

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter in saturated paste extract

SAR - sodium adsorption ratio

SU - standard unit on saturated paste

TEPH-DRO - total extractable petroleum hydrocarbon-diesel range organics

TPH - total petroleum hydrocarbons

TVPH-GRO - total volume petroleum hydrocarbon-gasolene range organics

-- - not analyzed/no standard

< - less than the stated analytical reporting limit

**BOLD** - indicates result exceeds the COGCC Table 910-1 Concentration Level



**ATTACHMENT**  
**LABORATORY ANALYTICAL REPORTS**





January 13, 2014

LT Environmental, Inc.

Brett Forkner

4600 West 60th Avenue

Arvada CO 80003

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Project Name - Graham 1-13 Background soil

Project Number - 048913003.002

Attached are you analytical results for Graham 1-13 Background soil received by Origins Laboratory, Inc. December 30, 2013. This project is associated with Origins project number X312270-01.

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.

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG01 @ 6"	X312270-01	Soil	December 30, 2013 12:10	12/30/2013 15:10
BG02 @ 6"	X312270-02	Soil	December 30, 2013 12:00	12/30/2013 15:10
BG03 @ 6"	X312270-03	Soil	December 30, 2013 12:30	12/30/2013 15:10
BG04 @ 6"	X312270-04	Soil	December 30, 2013 12:45	12/30/2013 15:10
BG05 @ 6"	X312270-05	Soil	December 30, 2013 11:40	12/30/2013 15:10

Origins Laboratory, Inc.



Noelle E Doyle, President

*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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

www.originslaboratory.com

page 1 of 1

X32276

Client: LT Environmental  
Address:  
Telephone Number: 303-942-5538  
Email Address: bforkner@ltenv.com

Project Manager: Brett Forkner  
Project Name: Graham 1-13 Background Soil  
Project Number: 048913003.002  
Samples Collected By: G. Muniz

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa Canister #			Other
B601 @ 6"	12/30/13	1210	2	✓				✓			Ascaric	TPH 1000 BTEX 1000 EC, SFE Ph metals - Bore TAKE 910-1 PAHs	1
B602 @ 6"		1200	2	✓				✓					2
B603 @ 6"		1230	2	✓				✓					3
B604 @ 6"		1245	2	✓				✓					4
B605 @ 6"		1140	3	✓				✓					5
													6
													7
													8
													9
													10
Relinquished By: [Signature]	Date: 12/30/13	Time: 1510											Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>
Relinquished By: [Signature]	Date: 12/30/13	Time: 1510											

Not for Results Standard

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

*Noelle E Doyle*

Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X310270

Client: LTE

Client Project ID: 4600 W 60

Checklist Completed by: Jesse Smith

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

Date/time completed: 1/2/14 10:29

Airbill #: NA

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

Cooler Number/Temperature: 1 3.6 °C        °C        °C (Describe)        °C

Thermometer ID: T002

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> ?	✓			
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 <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		✓		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		✓	✓	Soil
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)			✓	Soil
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)

1-07-14 11:39  
Date/Time Reviewed

Origins Laboratory, Inc.

Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG01 @ 6"

12/30/2013 12:10:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC  
X312270-01 (Soil)

## Metals by SW846 3050B/6020A

Arsenic	1.47	0.209	1.05	mg/kg dry	2	1357491	01/06/2014	01/06/2014
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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.*

Noelle E Doyle, President



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG02 @ 6"

12/30/2013 12:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC  
X312270-02 (Soil)

## Metals by SW846 3050B/6020A

Arsenic	0.891	0.204	1.02	mg/kg dry	2	1357491	01/06/2014	01/06/2014	J
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Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG03 @ 6"

12/30/2013 12:30:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC  
X312270-03 (Soil)

## Metals by SW846 3050B/6020A

Arsenic	1.32	0.198	0.989	mg/kg dry	2	1357491	01/06/2014	01/06/2014	
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Origins Laboratory, Inc.



Noelle E Doyle, President

*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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG04 @ 6"

12/30/2013 12:45:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC  
X312270-04 (Soil)

## Metals by SW846 3050B/6020A

Arsenic	1.37	0.192	0.958	mg/kg dry	2	1357491	01/06/2014	01/06/2014	
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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.*

Noelle E Doyle, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Background soil

BG05 @ 6"

12/30/2013 11:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X312270-05 (Soil)

## BTEX by EPA 8260C

Benzene	ND	0.0002	0.0040	mg/kg	1	3L30009	12/31/2013	12/31/2013
Toluene	ND	0.0004	0.0040	"	"	"	"	"
Ethylbenzene	ND	0.0003	0.0040	"	"	"	"	"
Xylenes, total	ND	0.0020	0.0040	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	120 %	70-130	"	"	"
Surrogate: Toluene-d8	105 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	93.1 %	70-130	"	"	"

## Conductance/Specific Conductance by EPA 120.1

Specific Conductance (EC)	16	mmhos/cm	1	3L31009	12/31/2013	01/06/2014
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## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	16.8	50.0	mg/kg	1	4A02005	01/02/2014	01/03/2014
Diesel (C10-C28)	ND	13.0	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	117 %	59-131	"	"	"
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## Metals by SW846 3050B/6010C

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG05 @ 6"

12/30/2013 11:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
X312270-05 (Soil)

**Metals by SW846 3050B/6010C**

Barium	33.2	0.102	0.510	mg/kg dry	1	1357489	01/06/2014	01/07/2014	
Cadmium	ND	0.102	0.510	"	"	"	"	"	U
Chromium	2.51	0.153	0.510	"	"	"	"	"	
Copper	2.92	0.306	1.02	"	"	"	"	"	
Lead	3.01	0.336	1.02	"	"	"	"	"	
Nickel	3.24	0.153	0.510	"	"	"	"	"	
Selenium	ND	0.510	3.06	"	"	"	"	"	U
Silver	ND	0.102	0.510	"	"	"	"	"	U
Zinc	11.0	0.408	1.02	"	"	"	"	"	

**Metals by SW846 3050B/6020A**

Arsenic	0.644	0.186	0.929	mg/kg dry	2	1357491	"	01/06/2014	J
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**Metals by SW846 7196A**

Hexavalent Chromium	ND	0.162	0.405	mg/kg dry	1	1357699	"	01/06/2014	U
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**Metals by SW846 7471A**

Mercury	ND	0.00408	0.0122	mg/kg dry	1	1357694	"	01/07/2014	U
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**PAH by SW846 3541/8270D SIM**

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG05 @ 6"

12/30/2013 11:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
X312270-05 (Soil)

**PAH by SW846 3541/8270D SIM**

Acenaphthene	ND	0.00171	0.00683	mg/kg dry	1	1357545	01/06/2014	01/06/2014	U
Anthracene	ND	0.00171	0.00683	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00171	0.00683	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00171	0.00683	"	"	"	"	"	U
Benzo(b)fluoranthene	ND	0.00171	0.00683	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00171	0.00683	"	"	"	"	"	U
Chrysene	ND	0.00171	0.00683	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00171	0.00683	"	"	"	"	"	U
Fluoranthene	ND	0.00171	0.00683	"	"	"	"	"	U
Fluorene	ND	0.00171	0.00683	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00171	0.00683	"	"	"	"	"	U
Naphthalene	ND	0.00102	0.00683	"	"	"	"	"	U
Pyrene	ND	0.00171	0.00683	"	"	"	"	"	U

Surrogate: 5-alpha-Androstane 98 % 30-120 " " "

**pH in Soil by EPA 9045D**

pH 9.35 pH Units 1 3L31008 12/31/2013 12/31/2014

Origins Laboratory, Inc.



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

BG05 @ 6"

12/30/2013 11:40:00AM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
X312270-05 (Soil)

**SAR Metals by SW846 3050B/6010C**

Calcium	1510	8.15	25.5	mg/kg dry	1	1357489	01/06/2014	01/07/2014	
Magnesium	802	8.66	30.6	"	"	"	"	"	
Sodium	13.3	7.13	25.5	"	"	"	"	"	J

**Sodium Adsorption Ratio**

Sodium Adsorption Ratio	0.0688			none	1	1359000		01/09/2014	
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LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

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 3L30009 - EPA 5030 (soil)

Blank (3L30009-BLK1)

Prepared: 12/30/2013 Analyzed: 12/31/2013

Benzene	ND	0.0040	mg/kg							
Toluene	ND	0.0040	"							
Ethylbenzene	ND	0.0040	"							
Xylenes, total	ND	0.0040	"							
Surrogate: 1,2-Dichloroethane-d4	84		ug/kg	62.5	134		70-130			S-GC
Surrogate: Toluene-d8	71		"	62.5	113		70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	97.6		70-130			

Origins Laboratory, Inc.



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Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

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 3L30009 - EPA 5030 (soil)

LCS (3L30009-BS1)

Prepared: 12/30/2013 Analyzed: 12/31/2013

Benzene	0.202	0.0040	mg/kg	0.200		101	70-130			
Toluene	0.218	0.0040	"	0.200		109	70-130			
Ethylbenzene	0.224	0.0040	"	0.200		112	70-130			
m,p-Xylene	0.440	0.0080	"	0.400		110	70-130			
o-Xylene	0.221	0.0040	"	0.200		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

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 3L30009 - EPA 5030 (soil)

Matrix Spike (3L30009-MS1)		Source: X312242-01			Prepared: 12/30/2013 Analyzed: 12/31/2013					
Benzene	0.173	0.0040	mg/kg	0.200	ND	86.3	70-130			
Toluene	0.165	0.0040	"	0.200	ND	82.6	70-130			
Ethylbenzene	0.187	0.0040	"	0.200	ND	93.5	70-130			
m,p-Xylene	0.359	0.0080	"	0.400	ND	89.9	70-130			
o-Xylene	0.183	0.0040	"	0.200	ND	91.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	58		"	62.5		93.5	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

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 3L30009 - EPA 5030 (soil)										
Matrix Spike Dup (3L30009-MSD1)		Source: X312242-01			Prepared: 12/30/2013 Analyzed: 12/31/2013					
Benzene	0.164	0.0040	mg/kg	0.200	ND	82.2	70-130	4.84	20	
Toluene	0.162	0.0040	"	0.200	ND	80.8	70-130	2.18	20	
Ethylbenzene	0.158	0.0040	"	0.200	ND	79.0	70-130	16.8	20	
m,p-Xylene	0.323	0.0080	"	0.400	ND	80.8	70-130	10.7	20	
o-Xylene	0.166	0.0040	"	0.200	ND	83.1	70-130	9.53	20	
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

**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 4A02005 - EPA 3580**

**Blank (4A02005-BLK1)**

Prepared: 01/02/2014 Analyzed: 01/03/2014

Gasoline (C6-C10)	ND	50.0	mg/kg
Diesel (C10-C28)	ND	50.0	"

Surrogate: o-Terphenyl	65		g	50.0	130	59-131
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**LCS (4A02005-BS1)**

Prepared: 01/02/2014 Analyzed: 01/03/2014

Gasoline (C6-C10)	1050	50.0	mg/kg	1000	105	59-133
Diesel (C10-C28)	1170	50.0	"	1000	117	64-121

Surrogate: o-Terphenyl	61		g	50.0	123	59-131
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**Matrix Spike (4A02005-MS1)**

Source: X312270-05

Prepared: 01/02/2014 Analyzed: 01/03/2014

Gasoline (C6-C10)	806	50.0	mg/kg	1000	ND	80.6	57-139
Diesel (C10-C28)	893	50.0	"	1000	ND	89.3	53-125

Surrogate: o-Terphenyl	42		g	50.0	84.8	59-131
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**Matrix Spike Dup (4A02005-MSD1)**

Source: X312270-05

Prepared: 01/02/2014 Analyzed: 01/03/2014

Gasoline (C6-C10)	951	50.0	mg/kg	1000	ND	95.1	57-139	16.6	20
Diesel (C10-C28)	1010	50.0	"	1000	ND	101	53-125	12.7	20

Surrogate: o-Terphenyl	59		g	50.0	117	59-131
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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

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 3L31008 - NO PREP										
Duplicate (3L31008-DUP1)		Source: X312270-05			Prepared: 12/31/2013 Analyzed: 12/31/2014					
pH	8.44		pH Units		9.35			10.2	0.1	
Batch 3L31009 - NO PREP										
Blank (3L31009-BLK1)		Prepared: 12/31/2013 Analyzed: 01/06/2014								
Specific Conductance (EC)	0.00270		mmhos/cm							
Duplicate (3L31009-DUP1)		Source: X312270-05			Prepared: 12/31/2013 Analyzed: 01/06/2014					
Specific Conductance (EC)	0.0163		mmhos/cm		16.0			200	10	

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

**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
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Batch 1357489 - SW846 3050B

**BLANK (1203013624-BLK)**

Prepared: 01/06/2014 Analyzed: 01/07/2014

Copper	ND	0.984	mg/kg		0		-			U
Silver	ND	0.492	"		0		-			U
Selenium	1.33	2.95	"		0		-			J
Barium	ND	0.492	"		0		-			U
Lead	ND	0.984	"		0		-			U
Chromium	ND	0.492	"		0		-			U
Cadmium	ND	0.492	"		0		-			U
Nickel	0.188	0.492	"		0		-			J
Zinc	0.442	0.984	"		0		-			J

**LCS (1203013625-BKS)**

Prepared: 01/06/2014 Analyzed: 01/07/2014

Nickel	50.8	0.486	mg/kg	48.6	0	105	80-120			
Zinc	50.9	0.973	"	48.6	0	105	80-120			
Selenium	52.9	2.92	"	48.6	0	109	80-120			
Lead	50.8	0.973	"	48.6	0	104	80-120			
Chromium	50.1	0.486	"	48.6	0	103	80-120			
Cadmium	50.5	0.486	"	48.6	0	104	80-120			
Barium	50.7	0.486	"	48.6	0	104	80-120			
Copper	51.5	0.973	"	48.6	0	106	80-120			
Silver	50.4	0.486	"	48.6	0	104	80-120			

**DUP (1203013626 D)**

Source: X312270-05

Prepared: 01/06/2014 Analyzed: 01/07/2014

Chromium	2.41	0.495	mg/kg dry		2.51		0-20	3.93	20	
Zinc	10.5	0.990	"		11.0		0-20	4.90	20	
Silver	ND	0.495	"		<0.099		0-20	2.96	20	U
Selenium	0.631	2.97	"		<0.495		0-20	NR	20	J
Nickel	3.90	0.495	"		3.24		0-20	18.5	20	

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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

**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
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Batch 1357489 - SW846 3050B

<b>DUP (1203013626 D)</b>		<b>Source: X312270-05</b>			<b>Prepared: 01/06/2014 Analyzed: 01/07/2014</b>					
Copper	2.81	0.990	mg/kg dry		2.92		0-20	3.88	20	
Cadmium	ND	0.495	"		<0.099		0-20	2.96	20	U
Barium	32.3	0.495	"		33.2		0-20	2.60	20	
Lead	3.16	0.990	"		3.01		0-20	4.87	20	
<b>MS (1203013627 S)</b>		<b>Source: X312270-05</b>			<b>Prepared: 01/06/2014 Analyzed: 01/07/2014</b>					
Copper	56.6	0.997	mg/kg dry	49.9	2.92	108	75-125			
Barium	83.5	0.499	"	49.9	33.2	101	75-125			
Chromium	55.3	0.499	"	49.9	2.51	106	75-125			
Lead	54.6	0.997	"	49.9	3.01	103	75-125			
Nickel	55.0	0.499	"	49.9	3.24	104	75-125			
Selenium	52.2	2.99	"	49.9	<0.499	105	75-125			
Silver	52.0	0.499	"	49.9	<0.0997	104	75-125			
Zinc	66.1	0.997	"	49.9	11.0	110	75-125			
Cadmium	51.9	0.499	"	49.9	<0.0997	104	75-125			

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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

Metals by SW846 3050B/6020A - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1357491 - SW846 3050B										
BLANK (1203013629-BLK)					Prepared: 01/06/2014 Analyzed: 01/06/2014					
Arsenic	ND	984	ug/kg		0		-			U
LCS (1203013630-BKS)					Prepared: 01/06/2014 Analyzed: 01/06/2014					
Arsenic	4680	996	ug/kg	4980	0	93.9	80-120			
DUP (1203013631 D)					Source: X312270-01 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Arsenic	1460	1020	ug/kg dry		1470		0-20	0.697	20	
MS (1203013632 S)					Source: X312270-01 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Arsenic	5970	1030	ug/kg dry	5130	1470	87.7	75-125			

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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

## Metals by SW846 7196A - Quality Control GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1357699 - SW846 3060A										
BLANK (1203014056-BLK)					Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	ND	0.392	mg/kg		0		-			U
DUP (1203014057 D)					Source: X312270-05 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	ND	0.407	mg/kg dry		<0.163		0-50	173	50	U
MS (1203014058 S)					Source: X312270-05 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	3.55	0.407	mg/kg dry	4.07	<0.163	87.3	75-125			
MS (1203014059 S)					Source: X312270-05 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	3.57	0.402	mg/kg dry	4.02	<0.161	88.7	75-125			
MSD (1203014060 SD)					Source: X312270-05 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	3.24	0.397	mg/kg dry	3.97	<0.159	81.7	75-125	9.06	30	
MSD (1203014061 SD)					Source: X312270-05 Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	3.67	0.395	mg/kg dry	3.95	<0.158	92.9	75-125	2.70	30	
LCS (1203014062-BKS)					Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	4.03	0.392	mg/kg	3.92	0	103	80-120			
ILCS (1203014063-ILCS)					Prepared: 01/06/2014 Analyzed: 01/06/2014					
Hexavalent Chromium	7.93	0.399	mg/kg	7.98	0	99.3	80-120			

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Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

Metals by SW846 7471A - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1357694 - SW846 7471A Prep										
BLANK (1203014044-BLK)					Prepared: 01/06/2014 Analyzed: 01/07/2014					
Mercury	ND	0.0117	mg/kg		0		-			U
LCS (1203014045-BKS)					Prepared: 01/06/2014 Analyzed: 01/07/2014					
Mercury	0.118	0.0116	mg/kg	0.116	0	102	80-120			

Origins Laboratory, Inc.



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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1357545 - SW846 3541

BLANK (1203013754-BLK)

Prepared: 01/06/2014 Analyzed: 01/06/2014

Pyrene	ND	0.00666	mg/kg		0		-			U
Chrysene	ND	0.00666	"		0		-			U
Naphthalene	ND	0.00666	"		0		-			U
Indeno(1,2,3-cd)pyrene	ND	0.00666	"		0		-			U
Fluorene	ND	0.00666	"		0		-			U
Dibenzo(a,h)anthracene	ND	0.00666	"		0		-			U
Benzo(k)fluoranthene	ND	0.00666	"		0		-			U
Benzo(b)fluoranthene	ND	0.00666	"		0		-			U
Benzo(a)pyrene	ND	0.00666	"		0		-			U
Benzo(a)anthracene	ND	0.00666	"		0		-			U
Anthracene	ND	0.00666	"		0		-			U
Acenaphthene	ND	0.00666	"		0		-			U
Fluoranthene	ND	0.00666	"		0		-			U

Surrogate: 5-alpha-Androstane

0.156

"

0.167

0

93.8

30-120

LCS (1203013755-BKS)

Prepared: 01/06/2014 Analyzed: 01/06/2014

Naphthalene	0.270	0.00666	mg/kg	0.333	0	81	30-130
Indeno(1,2,3-cd)pyrene	0.350	0.00666	"	0.333	0	105	30-130
Fluorene	0.252	0.00666	"	0.333	0	75.6	30-130
Fluoranthene	0.278	0.00666	"	0.333	0	83.5	30-130
Dibenzo(a,h)anthracene	0.378	0.00666	"	0.333	0	114	30-130
Chrysene	0.269	0.00666	"	0.333	0	80.7	30-130
Benzo(k)fluoranthene	0.274	0.00666	"	0.333	0	82.2	30-130
Benzo(b)fluoranthene	0.299	0.00666	"	0.333	0	89.7	30-130
Benzo(a)pyrene	0.309	0.00666	"	0.333	0	92.8	30-130
Benzo(a)anthracene	0.254	0.00666	"	0.333	0	76.3	30-130
Acenaphthene	0.254	0.00666	"	0.333	0	76.4	30-130

Origins Laboratory, Inc.



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Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1357545 - SW846 3541

LCS (1203013755-BKS)

Prepared: 01/06/2014 Analyzed: 01/06/2014

Pyrene	0.254	0.00666	mg/kg	0.333	0	76.2	30-130			
Anthracene	0.259	0.00666	"	0.333	0	77.7	30-130			
Surrogate: 5- $\alpha$ -Androstane	0.163		"	0.166	0	98.2	30-120			

MS (1203013756 S)

Source: X312270-05

Prepared: 01/06/2014 Analyzed: 01/06/2014

Naphthalene	0.272	0.00683	mg/kg dry	0.341	<0.00102	79.8	30-130			
Pyrene	0.271	0.00683	"	0.341	<0.00171	79.3	30-130			
Fluorene	0.264	0.00683	"	0.341	<0.00171	77.2	30-130			
Anthracene	0.264	0.00683	"	0.341	<0.00171	77.4	30-130			
Benzo(a)anthracene	0.254	0.00683	"	0.341	<0.00171	74.3	30-130			
Benzo(a)pyrene	0.314	0.00683	"	0.341	<0.00171	92	30-130			
Benzo(b)fluoranthene	0.310	0.00683	"	0.341	<0.00171	90.8	30-130			
Benzo(k)fluoranthene	0.282	0.00683	"	0.341	<0.00171	82.6	30-130			
Chrysene	0.274	0.00683	"	0.341	<0.00171	80.3	30-130			
Dibenzo(a,h)anthracene	0.349	0.00683	"	0.341	<0.00171	102	30-130			
Fluoranthene	0.282	0.00683	"	0.341	<0.00171	82.6	30-130			
Indeno(1,2,3-cd)pyrene	0.364	0.00683	"	0.341	<0.00171	107	30-130			
Acenaphthene	0.261	0.00683	"	0.341	<0.00171	76.5	30-130			
Surrogate: 5- $\alpha$ -Androstane	0.162		"	0.171	0.167	95	30-120			

MSD (1203013757 SD)

Source: X312270-05

Prepared: 01/06/2014 Analyzed: 01/06/2014

Fluorene	0.248	0.00682	mg/kg dry	0.341	<0.00171	72.8	30-130	5.97	30	
Pyrene	0.266	0.00682	"	0.341	<0.00171	78.1	30-130	1.62	30	
Indeno(1,2,3-cd)pyrene	0.348	0.00682	"	0.341	<0.00171	102	30-130	4.60	30	
Fluoranthene	0.274	0.00682	"	0.341	<0.00171	80.4	30-130	2.80	30	
Dibenzo(a,h)anthracene	0.322	0.00682	"	0.341	<0.00171	94.5	30-130	7.83	30	
Chrysene	0.270	0.00682	"	0.341	<0.00171	79.3	30-130	1.35	30	

Origins Laboratory, Inc.



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Noelle E Doyle, President



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1357545 - SW846 3541										
MSD (1203013757 SD)		Source: X312270-05			Prepared: 01/06/2014 Analyzed: 01/06/2014					
Benzo(k)fluoranthene	0.283	0.00682	mg/kg dry	0.341	<0.00171	83.1	30-130	0.504	30	
Benzo(b)fluoranthene	0.309	0.00682	"	0.341	<0.00171	90.6	30-130	0.320	30	
Benzo(a)pyrene	0.309	0.00682	"	0.341	<0.00171	90.7	30-130	1.52	30	
Benzo(a)anthracene	0.252	0.00682	"	0.341	<0.00171	73.8	30-130	0.775	30	
Anthracene	0.255	0.00682	"	0.341	<0.00171	74.8	30-130	3.52	30	
Acenaphthene	0.248	0.00682	"	0.341	<0.00171	72.8	30-130	5.06	30	
Naphthalene	0.261	0.00682	"	0.341	<0.00102	76.6	30-130	4.19	30	
Surrogate: 5-alpha-Androstane	0.160		"	0.171	0.167	93.6	30-120			

Origins Laboratory, Inc.



Noelle E Doyle, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Background soil

### Notes and Definitions

- U Result not detected above the detection limit
- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
- 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

Origins Laboratory, Inc.



Noelle E Doyle, President

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February 25, 2014

LT Environmental, Inc.

Brett Forkner

4600 West 60th Avenue

Arvada CO 80003

Project Name - Graham 1-13 Pit Samples

Project Number - 048913003.002

Attached are your analytical results for Graham 1-13 Pit Samples received by Origins Laboratory, Inc. February 18, 2014. This project is associated with Origins project number X402142-01.

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	X402142-01	Soil	February 14, 2014 14:42	02/18/2014 17:00
SS02	X402142-02	Soil	February 14, 2014 15:00	02/18/2014 17:00

Origins Laboratory, Inc.



Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

www.originslaboratory.com

page 1 of 1

**ORIGINS** LABORATORY, INC

Client: LT Environmental  
Address:  
Telephone Number: 303-962-5538  
Email Address: bforkner@ltenv.com

Project Manager: Brett Forkner  
Project Name: Graham 1-13 Pit Samples  
Project Number: 048913003.002  
Samples Collected By: Chad Terry

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa Canister #			
SS01	2/14/14	1442	3	✓					✓			✓	1
SS02	2/14/14	1500	3	✓					✓			✓	2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature] Date: 2/14/2014 Time: 1442  
Relinquished By: [Signature] Date: 2/18/14 Time: 1700

Received By: [Signature] Date: 2/18/14 Time: 1700  
Received By: [Signature] Date: [ ] Time: [ ]

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☒ Standard

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Print Results Manual

Origins Laboratory, Inc.

*Noelle Doyle Mathis*

Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X402142

Client: LTE

Client Project ID: Graham 1-13 Pit Samples

Checklist Completed by: Jose Smith

Shipped Via: Pick Up

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

Date/time completed: 2/19/14 8:15

Airbill #: NA

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

Cooler Number/Temperature: 14.5 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

Thermometer ID: T002

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"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			PH
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	Soil
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 checked="" type="checkbox"/>	Soil
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.

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.

Noelle Doyle Mathis, President



LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

SS01

2/14/2014 2:42:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X402142-01 (Soil)

## BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4B19007	02/19/2014	02/20/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	112 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	99.5 %	70-130	"	"	"

## Conductance/Specific Conductance by EPA 120.1

Specific Conductance (EC)	0.0271	mmhos/cm	1	4B20011	02/20/2014	02/21/2014
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## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4B19008	02/19/2014	02/20/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	89.1 %	59-131	"	"	"
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## Metals by SW846 3050B/6010C

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

## SS01

2/14/2014 2:42:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## GEL Laboratories, LLC

### X402142-01 (Soil)

### Metals by SW846 3050B/6010C

Barium	51.4	0.0945	0.473	mg/kg dry	1	1368039	02/21/2014	02/24/2014	
Cadmium	ND	0.0945	0.473	"	"	"	"	"	U
Chromium	3.42	0.142	0.473	"	"	"	"	"	
Copper	4.30	0.284	0.945	"	"	"	"	"	
Lead	4.74	0.312	0.945	"	"	"	"	"	
Nickel	3.95	0.142	0.473	"	"	"	"	"	
Selenium	0.663	0.473	2.84	"	"	"	"	"	J
Silver	ND	0.0945	0.473	"	"	"	"	"	U
Zinc	12.4	0.405	1.01	"	"	"	"	"	

### Metals by SW846 3050B/6020A

Arsenic	0.623	0.203	1.02	mg/kg dry	2	1368321	02/24/2014	02/25/2014	J
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### Metals by SW846 7196A

Hexavalent Chromium	ND	0.165	0.413	mg/kg dry	1	1368150	02/21/2014	02/24/2014	U
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### Metals by SW846 7471A

Mercury	ND	0.00374	0.0112	mg/kg dry	1	1368068	"	02/24/2014	U
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### PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00173	0.00693	mg/kg dry	1	1367915	02/20/2014	02/21/2014	U
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President



LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

SS01

2/14/2014 2:42:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC

X402142-01 (Soil)

## PAH by SW846 3541/8270D SIM

Anthracene	ND	0.00173	0.00693	mg/kg dry	1	1367915	02/20/2014	02/21/2014	U
Benzo(a)anthracene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(b)fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Chrysene	ND	0.00173	0.00693	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00173	0.00693	"	"	"	"	"	U
Fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Fluorene	ND	0.00173	0.00693	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00173	0.00693	"	"	"	"	"	U
Naphthalene	ND	0.00104	0.00693	"	"	"	"	"	U
Pyrene	ND	0.00173	0.00693	"	"	"	"	"	U

Surrogate: 5-alpha-Androstane

84 %

30-120

"

"

"

## pH in Soil by EPA 9045D

pH	7.16	pH Units	1	4B20010	02/20/2014	02/21/2014
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## SAR Metals by SW846 3050B/6010C

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

SS01

2/14/2014 2:42:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
X402142-01 (Soil)

**SAR Metals by SW846 3050B/6010C**

Calcium	7230	7.56	23.6	mg/kg dry	1	1368039	02/21/2014	02/24/2014
Magnesium	1270	8.04	28.4	"	"	"	"	"
Sodium	28.4	6.62	23.6	"	"	"	"	"

**Sodium Adsorption Ratio**

Sodium Adsorption Ratio	0.081			none	1	1368944		02/25/2014
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Origins Laboratory, Inc.



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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

SS02

2/14/2014 3:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X402142-02 (Soil)

## BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4B19007	02/19/2014	02/20/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	108 %	70-130	"	"	"
Surrogate: Toluene-d8	101 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	70-130	"	"	"

## Conductance/Specific Conductance by EPA 120.1

Specific Conductance (EC)	0.0754	mmhos/cm	1	4B20011	02/20/2014	02/21/2014
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## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4B19008	02/19/2014	02/20/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	96.5 %	59-131	"	"	"
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## Metals by SW846 3050B/6010C

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

## SS02

2/14/2014 3:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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## GEL Laboratories, LLC

### X402142-02 (Soil)

### Metals by SW846 3050B/6010C

Barium	36.9	0.103	0.513	mg/kg dry	1	1368039	02/21/2014	02/24/2014	
Cadmium	ND	0.103	0.513	"	"	"	"	"	U
Chromium	2.67	0.154	0.513	"	"	"	"	"	
Copper	2.98	0.308	1.03	"	"	"	"	"	
Lead	4.17	0.338	1.03	"	"	"	"	"	
Nickel	2.47	0.154	0.513	"	"	"	"	"	
Selenium	ND	0.513	3.08	"	"	"	"	"	U
Silver	ND	0.103	0.513	"	"	"	"	"	U
Zinc	14.5	0.390	0.974	"	"	"	"	"	

### Metals by SW846 3050B/6020A

Arsenic	0.848	0.202	1.01	mg/kg dry	2	1368321	02/24/2014	02/25/2014	J
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### Metals by SW846 7196A

Hexavalent Chromium	ND	0.159	0.398	mg/kg dry	1	1368150	02/21/2014	02/24/2014	U
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### Metals by SW846 7471A

Mercury	0.00549	0.00418	0.0125	mg/kg dry	1	1368068	"	02/24/2014	J
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### PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00173	0.00693	mg/kg dry	1	1367915	02/20/2014	02/21/2014	U
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

SS02

2/14/2014 3:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**X402142-02 (Soil)**

**PAH by SW846 3541/8270D SIM**

Anthracene	ND	0.00173	0.00693	mg/kg dry	1	1367915	02/20/2014	02/21/2014	U
Benzo(a)anthracene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(b)fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Chrysene	ND	0.00173	0.00693	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00173	0.00693	"	"	"	"	"	U
Fluoranthene	ND	0.00173	0.00693	"	"	"	"	"	U
Fluorene	ND	0.00173	0.00693	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00173	0.00693	"	"	"	"	"	U
Naphthalene	ND	0.00104	0.00693	"	"	"	"	"	U
Pyrene	ND	0.00173	0.00693	"	"	"	"	"	U

Surrogate: 5-alpha-Androstane 72 % 30-120 " " "

**pH in Soil by EPA 9045D**

pH 8.55 pH Units 1 4B20010 02/20/2014 02/21/2014

**SAR Metals by SW846 3050B/6010C**

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

SS02

2/14/2014 3:00:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
X402142-02 (Soil)

**SAR Metals by SW846 3050B/6010C**

Calcium	1080	8.21	25.6	mg/kg dry	1	1368039	02/21/2014	02/24/2014	
Magnesium	777	8.72	30.8	"	"	"	"	"	
Sodium	20.0	7.18	25.6	"	"	"	"	"	J

**Sodium Adsorption Ratio**

Sodium Adsorption Ratio	0.113			none	1	1368944		02/25/2014	
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Origins Laboratory, Inc.



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

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 4B19007 - EPA 5030 (soil)

Blank (4B19007-BLK1)

Prepared: 02/19/2014 Analyzed: 02/20/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5	107		70-130			
Surrogate: Toluene-d8	63		"	62.5	100		70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	99.8		70-130			

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

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 4B19007 - EPA 5030 (soil)

LCS (4B19007-BS1)

Prepared: 02/19/2014 Analyzed: 02/20/2014

Benzene	0.1	0.002	mg/kg	0.100		98.3	77.1-124			
Toluene	0.1	0.002	"	0.100		97.7	74.5-128			
Ethylbenzene	0.1	0.002	"	0.100		98.9	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		103	76.6-124			
o-Xylene	0.1	0.002	"	0.100		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

**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 4B19007 - EPA 5030 (soil)

Matrix Spike (4B19007-MS1)		Source: X402142-01			Prepared: 02/19/2014 Analyzed: 02/20/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	93.3	71.8-126			
Toluene	0.1	0.002	"	0.100	ND	95.0	65.1-130			
Ethylbenzene	0.1	0.002	"	0.100	ND	96.8	62.2-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	99.0	46.5-137			
o-Xylene	0.1	0.002	"	0.100	ND	99.3	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	64		"	62.5		103	70-130			

Origins Laboratory, Inc.



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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Brett Forkner

Project Number: 048913003.002

Project: Graham 1-13 Pit Samples

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 4B19007 - EPA 5030 (soil)

Matrix Spike Dup (4B19007-MSD1)		Source: X402142-01			Prepared: 02/19/2014 Analyzed: 02/20/2014					
Benzene	0.1	0.002	mg/kg	0.100	ND	104	71.8-126	10.6	11.3	
Toluene	0.1	0.002	"	0.100	ND	106	65.1-130	11.2	15.4	
Ethylbenzene	0.1	0.002	"	0.100	ND	101	62.2-130	3.93	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	104	46.5-137	5.26	19.2	
o-Xylene	0.1	0.002	"	0.100	ND	105	54.2-134	5.18	17.9	
Surrogate: 1,2-Dichloroethane-d4	77		ug/kg	62.5		123	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	70-130			

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LT Environmental, Inc.  
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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

## 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 4B19008 - EPA 3580

#### Blank (4B19008-BLK1)

Prepared: 02/19/2014 Analyzed: 02/20/2014

Gasoline (C6-C10)	ND	50.0	mg/kg
Diesel (C10-C28)	ND	50.0	"

Surrogate: o-Terphenyl

52

g

50.0

104

59-131

#### LCS (4B19008-BS1)

Prepared: 02/19/2014 Analyzed: 02/20/2014

Gasoline (C6-C10)	1160	50.0	mg/kg	1000	116	59-133
Diesel (C10-C28)	1090	50.0	"	1000	109	64-121

Surrogate: o-Terphenyl

50

g

50.0

101

59-131

#### Matrix Spike (4B19008-MS1)

Source: X402142-02

Prepared: 02/19/2014 Analyzed: 02/20/2014

Gasoline (C6-C10)	1090	50.0	mg/kg	1000	20.4	107	57-139
Diesel (C10-C28)	1070	50.0	"	1000	ND	107	53-125

Surrogate: o-Terphenyl

48

g

50.0

95.0

59-131

#### Matrix Spike Dup (4B19008-MSD1)

Source: X402142-02

Prepared: 02/19/2014 Analyzed: 02/20/2014

Gasoline (C6-C10)	1020	50.0	mg/kg	1000	20.4	100	57-139	6.36	20
Diesel (C10-C28)	991	50.0	"	1000	ND	99.1	53-125	7.82	20

Surrogate: o-Terphenyl

44

g

50.0

88.0

59-131

Origins Laboratory, Inc.



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

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 4B20010 - NO PREP										
Duplicate (4B20010-DUP1)		Source: X402140-01			Prepared: 02/20/2014 Analyzed: 02/21/2014					
pH	8.58		pH Units		8.29			3.45	0.1	
Batch 4B20011 - NO PREP										
Blank (4B20011-BLK1)		Prepared: 02/20/2014 Analyzed: 02/21/2014								
Specific Conductance (EC)	0.00190		mmhos/cm							
Duplicate (4B20011-DUP1)		Source: X402142-02			Prepared: 02/20/2014 Analyzed: 02/21/2014					
Specific Conductance (EC)	0.0692		mmhos/cm		0.0754			8.58	10	

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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

**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
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Batch 1368039 - SW846 3050B

**BLANK (1203039220-BLK)**

Prepared: 02/21/2014 Analyzed: 02/24/2014

Barium	ND	0.492	mg/kg		0		-			U
Nickel	ND	0.492	"		0		-			U
Selenium	ND	2.95	"		0		-			U
Cadmium	ND	0.492	"		0		-			U
Lead	ND	0.984	"		0		-			U
Chromium	ND	0.492	"		0		-			U
Copper	ND	0.984	"		0		-			U
Silver	0.105	0.492	"		0		-			J

**LCS (1203039221-BKS)**

Prepared: 02/21/2014 Analyzed: 02/24/2014

Nickel	45.8	0.480	mg/kg	48.0	0	95.4	80-120
Barium	46.6	0.480	"	48.0	0	97.1	80-120
Cadmium	46.1	0.480	"	48.0	0	96.1	80-120
Chromium	45.4	0.480	"	48.0	0	94.6	80-120
Copper	47.2	0.960	"	48.0	0	98.3	80-120
Lead	46.1	0.960	"	48.0	0	96	80-120
Silver	46.6	0.480	"	48.0	0	97.1	80-120
Selenium	46.7	2.88	"	48.0	0	97.4	80-120

**DUP (1203039222 D)**

Source: 343304001

Prepared: 02/21/2014 Analyzed: 02/24/2014

Nickel	8.36	0.664	mg/kg dry	8.30		0-20	0.793	20	
Selenium	0.857	3.98	"	<0.664		0-20	43.0	20	J
Lead	9.49	1.33	"	9.88		0-20	4.01	20	
Copper	7.72	1.33	"	7.59		0-20	1.66	20	
Chromium	7.70	0.664	"	7.81		0-20	1.35	20	
Cadmium	0.186	0.664	"	0.186		0-20	0.0677	20	J
Barium	158	0.664	"	149		0-20	5.72	20	

Origins Laboratory, Inc.



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

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 1368039 - SW846 3050B										
DUP (1203039222 D)	Source: 343304001				Prepared: 02/21/2014 Analyzed: 02/24/2014					
Silver	ND	0.664	mg/kg dry		<0.133		0-20	NR	20	U
MS (1203039223 S)	Source: 343304001				Prepared: 02/21/2014 Analyzed: 02/24/2014					
Selenium	61.4	3.94	mg/kg dry	65.7	<0.657	92.6	75-125			
Silver	63.1	0.657	"	65.7	<0.131	96	75-125			
Lead	70.2	1.31	"	65.7	9.88	91.7	75-125			
Chromium	70.9	0.657	"	65.7	7.81	95.9	75-125			
Cadmium	58.7	0.657	"	65.7	0.186	89	75-125			
Nickel	67.7	0.657	"	65.7	8.30	90.3	75-125			
Barium	226	0.657	"	65.7	149	118	75-125			
Copper	75.3	1.31	"	65.7	7.59	103	75-125			

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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

Metals by SW846 3050B/6020A - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1368321 - SW846 3050B										
BLANK (1203039834-BLK)					Prepared: 02/24/2014 Analyzed: 02/25/2014					
Arsenic	ND	0.996	mg/kg		0		-			U
LCS (1203039835-BKS)					Prepared: 02/24/2014 Analyzed: 02/25/2014					
Arsenic	4.49	0.975	mg/kg	4.87	0	92.1	80-120			
DUP (1203039836 D)					Source: X402142-01 Prepared: 02/24/2014 Analyzed: 02/25/2014					
Arsenic	0.579	1.01	mg/kg dry		0.623		0-20	7.26	20	J
MS (1203039837 S)					Source: X402142-01 Prepared: 02/24/2014 Analyzed: 02/25/2014					
Arsenic	5.24	0.992	mg/kg dry	4.96	0.623	93.1	75-125			

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

## Metals by SW846 7196A - Quality Control GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1368150 - SW846 3060A										
BLANK (1203039467-BLK)					Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	ND	0.398	mg/kg		0		-			U
DUP (1203039468 D)					Source: X402142-01 Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	ND	0.410	mg/kg dry		<0.164		0-50	86.8	50	U
MS (1203039469 S)					Source: X402142-01 Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	3.31	0.402	mg/kg dry	4.02	<0.161	79.9	75-125			
MSD (1203039471 SD)					Source: X402142-01 Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	3.14	0.395	mg/kg dry	3.95	<0.158	77	75-125	5.27	30	
LCS (1203039473-BKS)					Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	3.69	0.394	mg/kg	3.94	0	93.5	80-120			
ILCS (1203039474-ILCS)					Prepared: 02/21/2014 Analyzed: 02/24/2014					
Hexavalent Chromium	7.08	0.392	mg/kg	7.84	0	90.2	80-120			

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Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

**Metals by SW846 7471A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1368068 - SW846 7471A Prep										
BLANK (1203039280-BLK)					Prepared: 02/21/2014 Analyzed: 02/24/2014					
Mercury	ND	0.012	mg/kg		0		-			U
LCS (1203039281-BKS)					Prepared: 02/21/2014 Analyzed: 02/24/2014					
Mercury	7.40	0.585	mg/kg	7.69	0	96.2	71.4-129			

Origins Laboratory, Inc.



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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1367915 - SW846 3541

BLANK (1203038900-BLK)

Prepared: 02/20/2014 Analyzed: 02/21/2014

Naphthalene	ND	0.00666	mg/kg		0		-			U
Benzo(a)anthracene	ND	0.00666	"		0		-			U
Acenaphthene	ND	0.00666	"		0		-			U
Anthracene	ND	0.00666	"		0		-			U
Benzo(a)pyrene	ND	0.00666	"		0		-			U
Benzo(b)fluoranthene	ND	0.00666	"		0		-			U
Benzo(k)fluoranthene	ND	0.00666	"		0		-			U
Chrysene	ND	0.00666	"		0		-			U
Dibenzo(a,h)anthracene	ND	0.00666	"		0		-			U
Fluoranthene	ND	0.00666	"		0		-			U
Indeno(1,2,3-cd)pyrene	ND	0.00666	"		0		-			U
Pyrene	ND	0.00666	"		0		-			U
Fluorene	ND	0.00666	"		0		-			U

Surrogate: 5- $\alpha$ -Androstane

0.136

"

0.167

0

81.4

30-120

LCS (1203038901-BKS)

Prepared: 02/20/2014 Analyzed: 02/21/2014

Pyrene	0.211	0.00666	mg/kg	0.333	0	63.4	30-130
Dibenzo(a,h)anthracene	0.267	0.00666	"	0.333	0	80.3	30-130
Indeno(1,2,3-cd)pyrene	0.258	0.00666	"	0.333	0	77.5	30-130
Naphthalene	0.211	0.00666	"	0.333	0	63.3	30-130
Fluoranthene	0.216	0.00666	"	0.333	0	64.8	30-130
Chrysene	0.214	0.00666	"	0.333	0	64.3	30-130
Benzo(k)fluoranthene	0.229	0.00666	"	0.333	0	68.7	30-130
Benzo(b)fluoranthene	0.232	0.00666	"	0.333	0	69.6	30-130
Benzo(a)pyrene	0.233	0.00666	"	0.333	0	70.1	30-130
Benzo(a)anthracene	0.208	0.00666	"	0.333	0	62.5	30-130
Anthracene	0.202	0.00666	"	0.333	0	60.6	30-130

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4600 West 60th Avenue  
Arvada CO 80003

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1367915 - SW846 3541										
LCS (1203038901-BKS)					Prepared: 02/20/2014 Analyzed: 02/21/2014					
Acenaphthene	0.200	0.00666	mg/kg	0.333	0	60.1	30-130			
Fluorene	0.211	0.00666	"	0.333	0	63.3	30-130			
Surrogate: 5- $\alpha$ -Androstane	0.133		"	0.166	0	80.2	30-120			
MS (1203038902 S)					Source: X402142-01 Prepared: 02/20/2014 Analyzed: 02/21/2014					
Chrysene	0.243	0.00693	mg/kg dry	0.347	<0.00173	70.2	30-130			
Pyrene	0.244	0.00693	"	0.347	<0.00173	70.5	30-130			
Naphthalene	0.222	0.00693	"	0.347	<0.00104	64	30-130			
Indeno(1,2,3-cd)pyrene	0.297	0.00693	"	0.347	<0.00173	85.7	30-130			
Fluorene	0.259	0.00693	"	0.347	<0.00173	74.8	30-130			
Dibenzo(a,h)anthracene	0.310	0.00693	"	0.347	<0.00173	89.5	30-130			
Benzo(b)fluoranthene	0.266	0.00693	"	0.347	<0.00173	76.7	30-130			
Benzo(a)pyrene	0.270	0.00693	"	0.347	<0.00173	77.9	30-130			
Benzo(a)anthracene	0.238	0.00693	"	0.347	<0.00173	68.8	30-130			
Anthracene	0.244	0.00693	"	0.347	<0.00173	70.3	30-130			
Acenaphthene	0.232	0.00693	"	0.347	<0.00173	67	30-130			
Benzo(k)fluoranthene	0.257	0.00693	"	0.347	<0.00173	74.2	30-130			
Fluoranthene	0.263	0.00693	"	0.347	<0.00173	75.9	30-130			
Surrogate: 5- $\alpha$ -Androstane	0.138		"	0.173	0.146	79.8	30-120			
MSD (1203038903 SD)					Source: X402142-01 Prepared: 02/20/2014 Analyzed: 02/21/2014					
Benzo(a)anthracene	0.232	0.00692	mg/kg dry	0.346	<0.00173	67.1	30-130	2.64	30	
Pyrene	0.236	0.00692	"	0.346	<0.00173	68.1	30-130	3.60	30	
Naphthalene	0.232	0.00692	"	0.346	<0.00104	67.1	30-130	4.60	30	
Indeno(1,2,3-cd)pyrene	0.290	0.00692	"	0.346	<0.00173	83.9	30-130	2.26	30	
Fluorene	0.261	0.00692	"	0.346	<0.00173	75.5	30-130	0.798	30	
Fluoranthene	0.261	0.00692	"	0.346	<0.00173	75.3	30-130	0.927	30	

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Noelle Doyle Mathis, President

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

Brett Forkner  
Project Number: 048913003.002  
Project: Graham 1-13 Pit Samples

PAH by SW846 3541/8270D SIM - Quality Control  
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1367915 - SW846 3541										
MSD (1203038903 SD)	Source: X402142-01			Prepared: 02/20/2014 Analyzed: 02/21/2014						
Dibenzo(a,h)anthracene	0.319	0.00692	mg/kg dry	0.346	<0.00173	92.1	30-130	2.73	30	
Chrysene	0.238	0.00692	"	0.346	<0.00173	68.9	30-130	2.00	30	
Benzo(k)fluoranthene	0.252	0.00692	"	0.346	<0.00173	72.8	30-130	2.04	30	
Benzo(a)pyrene	0.263	0.00692	"	0.346	<0.00173	76	30-130	2.60	30	
Anthracene	0.240	0.00692	"	0.346	<0.00173	69.3	30-130	1.57	30	
Acenaphthene	0.236	0.00692	"	0.346	<0.00173	68.2	30-130	1.64	30	
Benzo(b)fluoranthene	0.258	0.00692	"	0.346	<0.00173	74.5	30-130	3.04	30	
Surrogate: 5-alpha-Androstane	0.137		"	0.173	0.146	79.2	30-120			

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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

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